

BART WEISS



SMARTPHONE CINEMA

MAKING GREAT
FILMS WITH YOUR
MOBILE PHONE

A **Focal Press** Book

ROUTLEDGE

Smartphone Cinema

This book guides you through the process of using your phone to create different kinds of video and audio for TV, theaters, YouTube, TikTok, and podcasts.

Drawing from the author's experience teaching classes on mobile filmmaking, this resource helps you tell stories better whilst going over the techniques necessary to control the phone professionally, also covering the accessories and software that can help you shape your narrative. Within the chapters you will first learn how to tell a compelling story, before delving into the proper methods for shooting video on your phone effectively and recording high quality audio. The book then explains the best techniques for editing and mixing these components together, always with the smartphone format in mind. Chapters also include the expert knowledge of a wide array of media makers that utilize this medium, from filmmakers to influencers, who give insight into the specific tools they use and how they approach the mobile phone as the hub of their creativity.

This book will be a guide to first time makers, students of many disciplines (including student filmmakers), and professional filmmakers who want to leverage what the phone can bring to a shoot.

Bart Weiss is an award-winning independent film and video producer, director, editor, and educator. He is mostly known as the director and founder of the Dallas VideoFest and produces the TV show *Frame of Mind*. Bart received an MFA in Film Directing from Columbia University and has taught film and video at Texas A&M's Visualization Lab, SMU, and the University of Texas at Austin. He has recently retired as an Associate Professor at UT Arlington.



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Smartphone Cinema

Making Great Films with
Your Mobile Phone

Bart Weiss

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This book is dedicated to my students, who have inspired me with their enthusiasm for learning and making films; the University of Texas at Arlington, which allowed me to develop and teach classes in smartphone cinema; and my wife, Susan Teagarden, for her love, support, and understanding.



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Foreword

By Alan Govenar

By nature, I'm a wanderer, an explorer of day-to-life wherever I am, who sees something different each time I walk around the same block. I often think about how directors I admire, from Dziga Vertov and Alain Resnais to Frederick Wiseman and Martin Scorsese, might film what I am experiencing, imagining how the mundane can become profound.

Mobile phone cameras have transformed the way I look at and listen to the world. Having one in my pocket is at once reassuring and confounding. Knowing that it's possible to instantaneously document, stage, or re-envision what's going on around me is liberating, not only in the act of filming, but in being able to review the footage I shot and having the opportunity to redo the shot immediately. That said, second takes are often different from the first. Nuanced changes of light and shadow, composition, and sound are inevitable, which can be frustrating, but is often invigorating. Mobile phone video is in many ways ephemeral and subject to chance and circumstance, but the resulting footage can be transcendent.

My use of mobile phone cameras is as varied as the films I make, from experimental shorts to feature length documentaries. The footage I produce functions as both A- and B-roll, and at 4K, 24 fps, has been intercut with video made with professional cameras, as well as historical and archival materials. For my film *Myth of a Colorblind France* I made tracking shots, leaning on the dashboard of Ubers, driving through the streets and boulevards of Paris; in *Extraordinary Ordinary People*, I chronicled my journey around the United States with videos through airplane windows that I used to transition between different places and time zones; for *Looking for Home* and *Down in Dallas Town*, I shot cutaways and interviews, often with people I had never met before.

With a mobile phone camera in hand, my interactions on the street, or on the subway, or maybe a bus, are often spontaneous. I like filming situations as they unravel, planned and unplanned. The presence of my mobile phone camera is less threatening, less intrusive than a more traditional documentary film crew. I'm more relaxed, more confident, more free form. My conversations with

people I know and those I don't can be more personal, and to varying degrees, more revealing, though also more playful, and potentially, more provocative, and sometimes more confrontational.

Think about the crucial evidence that mobile phone videos can provide, from George Darnella Frazier's documentation of the murder of George Floyd to the narcissistic selfies of January 6 insurrectionists. In both instances, content overpowers form, launched into the cyber universe through social media and TV news.

Working with a professional film crew can create more problems than solutions. Professional gear can be intimidating, while a mobile phone camera is relatively easy to accept.

Mobile phone cameras are everywhere, and just about everybody who has one has used it to video friends and family, at the very least.

The inventors of our mobile phone cameras are my collaborators in the videos I produce, but ultimately my work depends on my ability to shape the moving image through framing, lighting, and sound. That said, the moment I think I understand the video technology imbedded in my mobile phone, it's different in days or months. The innovation in mobile phone production is constantly changing and the debate about what works best is never ending.

This book opens doors to mobile phone filmmaking that many of us might never know exist and presents a step-by-step approach to understanding and implementing techniques that can maximize the technological capacity of these ever-evolving cameras. In each chapter, Bart challenges readers to engage more deeply with the how and why of mobile phone cameras through hands-on workshops and assignments. He shares his views on factors to consider when purchasing a new mobile phone and offers suggestions on how to proceed once you have a phone and are ready to get started, from research, building an idea, and storytelling, to the practicalities of mobile phone production: camera settings, stabilization, accessories (selfie sticks, gimbals, cages, and grips), external lights, native and non-native apps, monitor settings, LUTs, microphone options, shooting video (frame rates, depth of field, lenses, zoom control), editing software (Adobe Rush, iMovie, Luma Fusion Davinci Resolve for iPad), ducking audio, and distribution (via festivals and broadcast). For Bart, the principles of mobile phone filmmaking are applicable to virtually any genre:

You can make any genre of film with a mobile device. You can make a horror film, a comedic film, an adventure film, a documentary, an experimental film, or some new kind of film that has yet to be made. You can do news and journalism, make cooking videos, create video diaries, generate work for YouTube, TikTok, and other social media.

Moreover, the mobile phone camera has engendered significant changes in the dynamic of who can make films, opening the medium to people of all ages and

socio-cultural backgrounds. About the breaking down of the time-worn hierarchies of filmmaking, Bart writes, “If the people who have the cameras come from a place of privilege, how they portray others comes from their point of view. With mobile phones, people from impoverished communities can tell their stories from the inside out. All over the world, customs, stories, music, and culture can be portrayed by the people who deeply know the culture.”

Whether you are a professional or amateur filmmaker, or somewhere in between, this book provides a comprehensive overview of the history and indelible presence of new technologies and is a user-friendly guide on how to use mobile phone cameras to propel a paradigm shift in the ways we make and think about sound and the moving image.

1 What This Book Is About

This book is about how your mobile phone can be used to have fun and be joyous, as evidence for the world to see what you have experienced, as a means to create a documentary, and as a creative storytelling device. It is a high-definition cinema camera and a high-definition display device. It can be the center of your creativity, from photographs to videos, personal organization, and social media connections at the touch of the screen, and it makes phone calls! The phone is in our hands or pockets; why not let us create with it, play with it, and let it inspire you and the world?

Welcome to the world of mobile filmmaking!



Figure 1.1 The author welcomes you. Mason LaHue.

There are many reasons to make films with your phone. Chase Jarvis wrote a book in 2009 called *The Best Camera Is the One That's with You*, which has

led to the commonly heard phrase, “The best camera is the one in your hand.” I found this to be true on a recent trip to Tahiti. I had a traditional camera and my mobile phone with me. I started shooting with the conventional camera, but I only used my phone as the trip went on. Indeed, it was just a bit closer than my other camera, and I could interact with people and the landscape much better with my iPhone. When I got home, I looked at the footage, thinking that the other footage would look better, but that was not the case.

You can make any genre of film with a mobile device. You can make a horror film, a comedic film, an adventure film, a documentary, an experimental film, or some new kind of film that has yet to be made. You might make a film that will be shown at the Sundance Film Festival. You can do news and journalism, make cooking videos, create video diaries, and generate work for YouTube, TikTok, and other social media. You already have the camera, so “just do it” – like the old Nike ads say.

This book is for... anyone and everyone who wants to use their phones creatively. Everyone will have much to learn and explore. As you are having fun shooting with your phone, share your joy with other filmmakers and the world!

This book is for experienced filmmakers who want to shoot quality videos on their phones. If you have been making cinema with film cameras, digital SLRs, or a Digital Cinema Camera, you can take the knowledge about filmmaking while rethinking and retooling your skills. You have your phone with you, so why not bring your skills to a smaller package with a large upside? This book will help you through the transition, give you many pointers, and help you build out your gear. If you have been making films for a while, creating with the phone will connect you to the person you were when you started out, but now you have more skills. This singular tool will bring joy back to your filmmaking and your life! If you are an experienced filmmaker, you can skip Chapter 4, Mobile Storytelling.

This book is also for beginning filmmakers. If you are just starting out, shooting with your phone will be a less expensive way to build your cinematic skills. When you learn how to use and control the Blackmagic Camera app, those skills will translate to controlling the Blackmagic cinema cameras because it is the same interface. Using your phone will build your filmmaking skills and allow you to shoot much more than with traditional media.

When I wanted desperately to become a director a few years back, I kept asking people what I should do. I got many answers and many smirks. I tried many things, mostly the cliched ones, and everything failed. Fed up, I started doing things unrelated to filmmaking – trying to survive, earn money, etc. – lying to myself and eventually fading out my dreams. I did everything but not the one thing that was most important to my heart. I realized that I was lying to myself, telling myself I would do this

job, save money and then make a film or I needed a big camera, money, I needed some bigshot producer's help.

Many of my friends who wanted to be filmmakers were quite similar liars. They would brag about how they wanted to be directors only. All they would do was pitch a story to someone, get rejected, curse them, and say how the world was so cruel to them. They would have an awesome camera, yet they wouldn't shoot a single film. They wouldn't write a single page or even any dialogue. I realized that we lie so much to ourselves. We make fake excuses. We get busy doing other stuff. We run away from our deepest dreams. I guess, deep down, we are so scared, and the world seems so cruel. We are scared of reaching our highest potential. We are scared of failure. All it takes is to get humble, stop thinking, take baby steps, and get started. For that, we need courage and, most importantly, a heart filled with love for cinema.

Also, it's important to remove the distractions that take us away from our true path. One day, one of my filmmaker friends, who had made several films, told me, "You will keep on lying, days will pass by, and you will never make a film. So just do anything, even if it's stupid, write your name on it as director, and that's how you will get started." All it took was for me to get up from my chair energetically at 10 pm when everyone was sleeping, pick up my mobile phone, shoot myself randomly with a horror story in mind that came rambling inside my head, then add voiceovers, edit it, and publish it on YouTube. Shockingly, many people around me liked it. It started the journey, and I have never looked back. Eventually, my mom sponsored me with a camera. I made many films, got published in local newspapers, received many awards and every day I am trying to learn a bit more and love a bit more – cinema, photography, comics, sketching, painting, poetry, editing. It's like I'm sketching with crayons like a kid. Once you make films, ideas keep coming, wanting to get made. I wanted to say this as we need to stop making excuses like expecting big rewards, a big cast and crew, Hollywood fame, money, status, worrying what people will say, I have a job, and all other blah, blah. You need to get up from your chair, couch, bed, office, sleep, phone talk, good or bad relationships, or whatever has entangled you, just hold the mobile phone like your best friend and start a love affair.

Swati Panda

This book is structured to have workshops after each chapter. When you do these workshops, you will build the experience to create a new body of work.

This book is also for film students at all levels. You will build your skills and make different kinds of films than your fellow students. When learning any skill,

4 *What This Book Is About*

it is essential to practice it. When shooting with your phone, you can shoot every day, and you don't have to wait for checkout.

While other students are talking about the films they want to make, you are steps ahead of them.

This book is also for film teachers to allow them to bring mobile cinema into both their production and cinema studies classes. For an intro-level production class, all students could have the Blackmagic Camera app and learn how to control the basics of filmmaking without having to go over the differences between Sony, Panasonic, or another interface and set of menus. You can get your first assignment off before checkout opens. I am teaching a *cinéma vérité* film studies class, and I will have students translate the concepts of the class into action. This book will get you up to speed.

The book is for people wanting to document their world, whether that is showing the tragedies or successes of friends and community or documenting atrocities so the world can see what happened. The book can help visual anthropologists document culture with less technology to get in the way.

It is for people looking for a new way to use footage from a phone that we have yet to think of.

This book will help you understand what the phone can do and how to control it so it does what you want and need it to do.

There are many good reasons to tell cinematic stories with your phone.

1. It's Cheaper!

You already own a phone, so you don't have to pay for an expensive camera or other high-end gear. While you might purchase microphones, lights, and additional support to have more control over your shooting on mobile phones, it will still be much less than buying a 4K cinema camera. Not spending money on your camera can free up money to pay for better actors, more props, and art direction on your sets, or let you shoot in visually exciting and dramatic locations. Or it might just mean that you can make a film instead of just talking about making that film. We have killed the excuse that "I could make this film if I only had more money." You can use the camera on the phone in your hand.

2. Better Performances!

You can get better performances, which can help you make a different kind of film.

Because the mobile device is small, you can get closer to your subjects or actors. For example, when making a documentary, you want the subjects in your film to open up and tell you what is really going on. Getting to that deeper emotional place is more challenging with a big crew and lights. The phone allows and encourages more intimacy. It can be just you and the subject. I have been working on a music doc, and my subject has been much freer and more expressive when filming on the phone than with a full crew. Once you learn how to control the picture and sound on the phone, you can focus on what is in front of the camera. If you are new to filmmaking, the native apps on your phone will

give you a good image with less anxiety. If you are an experienced filmmaker, you can have all the control you need.

This intimacy also works for fiction films. In *High Flying Bird*, which Steven Soderbergh shot with his phone, there is a production still of just him and two of the actors. This is a Hollywood film that usually has an army of people, complete with the stress, drama, and expense that goes along with an army. Imagine the level of closeness and intimacy the use of your phone provides, more like a profound and moving conversation you had with a close friend than a public performance in front of that army of crew. Capturing that kind of performance will foster a connection with an audience.

Because you can make a film for less money using your phone, people from marginalized communities can be represented and portrayed in films that they can make themselves. The world is better when more diverse filmmakers can emerge so that we, the audience for these films, can learn about their life, their dreams, and their pain.

3. You Can Shoot Differently, with More Agility in More Places

Since the phone is lighter and smaller than a traditional camera, you can move it around differently. You can be bolder and move the camera as the moment inspires you. You can improvise. You have even more options when you carefully plan your shots. Get creative! You can put the phone in a jar and shoot underwater (really, you can!). Basic camera shots are much easier with the phone. For example, with your phone, you can shoot in a car much more easily than by getting a car mount or trying to fit a large camera set-up into the vehicle. You can hop from the front seat to the back seat or mount it on the dashboard.

4. It's more fun!

You can have more fun! Yes, shooting with a mobile device is joyous! Why? Pulling out your phone and creating on the spot, spontaneously and effortlessly, is more freeing than all the work required to organize and put together massive amounts of equipment. At least, I think so. We all need more joy in our lives and in our art-making practice.

Why Some Filmmakers Might Hesitate to Shoot with Their Phones

In the history of filmmaking, some filmmakers have embraced new technologies while others have scorned them. In the early days of filmmaking, motor-controlled cameras became available (instead of hand-cranked ones). Still, camerapersons did not want them because they thought their skill was to manually crank the camera at precisely 18 frames a second, and they thought the motor would put them out of business. Some people with special skills do not want a world where those skills are no longer required.

Another reason some resist the mobile wave is that they believe its images are not as good as with traditional media and it is not “professional.” Filmmakers with years of experience using expensive, complex cameras don’t want to waste

their years of developing their craft. The reality of mobile filmmaking is that you can succeed at any stage of your filmmaking development. Modern phones can give you a good image using the native app. As you get more experienced, you can create better work, but from day one, you can use your phone to tell a cinematic, professional-looking story.

While you can have a good image shot with the native app, there is much craft to constructing a good image on a phone. Good phones from Apple, Sony, and Samsung have excellent resolution and camera control. There is a shift in how camera people work with a lens to create a look and how mobile filmmaking can use the computer in the camera to control the image. More on this later in the book.

Hollywood in a Box

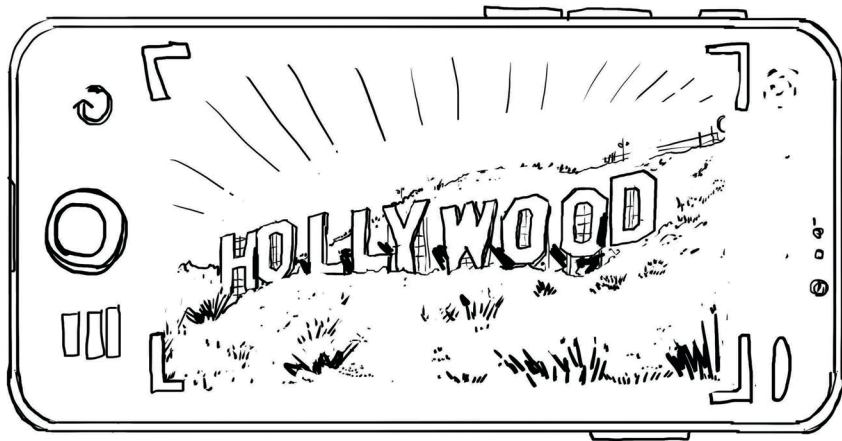


Figure 1.2 The Hollywood sign on a phone. Mason LaHue.

The mobile phone is a studio in a tiny box. In the history of image making, this is the first time we have had a tool like this. Its camera can record still pictures, motion pictures, and audio. It can measure distance (with lidar). It is a high-quality display device. It is also connected to the internet, meaning you can send or broadcast your videos. You can also edit your videos on the phone. Aside from image-creating and displaying devices, you can also use it to send a text and talk. You can use apps on the phone to help organize your production and even tell you when the sun is going down.

One downside of mobile filmmaking is removing your excuse for not making a film because you are waiting for money. When I started making films, 16 mm film was expensive to shoot, develop, and edit. That meant you had to have

money or a grant to make a film. So only certain people and certain films were made.

Now, you can do it, and you will do it.

There are a few reasons not to shoot with a mobile device, so let's get them out of the way. While we can have all kinds of cages, mounts, and gimbals, phones are shaped to be phones and are not so easy to hold in your hand. While the phone is unnatural for handholding, you can get steady with practice. If you still feel you cannot get steady, I will go over many options in a later chapter.

The second issue is lenses. A good lens for a digital cinema camera can cost more than your phone does. An excellent digital cinema lens is sharper and more controllable. Mobile phones make up for this with the supercomputer in your hand that can interpolate between the lenses and manipulate the image in a way a camera alone cannot.

Another problem with mobile lenses is that they're easy to get dirt on them. We keep them in our pockets, and they also get smudgy. So, keep some lens cleaner in your pocket and clean your lens gently, rubbing it in circles. You can use a lens cloth or wipes (I like the Zeiss ones). You can also get lens caps to keep the lenses from getting scratched, which is a good idea.

For some people, ego is an issue. Filmmakers like to pride themselves on having cool and expensive gear. This is okay if you can afford it, but realize you can make great films with your phone, and don't let anybody with a big camera shame you. While they are setting up, you can get three shots off! This attitude has been with us since 16mm film and with every other "amateur" format that has surfaced.

One of the great things about mobile media is that you can use it at whatever skill level you have. If you have not shot anything more than selfies and videos of your friends and family, you can use the native apps with the phone, and it will work like a point-and-shoot camera, but with practice and intentional shooting, you will learn to make better films!

Some of you are seasoned filmmakers wanting to learn how to use your phone in professional ways, and others of you want to start making films with your studio in your pocket. I am here to guide you on this journey. Along the way, we will learn how to control the camera, get good sound, and shoot good interviews. Direct a screen, get the footage off your phone to edit or edit on the phone. You will learn about film festivals specializing in mobile filmmaking and how to enter them.

Shooting with traditional film/video gear can be expensive, and is also bulky. Cameras, lenses, and sound gear are also costly and bulky. For older people or people with disabilities, having smaller, more portable equipment can make a big difference. As I write this, I just turned 70, and when I shoot, I don't take my old gear; I go with my phone and accessories. I can take everything I need in one bag.

But as I have been doing interviews with my phone, I have found that not only will it look great, but results in a different kind of interview, looser, more informal, and more intimate. And more fun! Because I carry a Lavalier microphone in my back pocket, I can shoot an interview anywhere, anytime, whenever something or someone interests me.

Mobile phones are designed to let everybody take still and moving images. You can take simple photos or videos with your phone and extraordinary photos and videos with your phone. The phone will give you great looking images wherever you are on the skill plane. As you shoot more, the images get better. The camera on the phone was meant for the world to capture the things we love or hate or take a picture of that receipt so you can throw the paper away. It was developed to document reality and preserve a moment forever. But now you can make a feature film, a music video, a documentary, or anything you can dream of with it. This world is way beyond what Steve Jobs could have envisioned.

Buying a New Phone

Every fall, the talk of a new iPhone has a typical cycle. There will be rumors about what the camera will be and what other features will show up, and excitement will build. At least one story will say, skip this iPhone; next year's model is the one you want. Then, the same writer will say the same thing the following year. So, when do you buy and what do you buy?

Purchasing a new phone is an investment not to be taken lightly. My phone is the center of my creative life, and since it is a phone and a text machine connected to the internet, it is my primary general life tool as well. There is no tool I use as often, no tool I rely upon as much, and no tool that brings me as much joy. Since this is my primary tool, I have no problem investing in it. I know that purchasing a phone too often is bad for the environment, but I can make films and watch films about these issues on my phone.

When choosing a phone, you first need to figure out what universe you want to live in, whether iOS or Android. There are great phones in both universes. The iPhone and Samsung's S series (S 24, etc.) phones can record broadcast and movie theater-quality images. I admit to an Apple bias, but I have shot great material on a Samsung. The Samsung phones seem slimmer, longer, and thinner, but not by much. Their cameras tend to have good ultra-slow motion, the ability to shoot in 8K, and a good telephoto lens.

The most critical factor is where you swim in your computing tools. Owning a watch, computer, or tablet with the same operating system is probably a good idea. But if the best shooting tool is from another system, don't be afraid to have two operating systems.

Probably the best phone to shoot video with is the Sony Xperia phone, not an iPhone or Samsung. The Sony phones are more of a camera with a phone

than a phone with a camera. They have good lenses that have optical, not digital zooming. Sony is a company specializing in professional cinema cameras. I have never seen anyone have one in their hand, let alone had one in my hand, so I have no hands-on experience, but it should have high-quality image-making qualities.

Other Phones That Are Good for Shooting Video

The One Plus camera has the heart of a Hasselblad camera, which could give you some great video. The Google Pixel has some great functionality, especially using AI while shooting. The question to ask is, do I want to do those effects while shooting, or should I do them in post-production?

Another option for shooting video are flip phones. The advantage here is that you can hold it somewhat like a camcorder, giving a steady shot. It also fits in your pocket better, and you don't need a stand to look at your phone while eating lunch. Everyone I know who has a flip phone LOVES IT. The best flip phones are the Samsung Galaxy Z Flip 5 and the Oppo Find F3 Flip.

Once you have selected the operating system and the manufacturer, you have a few options. You used to need to choose your carrier (ATT, Verizon, etc.), but now we have virtual SIM cards, so changing carriers is not as problematic as it used to be.

One critical decision is how much hard drive space you want for your phone. If you are shooting in Pro Res video on your phone, it will fill up your drive quickly. It will also (in the Apple world) add these files to your iCloud account, and you will soon get an email asking you to upgrade. Moving the files from your phone to a solid-state drive is best. Now, you can shoot video and have the files go directly to an external drive.

The new iPhones have a USB-C port that lets you plug a hard drive directly into your phone. If you choose this route, you don't need as much hard drive space on the phone.

The other critical decision is whether you want the Pro or the Pro Max. The Pro Max will always have the best camera if you can afford it. If it means not getting Apple Care or the smallest hard drive, get the Max. If you get a phone with a USB-C port you can use an external drive, so you won't need as much internal space.

Generally, I get a mid-range hard drive when I buy a new phone. If you are purchasing an iPhone, I would get Apple Care. Last week, the phone would not charge from the port for some reason. With Apple Care, they fixed it for free. Remember, your phone is your primary creative tool.

Setting up a new phone these days is easy, but make sure you back up your old phone to ensure all your files and apps are transferred. Before your new phone arrives, shoot something (like your desk) that you can shoot with your new phone to see the difference objectively.

Next, you need to get a case. I have saved all my old cases, and they are fond memories of old phones. In choosing your case, you have two directions: protection and style. The safest cases, like the Otter box, are bulky. I would go for something in between. For a while, I took off the case and walked around with a naked phone. It felt so much better in my hands and looked so much better. But then I dropped it. There was no scratch or damage, but it made me think this was my primary creative tool, and I didn't want it broken, so I put the case back on.

If you use an anamorphic lens, you need a case to support that lens brand. Moment makes a good set of cases, lenses, and neutral-density filters.

When you buy a new phone, you probably want to sell your old one. There are many places where you can sell it, like Giselle. The other primary option is to trade your old phone to Apple.

One of my rationalizations for buying a new phone each year is that I get more in trade from a recent phone than an older one.

Making films with mobile phones brings some challenges but mostly brings joy. While you are out in the world, shoot it, edit it, share your perspective, and send it out to the world. You can do it!

Throughout this book, I will walk you through features and menus in a wide range of gear. When you read this, some models, features, and menus might change because this is an evolving universe. While the specifics will change, this book will give you insight into these variables and help you figure out what to do.



Figure 1.3 Scan the QR code to see updates of the book (November and May).

Since the world of mobile is changing and evolving, I will be posting updates twice a year to the book. You can access them for free by using this QR code. I will post updates in May and November.

Workshop 1

At the end of each chapter, there are exercises for you to gain experience.

Shoot something, anything.

After shooting, you should first look at the footage on the phone but then transfer it to a computer and look at the work on a larger screen. Take note of what you did well and where you can improve. How do you feel about the footage looking at it on the computer as opposed to the phone? Think about how you can make it look better. Try shooting the same thing again.

Compare the two shots.

To improve with mobile filmmaking, you should shoot something daily, knowing you can erase anything that does not come out well.

Testing Your Phone

When you get a new phone, it's a good idea to test what it can do well and where its challenges are. Even if you don't have a new phone, it is still a good idea to test the strengths and limitations of your camera. Knowing the limitations of your tools is essential.

First, try out the different lenses. How wide, and is there any distortion in the wide lens? How far does the telephoto lens go?

Try the macro mode (this is a mode that shoots very close to the phone) if your phone has that feature. How close can I get? What does it look like?

Try shooting indoors and outdoors; how does the phone work in each environment?

Try hand-holding the phone and shooting something about 6 feet away. Try to keep the phone steady. First, try to shoot this with the wide-angle lens, then the normal lens, then the telephoto.

If the phone has a slo-mo function, test that. Try the different settings and see which you like best.

Lastly, try to purposely slightly over- and under-expose your image. How does this phone handle this?

Now that you have tested your phone go for a walk and explore your neighborhood by taking stills and videos. Try different modes and different looks. Be intentional in your shooting. If you encounter someone on your walk, ask them a few questions on camera.

When you come home, transfer your files to your computer and look at them. Write down your thoughts.

2 How Did We Get Here?

Getting to this moment seems like a straightforward endeavor. But it was, really, four overlapping stories. One is the story of film and video technology advancing; another is how amateurs started using new technologies to document their lives and tell their stories. The third is the development of the mobile phone. And the fourth is the history of cinema created with the mobile phone. Each of these formats required new technologies, strategies, and skills to record, edit, and display the work produced.

The term **democratization of media** refers to the process of smaller and less expensive media getting into the hands of the masses, not just the elites. Mobile filmmaking is this movement's latest and greatest manifestation, which has affected the media and the broader culture.

With most forms of media, there is a very expensive version and a more affordable version for hobbyists, artists, and activists to use. The costly versions are used to create movies, television, and commercials.

When the means of production of the film were mainly in the hands of large corporations and the wealthy, there was a limit to the kinds of stories that could be told. There have been great works made by passionate artists who found a way to break through, but those were exceptions rather than the norm.

With the democratization of media, especially mobile phones, stories by different communities can be told. This also means that people living in those communities can tell stories about communities so they can resonate deeply. Whenever expensive "professional" media evolves, smaller, lighter, and less expensive alternatives emerge, which enables new storytellers in that medium.

When Hassan Fazili, his wife, and two daughters had to leave Kabul to escape the Taliban, he recorded the journey to make a unique documentary with three mobile phones. The film, *Midnight Traveler*, played at major film festivals, was

aired on PBS's POV, and was shown in theaters worldwide. We have read and heard about the plight of refugees fleeing their homes, but seeing this intimate footage of this journey makes us feel the struggle.



Figure 2.1 Still from *Midnight Traveler*. Lutfallah Bakhtary.

With the mobile phone, it takes the ability to document the world, and the ability to send those images worldwide can change some people's hearts. Consumer filmmakers have recorded critical historical events. Each time, it has a profound effect, but the effects have been dramatically and exponentially enhanced with technological changes.

More people can express themselves and document what is happening in their world with access to cameras. The film *Burma VJ*, by Anders Ostergaard, follows Burmese citizens turned filmmakers sending videos of religious monks on strike that the government did not want to get out. Using consumer-grade cameras showing what was happening in Burma, the citizen journalists smuggled the footage out of the country at the risk of death. The footage was broadcast around the world, and it changed what was happening in Burma. If they had smartphones back then, they would not have needed to risk their lives smuggling the tapes out of the country.

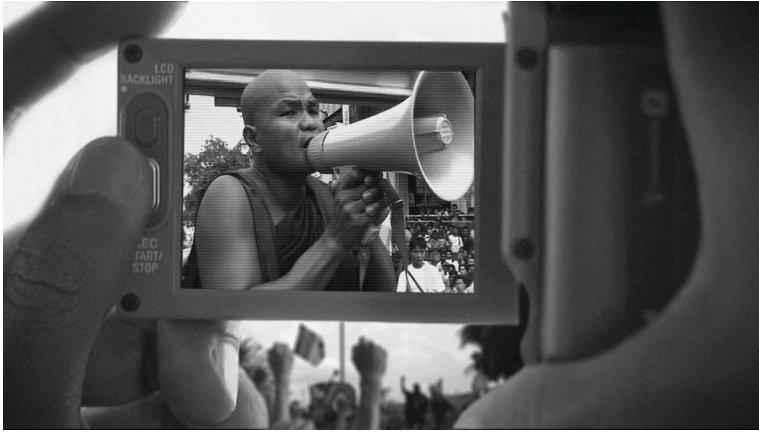


Figure 2.2 Still from *Burma VJ*. Photo by Magic Hour Films.

There have been many times when the camera has prevented terrible things from happening. Peter Wintonick's 2002 film, *Seeing is Believing: Handicams, Human Rights and the News*, shows how, since the handicam was invented in 1985, its mere presence has prevented atrocities by the police around the world.



Figure 2.3 Still from *Seeing is Believing: Handicams, Human Rights and the News*. Film Board of Canada. Necessary Illusions Productions.

The film follows this new breed of handicam videographers that create audio/visual evidence of what actually happened in securing international attention to injustice. The film shows these makers shooting Serb atrocities in Bosnia, skin-head activity in Prague, and documenting business interests taking precedence over human rights in the Philippines. The film also shows how this technology

works both ways in that the police can use it to film protesters. With cameras, we can record them, and they can record us.



Figure 2.4 The Zapruder film. Zapruder Film © The Sixth Floor Museum at Dealey Plaza.

In November 1963, Abraham Zapruder shot an 8 mm film from the grassy knoll in Dallas, Texas. While stills from the video were seen in *Life Magazine*, the film was not seen worldwide until it aired on television in 1975. The Zapruder film has become the time clock of the Kennedy assassination. Researchers will talk about what happened at specific frames. The film is the best record of one of the most tragic days in American history. When it aired on TV, audiences were shocked by what they saw, and when looking at how Kennedy's head moved, many disbelieved the Warren Report, the government's official version of what happened. While there have always been doubts about trusting the government, the screening of this film made a generation question authority.

On March 3rd 1999, George Holliday happened to catch Rodney King beaten by the Los Angeles Police on his new camcorder. This was broadcast around the world, and there were protests in the US and around the world. Showing this shocking video on national TV horrified the nation.

On May 25, 2020, George Floyd being killed by a policeman was captured on a mobile phone. The footage traveled around the world in an instant. Immediately, it fueled protesters in the streets around the world. The idea that police were killing African Americans was felt to be true all over the world.

Each of these events had an impact, but with the phone, it reached further and deeper. With the Rodney King tape, we were enraged; with the George Floyd murder, hearts and minds were changed. In each of these three cases, the camera recorded a tragedy. They were impactful, but the immediate distribution of the George Floyd film had a more significant impact.

The film *Writing with Fire* tells the story of Khabar Lahariya, the only news agency in India run by Dalit (oppressed-caste) women. Armed with smartphones, these women journalists report from some of the most challenging regions of the country, risking everything to speak truth to power. The agency has more than 10 million viewers. Led by Chief Reporter Meera and her understudy, Suneeta, its journalists report on significant issues and show what is and is not being done. The film shows their struggles to keep the agency alive and connect with their families. They have been successful in creating change with persistence...and mobile phones.



Figure 2.5 A still from *Writing with Fire*. Black Ticket Films.

The media philosopher Marshall McLuhan wrote catchy, provocative phrases about how television changed our culture. He wrote that the Media *is* the Message and talked about the “Global Village” where media technologies would unite us.

Indeed, the mobile phone has made us the new global village, where everyone is a producer and a consumer; we are both closer than ever and further apart. But every human with a mobile phone gets their vision of the world out to the world, both for good and bad.

Mobile filmmaking changes the dynamic of who gets to tell stories in media. If the people who have the cameras come from a place of privilege, how they

portray others comes from their point of view. With mobile phones, people from impoverished communities can tell their stories from the inside out. All over the world, customs, stories, music, and culture can be portrayed by the people who deeply know the culture. Aside from documentary and narrative filmmaking, mobile phones can change anthropological films.

All these film technologies allow more people to make different kinds of cinema. I once heard Brian Eno say, “With each technology change comes a change in aesthetics.” Walter Benjamin’s classic essay “Art in the Age of Mechanical Reproduction” wrote about how art changed when it could be reproduced, like a photo or film. I don’t think we need to think about how the work of art changes in the mobile age. The phone has changed, for better or worse, how we experience the world, get information, and how we make and experience media.

Before going forward, let’s step back to understand how we got to this moment and see that the mobile phone is the beneficiary of this history – the phone merges quality image making with affordability and instant transmission. There has never been anything like it.

Film/Celluloid

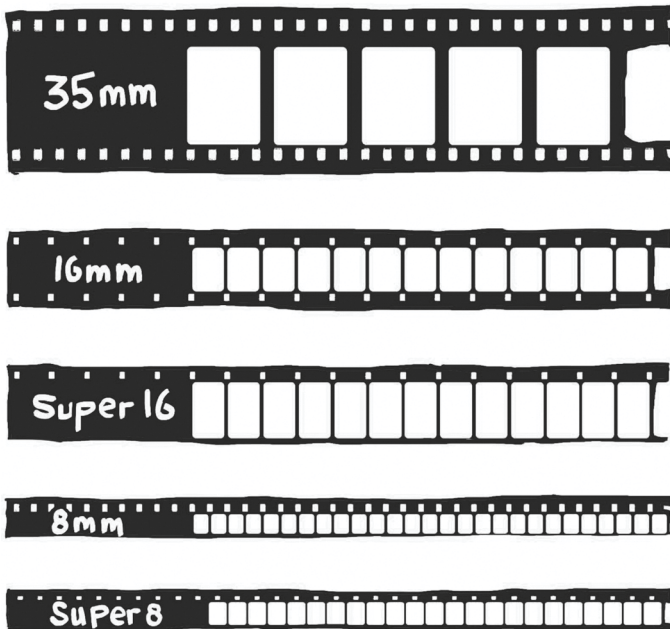


Figure 2.6 Sizes of film. Mason LaHue.

In the beginning, there was film. In the early days, different inventors had different film sizes.

In 1890, Thomas Edison and others invented motion picture films. Edison's version of the film was 35 mm wide, a size of film that is still used today. It was actually 70 mm film slit in half, and this became the motion picture standard. *Nanook of the North* is often credited as the first documentary (even before the term was coined), and it was shot on 35 mm film. The first version was lost in a fire because of the explosive nitrate backing; it had to be re-shot.

Smaller, more portable 35 mm cameras allowed a new breed of filmmakers to change cinema. The French New Wave and Italian Neo-Realist filmmakers shot in the streets instead of in studios, and their films changed the course of film history.

In 1923, Kodak invented 16 mm film, which was less expensive than the 35mm professional film used then. One unique thing about 16 mm film was that it was made from acetate instead of nitrate. Nitrate film was very explosive, and Kodak feared that amateurs might blow themselves up. If you have ever seen an old film projection room, it had metal doors that could close in case of a fire so that only the projectionists would die (true story). So, they created acetate-based film, sometimes called safety film, which is still being used today. Sixteen millimeter film was the first "amateur" format. What started as a hobbyist format later became professional, as many essential documentaries were shot on 16 mm film.

In those early years, 16 mm films were often made for wealthy people to document their lives, mostly about travel. When you went someplace exotic, you wanted to show people what you saw. Sixteen millimeter film was also used for newsreels that gave us news in movie theaters and independent filmmaking. Most of the footage we've seen from World War II, from both sides, came from 16-mm cameras.

More portable 16-mm cameras and new technology to sync the sound with pictures allowed a generation of documentary filmmakers to get close to their subjects and reveal who they were. In 1960, Robert Drew, working for Time-Life, and a band of filmmakers followed the Wisconsin primary race between John Kennedy and Hubert Humphrey. This was the first time we could observe the candidates up close, and the first time we got to see what politics was really like. That team included Albert and David Maysles, Rickard Leacock, and D.A. Pennebaker, who were the leaders of the direct cinema movement in the United States.

While much cheaper than shooting in 35 mm, these cameras and film stock were still relatively expensive. Of course, you had to process the film and get a 16-millimeter projector to see it. Loading the camera was not hard, but seeing a roll of film that lost the loop was disheartening. To shoot the film, you had to load it, expose it properly, and focus it. Then, you had to develop it, and editing was an expensive and lengthy process.

But a large group of people who could afford it captured the world as they saw it and could show it to their friends. In a sense, this is the beginning of home movies, which are a precursor to what we have now, with people showing their lives on Facebook. At the time, home movies were something we tolerated, but now they are a visual memory of people long gone. The third Saturday in October is Home Movie Day around the world. Look for an event in your town.

For more info, go to <https://www.centerforhomemovies.org/hmd/>.

A powerful example of the value of a home movie is the film *3 Minutes A Lengthening*. A documentary film that came out in 2020 uses 3 minutes of a home movie shot in a small village in Poland, where all the Jewish people in that town died in the Holocaust – this 3-minute of 16 mm footage allowed us to explore that world, and what that world was like.

In 1932, Kodak came out with eight-millimeter cameras and eight-millimeter film. It wasn't 8 millimeters wide; It was a 16-millimeter film sliced in half after processing. Eight-millimeter film allowed many people who couldn't afford 16-millimeter film to get into the home movie craze. But it required the cameraperson to open the camera after shooting 25 feet. Then, the camera was reloaded to expose the other side. People often had trouble loading the camera, and much footage was lost. But during the Depression, this was a great way for so many people to make films and sometimes for unlucky people to watch home movies from somebody's trip. Some people did edit these films, but many people let them run, and it was often boring to watch other people's home movies. Looking back on them, they tell us so much about who we were, where we went, and what we did. A friend's shrink asked to watch home movies to see what his home life was really like. (It was not as bad as he thought.) Watching home movies lets us see what the past really was.

Eight-millimeter film was a popular format for recording vacations and family gatherings. My father shot many gatherings with it. However, it was not very sensitive to light, so it required bright lights that ruined your mood as soon as you turned them on and changed the tone of what was happening.

In 1965, Kodak introduced Super 8 film, which brought a new generation to filmmaking. Super 8 film came in a cartridge, so you didn't have to load it. It also had a larger image size than 8 mm because it had perforations on only one side and the other side for more resolution. Many of the cameras had automatic exposure, which helped more people shoot film

It became trendy in the '60s, and the idea of taking films of your family trips and making films started to explode. Super 8 was easier to edit than 8 mm. Kodak later developed sound cameras with a magnetic stripe, requiring a Super 8 Sound Camera. In 1972, Super Sound invented a double system method of

working with sound in Super 8 film. Super 8 sound has a separate Camera and sound recorder that were synchronized in editing. Documentary filmmaker Rickie Leacock helped develop this style at MIT, enabling a new way to make documentary films.

Super 8 fueled a movement of (mostly) young people making documentaries and experimental and narrative films. Super 8 filmmaking was taught in schools and universities. *The Super 8 Book* by Lenny Lipton, published in 1975, was the bible for Super 8 filmmakers worldwide.

Video

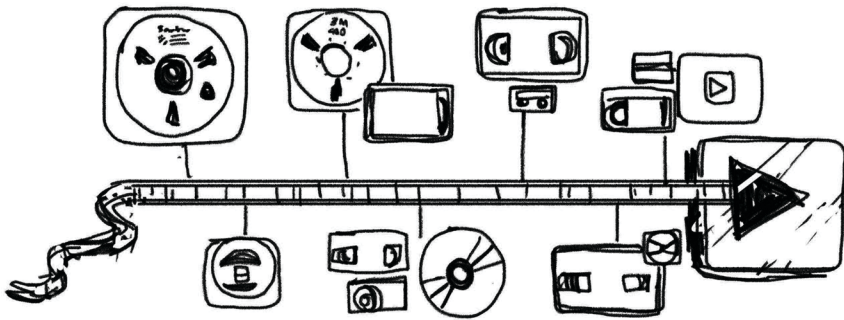


Figure 2.7 The history of video formats. Mason LaHue.

Video as a medium has had a different history. Video is an electronic medium, and film is based on an organic medium of light-hitting evolution, then developed in a chemical bath.

Early TV was only live. In 1951, the first videotape was invented by Bing Crosby Enterprises. It was expensive, but unlike film, it could be re-recorded. Unfortunately, many events like the first Super Bowl and the first episode of *The Tonight Show Starring Johnny Carson* do not exist because someone at the network wanted to save money by re-using the tape. The idea of archiving media had not occurred to them at the time.

This 2-inch video could be edited by cutting and taping the tape in the same way one would edit an audio tape. This was a difficult task and was not done often. Later, video editing was done by re-recording from one tape to another, known as linear editing. Linear editing involved a video tape player and a video tape recorder (VTR), controlled by an edit controller. You would cue up your first shot on the player and record it on the recorder. Then, you would look for the second shot and put it after the first shot; this was not so bad if you did not want to take out the 10th shot in a 100-shot program, which would mean

reassembling all the edits past the 10th shot. Because of this linear editing, the culture developing around video did not have as much editing as in film, beginning this film/video split.

The Sony Portapak came out in 1967. This was a video rig that was both a camera and a video recorder, a separate unit that sat on your shoulder. It was bulky, but it could playback, initially black-and-white, then eventually color video that could instantly be shown on television (if you have the right cables). The idea that you could be shooting something and showing it insidiously was revolutionary.



Figure 2.8 Sony Portapaks. Mason LaHue.

This was the first time that people could make *television* on their own. These cameras had very low resolution, but two communities took them up. Artists who created a new form called video art and activists who created politically oriented documentaries. It also could be used to help communities in unique ways. Downtown Community Television (in Chinatown NYC) heard that many folks in their community did not know what a dentist did and were afraid to go. So DCTV made videos about what dentists did and played them in a van on the street so people would go to a dentist!

TV Newsrooms switched from film to $\frac{3}{4}$ U-Matic inch video in cartridges in the late 70s to save money on film and processing. The image quality suffered.

When making films using archival material, one always hopes there is a film over U-Matic Tape. The battle between film and video has raged on; they are technologies with their own aesthetics and benefits. In the 80s, music videos were a big thing, but most were actually shot on film.

Later formats like 8mm video, VHS, VHS/C, and Hi8 video put better quality video in the hands of more people. In 1995, Sony and Panasonic came out with a new Mini DV format, smaller than VHS and much better quality. Mini DV was not analog but digital, making a substantial difference to independent filmmakers. Along with the rollout of the tape was the Sony VX1000 camera with a firewire port on it. You could connect this firewire port to an Apple Macintosh computer with a firewire port, transfer the digital video on the camera to the computer, and then edit it with new software called Final Cut Pro. This was another revolutionary step forward. This put all aspects of quality independent production into the hands of more filmmakers.

For example, my organization, the Dallas VideoFest, created a 24-video race because you could shoot and edit a film on Mini DV in 24 hours.

Another significant change in video came when Canon released its Mark II Digital Single-Lens Reflex camera (DSLR), which could shoot high-definition video. Because the sensor was much larger than the sensor in the MiniDV cameras, the images had a more cinematic look, where you had a narrow depth of field (like cinematic mode in the iPhone). This also eliminated the need for the firewire cable and ports because the Mark II was recorded on an SD card that you could input into any computer. When filmmakers adopted the DSLRs, the films in the 24-hour race started to look much better.

All these formats allowed more people to create new kinds of media; in each case, new filmmakers emerged. At each stage, a technological change gave traditional and new filmmakers a new, more affordable way to tell cinematic stories.

But none of these changes allowed for media to be edited on the spot and instantaneously sent worldwide.

Mobile Phone

You can see that in film and video, there has been a market and a community of makers for smaller, less expensive cameras used for home movies, telling stories, making art, or trying to change the world.

All this history leads us to the mobile phone, which has its own history.

The first patent for a wireless telephone was in 1908 in Kentucky. Then, in the 1940s, engineers working at AT&T developed cells for mobile phone base stations. In 1946, the first calls were made on a car radiotelephone in Chicago. The first mobile phones were really two-way radios. In the 1960s, these were mainly used for taxis and police. My father had one of those for his business.

I remember they were cool, but you could not understand most of what people were saying on them. In the TV show *Get Smart* in the sixties, the lead character Maxwell Smart used a shoe phone (yes, a phone in his shoe), but nobody tried to invent that.

In 1973, Motorola made the first prototypes for a handheld mobile phone. But it did not go into production until 1984, costing a whopping \$3,999. The phones were about the size and weight of a brick, and airtime was also expensive. I had a student who worked for one of these phone companies, and she told me most of their customers were movie stars and studio executives.

In 1992, we got the first SMS text message.

On June 11, 1997, the first picture taken with a cell phone was broadcast on the internet. Philippe Kahn connected a miniature camera to his cellphone, which he connected to his laptop, and the laptop was connected to a server to record his wife delivering his baby. He held the camera with one hand and the baby in the other and sent the photo to friends and family. So, there we have a live pictorial event sent around the world.



Figure 2.9 First video image transmitted from a phone. Philippe Khan.

The first content sold as a download on mobile came in 1998, and it was a ringtone!

In 2000, Samsung came out with the SCH-V200, and Sharp came out with the J-SH04. Both were early commercially available phones that had a camera. The only hitch was their being available exclusively in Japan. It had only 11 megapixels, so it was not something a photographer might be interested in. In the earliest models of phones with cameras, you had to connect the phone to a computer to view snapshots physically. You can see the form evolving, but mobile media was far from popular.

Mobile phones, meanwhile, were getting better and were getting more popular. The Blackberry came out in 1999 and was great for texting and email but had no graphical interface or camera. It was a portable communication device. In Europe, the first camera phone, the Nokia 6750, did not arrive until 2002. Palm-made devices like the Palm Pilot and later the Palm Treo incorporated music players and a camera into their communication devices. They were popular. Samsung made the SPHi-1300, a phone that used the Palm operating system. Most of these phones were for tech geeks.

But everything changed in 2007.

The original iPhone went on sale on June 29th 2007. It had no video camera (it did have a 2-megapixel still camera), but it had, in one device, a music player (like the iPod) that connected to the internet so you could get email. It had no keyboard like the popular Blackberry, a web browser to connect to the internet, and something new called apps (but there was yet to be an app store). It also had an intuitive graphical interface. It cost \$200 more than the Blackberry and Treo and was a big hit that destroyed both.

Jobs said Apple was going to reinvent the phone, and he did. The iPhone 3G in 2009 (they skipped the iPhone 2) finally had a video camera. The iPhone 4 in 2010 had a front-facing camera, and thus, the selfie became a thing.

In 2007, Facebook allowed uploading videos to disseminate further videos taken from the phone. YouTube started in 2005 before mobile video. Twitter added videos in 2012.

The following year, 2013, the app Vine came out. Vine was a video platform where your video had to be just six seconds long. Vine videos could be shared on Facebook or Twitter. Vine was a precursor to TikTok in some ways, except it was horizontal. Vine helped create the idea of making super-short videos and sharing them.

In 2008, I was invited to be part of an exhibition called Realtime 08. New Media Artist Dean Terry included me in a group of artists tasked to create a short video on our phones for a month and send it to the Dallas Contemporary. This was my first contact with shooting with a mobile device with intention. I would create a short daily video focusing on the shot's beginning and end. Each video would be immediately exhibited in the gallery. I was shooting on a low-resolution flip phone, but I got hooked. Selections from Realtime 08 were included in the Pocket Films Festival at the Pompidou Center in Paris.

Making Films with Mobile Phones

There is some controversy about what film is the first feature film made with a cellular phone.

It is clear that the first two features were the Dutch films *Why Didn't Anybody Tell Me It Would Become This Bad in Afghanistan* by Cyrus Frisch in 2007 and

SMS Sugarman in 2008 by Aryan Kaganof. The controversy is about how you calculate what it means to be first. Was it when it was shot, edited, or shown? Either way, both of these films were groundbreaking and set a path for us to follow.

Why Didn't Anybody Tell Me It Would Become This Bad in Afghanistan is a feature-length narrative shot with the Samsung Sharp 902 and 903. It is about a war veteran who discusses the horror of war and how he copes with the experience. The film has no dialogue and no conventional narrative. It uses the graininess to its advantage. To Frisch, the mobile phone is like a gun viewfinder.

The film played at the Tribeca, Rotterdam, and San Francisco Film festivals. It can be seen on Vimeo.



Figure 2.10 Still from *Why Didn't Anybody Tell Me It Would Become This Bad in Afghanistan*. Cyrus Frisch.

SMS Sugarman, another narrative feature-length film that used a mobile, was made before the iPhone came out and was shot with 6 Sony Erickson W900i phones. The story was shot in Johannesburg and involves a pimp and a few prostitutes having some adventures on Christmas Eve. It has an X-rated downtown indie vibe to it.



Figure 2.11 Still from *SMS Sugarman*. Aryan Kaganof.

The first mobile features were very edgy, and the edgy, grainy look works to put the story in context. Often, makers are drawn to new forms of media work on the edges of traditions.

The next important mobile film was made on an iPhone 4 called *Night Fishing*, was 33 minutes (2011) and was created by Park Chan-wook, who made *Oldboy*, and his brother Park Chan-Kyong. The film is a horror/fantasy/music film funded by KT, the exclusive distributor of iPhone in Korea. It won the best short film at the 61st Berlin Film Festival. Unlike the gritty *SMS Sugarman*, *Night Fishing* is stylish. It is a significant step forward for mobile filmmaking.

Also, in 2011, *Olive* was a feature film shot not on an iPhone but on a Nokia. The directors Hooman Khalili and Pat Gilles attached traditional film lenses onto the Nokia phone to shoot this film with a cinematic look long before cinematic mode. This turned the camera rig into something not entirely portable, so I am not sure what the point of basically recording on the phone was other than the novelty of it.



Figure 2.12 Production still from *Olive*. Hooman Khalili.

One of the most interesting early films made with mobile phones is *9 Rides* (2016), by Matthew A. Cherry, which follows an Uber driver on New Year's Eve. It's primarily shot in the car, and the phone gives a sense of intimacy that works really well.

I Play with the Phrase Each Other by Jay Alvarez (2014) has a hipster black-and-white vibe, and every scene has a character talking on a phone. A mobile phone film with people talking on mobile phones, nice!

The Oscar-winning documentary *Searching for Sugarman* by Malik Bendjellou includes a few shots created on the phone app "8mm vintage camera" to simulate 8 mm film. It was a big deal that the footage made with the phone matched the images created on celluloid.

The film that changed how independent filmmakers think about shooting on mobile was *Tangerine*. The 2015 film was shown at the Sundance Film Festival, which is the pinnacle of the indie film world. The film was shot on an iPhone 5S using the Filmic Pro app. Director Sean Baker said he could not have shot the film without Filmic Pro (at that time, it only cost \$6.00). Filmic Pro gave him control, exposure, focus, and color temperature. The film has a color pallet that is in sync with the characters in the film, and Filmic Pro helped him achieve that. He also used an anamorphic lens adapter from Moondog Labs, which enabled the widescreen look.

More than any film, *Tangerine* inspired a generation of filmmakers to pick up their phones to shoot. The film takes place on Christmas Eve and is centered around a transgender sex worker and has an edginess like the earliest mobile films. But this is a slick edginess.

Sean Baker on *Tangerine*

“I remember at that time,” he said, “Shih-Ching Tsou, who I co-directed *Take Out* with, kept saying, ‘Can you just stop complaining about the fact that we’re shooting on standard-definition video? It’s about the content, it’s not about the camera.’”

Through that channel, he found a Kickstarter campaign for Moondog Labs, a company that makes an adapter that fits over the iPhone lens and helps filmmakers achieve a more cinematic feel. “It would let us shoot the way Sergio Leone would shoot westerns,” he said.

“It was amazing,” [...] I wouldn’t have made the film without that. I think it really elevated the look,” he said of the Moondog adapter.

“It literally felt like I was 12 years old, shooting my VHS movies in New Jersey,” he said.

The other great advantage of filming on iPhones was that it’s easier to get away with shooting without a permit if you need to, though we officially don’t advise doing this. But be careful on this point and don’t break the law – Baker said that for *Tangerine*, they did obtain permits for the main shoot, but working with such a small production crew meant that they didn’t have to close off any streets or areas, which helped keep costs down.

Stephen Soderbergh, who started his career with *Sex, Lies, and Videotape*, is a unique director who can make both major studio films like *Ocean’s Eleven* and more independent films. Soderbergh made two influential films with a phone, *Unsane* (2018) and then *High Flying Bird* (2019). *High Flying Bird* can be seen on Netflix. These are films that were shown in movie theaters and had their origin in something in your hand.

In 2022, Stephen Spielberg shot and directed the music video for Marcus Mumford’s song “Cannibal” on an iPhone in one take. For someone of his stature to use the phone and get more hands-on with the process shows how valuable this is.

The first music video made with a phone was “Some Postman” by the President of the United States in 2008. Director Grant Marshal mounted several phones and pieced together these low-resolution images that worked for the video.

One of the first commercials shot with the phone in 2012 was for Siminn, a Nordic telecom company featuring a Samsung Galaxy SIII on a robot arm with a mirror that shows the camera shooting the commercial at the end.

In 2015, the TV show *Modern Family* had an episode partially shot on an iPhone. The episode is part of a genre of filmmaking where the show takes place on screens.

In 2016, the comedy troupe Mommy created a spoof trailer for a film totally shot on the camera for a Prius, and it is very funny!

In 2018, *The Jimmy Kimmel Show* worked with Eminem to shoot his “Venom” on Pixel 3.

During this history, you can see the quality of the work produced by the phone go from grunge to great.

Workshop 2

Interview three people from different generations, interview them (with your phone) about their first mobile device, and ask them how their phone has affected their lives.

Watch one of the films mentioned in this chapter. Think about how this is similar and different from film shoots with traditional cameras.

While holding the phone in camera mode, imagine the history you are holding in your hand. Think about how what you are shooting would be different on, say, Super 8 Film.

3 Computational Photography

Shooting video with a mobile phone is a radical change in image-making. We have lived in a world of optical photography for over a hundred years. When light hits a lens, it will go to the film's raw stock, where the light changes the emulsion in the film, and then through chemicals, a photographic image appears. On a digital camera, light hits a chip and is converted to zeros and ones to form a video image. At the same time, contemporary digital cinema cameras have a lot of technology that creates superb images; a mobile phone is being recorded on a computer. A mobile phone has the power of what we used to call a supercomputer (which took up a whole room).

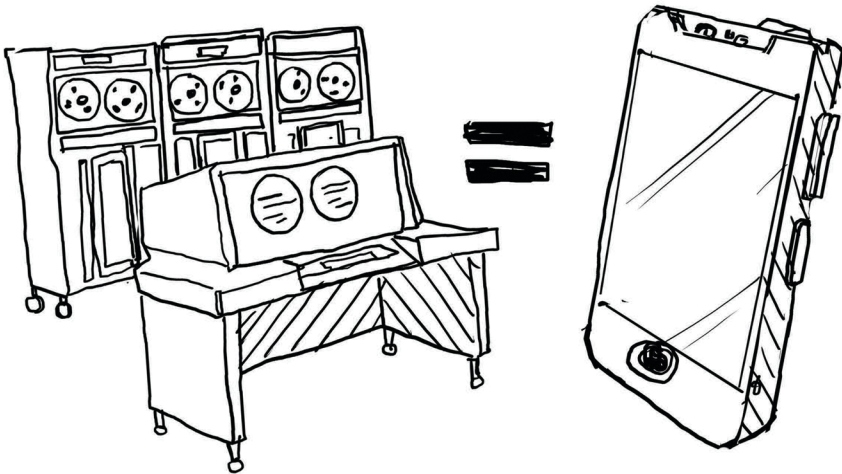


Figure 3.1 Supercomputer and phone. Mason LaHue.

We are now in the age of computational photography. Computational photography is putting the smart in smartphones. Instead of just recording one image 24 times a second, each image has multiple recordings. The highlights or brightest

parts of the frame can be recorded or separated into slices and the darkest parts. When all the images are combined, you have a higher dynamic range, brighter whites, and darker blacks that are not over or underexposed. Computational photography also implies using AI, machine learning, algorithms, and more.

In the presentation when the iPhone 11 camera came out, Apple showed a slide with an image sliced into 11 images: an auto exposure, an auto white balance, autofocus, noise reduction, local tone mapping, highlight details, image fusion, face detection, facial landmarking (making a 3D model of the face), segmentation mask (a high contrast black and white image) and a semantic rendering. The slices or layers allow you to capture so much more data and have control over the image.

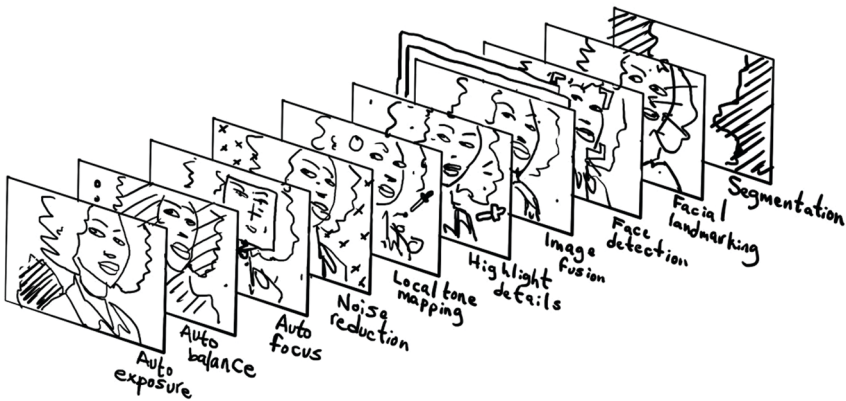


Figure 3.2 Image describing computational photography. Mason LaHue.

In camera mode, the phone gathers images and parts of images before you hit the shutter button.

When the iPhone 13 Pro Max came out, Apple introduced **cinematic mode**, which allowed you to change the focus in a shot while shooting, which, of course, all cameras can do. But, more importantly, now you could change the focus point in editing, choosing where, when, and how much you want in focus. You must use iMovie, Final Cut Pro, or the Photos app on the phone to change the focus point in post-production. This is computational photography at work! This was revolutionary! To take advantage of most of this, you need to use the phone's native camera app.

In traditional photography, we changed what was in focus by working the depth of field, which is the area in real space where your subject is in acceptable focus. To change this, you had to change the f-stop (the amount of light going in, the camera subject distance, and the focal length (how far you zoom in or out). Now, with computational photography, the real world does not constrain

us. Then, the phone could not change the depth of field optically because mobile phones did not have an adjustable f-stop.

Computational photography turns the limitations of the natural world, like only having one f-stop, into advantages.

This is something that a mobile phone can do, but a traditional camera cannot. While this seems small, it is the beginning of a revolution, and we are in the early days. There are way more mobile phones being made yearly than professional video cameras, which means there will be more research and development in the cameras connected to a supercomputer. It is rumored that Apple has a massive number of engineers working on iPhone development. Professional cameras are adding elements of computational photography, but there is only so much they can do. Every year, more cinema magic is revealed.

Another way computational photography is changing filmmaking is through artificial intelligence. AI is and will be affecting our lives in many ways. AI is used all over the modern mobile phone, with features like predictive text (when the phone finishes your words), task automation, and how it recognizes your face or fingerprint. It also assists in getting better images in low light and allows for portrait mode, which is similar to cinematic mode but with stills. AI can get rid of and replace elements in the images. AI can eliminate noise on audio tracks and make your voice sound like an announcer.

Computational photography can help you make better images and can help you shape your ideas and stories into films.

Computational photography is the future, and it is good to get ahead of this wave of innovation; this book will help you navigate those waters.

Workshop 3

If you have a phone that can do cinematic mode, set up a shoot to test it. I suggest using a tripod to concentrate on the focus rather than trying to hand-hold the phone steadily.

Set up a scene with two people or objects that are different distances from you. If this is too abstract, go to a coffee shop or a park and test this by shooting two people. Cinematic mode needs a good amount of light, so select a bright place or exterior to do the test. In the camera app, select the cinematic mode. Hit the record button, and during the shot, touch the screen where you want someone in focus. You will see a yellow box on the area that will be in focus. As you are shooting, you will see the focus shift. Play it back first on your phone and then on your computer. At this point, we will not adjust the image in editing. But you can jump to the edit section if you want to jump in.

While developing your next project, think of how you can design a shot that can use cinematic mode to change the focus of the view over the shot, not as just a cool thing to do but as a way to tell the story better.

Imagine three new things that could happen in the future with computational photography and write them down.

4 Mobile Storytelling

What Makes a Good Story?

Humans love stories; we love to tell them, and we love to hear and watch them. If you listen to your family at Thanksgiving, some people at the table can tell a compelling story that you must listen to, and others not so much. Some people have a knack for storytelling, but it is a skill that can be learned. Listen to that good storyteller when your family gets together; pay attention to what makes this person's story better. As we develop stories, being hyper-aware of good and bad storytelling is helpful. Another place to hear good stories is some podcasts that specialize in storytelling, such as "This American Life" and "The Moth". When listening to them, think about what makes the story work.

When thinking about what to make for your film, you should think about what you have to say, what you care about, what is important to you, and whether there are elements of your own story that you can build out from. When stories come from your heart, from experience, the audience can feel it. It will probably not go well when you try to make a film that emulates what you think will be popular.

Most bad storytellers have events that have no consequences. This happened, then that happened, and then some other nonconsequential event. Indeed, those things might have happened, but did they move the story forward? Face it, reality by itself is boring. Shaping events into a story people want to hear and see is easy, but you must think it through.

Everything in a story should move that story forward and have a consequence. Trey Parker, from *South Park* fame, talks about the folly of "and then..." When your characters say, "and then," but there is no consequence. When they say "but" or "therefore," there is a consequence.

Different Kinds of Stories

There are several kinds of stories that work well with mobile films. There are dramatic films, both shorts and features, that can range from personal to horror to comedy and any other kind of story you can think of.

Then there are true stories. These can be told in two similar but different genres: documentaries and journalism. They are similar in that they tell the audience about something true. Documentaries tend to be told through the voices of the subjects, and journalism will often have the voice of the reporter as well as the subjects. Mobile phones have created a new kind of mobile journalism that is spreading throughout the world.

It was the rugged, windswept beauty of north-west Scotland's vast landscapes that made me think of it: to meld cinematic filmmaking techniques with mobile journalism. I was there to film a report about an underwater photographer and realized that it was an opportunity to push mobile journalism beyond the run-and-gun of network news for a new style of journalism. One that required more contemplation, telling, an artist's eye, and – most importantly – a smartphone. Since then, I have produced shot-on-iPhone short films that delved beneath the waters on the Isle of Skye, followed elephants in Botswana, and sailed a tall ship around Iceland.

Mobile journalism, in which journalists use smartphones to record, edit, and sometimes distribute video reports, is a still-developing discipline. An emerging parallel to *mojo* is mobile filmmaking. A common trend among these filmmakers is to use the somewhat ambiguous term “cinematic” to describe those works, which can be distilled down to this: having qualities or characteristics of films screened in cinemas.

Journalists can borrow from their mobile filmmaking brothers and sisters and employ cinematic techniques in their packages. Solo/mobile journalists seek compelling – or at least appealing – visuals to engage their audiences, particularly when producing magazine-style packages. This new field of journalism, which I have been exploring in my Ph.D. research and called *iCinematic Mobile Journalism* (*cinemojo* for short), places the qualities of cinema movies in our hands, propelled by emerging and advancing mobile technologies. High-quality, beautifully shot, and edited video journalism is now mobile.

Rob Layton, Assistant Professor of Mobile Journalism, Bond University

Building the Idea

We have ideas for projects all the time. Many of them we forget. The best thing to do is to keep a list of film ideas. The best place to put them is in the Notes app on your phone. Make a page for ideas, and when you get one, jot it down. You should put them in categories or genres, like documentary, drama, horror, or comedy. At this stage, all ideas are worth putting down; later, we will pair them down. At some point, you might join a team making a video race video (which is a great thing to do); having that list will be handy.

Survey your resources as you review your list to pick the best project to work on. What do you have access to that others might not? Perhaps your uncle has access to a hardware store, and you could write a scene that turns on an event at a hardware store. Maybe you know someone who works in an airline training facility, so you can write a scene that takes place on a plane. Knowing what locations you have can help shape your story. Since you are working with a phone, you can work in tighter spaces, which could look great!

One way to test your stories is to tell them to people while in an elevator or in a line waiting for coffee. Every time you tell the story, you embellish it, and you can see by people's eyes if it is working.

Casting

As you are building out your idea, you should think about the cast. Who can you get to be in your film? The biggest mistake first-time filmmakers make is not getting good actors. You can mess up on many things (except sound), and if you have great performances from great actors, your film will still be good. One of the biggest problems with casting good actors stems from needing to know actors and knowing how to find actors. Wherever you live, there are some excellent actors around. You just have to look for them. If there is a film festival in your town, go to the festival, and when you see an actor who is good at a film, go up to them, get their contact info, and take them to lunch or coffee. Then go to a movie together and talk about the performances afterward. This will help develop a bond between you. The first time you do this, you will be nervous. Just like filmmakers like to make films, actors love to act. And all actors claim to want to work with new hot talent. If you get to the point where you have a few actors who are now your friends, you can write a script that is just right for your new friends.

Aside from going to film festivals to meet local actors, going to the theater is also a good idea. After the play, go up and meet the actors and get their contact details. Many theater actors want to act in films but have not asked. They will probably be honored that you asked them. Working with theatrical actors can be challenging, but you can grow together.

If none of that works, you can do a casting call once you have your script. You can promote your casting call in *Backstage*, on social media, and on Craigslist. Pick a time when people who have day jobs can come. Find a good place to do your casting call. It is good to have someone help you by checking people in outside of where you are doing the auditions.

To prepare for the auditions, you must create a “sides,” one scene for your actors to read. You can send them the side beforehand so they can be prepared. Make sure to record the auditions.

One of the critical parts of the audition is asking the actor for an adjustment. Sometimes, you get an actor who is great but does the same thing when you ask them to do something different. You can say something like, try it again, but this time, do it as if you just found out your brother has cancer.

Make sure to thank all the actors, get their clothes sizes if you are costuming, and MAKE SURE THEY ARE AVAILABLE ON YOUR SHOOT DAYS! Also, make it clear whether they are getting paid, so there is no ill will later.

When casting, you often have to choose between the better actor or the actor that looks like the character you envisioned. While it is tempting to go with the actors who look the part, the better actor generally takes you further.

Do Research

As you are developing your project, it is critical to do research. I often see films where the writer and director had, on the surface, knowledge of the subject, most of which came from other films. For example, if you are doing a story about homeless people, instead of repeating what you have seen, spend time, not just an afternoon, getting to know their stories. As you are doing this research, record it with your phone. You can probably lift some lines from your interviews.

The more you know about a subject, the more nuanced the film will be. You can do significant research on the web about any topic, but interviewing people who have experienced the stories you are writing about will improve your script.

Writing the Script

Taking your film ideas and getting them down on paper is a challenge. There are many approaches and lots of books on screenwriting. Here are some basics that can help you write.

One challenge is what I call the page ten problem. While trying to write a feature, some writers will get to page ten and then think; this idea sucks; this other one is better. Then, I only get to page ten of that script. The problem here is fear of failure, which is the number one inhibitor of creativity. Once you realize that all creatives have this, and overcoming it is part of the process, perhaps we can get to page 11.

Some questions to ask yourself before you sit down to write are:

What are the stakes for your characters?

What happens if our character does not achieve his goal? If there are real consequences, the audience will root for them.

Think about a film you have seen recently. What was the central conflict? Conflict is the essence of drama: no conflict, no drama, no film.

Stories have a basic structure: a beginning, a middle, and an end. At the beginning of the first act, we introduce our characters. If we can start by giving them a defining trait so the audience can think I know that guy, that can help. After setting up our characters and the world they inhabit, an event rocks their world, and they are off to the second act, where they try to overcome obstacles, leading to the third act, when they overcome them and, perhaps through the journey, become more whole. Here is a look at the basic three-act structure, which is as old as storytelling. Not all stories have to follow this structure, but it helps.

Act I: Set up the main character and the world they inhabit.

You establish your characters and the world they live in. If you start strong and lock in your audience at the beginning, they will stay with you until the end.

Inciting Incident.

Then kaboom! Something happens to them that sends them off on their journey.

Act II: Going for it.

Your character leaves the comfort of home, and the journey begins. Your film and your character are off and running. The character then faces and struggles with many obstacles, which seem unsolvable, and doom is looming. The force will not be saved.

But then your character figures it out, gets their mojo back, and comes up with a plan, which takes us to the Climax. YEA!

Act III: Resolution.

Here, our character figures it out and realizes how the process has changed them.

There are many approaches to screenwriting; some people love Blake Snyder's book *Save the Cat: The Last Book on Screenwriting You'll Ever Need*. Others find his approach limiting, but it is a good start. Michael Arndt, the screenwriter for *Little Miss Sunshine* and *Toy Story 3*, has on his website a series of free videos on screenwriting that I find helpful: <https://www.pandemoniuminc.com/video1>.

Another challenge in screenwriting is writing dialogue. Here are a few tricks that will help:

First, take time to listen to the way people talk. We interrupt, don't finish sentences, and have a rhythm to how we talk. Use your phone to help get better dialogue. Let's say your character is a barista. You can leave the phone with just the audio recording on the counter and record how a barista actually talks and steal phrases and cadence from that.

All dialogue should have three elements. It should help define the character, move the story forward, and seem natural.

When you think the dialogue is good, use your phone to record yourself reading your dialogue out loud. If you are not embarrassed, your dialogue is ok.

When you have your cast together, you can do a table read, where you have the actors read through the script while sitting at a table. After hearing the table read you might want to adjust the script.

When writing, think about the best way to tell the story for the platform you are working towards. Writing for TikTok will be very different from a film you want to show at festivals. As you write, think of what is successful in these media.

Mood Board

After writing your script, creating a mood board is a great idea. This is a way to bring the words alive with images. The mood board should have the color palette of your films, what your characters are like, and what your locations will look like. This is a way to visually build your film and show your ideas to your cast and crew.

Adobe and Canva have tools that can help build a mood board.

Make Films with Intentionality!

When shooting video to tell a story, we need to be intentional. When we look at the viewfinder (phone screen), we should think about what we are trying to express in this shot. The camera should be expressive when creating something cinematic, whether a documentary, music video, comedy, drama, sci-fi, or anything else. It should help tell the story you are telling. Through light and camera angle framing, you can help the audience feel what you want them to feel. What we do not want to do is to record what is in front of us passively. That is fine for recording your nephew's trumpet recital but not for the film you want to make.

If let's say, you were doing a trumpet recital, and your character was worried if he messed up, he would be a failure, but then he got confidence and succeeded, then in the beginning we could have a shot from above, making him look small, then a close-up of him sweating. As he turns it around, we shoot from slightly below, making him look more prominent. Perhaps in the beginning, he could be a bit in the dark, missing his spotlight, but as he gets better, he is in the spotlight, just as he smiles.

We are talking about using the phone/camera to express how we can use the phone to tell the audience how to feel about what is going on with a story. This can work for both documentary and drama or any other genre.

How can we compose the shot to make the audience feel something? What is the foreground, and what is in the background? How can the background show us something about what is happening in the foreground? Take time to arrange what we see so that it expresses your ideas. A tripod to help compose your images might be good as you work.

The two main jobs of a director are directing actors and what is called blocking. How are you visually telling this story? When are you in a wide shot, and when are you in a close-up? When are you using a moving shot with the gimbal?

You should think about your film's visual language when you begin each film. In the old days, you started with a wide shot, then went to a medium shot, then alternated close-ups. Now, you can build your own visual language. But you should not break the 180-degree rule unless it is your intention to do so. You want to ensure that within a scene if person A is on the left, they stay on the left side of the frame. If you break this rule, the audience could get confused (but perhaps that is what you wanted; if so, that is fine). To keep your film kosher, imagine a line between your two characters. Once you place the camera on one side of that line, keep it on that side, and you will not break the axis.

One way to help you figure out what shot you want is to create storyboards; if you can't draw (like me), you can use the free Storyboarder application (<https://wonderunit.com/storyboarder/>). This desktop application will create characters, so you don't have to draw them. You can try Previs Pro (a limited free version) on your mobile device. In the apps for filming chapter, I will preview several great apps for pre-production.

When looking at your script (if this is a narrative), think about when you want to be in the wide shot (to see what is going on) or the close-up (to feel the emotion), when to cut between close-ups of your character to tie them together or show their anger. An excellent way to help think about this is to look at a scene from a film that is similar in tone and number of characters as yours. Study the movie shot by shot and write down what the director and editor did.

Workshop 4

- Start a page on your Notes app and list ideas for your stories.
- Make a list of resources that you can take advantage of.
- Listen to people telling stories, write down what was good and what did not work.
- Practice telling a story to someone you don't know (like waiting in a line) and see when the person is listening and when they are not.

- Select one idea and spend an hour online researching (take notes). Try to interview someone to get deeper into the subject.
- Ask yourself, why does this interest me?
- What can you bring to this that is unique?
- Download Storyboarder (<https://wonderunit.com/storyboarder/>) and practice creating storyboards.

One Shot Video

Create a short film with only one shot.

After coming up with a good story and cast, think about how to use the camera to tell the story visually. This is also a great test of your ability to control the camera. During the one shot, you might have to change exposure and focus as your subject moves around. If you are going to move the camera, how will you move it? It would be a good idea to rehearse the move. Do you want to use a gimbal? Are you going to use image stabilization? What will your sound strategy be?

Scene Recreation

Find a simple classic scene with just two characters and recreate it shot by shot. You can do this with actors, friends, or Barbie and Ken dolls. The idea is to learn to think about how to tell the story visually. Make each shot the same focal length as the classic film (wide medium or close up) and the exact minutes and seconds for each shot. Don't worry if the acting is not good; this will help you plan your shots. It would be best to do this on a tripod. Put the scene on a timeline and replace the classic shots with your shots.

5 Shooting Video on Your Phone

Shooting Video: Learning How to Control the Mobile Device to Get What You Want

Getting an image and getting a good image are very different. Unless you do something crazy, your phone will get a good image. However, as filmmakers, we want more than a good image; we want an image that helps to tell the story.

The first thing we need to do is learn how to control the image. In doing so, we need to control the focus and exposure. Focus refers to what is sharpest in the image, and exposure means it doesn't look too bright or dark; both are easy to control and more intuitive on a mobile device, especially when shooting with the native camera apps (in this book, when I say native app, it means the camera app that came on your phone).

Focus and Exposure

The primary way to adjust the focus and/or exposure of the image on almost all phones is to touch what you want to expose or focus correctly.

To adjust **exposure** on the native Apple app, touch the screen on the object or subject you want to expose as normal. A slider with a sun next to it will let you move up or down to adjust exposure. It might be hard to make sound judgments if you are outside in bright sunlight.

To fine-tune your exposure adjustment, click the arrow on the left part of the screen. On the right side is a yellow circle with a plus and minus. When you touch that, you have more control over your exposure. Or you can just touch the yellow scale on the left of the interface.



Figure 5.1 Adjusting exposure and focus on the Apple camera app. Screenshot Bart Weiss.

If it looks good to you, it will look OK. But in filmmaking, just OK is not good enough. How can we shape the image so the audience will look where you want them to look and feel what you want them to feel?

The most basic part of adjusting exposure is ensuring the subject is not over- or under-exposed. But what if you want the image to look dark to show the character's dark mood? You could play with exposure with your finger until you get the look that expresses the emotion of that moment in your film.

Get out your phone now and set up a shoot on a tripod if you have one. (A selfie stick tripod will do.) Look at the exposure. Make it a bit darker. How does that feel? Make it a bit darker, and that probably is not acceptable. Look at the difference between the frame's brightest and darkest elements. If the darkest part lacks detail in the shadow areas, we have gone too dark; if the white parts are blown out and there is no detail in the highest, you are overexposed. (Or perhaps that was the look you were going for.) If you lost detail in the shadows, you could add external light to get more detail in the blacks. If you have your phone on your desk, experiment with turning on and adjusting your desk lamp to see how different items on your desk look with the exposure changes. Part of finding the correct exposure is technical, and part is knowing what you want it to look like.

If you look at your subject and they are too dark, you could adjust the exposure or add a light to fill in the face of the subject and separate it from the background.

Focus

By choosing a point of focus, we can lead the audience to look there. For example, if two people are talking and you adjust the focus during the scene, you can direct the audience's attention.



Figure 5.2 Rack focus. Mason LaHue.

Test changing the focus by touching in different spots where objects are at different distances and observing how quickly the focus responds. To get more control of the focus, you will need a different app to shoot with.

If you have a iPhone Pro 13 (or 13 Pro Max) or later, you can also use cinematic mode to control focus in post-production.

Mobile phones have only one f-stop (the hole size that lets in light).

These exposure changes are changes in the ISO, which is the camera sensor's sensitivity. (ISO stands for the International Organization of Standardization.)

Raising the ISO in darker areas will add graininess to the image. To avoid that, add more light.

If you touch the plus-minus button on the left of the exposure scale, you can switch between action mode (more on that later), pro res (more on that later), and an on-off button for your phone's flashlight.

When shooting with the native app or any app, it is best to use the standard lenses of your phone. Your phone will give you a nice-looking option to zoom in, but the video will look best without the processing to interpolate the angle difference. To set the lens, you select the numbers on the left side (.5, 1, 2, or 5, with 1 being the normal lens).

Lighting Basics

The first step to learning about lighting is to look at light. What do you like, what don't you like? For light that you like, try to figure out both why you like it and where the light is coming from.

When you see lighting anywhere, take a still with your phone. Later, look at it and try to emulate it.

Lighting can guide the eye; set the mood/tone; set a proper exposure level; make subjects and objects visible or conceal them; and orient and manipulate the audience's attention.

Lighting is about creating and controlling highlights and shadows: where do you want and not want the light to go?

On a technical level, we need to balance the light so we don't have to mix inside and outside light. On a creative level, how can we use color to determine emotion? If the light in a scene is bluish, how would that make you feel?

In film school, we teach filmmakers to have a key light, fill light, and back-light. The key is the primary light source, the fill light fills in some of the other side of the face, and the backlight separates the subject from the background. It is good to know the functions of the lights, but if you look at most shots in most films, you will not see this basic lighting setup very often.

There are four qualities of light:

1. Color temperature: Daylight is blueish, and tungsten is orangish. Color is measured by degrees Kelvin. Around 5600 K is daylight, 3400 K is tungsten, and 4500 K is fluorescent lights. All of these are relative; different kinds of tungsten or fluorescent bulbs have different color temperatures, and a sunny day will have a different color than a cloudy one.
2. Intensity: How bright the light is.
3. Texture: Is light soft or harsh?
4. Direction: Light comes from somewhere and goes somewhere.

Color Temperature

Our brains automatically adjust how we interpret daylight and indoor light; the camera needs to tell us what to do. Native apps usually don't let you choose color temperature, but most third-party apps have at least a lightbulb, fluorescent bulb, or sun icon to select the right color. What you see is what you get, so look carefully. And if you don't get the color right on location, you can fix it in post. But what can take you a few minutes on location can save you hours of work in post-production.

On the other hand, getting a great moment on location is worth the extra hours in post. It is best to have either indoor (tungsten) light or daylight in a scene. If you have a window in your shot and your camera is set to tungsten, the window will look blue. You can let that go, put an orange gel on the windows, or change your light to blue with either blue gels or by adjusting the color of an adjustable LED light.

Intensity

Ensure that there is enough light so your audience can see your subjects' faces.

If your subject walks from inside to outside, the exposure will drastically change, and the phone might need to adjust better. Another thing to remember is that if you are not manually controlling exposure when the light values change, it could affect the skin tone of your subjects.

Texture

The difference between soft and hard light is texture. Soft light is generally pleasing for faces unless you want to feature their ruggedness. It is also harder to control. What comes directly out of a traditional light is hard light, which is controllable and brighter. Soft light, which comes from either a soft light or a light with a diffuser on it, goes all over the place and is much less bright.

Direction

Light also has direction; it goes from one place on a path. When it hits something like a nose, it makes a shadow. If it is a hard light, the shadow will be solid and dark; if soft, the shadows will not be as profound and much softer.

Shooting in Daylight

Using the sun as your primary light source can be effective if planned properly. The color, intensity, quality, and direction will vary drastically depending on the time of day.

To maintain consistency and provide fill light, reflectors or bounce cards can be used to fill in the shadows from harsh daylight, or they can take away light where you don't want it. This usually means having another person hold the card or reflector or putting it on a stand. If you put it on a stand, you need to have a sandbag or something to weigh it down so it doesn't fall.

Shooting in the middle of the day is not ideal due to the harsh, unflattering shadows and the difficulty in shaping the light, and it should be avoided. One challenge of exterior shooting is that the light changes throughout the day. As you get into the sunset and magic hour (twilight), the color, brightness, and texture will change between takes!

A scene often has three planes: the foreground, acting space, and background. Think about how to light each. Don't put your actor or subject next to a wall because it will be hard to get separation from foreground to background.

Windows can be a problem because the light will be different than the tungsten indoor light; it could also be brighter. If you have mixed issues, many LED lights can easily adjust between the two. The other option is to put gels on the lights to convert daylight to tungsten.

Framing Basics

It doesn't matter what is visible in the real world; we want to adapt the real world to the cinematic world. We need to get used to looking through the camera's eye, seeing only what the camera sees, and selecting what is essential. Reality is boring; your shot should not be.

The camera person always looks at the edges of the frame to ensure there are no mics, light, or perhaps something that is not from the period of the shoot. Conversely, the director looks inside the frame. As you set up the shot, you are creating a new reality. How do the elements in the frame relate to each other?

It helps if you previsualize before the shoot, knowing the visual language that is right for the story you want to tell.

A traditional basic sequence starts with an establishing shot (exterior of a building). A wide shot of the sequence moving into perhaps an over-the-shoulder series of two shots, and then, to build up tension, a series of close-ups. Feel free to deviate from this and figure out what language you want to use. Watch a film you love and write down the shots in an important sequence. You can emulate that.

It is good to get a variety of shots to edit with later.

Framing Guidelines

Here are some basics of how to compose your image.

These are guidelines, not rules.

If you imagine breaking the horizontal image into thirds, it is good to put your subjects on those spots; this is known as the rule of thirds and there is a good chance you have been doing this without thinking about it. To help you frame, you can turn on a grid to help you place objects in your frame on the lines. To turn this on, go to settings/camera/ and turn on the grid.

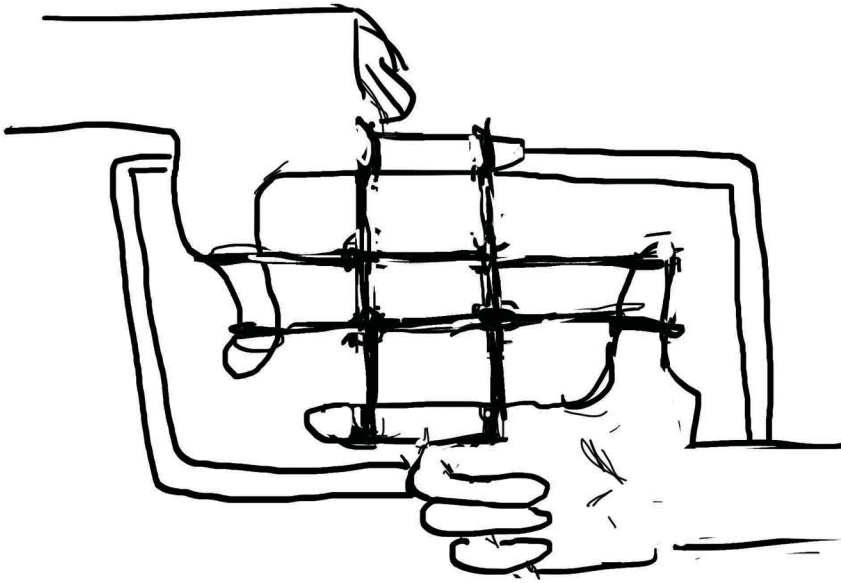


Figure 5.3 The rule of thirds. Mason LaHue.

If you have symmetry in your frame, it will often look better.

When shooting a person, there should be a little bit of room about their head but not too much room; this is known as the headroom. As you try this, it will seem natural; you don't want to cut off your character's head, and too much headroom is just wasted space.

When someone is looking in a frame, give them some space on the other side of where they are looking, which is called looking room.

You should be aware of what is in the foreground and background of each shot. Can you put something in the background to inform us of what is happening in the foreground?

The frame should have a sense of balance unless you want your audience to be off balance.

If you have your subject at a slight angle instead of head-on, it will look better. If you can have a frame within a frame, like someone in a doorway, that will look more interesting.

Try to mix high-angle and low-angle shots.

To get a knack for this, look at some of your favorite film shots. Notice how they are composed.

To practice framing, take a series of still images and play around with where you put the subjects and objects in the frame. Then, try to figure out your visual style.

Depth of Field

Depth of field (DoF) means the actual space area where objects are in acceptable focus. In traditional photography, we can change how much is in focus by adjusting the exposure, camera-to-subject distance, and or focal length (how far you are zoomed in); if you want to shoot with narrow DoF (to help focus on your character), you will zoom in, reduce the amount of light, by changing the f-stop, and/or move the subject closer. Controlling the DoF is an excellent way to help with shooting with intention. It helps you literally focus on the person and not the other person.

Mobile phones only have one aperture (or f-stop), so you can't adjust the light coming into the camera. To get a shorter DoF, you can move the subject closer or use the telephoto lens. You can simulate this effect using computational photography in cinematic mode.

To change the focus, just tap what you want to be in focus; when you double-tap an object, the phone tracks that object.

If you have a phone with cinematic mode, you can change the depth of your field either on location or in editing.

Stabilizing the Camera

One of the biggest challenges of shooting video on a phone is keeping it steady. If you can use a tripod, that is helpful, but so much of the joy of mobile filmmaking is being out in the world. Many grips and gimbals can help. Most camera apps have some kind of image stabilization that usually requires a good bit of light, so it is good to test your solution before shooting.

Camera Recording Settings

Choosing the best recording settings for each project will be helpful. There are many choices, and it can be confusing. The first thing to consider is where you want this to be displayed at the end of the project. A movie screen, a mobile device, YouTube? Do you want your final project to be 4K or HD?

On advanced phones, you can shoot in Dolby Vision and High Dynamic Range (HDR) video; these are great, but do you need them? It depends on the project.

Another consideration is what hardware you have, especially in editing. Can your processor handle large files? Do you have enough space on your phone or computer hard drives to shoot large files?

Shooting Video with the Native Video Camera Application

As you prepare for shooting, one of the big questions is whether you want to use the native video app on your phone or a third-party app like Filmic Pro or the Blackmagic Camera app. I will address others later in this chapter.

All of these can give you great results. If you are relatively new to cinematography and mobile cinematography, shooting with the native app will probably be best at first.

There are fewer choices, and the interface is cleaner, allowing you to focus more on what is in the frame instead of settings. The native app does allow you to control the image, but not as much.

If you jump into Filmic Pro or the Blackmagic Camera app too soon, all the controls could get you flummoxed, and you might miss something important. While making a film, you are making a hundred decisions a minute, and the last thing you want to do while trying to get a great performance or interview is worry if you get the perfect exposure.

Before shooting anything important, you must practice. Keep shooting. Shoot what is around you. I practice shooting my cats. We have two black cats, a white cat, and one black and white cat. When shooting them, I need to ensure detail in the black cats, and I have not overexposed CC Rocket, the white cat. Cats' movements are unpredictable (at least mine are). So, following their movements smoothly can test my handholding ability or how a gimble can work. When moving the camera, move it slower than you think you need to.

Get out your phone or camera every day and shoot something. The more you shoot, the better and more comfortable you will become. If you don't like it you can erase it!

Getting Files onto Your Computer

If you have an iPhone and a Mac, the easiest way to get the footage onto your computer is through AirDrop. To use AirDrop, select the files or files you want to transfer and tap the box with the arrow facing up. This will take you to a menu asking where you want to send it. If your Mac is on the same network, just select that, and voilà, your files are on your Mac. If your files are large and your WiFi is slow, you can connect a cable to move the files on an iPhone.

With Android phones, connect from the phone to the computer and use the free Android File Transfer app.

When you transfer footage from the phone to the computer, you should make not one but two files. One is to edit with, and one is to use as a backup. This

could mean a cheaper, slower hard drive, but it is necessary. Hard drives will die. You really should have three drives, with the last one at a different address; if your place burns down, you still have your footage, but if you have at least one backup, that is good.

When you drag and drop a file, sometimes that file does not transfer all the way. To ensure all your precious camera files get transferred, you can use the clone tool in Davinci Resolve to ensure your files are there. When the file is transferred, it gives you a file showing that it is done. The clone tool is on the media page. If you don't have Davinci Resolve (which is free), you can use a program like Hedge to transfer files securely.

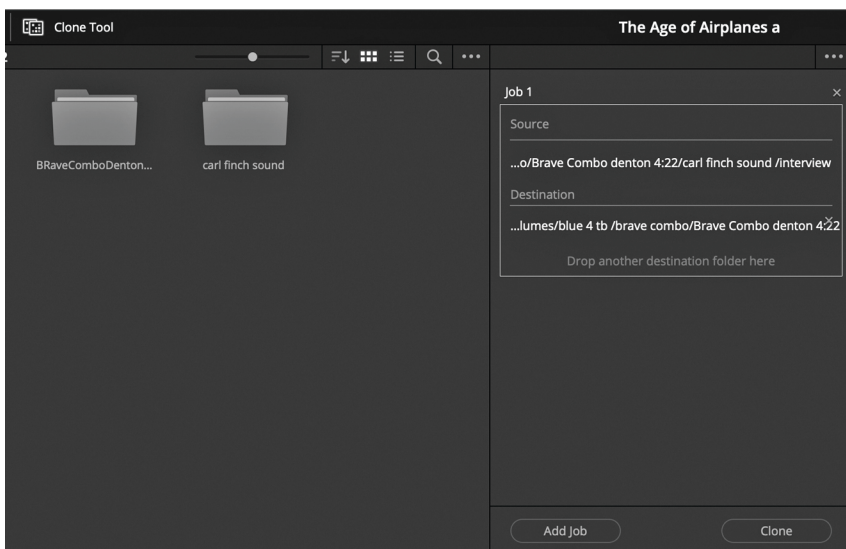


Figure 5.4 Clone tool. Screenshot Bart Weiss.

Watch Your Footage

After shooting, you need to watch the footage carefully. It is good to watch your footage on your phone, but it is better to watch it on your computer. It is good to evaluate the footage sooner rather than later because what you are trying to accomplish in each shot will be fresh in your mind.

Get excited about what you did correctly and see how you could have done better. Could the framing be better? Is everything in focus? Did I move the camera smoothly? How did my choices say something about what was in the frame?

The sooner you do this after shooting, the better.

Look at the footage in two ways.

1. What could I have done better technically? Is the footage shaky? Is it in focus? Did the camera move smoothly? Was the exposure good?
2. How did I use the camera to tell the story? Could I have been in a different place? Should I have gotten another angle? Did I get a close-up at the right time? Did my use of the camera help tell my story, or was it just there passively capturing what was in front of me?

The first few times, this can get discouraging, but all these problems can be fixed if you identify them. The more you shoot, the better you will get.

Once you get more experience, feel confident, and want to explore how to make the image more expressive, you should try Filmic Pro or the Blackmagic Camera app.

Working with the native app will give you good-quality images, and you can focus on your actors or subjects rather than the camera. When working with the native app, your phone is a big viewfinder, and you don't have many distractions. But there are settings to go over.

Some of the settings are on the app, but many of the important ones are in the system settings app on your phone (the grey gear-shaped app).

I will be going over the settings for the iPhone; the Android settings will be conceptually similar.

More on Camera Settings in the Settings Application (the Grey Gear)

With all these settings, it is good to do a test before shooting to see what you like/need.

When testing something new, it is a good idea to shoot it, put it into a timeline, make a few edits, and ensure it looks like what you thought it should.

Look for the Camera setting. It is way down there in the grouping that starts with Music.

The first choice is the Record Video section, which is the frame rate and resolution you want to shoot.

Your choices are:

1. 720p (p stands for progressive, which is what computer video uses as opposed to interlace, which is the old TV style of video) at 30 fps (frames per second)
2. 1080p at 30fps
3. 1080p at 60 fps
4. 4K at 24fps
5. 4K at 30 fps
6. 4K at 60 fps (with the high-efficiency codec)

The frame rate is how many frames per second you will shoot. In the silent days of cinema, the rate was 18 frames per second. When sound came in, it moved to 24 frames per second so the sound would sound better. And 24 fps is where movie theaters remain today. Television was at 30 frames per second in the US, and in many other countries, it was at 25 frames per second. For the cinematic look, you should shoot at 24 frames per second.

Higher frame rates will mean you need more light to expose the image because the shutter is open for less time. Higher frame rates have less image blur (fast-moving cars, etc.). Some find that higher frame-per-second rates have an immersive look to them. Higher frame rates also increase the processing power of your phone.

Some filmmakers prefer the look of a higher frame rate, like 60 fps. Like most things, this is subjective, and the only way to get a real grip on it is to shoot a test with different frame rates of the same subject. The easiest way to do this is just to put your hand in front of the camera and move it around.

Compression

In digital video, the image is turned into massive numbers of zeros and ones. The images are compressed with a codec so that the cameras and editing systems can handle all the data. Codec stands for compression-decompression. The file is compressed on the way in and decompressed for viewing. There are many schemes to compress the image; some are lossy, and some are lossless – some find playback easy on more systems, and others not so much. Selecting the right codec for each project is essential.

When using the native apps, you still need to decide on frame rate, frame size, and compression scheme.

The big question is how big or small you want your files to be. To answer this question, consider the end result of the video you are making and where it will be shown. Knowing what your end game is will help you improve it.

Do you want to show this at a festival in a theater, or is this going to be shown on YouTube or social media? If you know where you want it shown, find out what specs they have so you can get the best quality for that format.

ProRes Encoding

The next choice is ProRes or non-ProRes. ProRes is a professional-grade compression with significant detail and color depth that will look great but eat up substantial hard drive space on your phone and your computer. It will also allow you to shoot in 10-bit instead of 8-bit.

If you can't do ProRes, your best options are H.264, also known as MPEG4 (Motion Picture Expert's Groups), or H.265, also known as HEVC (high-efficiency

video coding). H.265 is a more efficient codec, but H.264 is more universally used. Check your post-production stream before making this choice.

The following setting is in the formats part of the Camera settings. The choices are HDR (High Dynamic Range), which is great for showing on mobile devices or high-resolution monitors, SDR for Standard Dynamic Range, and LOG. As it says in the settings, “LOG is a video frame that retains more information in the files, providing additional flexibility when editing color and making adjustments after the video is captured. LOG will appear flat and grey before processing adjustments are made.” This setting just *allows* you to shoot in LOG. To actually *shoot* in LOG, you need to select it *in* the camera app. To do that, select the ProRes LOG setting. If it has a line through it, it is turned off. When ProRes is turned on, it will tell you how many minutes you can shoot, given the amount of hard drive space you have. The image on the phone will seem to have low contrast, but that will be fixed in post-production when you add what is called an LUT (which stands for Look Up Table). When you drop the LUT on the file, it will look fantastic!

Your bit rate will determine how much the colors can be differentiated in your image: 8-bit video (non-ProRes) can distinguish 256 different tones of color, while 10-bit can distinguish 1024. That is quite a difference. A higher bit rate will give you more control in color grading in post-production. If you can, shoot in 10-bit. I would recommend it.

HD/4K

The next question is about frame size. Do you want to shoot in HD (1920x1080), which stands for high definition (which it was at the time), or 4K (3840x2160)? Those numbers are pixel or picture elements.

Unless you bought a massive hard drive for your phone or have a phone that allows you to attach an external drive, you will constantly be negotiating between higher-resolution and fatter files or smaller files that are more compressed.

If your intended exhibition format is 4K, shoot in 4K. Some Samsung and other cameras can shoot at 8K, but I found they ate up too much space on the phone. In the year that I had a phone that shot 8K, I only used it once, and that was to make a test.

HD is good, and 4K will give you even more resolution, but again, it eats up my computer’s hard drive space and processing speed. If your computer doesn’t have significant RAM, 16 gigs at the least, it might be best to shoot HD.

For reference, one minute of video is about:

60 MB (Megabytes) at 720p 30 fps,
130 MB at 1080P 60 fps,
175 MB 1080 6 fps,
270 MB 4k 24 fps film style,

350 MB 4k at 30 fps higher resolution,
400 MB 4k at 60 fps high resolution smoother

If your intended exhibition format is HD, you can shoot in HD or 4K. Shooting 4K for HD uses more data but gives you more post-production options. This allows you to turn a medium shot into a close-up, or you can shoot a medium two-shot and turn it into two single shots. If you want to do this trick, test how far you can zoom in before you lose visual quality.

To summarize, if you have the gear to shoot 4K, do that. If you can quickly move 4K videos off your phone to a computer, you can shoot in 4K; If you have a phone that can record to an external drive, you can shoot in 4K.

But if you shoot in 4K, you will still need to deal with big files while editing. Most modern editing systems have easy ways to make proxies (smaller copies of the video files); more about this in the editing section.

For the best quality picture, use 24 fps 4K image in ProRes 422 HQ if you have the space on your phone.

PAL

You would shoot in PAL (which stands for Phase Alternating Line) if creating work for European television is the primary outlet for your film. There is a setting to show PAL formats if you want to have that as a choice. You can shoot PAL in 1080p at 25 fps or 4K at 25 fps.

Enhanced Stabilization

Enhanced stabilization, which is just an on or off button, can be helpful. If you shoot everything on a tripod, turn this off; otherwise, I would leave this on. Leaving it on will slightly zoom in, making it smoother. If your editing software has good stabilization, you can do that in post.

Slo-mo

You can choose between 1080HD at 120 frames per second or 1080 at 240 fps. The higher the frame per second, the slower the image will look in playback. If you choose to shoot slo-mo in the native, you can't shoot in 4K. If you want to shoot slow motion in 4K, you can shoot at 60 frames a second and slow it down to 24 frames a second in your editing program. When using the app to shoot slow motion, the video will start at standard speed, go to the speed you set, and then return to normal speed. Because of that, when shooting in slow motion, wait a few seconds before saying action and cut.

There are apps like Slo Pro that specialize in slow motion. Slo Pro can shoot up to 1000 frames per second. It is free to download, but you will probably want

to get the pro version, which is currently \$19.90. Many slow-motion editing apps can transform your video. You can also slow the video in post-production, but doing it in camera will look better.

Level

A setting I like, found under composition settings, is level. This turns on a line in the middle of the interface to show you when your phone is leveled. If you find this annoying, turn it off and look for something level in the shot to help you. If you turn this off and your shot is not leveled, you can adjust it in editing.

HUD

You set these settings with the help of Heads-Up Displays, or HUD for short. An HUD is a control that is layered over an image.

In the standard camera mode, you have a few other options. Many of these you select from icons on the left side of the frame. To adjust these, tap on the arrow in the middle of those icons.

Action Mode

Action mode is turned on when you hit the person running button. Action mode needs lots of light and works best in exteriors. It does a good job smoothing out your movements, but in my testing, it is not close to how a gimbal looks.

Macro

The flower icon turns on Macro, allowing you to shoot items very close to the phone. When you shoot things very close to the camera, you have less depth of field.

Lighting

The lightning icon turns on the phone's flashlight. You can turn it on or off here or set it to automatic, where it will come on as needed. I would not select that because turning on that light would change how the image looks and might not be what you want. As you get more experience, fewer automatic items are selected.

Time-Lapse

The other video mode is time-lapse, which can show things in a process. This is a way to see a flower bloom in a minute instead of a week. A tripod is necessary when using time-lapse. You can adjust exposure and focal length, but you cannot adjust the timing of the time-lapse. The other control on the interface is the exposure control. To get to that, hit the yellow scale with numbers; this will bring up an exposure scale right next to the record button.

Cinematic Mode

Cinematic mode will make your films look more cinematic by giving you more control over changing the focus. To take advantage of cinematic mode, you must have Final Cut Pro or iMovie as your editing software.

One primary reason to use the native app is the cinematic mode. Cinematic mode allows you to change the focus in the field and/or in post-production. This is revolutionary. There has never been a way to re-tweak the focus in filmmaking.

The choices here are 1080 at 30 fps, 4K at 24 fps, or 4K at 30 fps. If you can, I would go to 4K at 24 FPS.

You must have a good amount of light to shoot in cinematic mode. You can shoot outside or add some light. When you select cinematic mode, most of the interface stays the same as shooting standard video, except you only have two focal lengths, normal and 3x. When you shoot normally, you can adjust exposure by putting your finger on the phone and moving it up and down for more or less light. In cinematic mode, you need to hit the exposure adjust, the little lines above the flash icon mentioned above. When you hit that, you get the slider to adjust exposure.

Cinematic mode will detect someone in frame and default to keep them in focus.

By tapping on the screen, you can make other parts of the frame in or out of focus. We call this a rack-focus shot. Once you have a person in the box, tap again, and the phone will track the person, keeping them in focus. Tap-holding on the screen will maintain the focus and defeat the automatic focus.



Figure 5.5 Cinematic mode. Screenshot Bart Weiss.

If you have two objects or people, cinematic mode will go with the one closer to the camera. If the foreground subject moves their head, cinematic mode will rack focus to the person in the background.

To change the amount of blur, hit the button on the left side of the frame. On the right side, a slider with f-stop numbers will appear. Sliding to a smaller number (f2) gives you lots of blur, and f16, not so much. Most mobile phones have only one f-stop. Those numbers simulate the aperture size, and in traditional photography, a smaller number (larger hole) gives you more depth of field (bookah blur). The f-stop numbers in cinematic mode do not change the actual f-stop but simulate what changing an f-stop in a traditional camera would look like.

As with many things, the mid position is an excellent place to start. Tap on that arrow again, but this time hit the circle with a plus and minus; this gives you control of the image's brightness. Adjust it to what looks pleasing to your eye.

While testing the cinematic mode, adjusting each setting and seeing what it looks like is good.

It would be best to test with two cooperative friends or family members, but you could put your phone on a tripod and move around with two dolls to not bother anyone – or my cats if they are sleeping.

But don't worry if you don't get the focus precisely the way you want it. If you use Final Cut Pro or iMovie, you can further adjust the video in post-production, which is great (see editing chapter).

To improve the bokeh look (that narrow depth of field look), adjust the change in focus live rather than in post-production. When you do it live, the camera adjusts the exposure to get that change in focus; when you do it in the editing stage, the computer does it, and it looks okay but not as good as it does using the camera.

Just before publishing, Apple unveiled a free Final Cut Pro Camera app that allows for more control than the native app but not as deep as the Blackmagic Camera app. It has better exposure and focus control than the native app, and it has zebra patterns, peaking, and audio meters. The app is available for both iPhone and iPad and will synch with the Final Cut Pro app to allow live Multicam of live events. While shooting a live event, you can control up to four cameras from the Final Cut Pro iPad app. You can also adjust focus and exposure directly from the Final Cut Pro app.

Apple has also just unveiled new iPad Pros, equipped with the groundbreaking M4 chip. It has also released the iPhone 16 series, with better lenses and a camera button that allows tactile control of focus and exposure, emulating a DSLR.

Shooting Video with the Non-native App

Shooting video with the apps that come with your phone is intuitive, powerful, and fun. It is just you and what is in front of you. You have limited control,

which is good and bad. It will be harder to get better images, but with the native apps, you can focus on the story and what is in front of you. As you get more experience and confidence in mobile cinematography, you might want to try some non-native apps to get even more control of the images.

Some functionality can only be used with the native iPhone apps. For example, you can only use cinematic mode when using the iPhone app. The slow motion and other functionality in the native apps work differently and sometimes better than the ones in third-party applications. The ultra-slow motion in the Ultra Samsung phones looks excellent. When shooting a documentary with many things happening, it might be best to start with the native app so you don't miss anything. But if you practice with a third-party app, you will have more control. A musician practices every day; how often do you practice shooting?

Non-native apps give you more control of the image when you want and need it; like everything with mobile media and traditional filmmaking: test, and practice at home before shooting. You don't want to miss something because you cannot remember where to adjust the ISO.

One way to think of it is that the native apps are point-and-shoot cameras, and the third-party apps can be more like digital cinema cameras. There are times when shooting with a point-and-shoot camera is fine. But as you want more control, these apps shine.

When looking for a third-party app, one thing to look for is whether the app records video in the app or sends the videos to the Photos app (in the iOS world). The problem with having all your footage in the photo app is that it will fill your iCloud account quickly. As video files get higher resolution, they have way more data, which means they fill up your phone.

Most third-party apps will tell you how much space you have left on your phone and how many minutes you have with the frame size and resolution you are currently working with. This number is usually at the top.

Controlling the Image with Non-Native Apps

Most non-native apps have several tools that help you get the best exposure and focus for your image. These tools evaluate the image but don't change it. They show you what you are getting and make visual suggestions to help you expose and focus your images better.

Zebra Patterns

Zebra patterns are lines (that look like zebras) that will be displayed on your phone at specific brightness levels. For example, setting the pattern to go on when the image is overexposed will ensure that the sky is not overexposed. You can back that off to let you know when you are close to being overexposed.

Histogram

A histogram is another tool for evaluating exposure, but in a different way. When looking horizontally at the histogram, the left side represents the black in your image, and the right is white. Vertically, the bottom shows very little of that brightness or luminance; at the top, we have lots of pixels at that brightness level. It is good for judging contrast in the image and telling if you are over- or under-exposed.

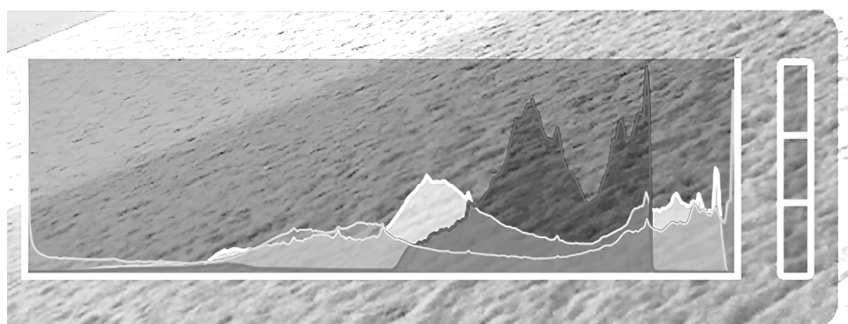


Figure 5.6 Histogram. Screenshot Bart Weiss.

False Color

Another way to visualize exposure is false color. In false color, the colors of your image are replaced by colors that represent different brightness levels, which are expressed in IRE (IRE stands for Institute of Radio Engineers). Zero IRE is black, and 100 is bright white. In false color, these IRE are replaced with purple when underexposed, dark blue when dark but not underexposed, and greens when they are mid-tones. When we get to orange, it is close to overexposed, and red is overexposed. Skin tones should be grey, pink, or green. When displaying false color, a scale on the left part of the screen helps you remember what each color represents. When you first see a false color image, it looks like something from a psychedelic album from the '60s. False color is usually only seen on expensive cameras or monitors. It is on the Blackmagic Camera app.

Waveform Monitor

Another way to evaluate exposure that is both used in post-production and helpful in production is a waveform monitor. The bottom of the scale represents the black in the image; the top is the white. It measures the brightness of what

is in the frame from left to right. For example, if you had an image of a ping pong ball going from left to right on the bottom of the screen, on the monitor, you would see the line at the top (the ball is white) wherever the ball is on the screen from left to right.

Focus Peaking

Some apps have peaking or colored lines to help with focus. These lines turn the parts of an image in focus into a color you can choose (red or blue). As you adjust the focus, you can trust these tools to make sure what you are getting is in focus.

Audio Meters

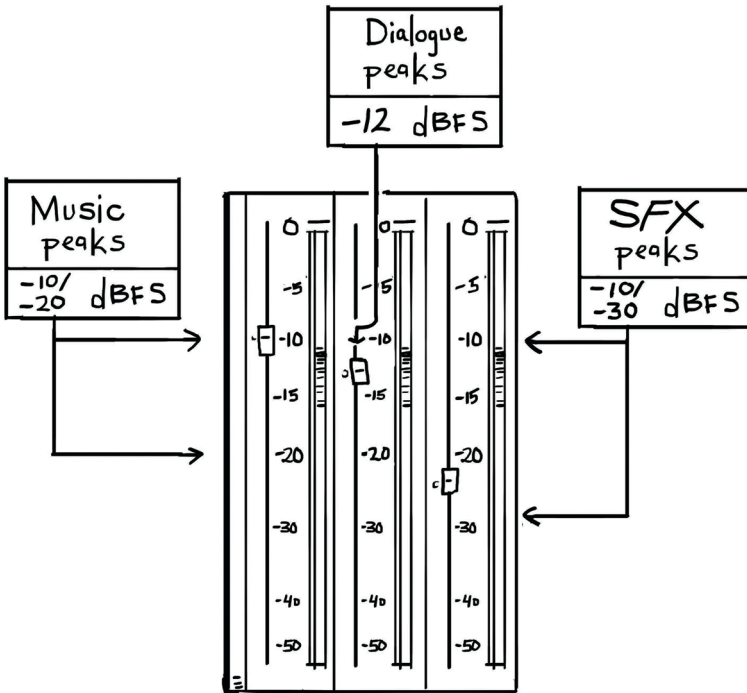


Figure 5.7 Vu meter. Mason LaHue.

Most third-party apps have audio meters to visualize the recorded audio level. In general, dialogue should be in green, just kissing the yellow. Specifically, dialogue should be at -12 – 15 dB (decibels), Music at -18 – 22 dB , and sound effects from -10 to -20 dB .

Controlling the Gimbal

If you use a gimbal, it is helpful if the app you are working with supports the gimbal, making it easier to turn the camera on. Most gimbals have their own apps that give you more control of the gimbal. More on that later.

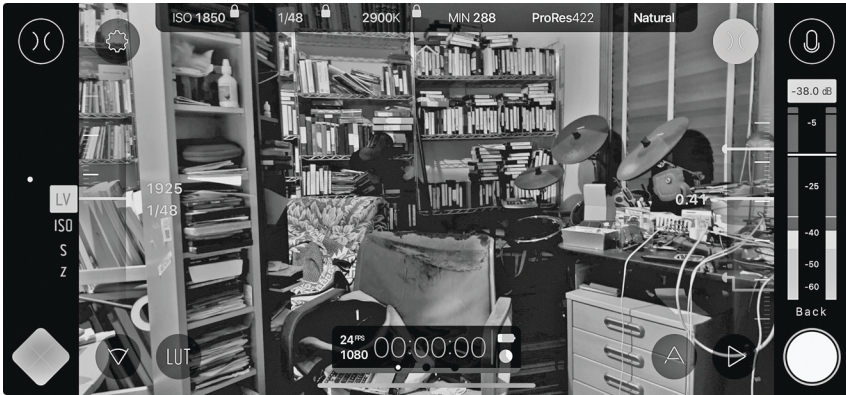
Filmic Pro

Figure 5.8 Filmic Pro. Screenshot Bart Weiss.

At one time, the best-known and most powerful mobile app was Filmic Pro.

While there are many alternative apps for shooting stills and video, Filmic Pro is easy to learn and was the first app to bring true professional tools to your mobile device.

All these apps are good, but the gold standard for many years was Filmic Pro. *Tangerine* was made by Sean Butler on Filmic Pro. At the time, it was *the* app to get professional results on a mobile phone. He said he could not have made the film on the phone without Filmic Pro.

The app first appeared in 2011 and was one of the first to bring professional control to the phone. Filmic Pro was the app that united the mobile filmmaking world for a long time. After version 6, Filmic Pro moved to a subscription model. It is \$39.00 a year. That is not expensive if you consider what the app can do, but it is a lot for an app.

Since Steve Jobs announced the iPhone and said, “There is an app for that,” apps have mostly been inexpensive and easy to learn. I believe that apps killed user manuals. If you could not figure out how to use an app quickly, people would not use it.

The subscription lost much of the goodwill the company had. But if you owned version six of Filmic Pro, also known as the legacy version, you can still use it. It just won’t be updated. The new version, Version 7, has a new interface that works well with LUTS and LOG. While many mobile filmmakers shy away

from Filmic Pro, it is still an excellent tool for making good films. However, since the development team was let go, I believe the app will not be updated.

There are two things to consider here. If you want the app updated and supported, you should pay people for the development. Second, \$39.00 a year is inexpensive compared to other professional tools.

To Control Filmic Pro

To adjust exposure or focus, just click on the square or circle on the phone. If you tap either of these, it will turn red, which means it is locking the exposure or focus. For more precise control, hit the Manual Mode Engaged icon (2 semi circles on the top right of the interface, and you will see two semi-circles on each side of the phone. We can adjust the shutter speed and ISO and zoom on the left side. Select Z for controlling zoom, S for shutter Speed, ISO for ISO, and LV for ISO shutter speed locked together. The semi-circle allows you to have a smooth and controlled zoom. On the other side you can control the focus. You can set points to animate a rack focus or zoom for both the focus and zoom. These sliders work in a similar way that you would adjust a lens on a camera, but even better, as you can set points to rack focus (automate a change in focus). While other apps emulate this, Filmic works better.

Filmic Pro allows you to connect two devices (phones and or tablets) to each other. You can shoot with the phone and use an iPad as a director's finder, or you can have an assistant camera person rack focus with the second device. Filmic also has Double Take, which allows you to use the separate lenses on your camera simultaneously. So, you can have a wide shot, medium shot, and close all at once. I have tested it, and it works, but I have yet to find a use for it.

Filmic Pro LUTS

You can work with many LUTS in Filmic Pro.

Filmic Pro Gimbal Control

Filmic can also control most gimbals, which means you don't have to learn the interface of the company's own app to get all the control of the gimbal.

Filmic Pro Training

Filmic Pro has a great series of training videos with a fun attitude. You can see them here: <https://www.filmicpro.com/training/>.

Histogram and Waveform

Filmic Pro has a histogram and a waveform monitor to help with exposure. The settings are well laid and seem more intuitive.

Other Controls

There are various aspect ratios, frame sizes, resolutions, and compressions. You can connect and select external mics, including a Bluetooth mic. It was the first third-party app to allow for anamorphic lenses. It has three levels of image stabilization, and you can and should make a preset of your settings so you don't have to check them each time.

Filmic Pro is still a great app, but I fear it will not get the development to move forward in the future.

The Blackmagic Camera App

Figure 5.9 Blackmagic interface. Blackmagic Design.

I have spent many hours working with Filmic Pro. It is powerful, but I am excited about working with a new generation of mobile camera apps – the Blackmagic Camera app.

Blackmagic Design is an innovative company that makes excellent and affordable digital cinema cameras and the editing software DaVinci Resolve, a free, full-fledged post-production suite. Over the years, they have been disruptors. I first knew of them from making black boxes that would send and adapt signals from one video system to another. In 2009, DaVinci Resolve became the company with the best color correction software. They had 100 users, costing anywhere from \$250,000 to \$850,000. After Blackmagic Design purchased it, they offered two versions, one free and one \$295.00. They keep building the app, adding sophisticated editing, graphics, and sound editing to the package. In 2012, the company started to make a “pocket camera.” I put the pocket camera in quotes because it has not been able to fit any pockets since the first version.

They released a new FREE app that was initially only for iOS, and have since released an Android version that is identical to the iOS app.

The Blackmagic Camera app took the layout of their viewfinder from their cameras and put it on the iPhone. If you are familiar with any of their cameras, this interface will look familiar and make shooting professional footage on a phone more comfortable. While other non-native apps have allowed for excellent image control, their interfaces do not look like traditional cinema cameras. The release of this app is the single most important thing that has come to mobile filmmaking since Filmic Pro emerged. This makes me very happy and very sad.

This app has a one-hand mode. If, for some reason, you have only one free hand, you can turn your phone vertically, and you get a smaller image to see, but you still get all the controls. This does not shoot vertically. It shoots horizontally. I found it easier to see the controls in one-hand mode. I tested it, and it works. I have used it on occasion.

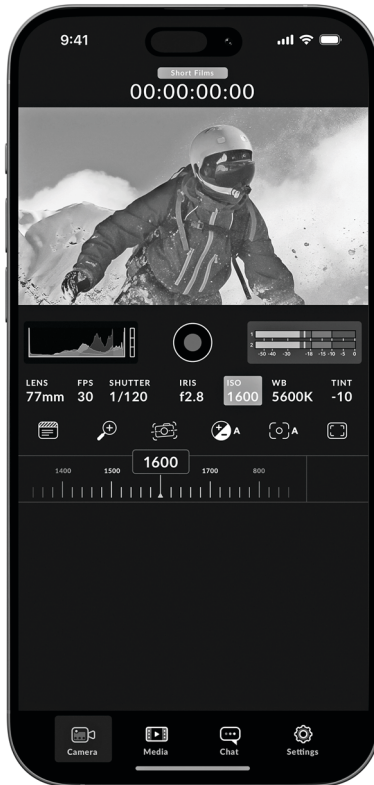


Figure 5.10 Blackmagic one-hand mode. Blackmagic Design.

Overall, this application has a clean interface and deep features and can give you professional control over your phone. It is free, and free is good, especially

compared to a subscription model. This app has generated significant buzz, not just from people in the mobile filmmaking world but also from the film-making world.

Apple held an event in November 2023 to showcase its M3 laptops. The event was shot with an iPhone, and a video showed behind-the-scenes footage of how it was shot. You can see in the video that it was shot with the Blackmagic Camera app. This is significant because Apple did not use its own native app. Their use is an implicit seal of approval for the app. The big takeaway is that it showed that the video from the phone could take center stage.

Camera Settings in the Blackmagic Camera app

There are three places to adjust the settings in this app. There are controls at the top of the screen, controls on the right side of the screen, and a settings menu.

TOP MENU

Lenses At the top left, the first setting is the choice of lenses. This will let you choose from your rear lenses or the front lens. This is like the old lens turret we would have on a film camera that enables you to select from three lenses. Remember that it is best to shoot at the default focal length of the lens if you want to zoom in or out; you can use two fingers to pinch in or out in the viewfinder. To select the lens, your options are on the right-hand side. This is true with all the top adjustments. Most of the interface works by selecting what you want on top and adjusting it on the right hand side.

Frame Rate The next option is the frame rate or fps (frames per second). You can select between 23.98 and 60 fps. For most applications, I recommend 24. Note that when you change the fps, the app will switch to the Shutter angle to compensate.

Shutter Speed For the shutter, I recommend 1/48 as a starting point. You have options for 1/25 to 1/100. If your shutter is wider (with a lower number), the motion in the frame will be blurry, but you will not need as much light.

Conversely, images will be crisp with a high shutter speed, but you will need more light. Many people would say your shutter speed should be two times your frame rate, 24 fps, 1/48 for the shutter.

When selecting the shutter, you can lock your selection by hitting the lock on the right-hand side. Note that when you lock a setting, it will display a blue lock icon to remind you that you have locked it.

When you shoot when it is bright out and don't have neutral density filters, your images might be overexposed, even when you set the ISO to the smallest number. In this case, raise the shutter speed, and your exposure will decrease.

F-Stop The next one is not something you cannot adjust, and it is the f-stop. The Phone does not have an adjustable f-stop (yet). I wish this were not there because it takes up valuable room on the interface and is just a reminder of the phone's limitations.

Timecode When you turn the camera on, the moving timecode display turns red to remind you that you are recording.

ISO After the timecode display, the ISO is displayed. The range of your ISO is tied to the range your phone can record. The current iPhone can go from 21 to 5472. Some would say the native ISO of an iPhone Pro Max is 1250, and it is best to shoot at that ISO.

White Balance The following adjustment is White Balance (WB). White balance syncs what you think is white to what the phone thinks is white. You can select the auto white balance (by not selecting the WB). You can lock in white balance using icons representing daylight (5600K), tungsten (3400K), florescent (4000K), overcast/shade (6500K), or a slider, where you can adjust it to what you think looks best. You can make more subtle adjustments to the color with the tint slider. To the right of the white balance is a tint that can give you some fine-tuning to those colors. I have not used the tint very much.

Frame Size Indicator To the right of these controls is an indicator showing whether your frame size is 4K or HD. This does not change the size; it just shows what you have selected. To select them, we go to the settings menu.

Power Indicator The percentage of battery life you have on the phone.

BOTTOM MENU

Histogram At the bottom left is a histogram that helps you with the exposure setting. There is no waveform monitor.

Storage Indicator In the middle at the bottom is a storage indicator that tells you how much time you have available to shoot with the amount of hard drive space you have. It also tells you how much space is on your hard drive and what percentage you have accessible.

If you use an external hard drive, select that drive in the media section of the settings. If you remove the hard drive but keep it selected, the storage indicator will flash blinking red lights, indicating that what you set for media is not there.

Audio Meter The audio meters are in the bottom right. If you are in the green, you are good. If you touch the audio meters, it will give you a larger display with a slider for manual volume control. Touching that audio meter brings it to the middle of the phone, where you can adjust the audio level.

Monitor Control On the top right-hand side of the interface is a monitor control button that opens other options that don't change the image but help you make decisions on the image. When selected, seven icons are revealed to the left of that icon.

Zebra Patterns The first is zebra patterns, which helps with exposure. You can manually adjust the brightness level at which these lines appear.

Focus For focus, a focus assist will show a color (you choose the color in the settings) that appears when you are in focus. If you put your finger on the screen at any time, it will focus on that.

Grid Lines The next option is a series of overlays that can help with framing or centering the image. One grid breaks the image into thirds from left to right and bottom to top. Such grids can help you place items in the "rule of thirds." It also has a center and a dot, but I don't find that helpful.

Aspect Ratio Underneath that is a setting that helps you frame in different aspect ratios; for example, you could have a scene that is supposed to be 3x4, which could help you frame that correctly.

Safe Area The safe area helps ensure that essential parts of the image are seen on all screens and are not cut off. This was more important in the old TV days because different televisions would cut off the edges of the image, so the safe area was to help, particularly with text, to make sure everyone could see what was important.

False Color Beneath that is false color to help with exposure.

LUT Beneath that is an icon to display a LUT on your image. If you turn it on, you will see a small red box that says LUT on the top right hand of the interface.

Manual Focus Back to controls on the right. The second icon down is the manual focus, with a slider. It is good to use the focus adjustment to turn on the focus assist.

When the focus icon is selected, at the bottom right of the screen is a series of triangles with an arrow. When you press that, you get into rack focus mode. The rack focus allows you to adjust the focus to three areas in your frame; when you touch that icon, it brings up three triangles, an arrow, and a speed controller. When

you touch one object on the screen, the triangle shows up. If you want the rack focus to start on that object, touch the number one that is inside the triangle. The one is yellow, the two is teal and the three is pink. Do the same for the other two places you want to be in focus at different times. Once you have made your focus points, you can adjust the speed of the rack and the direction. This really works great.

ISO Next down is the manual ISO adjustment. There are two ways to adjust it here. The ISO numbers 100, 200, 400, 800, and 1600 are displayed on the right. If you know you want these, you can get them immediately. To the left is a slider where you can fine-tune precisely where you want the ISO to go.

Image Stabilization Under that is the selection for image stabilization, which slightly zooms in your image. There are three flavors of image stabilization: standard, cinematic, and extreme; for most cases, I would go with cinematic.

Manual Zoom Next is a manual zoom. Again, to the right, we have the rough numbers x1, x2, x4, and x8. To the left is a fine-tuning scale. There is another way to zoom the image. Take two fingers and pinch the interface to make it larger or smaller. Remember that keeping the focal length to the lens's standard focal length is best.

Slate Underneath brings up a slate, from which you can select reel, take, and scene; interior or exterior; and day or night. It automatically notes the lens you used. There is also a place for the film name, director, and camera operator. All of this data is connected to your clip, and you will see this metadata and can search for it on your nonlinear editing system.

SYSTEM SETTINGS

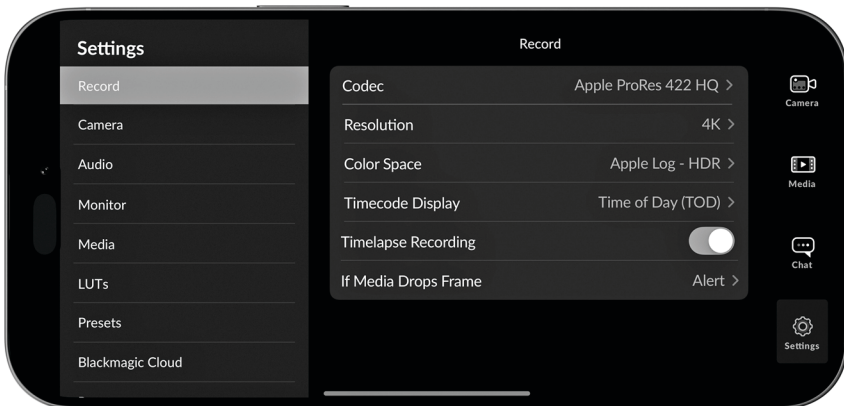


Figure 5.11 Blackmagic settings. Blackmagic Design.

While Filmic Pro has several system settings, the Blackmagic camera app shines in its ability to customize your shooting experience.

The settings are divided into Record, Camera, Audio, Monitor, Media, LUTS, and Accessories.

Record The first setting here is for codec. Your choices are four flavors of ProRes: ProRes 422 HQ, ProRes 422, ProRes LT, and ProRes Proxy, as well as H.265 and H.264. This is one of those image quality vs file size situations. ProRes gives you excellent picture quality, and if you are recording to an external hard drive, that would be a great choice. ProRes files will have more color information in them. For most projects, ProRes 422 will suffice. H.264 files can be played back and worked with efficiently. H.265 (also known as HEVC [high-efficiency video coding]) is a more efficient codec. Most of the time, I shoot in either H.265 or ProRes 422. Before starting a project, test each codec and bring the files into your editor to see what will work best for your workflow.

Resolution The following setting is Resolution, where the choices are 4K, HD, or 720p. If you have the hard drive space, I suggest 4K.

Color Space The COLOR SPACE, pertaining to how the image looks, lets you choose between Rec 709, Rec 2020, P3D64 (known as Wide Gamut HDR), and Apple Log HDR. Rec 709 is suitable for HD and can be played back on most HD systems. Rec 202 is better if you plan to show your project in 4K or Ultra HD. P3D64 is good for showing work on the iPad.

Timecode Timecode Display gives you a choice between Record Run, which starts at zero, or Time of Day, which uses the time of day for the timecode. I like to use the Time of Day because it reminds me of when I shot that scene.

Timecode Recording is just a button to turn it on or off; I would leave it on, unless the running numbers get in your way.

Timelapse Timelapse Recording enables you to get that shot of a flower blooming. Once you select it, you can choose to capture one frame in intervals from every two to every ten minutes.

Media Drops Frame Media Drops Frame gives you a choice between alert and stop recording, but this will depend on what you are shooting. If you can stop and address it, use stop recording. If you can't stop because you are recording an event or a long take, use alert.

CAMERA

Enable Vertical Video If you turn this off while holding the camera vertically, it shoots horizontally. There are situations when it is easier to hold the camera that way. If you shoot this way, there is more room for some of the on-viewfinder settings but less screen space.

Trigger Record The Trigger Record Indicator lets you choose between having no indicator when recording (the beeper is annoying but helpful), or a beeper and a flash. I think the flash is not needed. This setting is important; if you are not careful, someday you won't be shooting when you think you are, and you will get lots of shots of feet you were not expecting.

Using the Volume Button to Trigger Video is a good idea.

Lock White Balance Lock White Balance on Record is good if you are in one setting that is not changing.

Shutter Measurement Shutter Measurement lets you choose how you want to control the shutter: by angle or by speed. By speed, you control how fast the shutter works, and by angle, you control the angle of the shutter. I prefer to set it to speed and set that to 1/48th, and I lock it there.

Flicker-Free Shutter Based On 50Hz or 60hHz, I would take 50.

Lens Correction Keep lens correction on.

Anamorphic Lens De-squeeze should only be used if you have an anamorphic lens adapter on.

AUDIO

Audio Source Audio Source lets you select the mic input you want. When you have an external mic connected to the phone, this is where you select it. If you are using an external mic and remove it from the phone while this setting is set to that missing mic, you will sadly have no sound. When you take off the Lav, remember to go to this setting. I hope future versions default to iPhone when no external mic is present.

iPhone Microphone iPhone Microphone lets you select between back, front, bottom, and auto. If you are using an external mic, which you should, this is irrelevant. Otherwise, choose the mic closest to what you are recording. If you

are recording with the iPhone mic, you do not have any control over the sound level; it is automatic no matter what setting you have it set to.

Audio Format This is for the compression you want for sound; I would set this to AAC. The PCM is slightly larger and less compressed, but they sound similar to me.

Record As Record As choices here are Mono, Stereo, Dual Mono, and four channels. It depends on what you are bringing into the phone. If you have a stereo mic, select that; if you choose dual mono, you can have one person on each track (if you have two people), which gives you more options in post-production. I have not had the opportunity to use the four channels, but I am glad they are there if I need them.

Sample Rate Set this to 48 kHz.

MONITOR SETTINGS

Focus Assist Focus Assist allows you to choose between a color around the edges of what is in focus or peaking, which is black lines on an angle; I would go with peaking.

Focus Assist Color Lets you choose white, black, red, green, or blue.

Framing Guides The following section is about guides for framing. The first is Guides Opacity. These are settings for the percentage of brightness of the overlays, but they all look the same to me.

Guides Color I would select white.

HDMI Out If you connect your phone to a monitor with an HDMI cable, this is good for a director, client monitor, or for an assistant camera person to check focus. You could also record off of that HDMI cable. Under the HDMI Out, you have two options, Mirror Display and Video Feed.

Mirror Display In Mirror Display, the output shows exactly what you see on the phone, with the Blackmagic interface.

Video Feed In Video Feed, all that shows up is the video image. Under the Video Feed we have several options that show different elements on the external monitor that is connected to the the HDMI cable. These include Clean Feed, which just gives you the image, Status Text, which shows the image full screen with the control information (ISO etc) on the top, Display 3D LUT, which will show you the image with the LUT on it, Zebra, Frame Guide, Grid, Safe Area Guide, and False Color. These allow you to see specifically what you need to see

on that external monitor to better control the image you are working on. You can toggle as many of these selections as you like.

Remaining Monitor Settings The rest of the monitor settings, Display Audio Meters, Display Histogram, Display Storage Status, Display Upload Status, and Display Battery indicator, I suggest turning on. You should always have audio meters when shooting with audio; the histogram will help keep you from over and underexposing your image; if you are uploading video to the Blackmagic Cloud, you should know when that is done (and that is fast!), and it is essential to see how much phone battery you have left.

MEDIA

Record Proxy You can select this if you want to record proxy files.

Upload Clips The first part of the Media setting involves uploading your video to the Blackmagic Cloud. Then, you can send the file to an editor anywhere. Under Upload Clips, you can choose to upload the proxies (the low-res versions of your clips) only or the original files and the proxies. I would just do the proxies. That will save you money on the Blackmagic Cloud, and you can move the files later. It would also take more time for the original files to transfer.

Auto-Upload Another cloud uploading setting is “Auto-Upload to the Selected Project.” I would keep that on. Enabling “Upload Only over Wi-Fi” would be good, especially if you are in airplane mode (so you don’t get a phone call in the middle of a shoot).

Save Clips to The “Save Clips to” section is essential if you attach an external drive. To select that drive, hit the Files option, then hit the box to the left where it says “On my iPhone” in the top left-hand corner. You should see the name of your drive, select that, and your files will go on your drive. Setting up a folder to put the files on that drive would be better. If you are not recording on an external hard drive, select “In app only” so you don’t need to fill out your iCloud account. If you set save clips to an external drive and disconnect the drive from the phone, reset the save clips to go back to the phone.

Save Location Date to Clip will add this metadata to the clip, which might be useful in editing.

Filename Convention This lets you choose between how Blackmagic Camera identifies its clips and how iOS labels them. If you have used Blackmagic files, you know that they start with A001, then a bunch of numbers, and iOS files begin with IMG. Of all the adjustments, this will have the least effect on your project, but now you know what it does.

LUTs This is one of the best reasons to use the Blackmagic Camera app over the Apple Camera app. While you can easily apply the LUT in the Apple Camera app by hitting the ProRes LOG button, the Apple app displays the flat-looking image with the LUT applied but not displayed. So, while you are shooting, it looks flat and not very interesting.

Display LUT The first setting in the LUTs section is a toggle to Display the LUT. That way, you can see the rich image while you are shooting! YEA! Definitely turn that on.

LUT Selection The following selection is what LUT you will be using. The Apple LUT is great, but a whole world of LUTS can be used for different looks. Once you get one of these LUTS, you must place it on your phone. I would create a new folder in the files app called LUTS and put it there. In the LUT Selection, you will navigate to that LUT folder and select the LUT.

Record LUT The next option is whether to record the LUT to the clip or not. If you record it to the clips, it is baked in. This is easier when you get to post, but it gives you somewhat fewer options than not recording; I would record it.

Color Space The last selection in the LUTS section is the Color Space Tab. You have the same options as the color space above, but I would just select Same as Capture.

Purchasing an LUT You can get many LUTS that will run on Filmic Pro, Blackmagic Camera, and other third-party apps. Once you install this on your phone, here are the settings to get that look. Under codec, select Apple ProRes 422 and then set the color space to Apple LOG-HDR. Now go to the LUT section and enable display LUT to show you that LUT in the camera. You can either record the LUT to the clip, which is excellent, but you cannot undo this or change this. The other option is to record it flat and add the LUT in editing. To bake the LUT in, just select record LUT to clip in the LUT section and select Rec 709 in the Color Space Tag. Now, you can shoot and just bring the files into your editor. I have been using the OneLUT, which emulates an Arri Alexa.

Presets You can create presets for shooting situations and store them or export them in these sections.

ACCESSORIES

Bluetooth If you have a Bluetooth mic or another accessory that uses Bluetooth, turn the USE BLUETOOTH button on.

Nucleus Wireless Lens Control The other option is a Nucleus Wireless Lens Control, which can remotely follow focus on your phone!

Currently, there is no control for gimbals, but I assume that will come in future generations of the app.

Blackmagic Cloud One of the things that separates Blackmagic Camera from any other app is how it integrates with Blackmagic Cloud and DaVinci Resolve. If you sign up for a DaVinci Resolve Cloud app count (5 bucks a month for two gigs of storage), you can send your footage from the phone directly to a DaVinci Resolve project from anywhere. So, if you are shooting a demonstration in NYC, your editor can have that footage in LA in seconds. Not only that, but it also has a chat function, so the editor can ask you to get some B roll of Times Square, or the shooter can ask the editor what else they might need.

Once you set up your account, you can create projects in DaVinci Resolve. After creating them and signing into your app account, they will appear in the Blackmagic Cloud setting. Once you have selected your project in the app, you can send files directly to the desktop.

After shooting a clip in the app and selecting the Media tab on the right-hand side of the interface, when you select the clip, there will be a cloud with an arrow; when you select that, it will let you choose the project you send it to and then select send. It can be sent from your phone in the same room or around the globe.

Select the Media tab on the right side to get the files off your phone and into your editing system (if you are not using the Blackmagic Cloud). Here, you will see all your clips. You can play the clip back by hitting the playback icon when you choose it. You can send it to the Blackmagic Cloud by hitting the cloud icon or export it by hitting the box with an arrow, which takes you to a screen where you can AirDrop it, text it, or send it. Click on the I with a circle on it. It will show you the metadata on the shot, including size, compression frame rate, info on a proxy if you have made one, date shutter speed, color space, the information you put on the slate, and your location. All of this metadata can be sent to your editing program without you manually entering it and can be searched.

I know that was a lot to go through, but now you can control what you want to accomplish!

There are so many things I love about this app. You can get so much out of it with whatever level of experience you have. The more you use it, the better your videos will look!

Final Cut Camera

Apple released a new app that sits between the native camera app and the Blackmagic Camera app. It allows for several codecs, color spaces, focal lengths, and frame rates. When you click on the arrow in the top right, you get

manual control of focus, exposure, and white balance with sliders for more precise adjustments.

My only problem with the app is that the adjustment icons are inside the image, which interrupts framing and shooting. On the Blackmagic Camera app, the adjustments are on the edges, which makes it easier to frame your shot.

The Final Cut camera app has focus peaking and zebra patterns, which are professional features to help get more precise exposure and focus.

The app has powerful but limited settings, which is good and bad. If the settings in the Blackmagic Camera app are a bit too complicated, this might be a good one to try. If you are new to filmmaking, you might want to start with the native app; when you feel confident, move to the Final Cut camera app and then move on to the Blackmagic Camera app.

When paired with Final Cut Pro, the app allows you to shoot live Multicam from multiple iOS devices. This allows you to shoot 4 cameras in sync at once, and you can select shots live or later in Final Cut Pro.

If you are doing a video podcast or shooting a band, this could be a great option. While it is not difficult, the first time you use Multicam will take some time. To make this work, you will need Final Cut Pro on an iPad, and the iPad needs to have an M chip.

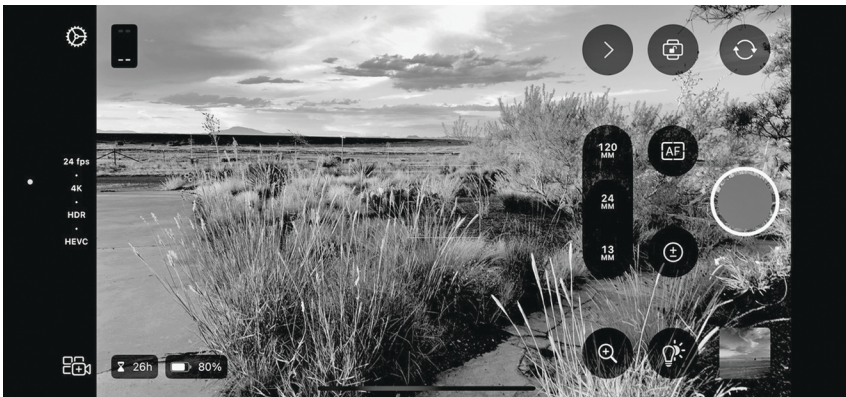


Figure 5.12 The Final Cut camera app. Screenshot Bart Weiss.

Apps for Android

In general, the non-native apps for Android will give you the control you need, but the interfaces could be better designed than the iOS apps. You can also use Filmic Pro and the Blackmagic Camera app for Android.

Open Camera

Open Camera is a free app that has significant functionality and control.

When you tap on the screen, it will adjust the exposure. On many apps, that would be adjusting focus.

It has controls for resolution/format/frame rate (the slo-mo goes up to 240 fps), exposure, white balance, and bit rate. There is a setting for maximum duration that is meant to help control your drive space, but if you don't turn this off and your shot goes on a bit, it will stop it. I would turn this off. The same goes for the maximum size.

In the settings, turn on Camera 2 API; this will give you more functionality, including working with Raw.

mcpro24fps Manual Video Camera



Figure 5.13 mcpro 24fps Manual Video Camera. mcpro.

This \$24.08 app has significant functionality. It allows all the control the Blackmagic Camera and Filmic Pro apps have. There is a free version, mcpro24fps demo-video camera. This app is identical to the paid one, with the only limitation being the recording function. I recommend trying the free version to see if the interface works.

The interface on this is crowded with buttons and sliders, to the point that it gets in the way of looking at the image. This app gives true and complete control of everything you might want, including frame rate, LOG/LUTS, bit rate, choice of codecs, and full audio control. I don't think there is anything this app cannot do. For this level of control, less than twenty-five dollars as a one-time expense seems like a good deal. But before taking this on your first shoot, practice with the settings.

Other Good Third-Party Apps

So here are some other excellent third-party apps.

Mavis

Mavis is an excellent professional-style app and one of the oldest competitors to Filmic Pro. One nice touch is that it can work with time code if you have a time code generator. This can make syncing multiple camera angles easy in post-production. But most people don't have a timecode generator, and most contemporary editing software can sync without a timecode.

It has large waveform and vectorscope, which help you have control over exposure and color.

These tools give you objective data to help you expose your image. They do not change the image but provide you with information to make changes. While seeing the image on your phone might be good, it might be different from what you think it is. These tools give you accurate data. The vectorscope is like a color wheel. As you go further from the center, the image is more saturated; it has more color. As you go around the circle, you have different colors. For example, if you were all the way up, your image would be a deep red.

In Mavis, these scopes are large and take a significant part of the interface, which can be good. You can also shrink these scopes but can't make them disappear. You have most of the controls you might want.

When you hit record on Mavis, you get a red outline, making it evident that you are recording so you don't end up with footage of your feet.

Mavis starts at \$5.99 but offers upgrades for pro formats, pro tools, and a cloud plan that lets you save your files online instead of on your phone. Like Blackmagic, Mavis has a cloud plan but it is not as sophisticated as the Blackmagic one.

Mavis is an excellent app, but I only remember once thinking I needed to use the Mavis app.

BeastCam Pro

BeastCam Pro has most of the features that you need. It also has the red box reminding you it is recording. It has an adjustment for the brightness of the screen, which can be helpful. It has visual analytics like false color, zebra patterns, and peaking. Beast Grip, which makes BeastCam, also makes lenses that work well with BeastCam. One very cool feature is that you can turn on the phone's light and adjust the brightness of the light to get just the right amount of fill light on your subject's face. At \$2.99 for a one-time purchase, this is an excellent product for a very good price.

Protake

A relative newcomer is Protake. The free version is very basic, but the pro version has a subscription of 19.99 a year (the first year is 13.99). When you open up Protake, it looks a lot like Filmic Pro. You have the wheels for adjusting exposure, focus shutter, and ISO. When you touch the wheels, they get bigger, making it easier to change them. Pro Take also has a Wireless transmitting function similar to the Filmic Pro remote app, where you can view and/or control one phone from another. This is good for having a camera assistant pulling focus on a separate device, or it can be used as a director's finder. I find the interface for the setting clearer and better on this app than most.

Moment

Moment sells good lenses and cases for working with mobile filmmaking. If you are interested in shooting with the widescreen anamorphic look, those lenses and the cases to hold those lenses are great. They also have a good app called Moment. The app has all the control features the others do and can record in professional formats.

ProCamera

This is another excellent camera app I would use if I did not have the Blackmagic camera app. One nice touch is that it can sync with both the Apple Watch and the Fjorden Grip, which gives the phone more of a camera footprint.

Specialty Apps

8mm Vintage Camera

If you are looking for a vintage look, you can do this in post-production or use the Enhanced Stabilization app, which has been around for a while and is \$3.99. This app allows you to select an old film stock and add artifacts. This app was used in *Searching for Sugarman*, an Oscar award-winning film, to match actual 8 mm footage to material shot with the phone!

RTRO

Another good one is RTRO, made by Moment, with a dolly zoom effect built in! The free version has a lot in there, but the paid version is \$24/year.

Super 16

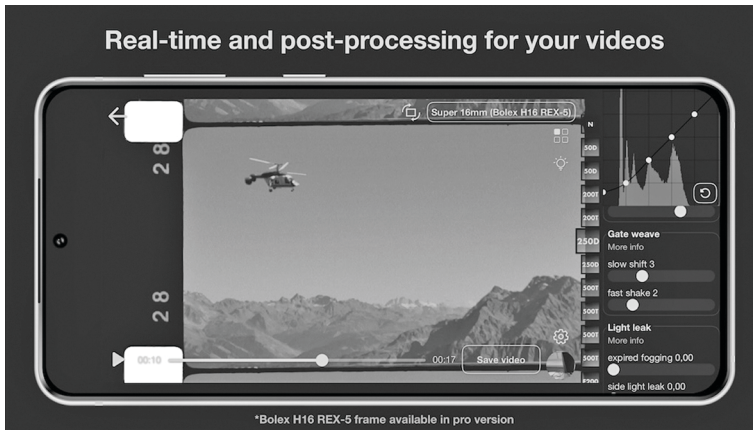


Figure 5.14 Screenshot of the Super 16 | 16 mm Film Camera app. Super 16.

Then there is the Super 16 /16 mm Film Camera app, which works on a phone but works much better on an iPad. If you have worked in 16 mm film, this app can help you match what you have done. It has powerful color and exposure control, and you can match Kodak filmstock.

Lapse It

If you want to shoot time-lapse, you might try Lapse It.

Time-lapse is different from stop frame, which lets you animate something like a pencil moving across your desk by taking one frame, moving it, and taking another frame. There are many great apps for shooting stop frames. If you have an iPad or other tablet, you can see what you are animating a bit better. Stop Motion Studio will work well for that.

Slo Pro

Slo Pro, which is free to download, lets you shoot at normal speed but super slows it down to 1000 frames per second. Wow!

Stop Motion Studio and iStop Motion

Stop-motion photography is fun, especially when working with kids. Stop-motion is where you take a frame, move something, take another frame, and then have animation. Stop motion works with mobile phones but would work better with a tablet. So, get out some clay and use any of these apps. Stop Motion

Studio (\$5.99), iMotion (free with in-app purchases), and iStop Motion, a full-featured program that can have one device control the other one (like Filmic Pro), and which costs \$9.99.

Workshop 5

This chapter has so much technical information that it can be intimidating. To move from theory to practice, we need to set up a controlled scene on a tripod and shoot tests. While testing, take notes on each shot.

The easiest way is to do a voice slate before each shot. For example, “Blackmagic Camera App, shot 12, 4K, at 24 FPS, and has no shot LOG.” If you have multiple camera apps, do the same shot on each one. After shooting, transfer your footage to your computer and make a list of the shots. If you shoot with a LOG, add the LUT to it. If you are shooting with the Blackmagic Camera App and testing LOG/LUTS, have the LOG burned in (settings/LUTS/record LUT to Clip).

Shoot the same shot with the native app and adjust exposure and focus, then do the same with a non-native app.

Download some of the other camera apps. Then, set up something to shoot on a tripod that you can repeat. Try it with each of the camera apps. Transfer the files to your computer and look at them. If you can, put them in an editing program and create a split screen so you can see them next to each other. Which one looks best to you?

6 Accessories

There are many wonderful accessories you can purchase to assist you with making better films. As you read this chapter and consider making purchases, you should consider the difference between want and need. It is relatively easy to spend as much on these accessories as you originally spent on your phone. On the other hand, these would still cost less than you spend on a digital cinema camera. Many of these model numbers and features will change to see an update to the QR code that will be updated at least twice a year.

Here are a few strategies to help you make better decisions. First, give yourself an annual budget for accessories. How much are you comfortable spending in a given year? This thinking will help you prioritize.

Next, which would you prioritize, a new piece of gear that allows you to do something different or an improvement on something you already have? With gimbals and microphones, there will be new models every year. Most of the time, these are incremental changes.

You might want to sell your old accessories when you get new ones. There are many places to sell used gear, including Facebook Marketplace, eBay, Craigslist, OfferUp, and others.

As you consider what is right for your budget, consider what is best for your shooting situation. Getting too much gear defeats part of the point of being small and somewhat invisible. However, these will improve your videos by providing more image control. The question to ask yourself is, do you want to be smaller or have more control? With every one of these gadgets, you tax your wallet and have more stuff to set up and carry around.

Before you look up what to purchase, consider what kind of smartphone filmmaking you are doing. The tools you use for documentary filmmaking differ from those for video journalism. A mobile journalist might use a larger phone holder like the Sholderpod. This will allow you to have a light and a mic and mount it on a tripod. For documentaries, you want to put a lavalier mic on the subject and try to hide it, but in journalism, seeing the microphone is fine. Dramatic Filmmaking will use gimbals and lights more than documentaries.

In a dramatic film, you might want to shoot anamorphic (really wide screen), requiring a lens attachment and a case or cage to connect it to your phone.

So, know the universe you will be working in and select the gear accordingly.

I know that this is a world that changes every year, and some of the model numbers might change, but I am going to show you how to think about what to get so you can extrapolate from what I tell you to what is available, and check that QR to see what is new.

Consider lens caps for the lenses on your camera. Either that or clean the lenses often. Consider that your lenses are in your pocket, which is not a very clean place. I would recommend cleaning your lens before every shoot. To clean a lens, use a lens cleaning cloth (an eyeglass cleaning cloth will do). Breathe on the lens to moisten it, then gently rub it in a circular motion. You could also get a box of lens wipes and use them.

Steadying the Camera

Phones have been designed to hold in your hand, but they are not the optimum shape for handholding. For most shooting, you want to hold the phone steady. With practice, you can get good, but having something to help you stabilize your video is a big help.

If you are doing an interview, you should put the film on a tripod unless you are going for an edgy style.

New phones have pretty good image stabilization, but stabilizing the phone itself will make your videos seem more professional. The Action Mode in the iPhone does an excellent job, but it needs lots of light. A move with a gimbal will look much better.

There are three basic options: a tripod, a grip, or a gimbal.

Tripods

There are many tripods for mobile out there. Joby makes the GorillaPod tripods that can wrap around what you have around you; that will be great for some situations. I have always been disappointed with them.

Tabletop

For a tabletop tripod, one option is the Manfrotto MTPIXIMII-B Pixi tripod, teamed up with a Sevenoak SK-PSC1 smartphone grip handle rig with wrist strap, tripod mount & cold shoe mount for lights and microphones for iPhone. The Sevenoak grip can connect to any tripod but is also good for getting a better grip on handholding in the field. It has a leveler that can keep your camera steady. It has one cold shoe. This allows you to attach a light or mic, but it does not pass a signal; it just holds it (a hot shoe would have passed a signal). You can put one light or mic on top of the mount.

Selfie Stick

I have found that a tremendous all-around solution is a selfie stick/tripod. These are inexpensive, small, and very versatile. They can work as a desktop tripod (for Zoom calls), using the community camera function on Macs, and most of them have a Bluetooth remote, meaning that you can turn the camera on and off from the remote. While you can purchase many on Amazon, the Small Rig Portable Selfie stick tripod is portable and sturdier than the cheaper options. While prepping for a shoot, test your settings and the rest of your gear with this sturdy tripod the night before.

The selfie stick is good for getting high-angle and low-angle shots and lets you get closer to your subject. With a bit of practice, you can get great shots with these. The selfie stick can get great shots, but you can't see what you are shooting; in essence, you are shooting blind, except if you are shooting with a phone that connects to a watch. With an iPhone and an Apple watch, you can see what the phone is shooting, making the selfie stick more useful. You can also use a watch to turn the camera on and off. This only works on the Apple video and Filmic Pro apps.

On a music film I am working on, I find I can get some great shots of the band (especially the keyboard player) with the selfie stick, and unlike being in the band's faces, they don't mind the selfie stick.

This iPhone and Apple Watch combination can also be helpful for shooting with multiple cameras. For example, if you have one phone/camera on a tripod/selfie stick, and your second camera is handheld, you can glance at your watch and turn it on and off.

Let me take a moment here to talk about why you might want to shoot an interview of a scene with two cameras. Having two different angles, perhaps one closer and one wider, gives you more options in post-production so you can make a cut that doesn't have that jarring jump cut.

Gimbals

If you plan to have significant movement in your film (which is fun and will look fantastic!), consider using a gimbal. Gimbals are not only good for dance films, music videos, and chase scenes, but they can also make an interview that might seem boring more engaging.

From the beginning of filmmaking, filmmakers have been finding innovative ways to move the camera smoothly for dramatic purposes. When you think of Hollywood of yore, we tend to think of dollies and cranes, which were heavy, expensive and took a long time to set up. In my experience, when laying down tracks for a dolly or using a crane, everything takes at least two to five times as long. The longer it takes, the more expensive it is. Then, in 1974, Garret Brown invented the Steadicam, a less expensive mount that a cameraperson could wear. This made getting these smooth shots more affordable. It was used in the original *Rocky* when Rocky ran up the steps of the Philadelphia Art Museum. A new

generation of gimbals began appearing when smaller digital SLR cameras started showing up. These gave these smooth shots to even more people. Now, with mobile filmmaking, there is a new generation of affordable and small gimbals.

A gimbal can smooth out your shots by adjusting the three axes of movement, the pan, tilt, and roll. If you don't have a tripod for your phone, you can use a gimbal for one because they all come with removable tripod legs. It's not a great tripod, but it will work.

The gimbal and the mobile phone are a great match. Instead of having static shots, you can follow a dancer, actor, animal, or musician, or you can make a horror film. Hand-holding the phone is one of its significant challenges.

The gimbal gives you professional movement at a fraction of the cost. But you need to practice controlling the gimbal more than most of the accessories in this chapter. It is a great joy to follow a dancer with a gimbal, where you, the cameraperson, are visually dancing with the dancer, creating something new and wonderful. If you are shooting a chase scene and music video, a scene in a car, or a skateboard, shooting with a gimbal will dazzle your audience.

In general, if you are shooting movement, it is far better to use a wide-angle lens; it will smooth out the shot and make the action seem faster.

And shooting with a gimbal is FUN!

Gimbals are inexpensive compared to what this gear used to cost. They will elevate your production value without breaking your budget.

Osmo and Zhiyun



Figure 6.1 Zhiyun Smooth 5S. Zhiyun.

Two brands have dominated this market. DJI has a series called the Osmo, and Zhiyun also makes great gimbals called Smooth. I have used both, and both work well. There are passionate fans of each. The Zhiyun has a fill light that can punch a little light on your subject or actor's face. It is solid and robust. It is larger than the Osmo and was easier to control, in my experience. I find the larger zoom and focus knobs easier to fine-tune.

Another advantage of these gimbals is that they have a knob that can be used for focus and/or zooming, which can give you more control than adjusting them on the phone.

The smaller Osmo fits in your pocket better. It can also extend like a selfie stick, which can help you get lower or higher shots.

Both come with their shooting apps. You can shoot with the native camera app on these, and using their apps gives you more control over unique functionality.

Both apps have regular video, time-lapse, hyperlapse (fast motion), an automatic panorama (set it on its tripod and it will move and take one frame for a good-looking panoramic shot), and dolly zoom. The dolly zoom effect is where the dolly moves in, and the zoom moves out (or vice versa). This is big for film students trying to emulate the famous scene in Hitchcock's *Vertigo*. On the Zi Cam app (for the Zhiyun) you can adjust the interval, duration, and direction of the time-lapse. In the DJI app, you can adjust the duration and interval for the time-lapse function, but you can also select your path for the time-lapse to move through. The Zhiyun and DJI are both excellent; you can't go wrong with either.

If you use Filmic Pro, you can control the gimbal with that app in the hardware settings, but it does not get you these special settings.

The apps for these gimbals mirror what Filmic Pro and other apps have. When using the gimbal, I strongly encourage you to use them. The only downside of using these two apps is that you need to learn a slightly new interface. You must practice with the app before taking it out on a shoot.

Insta360 has a new gimbal Insta 360 Pro Flow that connects with Apple DocKit, which allows for better tracking and works with AI.

Testing your Gimbal

If you get a gimbal, you need to practice. The first exercise is to follow someone around. Find someone who can take direction and go over the path you want them to walk. Moving into a park or a series of hallways would be a good start.

First, try shooting with the phone without the gimbal so you have something to build on. Next, try it with the gimbal. Start by going on a walk by yourself without a person to follow. This will help you get control of the gimbal. Try low shots and high shots. You can switch to the front camera in both apps, so try shooting yourself. How could you build a cinematic sequence from your walk?

Now, get a patient friend to shoot. Some questions to consider are: are you in front of or behind that person? How will you deal with corners? How will you deal with a door? If you think about and plan it, you will get the shot you want.

With each of these, transfer the files to your computer after the shoot and look at what you did. How can you improve on it? Wait a few days and do it again; have your person talk this time.

Think about exposure. As you move through the world, the lighting will change. If you are doing a documentary or journalism, try to keep the lighting consistent if you can, and look ahead to where you can be to avoid that change; for example, if you are in the sun, be aware of where you can move to keep in the sun. Or maybe you need to cut. You can and should control the light if you are doing a dramatic film.

For the next exercise, see if you can find a dancer and work with them on a short dance film. Plan the shots and the moves with the dancer. When you are finished, there are many dance film festivals to send your work to!

If you can't find a dancer, try to find a musician or a band to make a music video. I would recommend doing a storyboard first for the music video or the dance film.

Cage

Another way to better hold the phone and connect gear to it is to use a cage. A cage fits around your phone and has many places to add mics, lights, and other accessories.

iOgrapher makes the Multi case, an adjustable, one-size-fits-all phone case that holds a light, mic, or anything else you might need.



Figure 6.2 iOgrapher Multi Case. iOgrapher.

Small Rig makes rigs for several systems that fit your smartphone like a glove. If you change phones, this cage will only fit one phone size, so unfortunately, you will need a new cage.

They have a new system that is a bit larger, allowing it to never go out of date with a new phone. This modular system lets you buy one or two handles and brackets to attach lights or microphones. These can get bulky, but the handles can add some steadiness. The Smart Rig cage is good for attaching lights and microphones or a receiver for a lavalier. This new version comes with a neutral density filter that can be adjusted to different brightness levels, and one of the handles can hold a solid-state drive. The top of one of the handles has a remote

start button, which can be removed. One of the handles can adjust focus and zoom as well.

Tilta has a new high-end system called Khronos, which advances the possibility of professional image control in mobile cinema. The full system is not inexpensive but has thoroughly professional elements, and I believe it is an excellent investment in your mobile filmmaking future. It starts with their cage/case, which is similar to the Small Rig. There are three significant advancements. The most important thing is a follow focus, allowing a cinematographer or assistant cameraperson to adjust the focus or zoom with precision. Adjusting focus is improving on the camera, but adjusting focus/zoom without touching the camera is much better. This is a big deal.

The system also has a cooling system to keep your phone from overheating and can charge it. Lastly, it has a USB-C with 2 USB-C ports, which makes it possible to connect a hard drive to the phone and an external mic. I have been waiting for someone to invent this!

They also have an ND filter with a holder and a solid-state drive holder. Each of these is impressive individually, but together, they elevate mobile cinematography. It also makes it easier for a traditional Director of Photography to work on a mobile cinema film project. Many of the mobile accessories are built for documentary-style work; this will work on docs, but it really shines for fiction films.



Figure 6.3 Tilta Khronos Ultimate Kit. Tilta.

Grips

Another way to have more control while shooting with a phone is to have a grip. Many of these grips try to emulate a Digital SLR experience. They all have Bluetooth connections to record video and a cold shoe to attach mics and lights.

The Shiftcam has a solid grip that will help you keep the camera steady. It also makes you feel like you have a camera, not a phone. The base model (\$149) is not inexpensive. Shiftcam also makes lenses and other mobile filmmaking accessories.

Fjorden makes another excellent grip (\$169 for the base model) that is not as large as the Shiftcam.

A much less expensive grip is the Ulanzi CG-02 Smartphone Camera Grip Bluetooth with Fill Light (\$24.99), which has an LED fill light. It is made with light plastic and has a cold shoe. It is easy to set up and get going. They also make the Ulanzi Bluetooth Phone Camera Shutter 1963 (\$17), which is just the grip with no light.

MagSafe

MagSafe was initially designed to keep our laptop power cable connected with magnets. Later, Apple put magnets in the phones so that you could charge them with MagSafe Chargers. Now this magnet can be used to mount things on the phone. I have three MagSafe adapters that I use often. Moment makes a simple MagSafe cold shoe mount (\$29.95). This mount does a great job when I need a boom mic, wireless receiver, or light on top of the phone. It is small and portable. Røde's Wireless GO makes a MagSafe clip connecting the Røde GO receiver to your phone. To connect anything you have with MagSafe, you can get the Encased Magnetic Mount-Anywhere Disk for \$22.95. These discs have a magnetic grip on one side and super grip adhesive on the other. This is one way to attach a solid-state drive to your phone.

Several companies make a MagSafe grip that attaches to your phone and gives you a grip similar to a camera grip. These will make it more comfortable to handhold the phone and keep it steady. Some of these will also have their own camera apps. This is a good idea, having shot with traditional cameras for a long time.

As you read this and think about the best solution for me – even if these all seem good – the key is to think about how you are shooting. Are you making documentaries where you are waiting for something to happen to shoot? If so, that moment might have gone by the time you get out of the grip or whatever you choose. If you plan a drama or music video, a gimbal will add significant dynamic quality to the work. Some people will marvel at how you did it with your phone.

There is another new solution from Zacuto, which makes better viewfinders for professional cameras. Their directors' rig for mobile phones has two components. The first is a wooden handle with a bar to put mics and lights on. The wooden handle is excellent and makes it easy to move your phone smoothly. The second part is called the Smart Z-Finder. It is a hood that goes over the phone and connects to that great wooden handle. The Z-Finder does two great things. It magnifies what you see on the phone, making it easier to frame, focus, and expose the image better. It also makes shooting exteriors on sunny days controllable because the hood cuts off the sunlight. This is a good investment if you are shooting many exteriors. Zacuto also has a boom arm called the Micro Boom that connects to the Z-Finder. When you put a shotgun mic on it, you can simulate what it would be like if you had a sound person. I have not used this, but I have seen and heard the results, and it works.



Figure 6.4 Zacuto Smart Z-Finder. Zacuto.

Lights

Adding a bit of light to your subject's face will highlight them against the background and give your image some pop. The advent of LED Lights, which are relatively inexpensive and can be run off batteries, can help your mobile shoot.

A few examples are the Joby Beemer (make sure you get the diffuser to make skin tones look better), the Aputure MC RGBWW LED Light, or the Luma cube Power Go. The Aputure MC is about the size of an index card. When shooting with my phone, I always have the Aputure MC light in my pocket.

The Aputure MC light can be controlled by a free app called Sidus. Once you sync the light with the app, you can control the color and brightness of the light from the app. This can help adjust the light form and camera position while adjusting the app. Of course, you will need another mobile phone to control the light. The MC light has one more trick that can be helpful when trying to be

nimble when shooting. The light has two magnets on the back, so you can stick them in the scene to give something some pop.

The Liber RGB pocket video light is similar to the MC but less expensive. I think the LEDS on the Aputure have a more consistent color.

Zhiyun makes a longer, thinner version called the Fireray M40.

If you are shooting someone in a car, we have the issue of lots of light outside and not so much light inside. If you can find something metal, mount that MC light and, with Sidus, get the perfect light on your speaker. But if the light on the face (compared to the light outside) is too dark, it might not work.

All these would need to be mounted on a stand or a cage. You could use the light on a second mobile phone to illuminate your subject in a pinch.

When shooting outdoors or in a car, using a reflector to bounce the light can be helpful. For under \$15.00, you can purchase a handheld reflector to reflect light onto your subject. You will need someone to hold it, buy a stand, or find something to hold it in place.

For years, there have been some tube lights that look kind of like a light saber from *Star Wars*. Godox has a tube light, the LC500R (\$150), that has barn doors to help keep light from going where you don't want to go. This can keep the light on your subject and keep the background darker, which would look pretty good.

Pro Master has a new 9-inch tube light called the Chroma TL9RGB 9" TUBE LED LIGHT. It has a magnet on the back and can give you a wraparound illumination. This small light is portable enough to have with you.

If you need more than a pocket light, there are some great and powerful portable LEDs.

A few good choices are the Amran 150 (\$359), a small, portable, and controllable light, and the smaller Amran 60b 60D (\$134). Zhiyun's Molus G60 (\$199) and the larger Molus X100 are also great small LED lights.

These lights don't use as much electricity as traditional tungsten lights and are not as hot, which actors love.

All of these will put your subject in the best light!

Lens

Although mobile phone lenses have improved dramatically over the years, they are still not as good as those in professional cameras.

There are lens adapters that can help your image.

The first is a neutral density (or ND) filter, which is grey glass and works like sunglasses for your camera. The filter lets in less light, allowing you to keep the 1/48 shutter angle, giving you cinematic movement. ND filters come in different numbers. The larger the number, the darker the filter. Every three numbers equal one f-stop worth of light. So, an ND 3 is one stop, and ND 9 is three stops.

There are two ways to get the filters on the lens. Moment makes a case that is built to attach a variety of adapters. Another way is to have a clip that snaps onto

your phone. I have the Maven clip and filters, and they work well. The Maven ND filters have magnets so that you can stack them together, and they will not fall off.

You can also use a polarizing filter on your phone to reduce glare and make your image more saturated.

Moment makes an anamorphic lens that many mobile cinematographers love to use. To use these lenses, you must purchase the case the lens fits into. Anamorphic lenses give you a wider look that emulates what you might see in a cinemascope film. It is best to use either Filmic Pro or the Blackmagic Camera app when using these lenses. Many filmmakers love that anamorphic look, but I am fine using the standard 16x9.



Figure 6.5 A Moment anamorphic lens. Moment.

As you shoot more ProRes footage with your phone, its hard drive will fill up quickly. Adding a solid-state hard drive will keep you shooting without having to download clips.

There are several great solid-state drives. The most popular for mobile work is the Samsung T shield series. The Crucial X 10 Pro drives are fast and light-weight for a smaller footprint. A fast, large thumb drive can also work.

Other World Computing, an innovative company, offers a line of quality compact SSDs under the umbrella name Envoy. One of these is particularly well suited for smart phone photography: the Envoy Pro mini includes both a USB-C and a USB-A connection for use across a variety of mobile and desktop devices.

Workshop 6

Making purchases:

Give yourself a budget on what you can afford for mobile accessories. Look at the list and prioritize which needs to be purchased first. Part of this is dependent on the kind of work you do.

Make a list of the next things you purchase.

If you have a gimbal, follow someone telling a story. Design a move similar to what you would in a dramatic film. Shoot both of these, review them, and shoot again.

If you have filters or lenses, test each filter in different lighting conditions. Make sure you voice-slate each take. Then, bring the shots to your editor and see what works best for you.

7 Sound in Mobile Media

Sound in filmmaking is so critical. If your audience cannot hear the dialogue, they will not be engaged with your film. So, before we can get creative with sound effects and music, we must listen to what people are saying clearly. A clear sign of amateur filmmaking is terrible sound. Audiences are moved emotionally by what sound can do for a film. The keys to getting good sound are having the mic as close to the lips as possible and controlling your acoustic space. You can use the mic on the phone, but it will probably be too far away to sound good.

A good film that will help you think about what good sound can do is *Making Waves*.

Mobile video has come a long way since the iPhone 4, where the picture is concerned. But sound recording has always been a challenge. It's not the phone manufacturer's fault. These devices started with sound (to make phone calls), and they have great sound for talking on a phone and listening to music, especially with AirPods. But for filmmaking, the mic on the phone is usually too far away from the person talking to give you acceptable sound for film.

Unlike with pictures, where you can use a zoom lens to shoot from far away, the distance between the voice and the phone recording the sound is critical for sound. The further you get from the phone, the *exponentially* more noise you get.

When thinking about shooting, we spend lots of time looking for good-looking locations, but we also need to consider how the location is for sound. For instance, if you are shooting near an airport, that would be a sound problem. For interiors, smaller rooms that don't have much echo are best. If you clap your hands and the clap reverberates too much, it will be hard to hear what people are saying. If your room has too much reverberation, you can put rugs and curtains on the walls to absorb some of the lively sounds. I once put egg cartons on the wall, but it worked for the story.

Hearing the sound up close when recording sound is critical, so good headphones are critical. I prefer the Sony 7506 headphones, which have been

the industry standard. They cut out the outside sound and have a flat response, meaning they do not favor low or high frequencies.

Apple AirPods or other Bluetooth earbuds can connect to your recording device (the phone) and could work, but they have latency, so there will be an annoying delay. It could drive you crazy. Since the 7506 headphones are large, I usually take a pair of good, wired earbuds in my light travel kit. However, the Sony 7506 headphones have a mini jack that does not connect to the phone. Some microphones and lav systems have a mini port, but I am anxious if I don't hear the sound being recorded.

When directing or interviewing, hearing voices up close to my ear helps me judge not only the quality of the sound but the quality and subtlety of the performance. That sound right in my ear connects me more emotionally to the actors/subjects.

When we shoot traditional film, we have a sound person or a sound team to get that excellent location sound. The first feature film that played at Sundance and was shot on a phone, *Tangerine*, did have a traditional sound person working on the set. I heard that for some sequences, he had to be in the trunk of a car! So, one possibility is to shoot with a sound person. However, one of the reasons people shoot with mobile devices is to have a smaller crew, which brings a different sense of intimacy and helps to create a more personal cinema. But again, the best way to get good sound is to have a dedicated person handling that.

If that is not possible, we need to get creative.

There are two ways to work with sound: single-system and double-system. Single-system sound means recording the sound and picture on one device, in this case, the phone. Double system means recording pictures and sound separately, which means they must be synced up in post-production.

Shotgun Mics

Perhaps the easiest way to improve the sound is to use a shotgun mic. A shotgun mic is a very directional mic that does not eliminate unwanted sound (which is what noise is), but it emphasizes sound in a narrow path.

There are several brands of these: Røde, Sennheiser, Shure, and others. Most of these are good, not great, mics, but there are some that are very good.

A shotgun mic is a long skinny mic that is very directional, meaning if you don't point the mic right at the person talking, they will sound off-axis. If you are using a shotgun, you must pay close attention to where you are pointing it. If you are not pointing the shotgun right at the lips of the person talking, it sounds like they are farther away. While the shotgun is very directional, it diminishes but does not eliminate all off-axis sound. The shotgun will not stop the sound of a jackhammer that is next to you.

The simplest and easiest to use are mics that plug directly into the phone. They come in both Lightning (for older iOS devices) and USB-C ports. Some of these clip directly onto the phone. For others, you will need a cold shoe adapter on a case to use it. These clip-on mics are inexpensive but generally do not cut enough of the noise, so overall, they are not a great idea. Of these, the Røde VideoMic Me-L clip fits right into your phone.

The next step up is the longer and more expensive shotguns. My favorite is the Røde VideoMic NTG (\$250). This solid mic can connect to either iOS or Android and has a mini out so you can monitor what the mic is giving you (which is important). This mic also has volume control and an internal battery, which is great because you don't need to keep buying batteries. However, it's bad because you need to recharge the batteries the night before the shoot. If you start full, you should be good for the day. The mic comes with a rubber shock mount that helps isolate the mic from noise.



Figure 7.1 Røde VideoMic NTG. Røde.

This mic also has a mini output that could be used as a headphone jack or to connect to a separate analog sound recorder. It also has a USB-C out port to connect directly to your phone. If you have a lightning cable, you need a lightning to USB-C cable to connect directly to the phone. While it is good to monitor the sound with headphones, remember you are listening to the mic's output, not the phone's output, so you must ensure the level is adjusted correctly on the phone.

When setting a digital audio level, it is better to under-modulate than over-modulate. Most meters for sound have a green, yellow, and red area. For voice, you should stay at the top of the green section but never let it slide into the red area.

If you use a shotgun mic that does not plug into your camera, like the Røde VideoMic NTG, you will need to have some way to mount the mic to the phone. This could be a cage, a handle, or a MagSafe adapter.

Another good option is the Sennheiser MKE 400 short shotgun mic. Sennheiser has made quality audio gear for a long time. The MKE 400 is designed for digital SLRs. It has a mini out, but I purchased a mini to USBC adapter for under \$5.00 that allowed me to plug the mic directly into the phone. The Røde has a foam windscreen to help with wind noise, but the MKE 400 has a mini dead cat (a furry wind windscreen) that is much better). The Sennheiser runs on 2 AAA batteries.

The quality is about the same in tests with the Røde NTG VideoMic and the Sennheiser MKE400, but the Røde is more directional.

Several similar mics are cheaper but used correctly; they will give good results if you monitor the sound.

Lavs

While the shotgun mic is a great solution, sometimes a Lavalier (or Lav) is a better choice. Lavs work well because they reduce the distance between the voice and the recording device. That means the gain (or volume knob) can be turned down, which means that there is less background sound, which you want. Our goal here is to get more voice and less background.

Lavs are great but have a few problems. One is that everything sounds like it is right next to you. If your subject is 20 feet away, it will sound like they are very close because the distance between the mouth and the mic is minimal. We can address this in post-production. The other major problem is that you need to mount it well so that it is both not seen and does not have clothes rustle. Using Top Stick (a double-sided adhesive used to keep a toupee on) or moleskin to secure the mic to the inside of the shirt will work.

The other problem is clothes rustling. If your actors or subjects are moving too much, we can hear the noise.

Wired Lavs

There are two kinds of Lavs: wireless Lavs and hard-wired Lavs. If you get a hard-wired mic, you will need a long cable running down your subject to the floor and to your phone. It is hard to hide, and you can trip and fall. But a hard-wired mic would be a great choice if you are in a studio or your subject is not moving.

The most accessible version of this is a Lavalier with a long cable.

Several good lavs are available on Amazon for about \$25.00. The Røde Lavalier GO mic is a bit more expensive at \$74, but it is built better, will last longer, and will have better sound. Sennheiser has a lavalier with a USB-C cable (XS Lac-USBC) for connecting to your phone. Sony has a stereo lavalier, the ECOLV1, for \$29.00.

A great option for a wired lav is the Apogee ClipMic Digital 2, which has professional quality.

Mono recording is generally best for location sound recording. Our goal is to get the cleanest sound with less ambience. A stereo mic catches more ambience and a better sense of space but less voice, so it might not be suitable for dialogue, but it would work well to record sound effects.

Wireless Lavs

The better solution is to use a wireless Lavalier (Lav) system, where the mic has a transmitter that sends the signal to the receiver. This can provide great sound but comes with its challenges.

One of the challenges of the double system is that you must sync up the picture and sound in post-production. This used to be a problem, but these days, all editing programs can do this automatically by clicking on the audio and video files and selecting sync clips. This only works if a “scratch” track is recorded on the phone, which is the audio track on your phone that does not sound good but has sound waves that can be used to sync the good sound.

You must hide the mics (if you are doing dramatic work). In a documentary, it is somewhat acceptable to see the mics.

The mobile phone revolution has sparked a wide array of new microphones. I call it the box revolution. Most of these systems have either one or, more often, two small boxes for a microphone/transmitter and one for the receiver. These have become very popular and come in various price points. The mic/transmitter boxes have a mic and receiver/recorder in the box.

These box systems, like the Røde GO II mics, send the sound to a receiver, which can be sent to the phone when you connect the receiver to the phone. They are also recorded in the boxes, and you can sync those files when editing. Most of the time, that is great, but if there is a problem, you might not hear it, which makes me nervous. There is a mini jack on the receiver/recorder so that you can hear what is coming out of the recorder with headphones, but in general, it is best practice to monitor at the last stage where the signal is being recorded so you know that it is there and is good. There is a USB-C port on the Røde Go's, so you can connect the receiver to the phone and record the picture and sound together. You must set the audio to the external mic on your app to do that.

Some of these boxes are not easy to hide. These boxes come in two mounting options: a clip or a magnet. The clip can attach the mic to a shirt or jacket collar. I find this method distracting, but it is the fastest and easiest. All these box systems have a magnet on the mic/transmitter, allowing you to put the box INSIDE the shirt. While this is much better than the box, it has a small gray magnet that is visible.

Attaching a wired lav to the mic/transmitter box is best if you want to hide the mic. Many but not all of these systems come with a wired lav that connects to the transmitter or has a mini-input that can take a lav mic. I recommend putting the box on the belt of your actor/subject and running the lav inside the shirt. This is more invasive, but it is the only way to work with these boxes and not have the audience wondering what that box is doing there. It could be that as these boxes are seen more and more, the audience will accept them in the same way we have no problem seeing lavs on people on TV. Most of these systems also come with fuzzies that attach to the mic input on these boxes and help reduce the wind noise, which is helpful, but they visually stick out even more, making it impossible to hide the system.

Røde now offers a professional version of this setup, the Wireless Pro, with a 32-bit floating processor that records so much data that it cannot overmodulate the signal. These processors are the future of audio recording. Several other manufacturers are rolling out versions of these boxes with the 32-point floating processor.



Figure 7.2 Røde Wireless Pro. Røde.

The Saramonic Blink series of lavs plug directly into the phone and have a headphone out port, so you know what the sound will be like, and the sound and picture will be in sync. You must set your camera app to look for the sound from the Saramonic.

Saramonic makes several versions of these mics that work very well. The Blink 500 Pro 2 receiver connects to your phone through the lightning or USB-C Port. That adapter also has a port to plug in headphones, which is very important. The system comes with two mic/transmitters that are like a rounded rectangle. Saramonic's new BlinkMe B2 has two thin round mics/transmitters connecting to the receiver for portability and charging. In the mobile space, portability is essential. All of the Saramonic mics are well-made and work well.

A great wireless mic system is the DJI Mic 2. It is similar to the Røde GO IIs, but like the Saramonic, the receiver plugs right into the phone (USB-C or Lightning). The receiver has a headphone port and a large meter to visualize the level when it goes into the phone, which makes me very happy. The DJI Mic 2 has a 32-bit floating processor, so you never have to worry about recording levels. You can purchase the DJI Mic 2 with one or two mic transmitters and one receiver. The DJI 2s have a min plug to allow you to connect a hard-wired lav. Everything about these, including the case, is solid. The dial on the receiver is larger, making it easier to change settings. Like most of these mics it comes with fuzzies to protect the mics from wind. It also can connect to a digital camera with a mini input. While there are many great options for sound, I have found the DJI 2s the best.



Figure 7.3 DJI Mic 2. DJI.

You can find many less expensive versions of these box mics on Amazon. I have not tested them, but one that seems interesting is the Comica VimoS MI Wireless Lavalier Microphone for iPhone. Like all cheap imitations on Amazon, some are great, and some are not.

Another revolution in mobile sound is the Instamic. Unlike the Røde and DJI mic, the Instamic is a mic and a recorder, everything in a tiny package, and I mean tiny. The Instamic also has a 32-bit floating processor, so you never have to worry about recording levels. The Instamic can work in three ways. You can record on the very small unit itself. This really works well. If you have

many actors in a scene, each could wear their own mic and be recorded separately. While recording on the mic, you can start and stop recording and adjust levels with the Instamic phone app. Another option is to record the audio on the phone, but you lose the 32-bit floating processor functionality. A third option is to record the audio directly into your camera app. I am very impressed with the quality of the Instamic.



Figure 7.4 Instamic.

Shure has been somewhat late to the mobile audio space, but they have a new great two-part solution. The MoveMic is a small lav that has great audio. Only a small circle is visible when you mount it on a person. You can send the MoveMics to either a Shure video camera app or a Shure audio app. This sounds great, but I do not want to record on another app; I want to record on my primary video camera app (which, for me, is the Blackmagic Camera app). Since this sends out a Bluetooth signal, I thought the BMC would see it, but it does not.

This is where part 2 comes in. The MoveMic receiver can send the signal to a DSLR or your phone through a USB port. While this means mounting an accessory, it does send great audio to your app, and you can monitor the audio through the receiver.



Figure 7.5 Shure MoveMic. Shure.

A more straightforward lav system from Hollyland, the LARK M2, has a mic transmitter that is a small circle (about the size of a quarter) that can be clipped or placed with a magnet. The receiver, either USB-C or Lightning, just plugs into the phone. There are no menus; it is just plug-and-play. This system is excellent in a rush; it is simple and works. The beauty of this is that you can start shooting quicker and capture more spontaneous interviews, and it is fun to work with.

In the future, I hope many Bluetooth mics will be used for mobile filmmaking. My hope is that soon you can put a mic/transmitter on your subject, and the audio will be recorded in sync with your video recording app. At the moment there are some latency issues (meaning that the audio will be a bit late) that are a problem, but I think that will be the best solution.

These box revolution lavs are the fastest-growing part of the mobile ecosystem. Use the QR code to check for updates.

A way to get that Bluetooth strategy to work is to have your actor or subject wear AirPods, connect them to the phone in settings, and select them in the camera app.

Double System

The last strategy for working with audio is a second audio recording device, known as a double system. One challenge with this is that you need to sync the good audio. You must also record a scratch track on your phone to do this.

At the start of each shot, you can have a slate that identifies the shot and then that Hollywood clap. That audio peak will help you sync the sound in editing. A simple way of doing a double system is to have a second phone in the shirt pocket recording sound. Or you can have an audio recorder like a Zoom F3, a very small recorder that records a 32-bit floating processor to record your track.

Foley, Wild Sound, ADR

Several apps could work well if you want to record audio without a picture (which is called wild sound) with your mobile phone. There are several good reasons to record wild sound. You can record narration or non-sync interviews. If you are doing this, you can have great sound because you can have the mic very close to the lips (but not too close because you will get all kinds of mouth noise. Sometimes, when shooting a narrative film, if your actor is having trouble getting a line right, you can record it with just the two of you and spend a few hours making it sync in editing.

Also, while on location, you can get some sound effects that you can use later in post-production.

Make sure you slate them (say what they are on tape) so you remember when editing.

When you get into the editing room, put all those in a folder on your editing system.

Sound Effects

You can also get sound effects, like footsteps and anything else in the scene.

Remember to always listen with headphones when recording sound; it is best to hear it on the phone, not from the mic. If there is a problem, you can fix it while you are in the field.

The apps **Voice Record Free** and **Voice Memos (free)** will do the job of recording sound and not editing or transcribing the sound. Other apps will have editing and many different functions. I would rather have a simple, clean interface for sound recording that does a good job. There are many good ways to edit and transcribe in the editing stage. I want some apps to be multifunctional, but for sound recording, simple is better.

You can get sound effects in post-production, but getting them on location is better.

Room Tone

While you are on location, you need to record some room tone. Room tone is what the room sounds like; when you are editing, and you put in a shot without sound (known as MOS) if you have no sound in the room, it will sound awkward when the tone drops out. So, when you are done, record two minutes of room tone at each location.

Whatever system you choose, you should practice this before you do this for real with actors or documentary subjects. When doing a test, you need to use the mics and recording devices you will use for the shoot and hopefully a similar circumstance (interior or exterior). When shooting, try different settings, and each time, audio slate it (say, “boom mic five feet away”).

When working with sound, you must hear what you are getting and know it is what you want.

Final Notes

When adjusting the sound levels, we want to make sure it is loud enough to hear but not too loud that it distorts; when in doubt, it is better to have a lower sound because once you have over-modulated the track, you cannot get it back if there is some noise that you cannot get rid of in the background.

Most editing programs have a voice isolation function to clean up background sound. But it is always better to get a suitable location sound.

If all this sounds too much, I am sure you have a friend who makes some music, ask them to come with you.

As you can see, there are many options for working with sound and many different price points. You need to find a solution that works for you, within your budget and your way of working. Whatever you choose, it is critical that you test all parts of the audio chain before the shoot. You don’t want to fuss with the mic in front of your actors or subjects.

Workshop 7

Think about the style of work you will be doing and design an audio package that best suits your needs. Do you want to work with mounted shotgun mics or a lav system?

How many people will be on camera at the same time? Are you going to be working in a single or double system?

Once you have set your priorities, create a budget for now and a budget for next year to grow into. Once you get your gear, test it in different situations. While you are doing tests, you could interview family members,

which could be the start of creating a family history on video. On every test, play them back on your best audio system.

If you have a lav, practice mounting the lav of a friend. Record a sequence. Were there any clothes rustling? Or other noise? The more you practice this, the less self-conscious you will be. Test how far you can get with a wireless lav and still have a good signal. Bring the audio to your editing system and sync the audio to the video.

8 Shooting the Interview on Mobile

If you are making documentaries, you have two kinds of shots to think about. Interviews and what is known as B roll, a term that comes from the days of TV news, when the news person was on the A roll, and the footage that showed what they were talking about was on the B roll. The footage you shoot or use from archival footage is known as B roll. I have always hated calling it that because implicit in the name is that it is less important than the person talking, and this B roll is just as important.

Most humans have two impulses: to hide information and reveal information. Lucky for us, the desire to reveal usually wins out. Before the interview, it is good to review the ground rules with your interviewee. Are there any things they do not want to talk about? What subjects are you most interested in?

Pre-production Planning

When planning an interview, consider the location's look and sound. Does the background give you a sense of who this person is? If you are going to light the interview, you want to ensure that there is enough space between the interview and the background and how to frame the interview properly.

When the person sits down, ensure nothing in the background is sticking out of their head. I made this mistake once, and every time I see this film, it drives me crazy.

In framing the interview, is the person looking right at you (like in TV news) or slightly off camera, implying that the subject is looking at a director?

For sound, is the room quiet? Can you turn off the air conditioning? If you are shooting in a bar or restaurant, make sure to have them turn off the refrigerator, or it will turn on and make noise in the middle of the shoot. A trick to remember to turn it back on is to put your car keys in the refrigerator.

If when you clap your hands, it reverberates too much, then the room might be too lively to shoot your interview. If you have no choice, use a lav.

Here are some tips to help prepare for the interview. When interviewing, you need to strike a balance between being sensitive and assertive.

Interviewing is an exploration that leads to understanding.

Building Rapport

Building rapport and trust with your interviewee is critical to a good interview. If you can meet and talk ahead of the interview, that is great. Try to get to know the person. Is there something you can talk about? That is now what your film is about, to get to know each other. For example, I live in Dallas, and discussing the current drama of the Dallas Cowboys can build a connection.

You want to find a way to connect with this person. If you look carefully at him or her, you can think of something (not in the film) that the two of you can bond over.

If you are shooting this yourself, have the lights and camera ready before your subject arrives so you can focus on them.

Setting the Frame

There are a few ways to get coverage for your interview. One way is to shoot the interview in 4K to be used in an HD timeline. That would allow you to take a wide shot and punch in for a close-up. Another option is to shoot with two phones. One could be a wider shot on a tripod; the other, you can zoom in and move around. Having an Apple watch could help because you can use the frame of the B camera and turn it on and off with the watch.

Do Your Homework

Do research on your subject and have questions prepared. Don't ask yes or no questions, but more "tell me about questions." Have the first and last questions memorized. During the interview, keep eye contact with your subject. You're directing this with your gestures and your facial expressions.

When you do research, don't write your questions out, but have a few words to remind you of them. It is very important that you don't spend much time looking at your questions while interviewing. You need to focus on your interviewee. As the interview goes on, your subject will answer many questions that are out of order. You need to keep track of this in your head and re-tweak the order of questions on the fly. This is not easy, but you should go with the flow. You can always go back to something later.

Tips During the Interview

...or what did you have for breakfast this morning?

Most of the time, when you do an interview, the audience does not want to hear your questions in the film. You need to have your subject use a declarative statement. Make sure you go over this with your subject ahead of time. I usually say, “If I ask you what you had for breakfast this morning, don’t say coffee and oatmeal; say, “This morning for breakfast, I had coffee and oatmeal.” That way, I don’t have to have my questions in the film; tell them, “Remember, this is not about me but about you.”

Invariably, your subject will forget this; you can gesture with your hands to remind them.

Sometimes, during an interview, you must fight the urge to react aurally when they are talking. Sometimes, I bit my lip to remind myself to shut up. I have also been known to get so excited during an interview that I creep into the frame.

If your interview uses jargon or says something your audience will not understand, gesture with your hands, huh? They will get it and explain it to a general audience. As the interviewer, you lead your subject but channel your audience into what they know, don’t know, and want to know.

Be a good listener.

When your subject gets off topic, gesture in some way, or show in your face that you are not excited about what they are saying.

Sometimes, don’t say anything when you want them to go deeper; the silence might help.

It is good to start with some easy warm-up questions. Remember that being interviewed is an unnatural act (for most of us), and you need to put your person at ease. Remind them you have lots of space on your hard drive, so don’t worry. If you make a mistake, we can start again.

It is so important to make sure that your subject feels safe – not just that a light won’t fall on them but that you will take care of them, not make them look foolish, and that they trust that you will represent them fairly, even if you disagree with them. I once made a film about racism and interviewed members of the KKK; at the screening, I asked if they felt they had been fairly represented, and they said they had.

You should think about the ethics of the interview. Will you do something with this that will put the subject in danger? As a filmmaker, you need people to trust you.

It would be good to practice before shooting an important interview.

The Three Elements

When making most documentaries, there are three significant elements: **interviews**, footage that shows what the people are talking about, called **B roll**, and **archival material** that helps put your documentary in perspective.

Interviews are often the heart and soul of the documentary. It can be said that the interview is directing with non-actors. You need to set the tone of the

interview; if it is lighthearted, a smile on your face can go a long way. Your subject looks to you for how they are going. Your facial expressions and gestures reassure your subject that you are on the right path.

B roll is the footage that shows the subject doing what they do. It is the visually important part. When shooting B roll, try to get various shots, wide, medium, and close-ups. Think about where your subjects will be moving and stand where they will move towards you, and the action is revealed to the phone. While you are shooting them, think, if the subject moves to the table, where would I go to get a good shot? If you get into the habit of doing that, you will have great B roll.

Finding good archival material is another book, but talk to your subjects about newspapers or home movies that can help tell the story.

Locations for the Interview

Once you plan an interview, you should think about an excellent location to shoot it.

Many times, we shoot interviews with people sitting down. This is good and easily controllable, but it is unnatural. Sometimes, it is best to shoot an interview with someone doing some action like a painter painting or a farmer farming. There are two advantages here. It will look more attractive, but perhaps even more critical, when a subject is working, they are accessing a different part of their brain. You can sometimes get something more profound than a sit-down interview. But you have less control over the real world.

To take this further, try shooting an interview with someone driving. I know a filmmaker who always does this, and she swears that this opens up people.

The phone is an excellent tool for shooting video in a car. Shooting an interview in a car is a great way to get something powerful. When a subject is doing something, they are less nervous and talk more from their heart. People love to talk on their phones while driving, and they can tell you things they won't talk about elsewhere. It's you and your subject in the bubble of the car.

The phone is a great tool for shooting video in a car, but there are a few challenges. The light from the window might be too bright, so either try to frame the shot so that it is not a problem or adjust the exposure to ensure the face is exposed well.

The other problem is sound. You can jump to the sound chapter for some good advice there (a lav or boom mic is a good choice, or get as close as possible).

In the accessories chapter, you will learn how to use a gimbal. Interviewing with a gimbal can be very dynamic. Imagine following a student walking down a hallway and talking about how they feel at school instead of just sitting down and/or being at an art opening and following the artist around and hearing what people say about the work. You can use the image stabilization function if you don't have a gimbal.

Once you not only understand but feel that you can do an interview anywhere with anyone because your phone is always ready (if it is charged fully), so many kinds of interviews can happen. Sometimes, you will shoot an interview and use it two years later!

A Different Kind of Interview

Because you can shoot this interview with a crew of one, and there aren't many lights, booms, or production assistants, your subject can hit a more profound emotional plane. This is one of my favorite parts of mobile media. It is just you and the person in front of you.

Thinking About the Edit While Shooting

When shooting the interview, you should also think about how you are going to edit the interview. When you cut out a chunk of video on an interview, you get a jump (on the edit, the image jumps); so, to avoid this, we need either B roll, archival footage, or a different angle. This is why it is good to have two angles or two phones when shooting.

Before you start recording, ensure your audio levels are good, record a snippet, and listen to it with headphones to ensure it sounds good.

On your way home from the shoot, write down the three best interview moments (you can use the notes app on your phone). This will help you once you start to edit.

Speaking of silence, don't forget to get some room tone.

Before Leaving

Before you leave, ask if there is anything else they want to say. I always get some great material I didn't ever think to ask about.

Ask if they have films of still images or news stories that can help tell the story. These will be for the B roll and help you make the film visually compelling. Tell your subject you will scan the photos to make them happy and encourage them to give you good material.

Have them sign a release and thank them.

Any release should grant you three elements: time (in perpetuity), territory (worldwide), and media (either all motion media or media now known or known in the future).

Workshop 8

Option 1: The car. The next time you take an Uber or a Lyft, sit in the front seat, get out your camera, and shoot. I have never met one of these drivers who did not have a great story. I start by asking how long they have been driving and why they started. They soon tell me stories of their old country, their parents, and their kids. If you shoot an interview with a driver, get their email, and send them the interview, their family would love it.

This Uber/Lyft interview is the perfect practice exercise for interviewing. I strongly recommend you do this as a habit every time you take one.

If you don't have the occasion to take an Uber or Lyft, you can still interview someone in a car.

Option 2: The intimate interview. Shoot an interview with just you and a subject you know well. After a few warm-up questions, get them to talk to you about something deep and intimate.

9 Editing Mobile Media

I love editing. There is so much in the real world you cannot control, but if you are smart and good enough, you can re-edit almost anything to work. The Russian director and theorist Serge Eisenstein said that editing is “the ruthless suppression of the inessential.” There is a difference between nice, good, I kind of like, and essential. You should consider the audience when editing a film, especially a short one. Or better, think about someone watching with a remote control whose thumb is about to turn it off. Is that shot you want to extend worth losing a viewer? Especially if you are trying to get your film in a film festival. The person watching your short film will probably be watching many short films. Yours might be the 25th film they are screening that session, so make it short and to the point. To make your film stand out from all those other films, start the film strong.

When you start a project, you must choose your editing software and platform. Do you want to begin editing in the field or wait until you get to your desktop? Do you want to edit with desktop programs like DaVinci Resolve, Adobe Premiere, and Final Cut Pro X, or mobile editors like Resolve Premiere Rush, Final Cut Pro X, Luma Fusion, and iMovie?

Workflow

After you make that decision, you need to develop your workflow, which refers to all the steps you need to make in the post-production process. While we think of post-production as video editing, there is much more to consider. The first thing to consider is where you think this project will be seen. If you want your film to be shown in a movie theater, you will take different steps than if you are putting the film on YouTube. It would be best to consider the workflow before you start production and test it by shooting a few shots, putting a few shots in a timeline, making a few cuts, adjusting the audio, finessing the color, and exporting. You should select the codecs for shooting and editing. It is better to ensure you are confident that this all works and looks how you want it to look before you start to edit. You don’t want to wait until the project’s end to find a problem.

Select the File Type

Start by selecting what kind of file you want to shoot with. This used to be simple, but now we have many choices. You can shoot with different profiles (LOG), different frame sizes (HD, 4K), different resolutions (ProRes, H.265), and different aspect ratios (anamorphic or 16.9). Most of these choices are about cost versus quality. Next, you should determine your audio strategy, whether it is a single or double system. Next, select your editing system. Do you want to edit the files on the mobile and then on a desktop? If so, do a test to ensure you know how it works.

Ingesting

After your shoot, your next workflow step is ingesting the media into your editing system. But don't stop there. It is critical to add metadata to your shots after ingesting. Metadata is data about data. In this case, it is data about what you shot. If you use the Blackmagic Camera app, the shots will contain some data to get the ball rolling. If you put the info into the slate on the app (scene and take numbers), they will also be connected to the files and show up in post, as well as the time, location, and time it was recorded.

Metadata and Keywording

The next part of the workflow is sub-clipping or keywording the clips. These do not change the clip at all but will help you find the parts of the shots you will need. A sub-clip is a self-contained version of a clip that can have a unique name. A keyword adds a word to the metadata of a clip. Both of these help you get a good grip on your footage; for example, if your character is talking about baseball, every time he talks about baseball, you can mark an in and out and use baseball as a keyword, or you can mark an in and out and make it a sub clip called Baseball 1 or perhaps Baseball pitching. This time you take going through your footage (known as "dailies" because you would get them daily) makes editing go faster in two ways. It helps you get familiar with your footage and makes it easy to find that shot where your character talks about pitching in baseball. I know this seems like it is not fun, but the time spent putting data on your media frees you up for more creativity later.

Backing Up

The next step is backing up your footage. The film you shoot is precious; you don't want to lose it because you erased it by mistake or a hard drive failed. The best practice is to have three copies of the file: one that you edit with, another on a drive in your workspace, and the third in a different place in case your office

burns down. One could be online storage like Dropbox, Google Drive, One Drive, or iCloud.

Select File Format

The next part of the workflow is about the file format you want to edit. This will often depend on how much RAM and hard drive space you have on your computer. If you shot in ProRes, do you want to edit in ProRes? The files will have better color information but will be much larger. You can create proxy files for the 4K ProRes files to make the editing smoother. Proxy files are smaller versions of the files created in the editing application that are linked to the original file. In Resolve, you right-click in the timeline and select Generate Optimized Media to create the proxies.

When editing, you can choose to see the proxies or the originals.

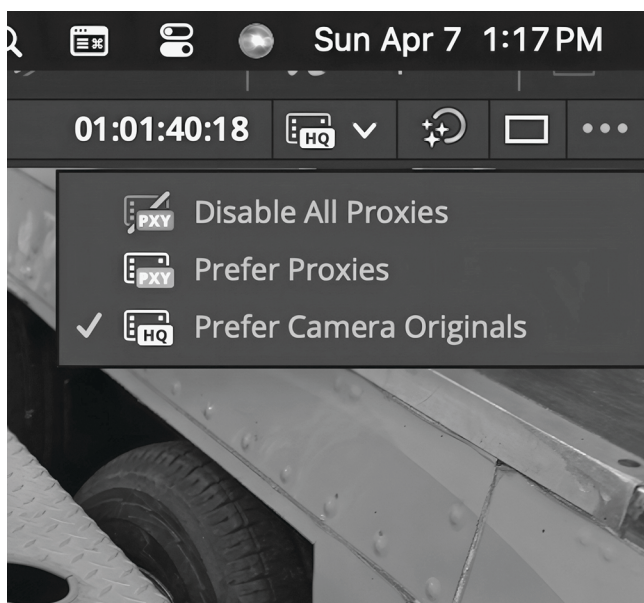


Figure 9.1 Select proxies. Screenshot Bart Weiss.

The next stage is to sync the sound if you shot in double system. In most systems, that just requires you to right-click on the audio and video files and select sync files. Most of the time, you will want to select the audio waveform when asked how to sync the files.

From First Assemblage to DCP: An Overview

Next, you can start an assemblage. Here, you are building the ideas, themes, and story together in a very loose way. While at a given spot, it is natural to finesse it but fight that instinct. You think it will take a minute, but it won't. The goal is to see if what you were trying to make in the film is there. After you build this assemblage, watch it without stopping. Then, take notes on what is strong and what needs help, and ask yourself if this structure works.

After the assemblage, the next step is the rough cut. Here, you trim and finesse. If you need to intercut scenes, now is an excellent time to think about it. From the rough cut to the fine cut to the magic day of picture lock, when you agree not to change anything in the picture. Once the picture is locked, sound design, color, and visual effects can commence. After all that, you need to figure out what kind of file you need at the end of the post-production process. The last step is to create a high-resolution file from which you can make files for different formats.

If you take the time to go through all this before you shoot, your post-production will be much smoother, and you will feel confident you know what you are doing and where you are going.

Editing Video on A Mobile Device

Figure 9.2 Mobile editing workstation. Rob Layton.

The two primary options for editing are editing on a mobile device or editing on your computer. You have more control and a bigger space to work on the computer, so it is usually best. But you can edit in the field on your mobile devices, and a contemporary tablet can be as large as a laptop and have as much computing power as one. The world can be your editing suite since you always have your mobile device and perhaps some good earbuds.

There are several apps to edit on an iPad. Final Cut Pro and DaVinci Resolve are the new players. Adobe Rush and iMovie for the iPad have been around for several years. The most mature editing on the iPad app is Luma Fusion. Other apps are more social media video editing apps, like Splice and Apple's Clips (which can do way more than you think it can).

High-End

There are three lanes of editing on mobile devices. The first group is sophisticated and expensive desktop editing reimaged for the tablet. Apple's Final Cut Pro for the iPad and DaVinci Resolve are similar to their desktop versions, and Luma Fusion is an editing system only for mobile devices. You might ask yourself why you would do this. Is the best editing system the one in your hand?

The iPad is a vastly different tool than a laptop or desktop computer. An iPad Pro is not just an excellent display and reading device as it was in the beginning; it is a powerful computer without a keyboard. An iPad Pro with an M series chip will outperform many older desktop computers. A good tablet is a portable computer without a keyboard. The primary limitation is the difference between the operating systems and the inputs and outputs (i/o). Also managing files on iOS is not as elegant as in a desktop system. That is getting media into the iPad. On a desktop/laptop, you have many ports. On an iPad, you have one. You can get a USB-C Hub to get additional i/o. It might look silly hanging over your iPad, but it works.

Then there is the posture question. As editors, we spend too much time crouching over our desks, which is unhealthy. When setting up an editing room, selecting a good chair is essential to your health. The editing process is very repetitive, and if I don't set my environment well, I won't be able to edit for a long time and stay healthy.

When I write (like I am writing this right now), I can often do better sitting away from my desk in a different chair. For me, this taps into the conceptual part of my brain. When doing the finessing and detail work, the desktop works much better.

While testing these iPad editing apps, I sat on both my desk and my writing chair and found that both worked well, but in different ways. My sitting chair was good for getting the first cut and pulling the story together. With isolation AirPods, you can be anywhere and hear what is happening on those tracks.

Another plus with mobile editing is that you can quickly assemble the film or check to see if the scene is working. Editing on an iPad Pro solves one problem. Video shot on an iPhone can have a High Dynamic Range that your computer monitor would need to be adjusted for.

If you are shooting on mobile devices, the idea that you can edit in the field is compelling, especially for video journalists. You can edit in a car, on a plane, or wherever you are. With significantly less space, you can have a total editing system with a computer, keyboard, hard drive, even an external monitor, and a control surface. A control surface is a box that has lots of knobs to help you find the right frame. Some great control surfaces are The Tour Box, Contour Design Shuttle Express, and the Blackmagic Design DaVinci Resolve Speed Editor. My choice would be the Tour Box.

Final Cut Pro for iPad



Figure 9.3 Final Cut Pro for iPad. Screenshot Bart Weiss.

While you can attach a keyboard to the iPad to simulate the desktop experience, the tablet is primarily interfaced with your finger on the tablet. While keyboard shortcuts are essential for fast editing, using the tactile touch on the iPad can lead to a different physical approach to editing. If you have used

Garage Band on an iPad, you know you can play instruments, like strumming a guitar with your finger, in a way that far exceeds what a laptop can do. Adjusting a clip with your fingers is a joy that not all editors will enjoy. I have found that many editors do not embrace change. Moving and adjusting clips with your fingers will seem odd at first but will eventually seem natural. Another option is the Apple Pencil, which can be helpful, but I found the finger better. Depending on what I was doing, I went back and forth between the pencil and my finger. You could use the pen to adjust clips without actually touching the iPad by hovering on what you want to adjust. The finger on the screen is the better experience. Final Cut Pro (FCP) for iPad was designed to take advantage of the touch.

If you have used FCP before, the interface will seem natural. I could discover how to control the interface without looking at the tutorial; it seemed natural. It uses the magnetic timeline like the desktop version, but you can defeat it to leave a hole in the edit. The magnetic timeline was *the* central selling point for Final Cut X. People either love it or hate it. It makes rearranging clips in the timeline easy and makes creating a J or L cut fast and simple. A J cut is when the sound comes in before the picture, and an L cut is when the sound continues after the picture cut. You can defeat the magnetic timeline by hitting the P key.

Getting media onto the iPad is easy. You can connect a hard drive or SD card reader to the iPad to import the media.

My favorite feature of the FCP is the jog wheel, which helps you be more precise as you work. It is like using an interface and works like the old knobs we used to use in editing. Some editors have control surfaces to give them that knob-like feeling on desktop systems.

The program has everything you need to edit, including keyframes, video scopes, voice isolation (to fix audio that was not recorded well), and much more.

When you first use FCP for mobile, it will take a few minutes to familiarize yourself with the interface, but after ten minutes, you should be fine. You can export your project from the iPad to your Mac, which would allow you to do your first cut on location or in the coffee shop, but at present, you cannot go from the Mac to the iPad.

The software comes with a tutorial (from Ripple Training, a trusted Final Cut Pro training company) and a sample project to work with that will get you up to speed. Take the time to do the tutorial. It will pay off.

There has been some concern in the Final Cut Pro universe that the development of this new software has replaced major updates that FCPX needs. One major downside is that FCP for iPad is unlike FCPX for Desktop, which has a one-time purchase price; it has subscription pricing, which puts everyone in a bad mood.

Final Cut Pro for iPad requires a 2.9-inch iPad Pro (5th or 6th generation), 11-inch iPad Pro (3rd or 4th generation), or iPad Air (5th generation) and costs \$4.99 a month or \$49.00 a year, but it has a free month-trial plan.

DaVinci Resolve for iPad

Figure 9.4 DaVinci Resolve for iPad. Blackmagic Design.

The DaVinci Resolve desktop version has seven pages. In Resolve, the different applications are called pages: the media page (to ingest and organize media), the cut page (best for making a first cut of the film, and which is DaVinci's answer to Final Cut Pro), the edit page, fusion (the graphics page), color (the industry standard for color grading), Fairlight (the digital audio workstation), and the delivery page (to export your projects).

Resolve for the iPad has only two of those pages: the cut page and the color page. While the cut page is a bit quirky, it works better on the iPad than the full editing page. I believe all pages will be available when this book comes out. Like the two pages currently there, they will look very much like the desktop version, except for the important edit page that will have one instead of two viewers. This will only take a few minutes to get used to.

Unlike FCPX for iPad, the resolve pages look precisely like their desktop versions, so there is no learning curve to get up to speed. The cut page is perfect for creating an assemblage and or rough cut, so it is a good choice for iPad editing. One of the strengths of the cut page is that you can look through all your footage quickly. If you are comfortable with the cut page, this will work great

for you; almost everything is there. I found getting media in and out on Resolve was easy.

If you have never seen the cut page in Resolve, it has two timelines. The upper timeline is always showing you the whole program. If you like, you can trim shots in the upper timeline. The lower timeline is where you can zoom in for fine detail work. The only thing missing from the desktop version is voice isolation, which uses AI to get rid of background sound, but it does have the dialogue leveler, which is helpful.

The real excitement is the Resolve color page on the iPad. I was amazed at how easily I could adjust with curves, nodes, tracking, and even the color warper. It is all there and controllable with a finger or pencil. I found using my finger to finesse color was similar to the tactile feeling you get using an interface. This could be great for a quick look on set. And remember, the iPad's display has color values you can count on. And all filmmakers love to work with color.



Figure 9.5 Color on DaVinci Resolve. Blackmagic Design.

The Blackmagic Camera app does not yet have a direct out to Resolve, but in future versions, I would expect that you could start on the iPad version and continue on a desktop.

DaVinci Resolve for iPad costs \$94.99 one-time and requires an iPad with a 12-bionic chip. It is not inexpensive, but at least it is not a dreaded subscription.

Luma Fusion



Figure 9.6 Luma Fusion. Screenshot Bart Weiss.

Luma Fusion has been around since 2016 and has the longest track record of editing on a mobile device. It has an iOS and an Android version. It works on a phone or tablet. The interface is mature and looks different from a desktop application. That difference will take only a few minutes to adjust to.

For a long time Luma Fusion was the only way to get sophisticated editing on a mobile device, but now they are not alone. It was the first mobile app to have Multicam, full features on an iPhone, stacking and layers, keyframing, integration with Dropbox and other online storage, integration with Frame.io, multiple aspect ratios and frame rates, and external drives editing on iPhone and iPad. They are the true innovators in the mobile editing space.

The latest version has a sophisticated Multicam. The Multicam works really well, and the interface is more fun than any Multicam I have seen on a desktop. It is still a deep editing program and the most professional video editing software for mobile. Its interface seems simple, but it has a deep set of tools. This is a good solution if you need editing experience. Unlike most other options that are best if you are experienced with the desktop versions, after 20 minutes, you can get comfortable with Luma Fusion.

Luma Fusion has a track-based system that also incorporates the magnetic timeline. It has lots of key-framable video and audio effects. A key frame is when

you change a parameter in the timeline over time. You set one keyframe, and the computer interpolates the difference as it hits the second keyframe. The simplest example of a keyframe is changing the audio levels with dots in the timeline.

Luma Fusion is \$29.99 and is a one-time expense with no subscription. If you want the Multicam function, it will cost a one-time \$19.99. Multicam is when multiple cameras are running on the same scene, like a music video. With Multicam, you can watch all the different camera angles at once.

Luma Fusion has an XML option that costs \$19.99. This XML function lets you send your Luma Fusion project to Final Cut Pro.

If you want to edit on another desktop application, you could transfer the XML file to one that DaVinci Resolve or Adobe Premiere could read. You would need to use the X to CC application, which costs \$49.99. When using XML to go from one editing software to another, be aware if it can only successfully transfer elements that both programs have. For example, if there is a title effect that is not in Luma Fusion, it will not show up. That said, a good workflow would be to start in Luma Fusion in the field and end on your desktop of choice. Like everything else in the book, you should test the round-tripping of a file before doing significant editing. It will take a minute.

iMovie



Figure 9.7 iMovie for iPad. Screenshot Bart Weiss.

If you have an iOS device, you have iMovie on your computer, iPad, and/or iPhone. While it is less sophisticated than the ones above, it is a great way to start editing if you have no experience. It also has a higher fun factor.

When you start a project, you get three modes: Magic Movie, Storyboard, and Movie. In Magic mode, you select stills and videos from your library, and it will edit a version of the film for you. You can continue to tweak it, and if you don't know where to start to edit, this transitions you from thinking about editing to editing. The Storyboard helps you learn about film structure. You choose a genre, like Cooking, Day in the Life, Trailer, or just Film. Once you select a genre, it spits out a list of shots, such as title, environment shot, character shot, storytelling shot, etc. When you click on each one, you can take a shot with your phone or tablet or select from your photo library. Click on a button, and you have, well, something. While it may not be a good film, looking at the storyboards can help you think about how to structure your edit. In the Movie mode, you edit traditionally. I would suggest everyone just try it for fun.

The three versions (Desktop, iPhone, iPad) have a similar interface. The desktop has a bit more functionality.

If you are working with iMovie and need a music track, some are available in the program, but I suggest working with Garage Band. The desktop version works very well with video. Garage Band has good loops and samples of instruments, which could elevate your project.

If you are working on a project on iMovie on an iPad or iPhone, you can easily export it to iMovie on your desktop. On the project page, just tap the box with the arrow and choose export project. You can send that project file from the iPad to a Mac through Airdrop, where you can open it in iMovie. You can also import that project file into Final Cut Pro, allowing you to start your rough cut in the field and continue the edit on FCPX.

iMovie requires iOS 16.0 or later. The iPad version requires iPadOS 16.0 or later.

Adobe Rush

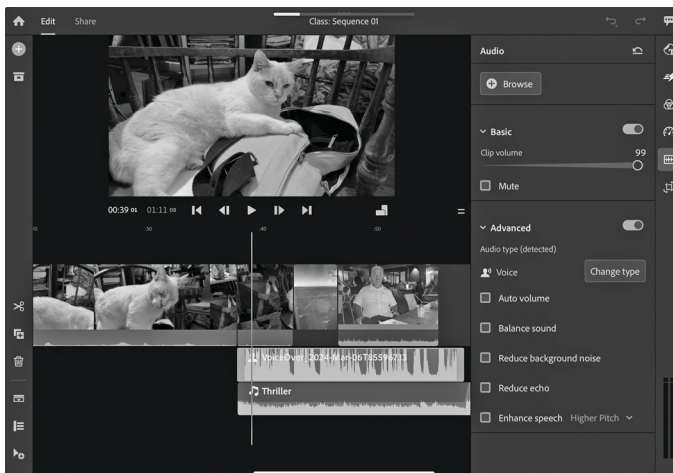


Figure 9.8 Adobe Rush for iPad. Screenshot Bart Weiss.

If you have the Adobe Suite, you can access their mobile editing software, Adobe Rush. It is the same as Rush for the desktop. It has good graphics that are in the Adobe suite. You can sync your project files from your phone to your tablet or computer. It easily changes aspect ratios to help create media for social media. The audio section can automatically duck the audio, so when someone is talking, it will drop the music down so you can hear the voice. If you are familiar with Premiere, you will feel at home with Rush's interface. The track layout is similar to Luma Fusion.

Summary

Once you have decided to dip your toe into this new way of editing, making a choice takes work. FCPX, Resolve, Luma Fusion, iMovie, and Adobe Rush are all great ways to edit. Part of your choice could be the software you have been editing on your desktop. If you are an FCPX editor, FCPX is your best choice. If you edit in Premiere or Avid or use the edit page in Resolve, Luma Fusion or Resolve might be a good choice. Luma Fusion works on older iPads as well as newer ones, so that might also be a factor.

Whatever you edit with, finessing with color on Resolve is an easy but expensive choice. You can use the color page in Resolve on set to get a sense of what the end product will look like.

If you have an iPad, I recommend editing a short project with one of these. I know most editors are resistant to change, but give this a shot. In the beginning, it will be a mix of joy and frustration, but soon it will just be joy.

Ducking Audio

Many of these mobile editors have a ducking audio function. This functionality ducks (or reduces) the music track lower when you have dialogue underneath it. You can do it manually by adjusting the levels, but these mobile editors can do that for you automatically. Each performs it differently; in Adobe Rush, you identify the track you want to duck and check the audio duck in the sound tab. In Luma Fusion, you need to tell it which is the primary track (the dialogue) and which is the auto (music) track. This is a major time saver.

Desktop Editing

If you are editing on your computer, you must decide what software to use. Choosing editing software can seem almost like joining a cult. Many editors feel emotional about their nonlinear editing system.

iMovie

If you are beginning to edit and have a Mac, start with iMovie, which is free and relatively easy to learn. It can do basic editing and add effects and titles, but it is limited. The interface is intuitive. To import clips from your phone into the system, simply hit “Import video” from the menu and navigate to your clips. Trim the clip and drop it into the timeline.

You can change color, change speed, reduce noise, and much more. There is one thing in iMovie that I wish was in Final Cut Pro. In the background section is a series of maps that would up the production value of your films. It also allows you to animate a line from one city to another, which is great when a character moves from place to place. I have created these in iMovie and then brought them into FCPX.

The decision to start with iMovie or a full-featured non-linear editing system depends on how much time you want to spend learning software. Jumping into FCPX, Adobe Premiere, or DaVinci Resolve is a learning curve, but one that will pay off. It is probably good to create a project or two in iMovie and then move to one of the others.

DaVinci Resolve

The other free option is DaVinci Resolve, which you can download at <https://www.blackmagicdesign.com/products/davinciresolve>.

DaVinci Resolve is a full-featured editing suite. Opening it for the first time might be intimidating, but they have free tutorials with editing sample files. I recommend the Beginner’s guide and the Editor’s guide. Both books teach you how to use the software and how to edit. The Editor’s guide has a chapter for editing drama and editing documentaries. Resolve also has the best color-grading software in the business. If you have the time to learn, this would be the best software to explore. Resolve works with several pages, which are displayed at the bottom. The media page is where you interpret and add metadata. The cut page is a way to assemble a rough cut quickly. The edit page is the principal place where you edit. The fusion page is a graphic program that does not work with a timeline but uses a node-based system. It has a digital audio workstation program called Fairlight and a delivery page to export your media. The color page is the highlight of the Resolve. One advantage to using the resolve suite is that all these pages are live simultaneously. You don’t need to open another app that taxes your RAM. It also means if you need to fix something, you move to that page, and you are at that point in that timeline, then you click back to the edit page. Nice.

Adobe Premiere and Avid

Adobe Premiere is also a great editing suite. You might get it for free from your school if you are a student. The Adobe Suite includes: Premiere for picture editing; Audition for sound editing; After effects, the gold standard for graphics; and Media encoder, to transcode media. While free for many students, the monthly subscription you will pay when you graduate will add up.

If you can access the Adobe Suite, you can also access Adobe Premiere Rush, the editing tool for Android and iOS mobile devices mentioned above.

Avid is *the* high-end editing software, and if you are a student, they have a program where you can get that for free (ask your teacher; they have to sign up for the school). If you ever want to get a job editing films in LA, learning Avid would be a good thing to do.

Final Cut Pro

For a long time, I have been a big fan of Final Cut Pro X. Because of what it calls the magnetic timeline (that “magnetically” adjusts to gaps in your edit), you can edit much faster in FCP. Because it does not have traditional tracks, many experienced editors do not take it seriously. It was one of the worst rollouts of anything in the film biz. It was also the first piece of editing software that was mocked on late-night television. Final Cut Pro can get you up and moving quickly if you are new to editing.

The problem with FCP is that all the other platforms have significantly upgraded, including AI elements that transcribe the audio to text and let you edit the words. The development team at Apple has spent more time developing an iPad version of FCP, and the desktop version needs to catch up to the competition.

Editing Cinematic Mode in FCP

When shooting in cinematic mode, you can make basic focus adjustments on the phone, but you have much more control when using Final Cut Pro to fine-tune the adjustments.

You might miss a critical step when transferring the files from the phone through AirDrop. Before sending it on AirDrop, click on where it says options. It will take you to some settings. At the bottom, turn on ALL PHOTOS DATA. This sends all the data that allows you to make the adjustments. If you don’t turn that on, your cinematic mode files are not adjustable.

There are a few files present when inputting the file into the computer. Do not take the files with an E in the file name.

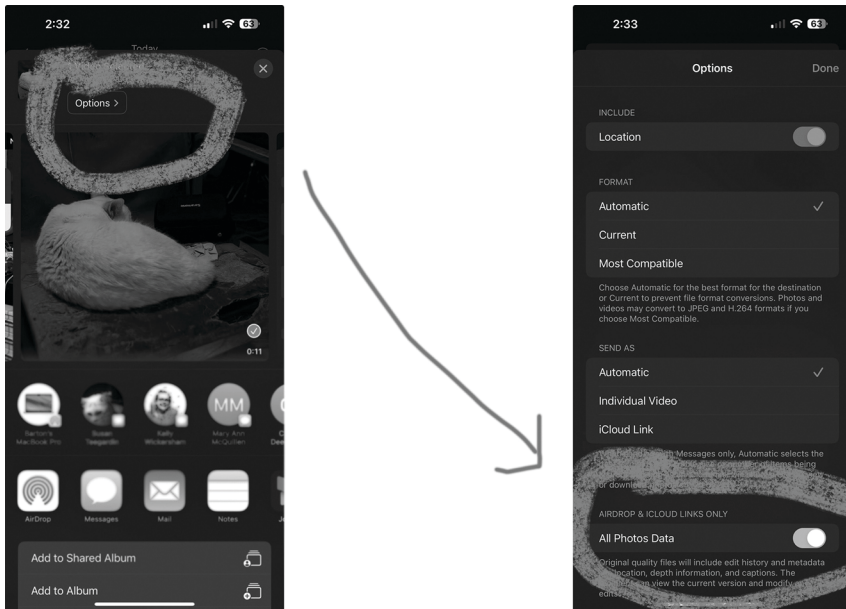


Figure 9.9 How to set up cinematic mode. Screenshots Bart Weiss.

Bring the cinematic mode file into a timeline. Right-click on it and select “Show Cinematic Editor.” This will bring up an extra layer with orange dots corresponding to where you changed the focus.

In the Viewer, click on the left button and select “Cinematic.” This will show the boxes where you changed the focus. Lastly, go to the inspector and click on “Cinematic Mode.” Now you are ready.



Figure 9.10 Editing in cinematic mode. Screenshot Bart Weiss.

You can click around the frame to change the focus point; if you double-click, a small box appears, allowing you to lock on that person or object as it moves.

Once you have decided when and what you want in focus, you can adjust how much is in focus in the cinematic mode slider in the inspector. The smaller the f-stop, the more out of focus your shot will look.

The Process of Editing

Watch the Dailies

Watching the dailies is exciting. It is best to watch them on a projector or a large screen. Since this is the only time your footage will be fresh, take notes on what is great, what is good, and what you can lose. As you watch the dailies, think about which characters stand out and which ones don't. Write down which performances moved you. Are your characters consistent? Are there parts that don't work or are unnecessary? What parts excite you?

Transfer Footage

Once you have selected your software, the first step in editing is to get the footage from your phone to your computer, either on your internal or external drive. You can connect the phone to the computer and drag and drop the files. If you use an iOS device using AirDrop, you can get your files to the drive wirelessly. Before moving to the next step, ensure your files have fully transferred onto that drive before you go on.

The next step is to ingest your footage into the software. You can transcode your footage either by encoding or by having the footage in the system. You can create proxy files within each editing program that will be smaller and playback better. Playing back with proxies is helpful when editing on a laptop or a system without significant RAM. When you get to the stage of doing color, you will want to reconnect to the original files.

Log Your Footage

Before you start editing, you need to log your footage. While this is not much fun, it will make the editing process smoother and help you get control of all the footage you created.

The next step is to add metadata. You should enter into the software the scene and take numbers, and which are the best takes. If you are working on a documentary, using keywords can help you get control of your footage. For each topic your subjects talk about, create a keyword, and as you watch your footage, add those keywords. Then, when editing, you can find all the shots that match what you are looking for. If your subject talks about growing up, then as he talks

about it in any shot, add the keyword. Then, when you can search for growing up, you will be ready to edit.

Now, it is time to start editing.

There are many ways to edit a film, and many excellent books from this publisher go into detail. Below are the notes I give to my students about editing.

Assemblage

Once you have organized your footage with keywords and metadata, the next step is to create your first assemblage of the film. This should be a loose cut. Cut the film according to the script and use the wide shots in a dramatic film. For a documentary, assemble the interviews. If you are editing with Premiere or Resolve, a voice-to-text function transcribes your video into words you search and edit with. You can select the text and bring it into the timeline. When you cut into a continuous shot, your subject will shift in the frame, known as a jump cut.

To fix a jump cut, you need to put a different picture between those two shots. Hopefully, that helps tell the story the person is saying. These shots are known as B roll, a term from the TV news days when the reporter was on the A roll and what they were talking about was on the B roll. Knowing that the B roll is no less critical to your story is essential. At this point, do not color correct. The assemblage is to give us a sense of what the story is about.

After finishing the assemblage, screen it on a projector or a big screen without stopping. After screening the assemblage, make some notes. What parts excited you, and which made you think this would be a great film? What parts did your mind wander at? Does the film build momentum? Is there a nice balance of tension and release? Are there any repetitive parts? Are the characters working well? Does the ending work?

Now, go back and trim the shots and put in more B roll. Would intercutting different story elements work? When a narrative film with a singular timeline is not working, flashing forward and backward could help.

Rough Cut

Keep tweaking the film until you think it works if you get stuck with a scene. Save your work and take a walk or a shower. Let your mind wander; an answer will magically come up when you return.

When in doubt, make it shorter!

Fine Cut

When you get the film in a good place, screen it for someone you respect. All kinds of problems you did not see will become apparent to you. Make a list and tackle them one at a time.

Now, screen the film again and ask more challenging questions. What scenes or themes don't work or make sense? Think of the film's pace, where I can pick up, and where to slow it down. Are there any parts that an audience would get confused by?

Does the beginning draw me in and set up the characters, and how does the end make me feel? How are you sneaking in the exposition without making it obvious? Are you telling us too much information? Whenever a character does something, the audience, who have seen many other films, assumes what will happen next. Can you subvert the audience's expectations and surprise them?

Is there a place where a good close-up could convey the emotion rather than a line of dialogue? Do your characters grow? Is the film paced well?

Now, go back and tweak it once more.

Locked Picture

When the film is finally cut, you will lock the picture.

Before you lock the picture, show the film without stopping for someone you want to impress. If you still think the film works, the picture is locked.

Now, we will color-grade the films, do sound design, and then release it to the world.

Workshop 9

Take some of the workshop projects you have been shooting and edit them once on a desktop and then again on a mobile edit system.

Can you see any difference in the finished work? Which worked best for you?

10 Made to Be Seen on the Phone

A Personal Cinematic Experience

Most of this book focuses on making films with a phone, but the phone is a small but high-resolution playback device, and creating work to be seen on a phone can reach a large audience and reach audiences in new ways. David Lynch once said you should not watch films on a phone, especially *Lawrence of Arabia*. Later, he backpedaled a bit, saying you should wear headphones to avoid being disturbed. Indeed, I have found that listening with headphones while watching a film on a phone brings you deeper into the experience. We have come a long way from cheap earbuds for phones to rich-sounding audio Bluetooth earbuds.

Creating a cinematic work to be seen on a phone or tablet can open up different creative possibilities and the potential for various audiences. Just like shooting with a phone gives you an extra level of intimacy, experiencing video on a screening (especially with headphones on) feels different, in a good way. Instead of media being a destination (a movie theater or your TV), watching your film is an anywhere, anytime experience. Instead of you going to the media, the media comes to you. When it works well, you feel like you are connecting to the filmmaker one-on-one.

If you are making films, you want people to see them. There are only so many film festivals and art house cinemas, and it is hard to get your film on a streaming service. Getting your film onto phones eliminates the gatekeeper, but if you are making films for the smallest screen, you should think about how you make your film work well.

Some History

Distributing video on phones can bypass traditional gatekeepers, networks, studios, and streamers. You can post your work on YouTube, on Vimeo, or create an app for your project that can be downloaded. For example, director Paul Raschild created *The Gallery*, an interactive narrative distributed on the app store. In this case, there are two narratives in two different times. To distribute through app

stores means you need to either learn to create an app or hire someone who can. It is a great way to sell your film directly to your potential audience.

Making films to be seen on phones goes way back to 2009 when Sally Potter created *Rage*, which was released in seven parts (for a more accessible download). Some saw this as the future of filmmaking (an overused and not often inaccurate term used mainly by PR films rather than critics or makers). Even Reuters referred to it as a new genre of affordable filmmaking.

Though *Rage* featured a stellar cast, including Jude Law, Judi Dench, and Steve Buscemi, the picture's quality prevented it from making a strong cultural impact.

The launch of the Apple iPad in April 2010 allowed for larger real estate to work with. While the phone is easier to hold and watch, the iPad is heavily used as a playback device for text and video. *The Silver Goat*, a black and white feature by Aaron Brookner, was the first film created for the iPad and released for an app. In its first three days, it was downloaded in 14 countries.

The world's first "Selfie" movie, *#STARVECROW* (2017) by James Carver, mixed "stolen" smartphone and CCTV footage to create a personal story of love and horror.

In 2017, Steve Soderbergh created a slightly interactive murder mystery film, *Mosaic*, that was made for the iPad. HBO sponsored the film, released on a twenty-dollar app you could download from app stores. It was a mystery that allowed you to pick your own path into the story. The app no longer exists, but the series is running on the Max website as a traditional 6-part series.

The Sopranos in 25-second bites? Max recently tried a project in the other direction. They took one of their most successful series, *The Sopranos*, and turned it into TikTok mini-films. When I first heard about this, I was shocked that they would repurpose the most classic of the classic TV shows. Turning the horizontal framing into vertical framing and transforming carefully paced drama into bits seemed like sacrilege. But this ¼ decade's show will not get a new generation of fans who might return to see the original version. The editors who transformed the show did a great job capturing each episode's essence. The most effective part of moving the story was selecting audio snippets that could get to the heart of the narrative of that episode and then finding horizontal shots to support the sound, with critical moments in sync.

Transforming horizontal films into vertical films is challenging, but editing software like DaVinci Resolve has a smart reframing feature. By drawing a line on the part of the frame you want, the software will keep that subject in the middle of the frame for you. I create vertical short promos for social media for the "Frame of Mind" TV show I produce. While making these, I intuitively understood how to tell a story and what images would work better succinctly. When setting up to create vertical versions, it is good practice to look at the edit on the phone. The first few times you do this, export it, send it to friends, and watch them watch it. Are they engaged? Generally, when editing, it is important to start strong, but in editing for vertical, you need to grab your audience the right way; starting strong is a must.

It seemed like short films meant to be seen on the phone had a moment when Hollywood deal maker Jeffrey Katzenberg formed Quibi as a platform for short films. The problem was they had more money than sense and greenlighted projects that creatives could not get funded elsewhere (because they were not very good). The service died because there was not great content on it. I believe that this idea could have worked with better content. The demise of Quibi was a case of glitz over quality. If you don't think people don't want to watch short content on their phones, consider TikTok. If millions wish to watch self-generated work in short bits on their phones, they could also watch high-end narrative shows like *The Sopranos*.

Fire Bones, The Go Show

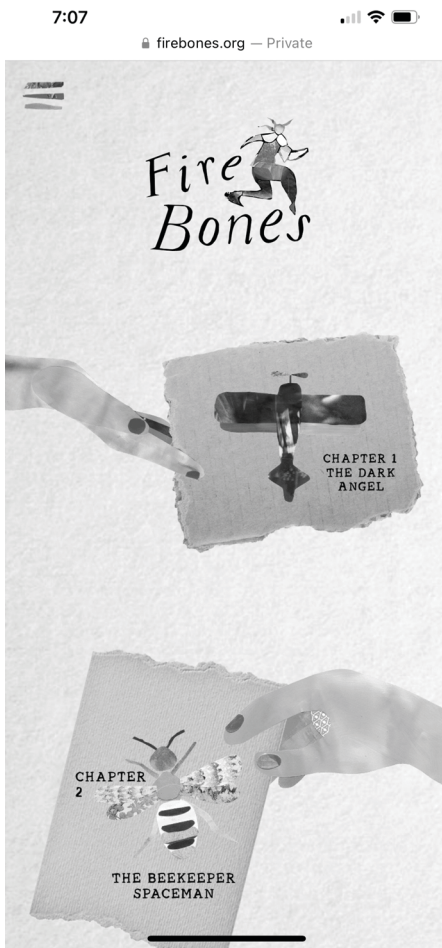


Figure 10.1 *Fire Bones* interface. Greg Brownderville.

A few years ago, my friend Greg Brownderville and I produced a series made to be seen on phones called *Fire Bones*. Greg is a poet and the head of the creative writing program at Southern Methodist University. Greg envisioned telling this in a format he called the Go Show. You could watch it on the go, wherever you were. But we took it a few steps further. In traditional cinema, you try to hide the exposition, where you are telling the story of what is going on. With Greg's writing, we wanted to highlight, not hide, the well-written exposition, poetry, and sound design of the story.

There are times in the story that are very visual and times when it is about the words and sounds. So, we did both. We have audio episodes with excellent sound design and video that work well. In essence, it mixes the world of narrative podcasting and narrative filmmaking in a single platform. When we listen to podcasts, be they talk and opinion or narrative podcasts, we tend to be doing something else. It could be walking the dog, cooking, etc. While you are in the act of doing something else, we can deeply listen. But with video, you need to pay attention. We purposefully had the audio portions longer than the video episodes. The key idea here is to consider your audience's attention level and mindset. Will what you are working on work for someone watching this on the subway? How long do you want to have your video? The longer you make it, the more likely someone will not finish the episode or series.

We considered creating an app to download the program, but we did not want to have people take that extra step of downloading another app. We all have too many apps anyway. We also found that the app development limited the graphic possibilities of the project. Instead, we created the program so it would run on any browser. We took incredible care to create a unique look but also set the tone of the project, having a sophisticated, handmade, quirky quality that teased the universe of *Fire Bones* in the way that a good title sequence helps set the universe for a feature film.

I know that mixed genres and media can work well on mobile devices, and there will be more ways to be creative with storytelling and distribution with mobile media; you can watch *Fire Bones* for free at Firebones.org on any web browser.

Making Vertical Video

When thinking about creating work to be seen on the phone, you need to consider the great existential question: horizontal or vertical? Cinematically, growing up in a horizontal cinema space seems the most natural. Younger folks are not as invested in the theater experience and are not tied to the horizontal screen. I know that holding the phone vertically is more natural than holding it horizontally. With a generation brought up with a phone in their hands, the vertical space seems natural.

InShot

Beyond TikTok, there is a world of videos on blogs and Instagram – all kinds of videos seen by millions of people. My friend Jani Leuschel has a cooking blog and creates videos that show her recipes. She has had no formal video training but is doing a great job. She uses the InShot app. The InShot app is designed for vertical video. It has powerful features, and the interface is not intimidating. InShot, and others like it, allows you to do everything for the video after you shoot it.

I shoot video footage and take photos on my iPhone for “Food Hall by Jani,” my food and nutrition blog. So, sending the footage and photos to an app on my phone is much easier for editing purposes. My favorite app is InShot, but I have also started experimenting with Adobe Lightroom. Other platforms and apps I have tried are Vimeo, which I only use for embedding purposes, and Videoshop.

I shoot most of the videos with my phone held in a tripod that clamps to the kitchen counter and can be manipulated into many different positions. I select the relevant footage and send it to Inshot where I can drop in text, crop, change the framing, and make any necessary changes to the exposure variables. Plus, you can add and edit music to suit the video, and use many fun special effects and animated stickers. These are often tongue-in-cheek (recipes!!) and perfect for social media purposes.

Not all of my blog posts have video embeds, but I have noticed that often, the ones that do get more traffic. Plus, I am slowly getting a YouTube channel going with my videos.

Jani Leuschel

InShot has a free version, but that brings its watermark to your video and has ads. What I mean by ads is that while you are working, you might get an ad that you have to watch. The pro version, which has more tools, transitions, and graphics, costs \$3.99 a month or \$17.99 per year. Using something like Adobe Premiere Rush can do more, but InShot is easier to learn and can add significant production value with keying, stickers, text, and filters, with a short learning curve. If you are new to this, InShot is an excellent place to start. But you can do way more with other apps in the editing section.

First, you trim the shots to what you want. Then, you can add a wide range of fun stickers divided into categories like Love, Neon, or Pets. There is a wide array of fonts from which to choose. I often get frustrated when there are too many font choices and revert to standard ones. It would be good to consult someone with a good design sensibility to create a template for your show. In

2013, documentary filmmaker Errol Morris did a study showing that readers were more likely to agree with an essay in Baskerville. So, write all your homework in Baskerville.

InShot comes with music and sound effects and has a voice-over, captioning, and tracking tool. I would not want to edit a short film on this, but it would be a good tool for a short video with many effects.

Another option for editing materials to be seen on the phone is iMovie, which comes with the phone. One advantage is that you can shoot video from within the app.

TikTok

If you are creating for TikTok, the films are often made in the app. The app has many good features, including text, picture-in-picture, templates, music, sound effects, a green screen, text and graphics, and augmented reality, meaning you can have an animated character that looks like you are making your dance moves in your space. There is so much creativity available to you within this app. There are lots of effects that you can control. It can be too much.

If you are considering working in the TikTok space, you should spend time on the app and critically watch what is there. What kind of videos do you think work well? What makes them work well? How long are they? Then, look at the most popular videos. Can you see what is causing these videos to connect with an audience? Is there something you can learn from them?

Here is the key: can you learn from what is there, yet make something original that comes from your aesthetic voice?

In talking to TikTok producers, I have heard that once you chase this audience, you have to keep feeding it. You wake up and think about what you can do today; if you have built an audience, they will expect new content. As a creative person, this will sprout lots of creativity but also cause some anxiety due to your audience's expectations.

Creating work for mobile phones and tablets will be a growing market with many untapped possibilities. If you have an idea for an untraditional project, I would strongly recommend imagining how you can reimagine what a film experience is. There are so many things that a mobile phone has access to. For instance, you could use the location services to adapt content to different places. You could use the LIDAR function to portray 3D space. Perhaps you could do an exquisite corpse project where each person starts with the last thing the previous person did and builds off of that. I was part of an exquisite moving corpse project that toured galleries worldwide, but it would have been more fun and widely seen if it had been on the phone.

The possibilities are as endless as your imagination.

Workshop 10

Develop an idea for a project meant to be seen on a mobile device. How will you frame it? How will you transform it?

Watch *The Sopranos* series recut for TikTok. Take a film you have made and re-cut it to 25 seconds in a horizontal format.

Make a short horizontal video on the app you usually shoot with. Remake this short with the TikTok app.

11 Sending Your Mobile Film to a Festival

Once you have finished your mobile film, what do you do with it? You can put it on YouTube, TikTok, or many other online platforms, which is an excellent way for people to see your work. You could build a website and stream your work from there. But if you want more, there are some great options.

Some films have been made on a phone that has found distribution and played in movie theaters. While that does happen, it is rare. There is another option that I think is the best option: send your project to a film festival. There are several important reasons to send your film to a festival.

Why Submit to Festivals?

The first is that if you get in, you can be in a theater with an audience watching your film. As a filmmaker, there is no greater feeling than being in the room when people laugh or cry in the right spots on this project that you have spent all this time working on. The feeling of being in that room will keep you going on your next project.

To be honest, I am biased here. For 34 years, I ran the Dallas Video Fest. I have been in the room with filmmakers to experience that. Over the years of our festival, we showcased new technology from VR to interactive CD ROMS, and there have been many new ways independent filmmakers have told stories. In the last several years of our festival, we started the Bid D Mobile film festival as part of the fest. Our submissions and the work we selected came from all over the world. We had more international entries for Big D than the rest of the fest!

That made me realize that this is an international phenomenon.



Figure 11.1 Dallas VideoFest. Bart Weiss.

The second reason is that these festivals are all over the world, and if you get in, you can go to these places and perhaps shoot some great footage while you are there. Remember, when traveling, interview your driver! I have traveled the world showing work which has deeply enriched my life, artistic practice, and worldview.

The third reason is to see the world of other people doing work with their phones. Just as your film will inspire audiences, you will be inspired by how other mobile filmmakers have made their films.

The fourth reason to go to a festival is to meet actors who were good in other films. Because you have a film at the festival, the actors will know you are talented; you just have to hang out with them and ask. If you get to be friends with some of these actors, you can write a script for them. Having better actors in your films will always make them better.

The fifth is to meet other filmmakers working with mobile phones. Aside from the screening, the best times at a festival are the meals you have with other makers, where you will talk about your work, the gear you love, your challenges, and the next project you are working on. This exchange of info is important. When you go to a festival, you will have new friends to whom you can show rough cuts and ask questions about gear, editing, or life. When you go to the festival, you will come back with many business cards or new contacts (not everyone has a business card these days). It is essential to contact the people you meet soon after you get home. After a month goes by, you will forget.

If you get accepted to a festival, find a way to go!

How to Enter a Festival

Applying to festivals is easy: the website www.filmfreeway.com is a one-stop shop for entering most of the film festivals in the world. You can search by

genre, date, or entry fees. The website can be overwhelming, but I will help you get some perspective.

The first question to ponder is, do you want to enter a Mobile Film Festival or a more general festival? If you enter a mobile fest and get in, you will be hanging with your people. If you enter and get into a general festival, you won't have that same sense of community.

As you plan your festival run, think about where you want the film to premiere. You only get one premiere, but you have a regional or a state premiere. All festival programmers want to have a premiere. When choosing where to premiere your fest, make sure that the programmers are supportive of your work. You want it at a good time slot in a good theater. Is there a festival where you know someone who knows someone at the festival? That really does help, or at least make the programmers watch your film a second time.

If you get into a festival in a movie theater, you will have to make a DCP (Digital Cinema Package), the format used in all movie theaters. You can hire a service to make this or download DCP 0-Matic for free and do it yourself.

There are good reasons to send your film to a more general festival. One might be in your town, and you want all your friends and family to attend the screening. You will meet a wider group of filmmakers at a general festival. If your film is short, which is the case with many mobile films, you won't get as much respect as those who made a feature.

Going to a mobile festival will better connect you to a community than a general one.

Festival Recommendations

There are many, many, many mobile film festivals, and they are all over the world.



Figure 11.2 International Mobile Film Festival. Susy Botello.

The first one I recommend is the International Mobile Film Festival in San Diego, California. This festival was the first in-person film festival in the world for only movies shot with mobile phones and launched in the spring of 2009. It's run by a passionate supporter of mobile filmmaking, Susy Botello. Aside from running this festival, she hosts a podcast called "SBP Podcast Mobile Filmmaking." The festival takes place during the last weekend in April each year, and I recommend going if you can.

If you can, imagine a world without independent film, a world where only Hollywood film studios made movies with overwhelming budgets. So many stories would never have been possible. Independent film allows people to make films with lower budgets. Making movies with smartphone cameras has democratized the film industry on a larger scale because it has lowered the budget but also the technical learning curve. Mastering a smartphone camera that is always with you is a lot easier than assembling a traditional cinema camera and practicing.

Mobile filmmaking gives access to telling a story as a film and reaching the hearts of millions around the world. Filmmaking is the most powerful manner in which to tell stories everyone can feel. Stories told through films can make the world a better place.

"The power of mobile filmmaking is more about stories than anything else. A smartphone filmmaker is an empowered storyteller with the opportunity to bring emotions, messages, & empathy to their audience. Your story can change the world!"

"At the center of everything we experience is a story. Stories are always evolving. The only beginning and end to a story is the one that is told or the one we perceive." January 2, 2020, Susy Botello, International Mobile Film Festival founder and director.



Figure 11.3 Mobile Journalism Awards.

If you are working more in the journalism mode, I suggest the Mobile Journalism Awards. This spring festival is run by Robb Montgomery, a passionate mobile filmmaker who travels the world doing mobile workshops. This festival has three categories: mobile journalism, documentary, and crisis reporting.

Mobile technology pushes storytelling capacity to the edges of the reporting theater. Reporters carrying mobile devices are far more capable than previous generations of reporters carrying only notepads. The potential for mobile storytellers to file a wide range of rich media reports from the field is genuine and still largely unrealized.

Field reporting is the benchmark for mobile journalism. A reporter enters the field, gathers facts, documents life, questions everything, verifies the evidence, and interviews people. And then, he or she tries to make sense of it and explain it to their community with honest and engaging stories. Mobile reporters rely on common phone technologies for the transmission of their multimedia reporting. The integral use of a phone is what sets a “Mojo” apart from “backpack” or “solo video” journalists. As a result, mobile journalists can be nimble and report from breaking news scenes in real-time and either share their reports to their newsrooms or directly with audiences. Mojoes are often the first responders for crisis reporting (Like Class Weinmann of Bild who has filed a number of immersive eyewitness reports from the scenes of natural disasters and war zones). This World Editors Forum post from 2007 chronicled Jördis Guzman’s extreme mobile journalism as she filed daily podcasts and photo reports over 21-days for *Die Welt* newspaper in Germany. Female reporters have been leading the way for innovative mobile journalism reporting since the very start. In 2007 a German journalist reporter from *Die Welt* made history with her international mobile phone reporting from the middle of a trans-ocean race. Jördis Guzman used a mobile satellite phone to transmit the multimedia reports and the newspaper published the reports online to gain an exclusive in their coverage of the event. It took several hours each day to upload the multimedia material to the Iridium satellite network that rings the Earth’s Equator. She was also a member of the crew and had to work the same 12-hours on and 12 hours off shifts and do the same chores for cooking, watch and cleaning. She also got help from crew members to keep the sat phone connect topside while she edited her reports below deck.

Excerpted from Robb Montgomery, *Mobile Journalism* (Visual Editors, NFP Bartlett, 2020).

The longest-running mobile film festival in the southern hemisphere is the Mobile Innovation Network and Association, a fest known as MINA, run by Max Schleser. They also have a Facebook group called Smartphone Filmmakers & Social Media Producers that is worth checking out.

Other festivals I would recommend are the iPhone Film Fest in Beverly Hills, CA;

The Super9 mobile film fest in Portugal; Smart Fone Flick Fest SF3 in Sydney, Australia; The African Smartphone International Film Festival in Lagos, Nigeria; The Mobile Motion Film Festival in Zurich, Switzerland; The Toronto Smartphone Film Festival in Toronto, Canada; Cinema Perpetuum Mobile in Minsk, Belarus; The Mobile Film Fest in Paris, France; The Cairo Mobile Film Festival in Cairo, Egypt; and The Dublin Smartphone Film Festival in Dublin, Ireland. And by the time this book comes out, the Big D Mobile Fest will be back in Dallas, Texas!

Wow, just imagine traveling the world with your film to all these film festivals.

Your first step is to fill out the info about your film on Film Freeway. A good description and some good photos will help sell your film. There is a place on Film Freeway where you can send a note to the programmers who will be watching your film. Send them a nice note. If there is any connection to the city of the festival, mention that. For example, if the lead actor came from that town and would bring all their friends, that would help. If your film is in any way similar to a film they have shown in the past, you might mention that. Programmers generally read those just before watching the film, so you can help set the tone and expectations for them. Don't oversell, be honest. You should understand that the programmer probably watches many films in that setting, and you want your film to stand out.

You should have a festival strategy. First, be realistic about what festivals would like your film. Read the description on Film Freeway and go to their website. They will have info from last year's festivals there. Look at the kind of films they showed, are they in any way like your film?

Do you want to take a chance at the biggies – Sundance, SXSW Tribeca, etc.? These festivals get so many submissions that it is hard to get in. If you get rejected from a festival, realize that the programmers just felt your film was not a good fit. With short films, the short programs are often thematic, and your film may not fit what they were looking for.

Entry fees can be pretty steep for film festivals. However, realize that your entry fee helps keep the festival in business and ensures that competent people are putting the festival together.

Don't send a canned email if you want to ask for a fee waiver. Craft a well-written email in which you mention how your film is a good fit for them because it is similar to some films (that you mention by name) that they have shown in the past. If you have done some research and written a good email, there is a good chance you will get a waiver.

Another problem is what to do if your film is not finished by the deadline. The programmers will not look at the film the day you submit it. In the notes, tell the programmers that this is progress and that perhaps it has temp music, whatever else it is missing, and when it will be completed. When the film is done, replace the link on Film Freeway.

Workshop 11

Go to the websites of three film festivals dedicated to mobile filmmakers or that have a mobile component. See if you can find the winning films online. Many short films are on YouTube or Vimeo.

What elements do these films have in common? Ask “what can I learn from them? Are any of the makers of these films close to where I live?” If so, try to meet them. How does your mobile film compare to those shown in these festivals?

Develop a list of the festivals you think are best for you, and note the entry deadlines.

Create a dated list of 7 festivals you want to enter and put those entry dates in your calendar.

If there is a mobile film festival in your area, see if you can volunteer. This is a great way to meet many filmmakers. One of the best volunteer jobs at a festival is picking up people at the airport; you get one-on-one time with filmmakers!

If there is no mobile film festival in your region, think of starting one!

12 The Future of Smartphone Cinema

So much of the future is unknown, but we know it is very bright for mobile filmmaking. Every year, Apple and other phone manufacturers come out with a new model, and one of the principal parts of any recent phone announcement is how much the camera has improved. This means that many engineers are working on new ways to shrink the difference between mobile phones and digital cameras. There is a difference between how engineers at Sony, Red, Arri, and Blackmagic look at camera development and how Apple, Samsung, and Google develop. They are different kinds of companies. The camera companies are primarily hardware companies, while Apple, Google, and Samsung are software/hardware companies.

Since mobile photography uses computational photography, which can do more with light than optical photography, tech firms can push more out each year. The mix of computational photography and AI will be mind-blowing.

Some of this is wishful/hopeful conjecture, but here is where things are going.

Phones

With each new phone, we get better resolution, and the images get closer and closer to the camera, costing so much more. This trend will accelerate. I hope that new smartphones will have larger image sensors. I would imagine that Apple, Samsung, and Google will add more professional control to their native apps but make it just as easy to shoot with mostly automatic modes as well.

All Phones have a flashlight function. It would be great if you could adjust the color temperature of the light so that if you were outside, the fill light would look right. It would also be good if all camera apps had a slider to adjust how much light that flashlight would throw.

The dynamic range will improve, showing deeper black and whiter white.

LiDAR

LiDAR, which stands for light detection and ranging, allows the phone to measure and map the 3D world around the phone. LiDAR sends a laser light to the subject and can measure the reflected light.

3D Spatial Video

Starting with the iPhone 15 pro/Pro-Max, the phone can shoot 3D Spatial Video by itself. The side-by-side cameras can interpolate the 3D imagery. While you can view the video in 2D on your phone, you can only see the Spatial Effect by playing the movie back on the Vision Pro, which is not inexpensive. This will bring 3D filmmaking to the masses and might be a significant selling point for the Vision Pro. This is yet another step forward in rethinking what a mobile phone can record. From a simple low-resolution photo to 3D special video, the camera has transformed the telephone into a studio.

Lenses

Lenses will get sharper and faster (letting in more light). One of the limitations of mobile filmmaking is that each phone has only one f-stop. We can't let more or less light in. I hope that someone will figure out how to change that. If that cannot happen, it would be great if the camera could have a built-in neutral density filter (either actual or simulated).

This could help you adjust exposure in bright daylight without changing the ISO. Wide-angle lenses will get wider, and the telephoto will get longer. I hope the wide lens won't look distorted.

New Sensors

We are hoping that the image sensors in phones will get better. Sony is working on a new sensor that will make their phones work better in low light and record better video.

Sound

Sound is the Achilles' heel of mobile filmmaking, but advances by third-party vendors have lessened the problems. We have some great workarounds with different mics that work well, but I think phone manufacturers will add a built-in mic system, like the DJI Pocket Osmo 3, which directly connects to a DJI wireless mic.

With AI, most editing packages have voice isolation built in. I suspect that more AI will be built into phones to fix wind noise and separate, equalize, and remove noise from voices.

Cinematic Mode

Cinematic mode is excellent, but you must use the native Apple app to get it, and you need to shoot in cinematic mode. In the future, cinematic mode will be baked into all apps.

Editing

Most video editing is now done on a laptop or desktop computer. Apple, DaVinci, and Adobe have been working hard on tablet apps to edit with. Now this is a niche market, but in the future, editing on a tablet will be common. An iPad Pro has the same chip as a desktop system. Once editing on the tablet is common, the next step will be editing on the phone itself. The resolution on the screen will work well, and AI working on the phone to edit will make things smoother. I can also imagine a two-screen workflow of a phone and a tablet as an editing system, and perhaps your watch can work as a trackpad.

Another change in editing is not so much about smartphones, but B roll can be obtained from AI. When you need a shot of something, you can ask AI to get it for you instead of going to an archive. This will make life easier but also raise profound questions about what a documentary is.

Transcriptions tied to video are making editing documentaries much easier. I can imagine just typing in words in a timeline, and the AI will find the shots and put them in the timeline. AI will also automate much of the editing process, from applying metadata, basic editing, fixing and mixing sound, and color grading. Much of this work will be fine but not great. There will still be room for the talented filmmakers to control the image.

With the democratization of media and kids shooting videos at a younger age, more videos will be shot with phones. For a generation growing up with smartphones, shooting video will be as natural as checking email. Some will be on TikTok, some on YouTube, and some will make indie documentaries, narrative films, and experimental films.

Everything will be documented with videos.

Distribution Exhibition

When you make a film now, you can show it in a theater, at film festivals, on YouTube or Vimeo, or on streaming services. There are gatekeepers (a programmer) on some of these, and others are free-for-all. In the future, there will

be new ways to see films that we have not imagined yet. I can imagine film festival programmers having their own channel on Vimeo, YouTube, or even a streaming service.

More people will be jumping into the smartphone filmmaking world. More and different kinds of stories can and will be told from many more perspectives than we can imagine now. I do worry that bad actors will use this medium that I love to spread misinformation.

But that is a story for another book.

Workshop 12

Create a short video where you discuss what you want the future of mobile filmmaking to be or what you think the future of mobile filmmaking can be. What possible changes will be helpful, and what will be destructive? What is the one thing you would want to change about smartphone filmmaking?

13 Mobile Apps to Assist Traditional Filmmaking

This book has focused on using your mobile device to shoot films, but many apps can assist traditional filmmaking. Most of these are for phones, some are for phones and tablets, and some have desktop versions. These apps are for pre-production, production, and post-production. Hollywood filmmakers use some (and those are expensive), and some are more for indie makers.

The things that make mobile phones great for shooting are the same things that make them great for production. The phones are small, and with you, they are connected to the internet. They are computers that can process significant data and have high-resolution screens.

Pre-Production

In pre-production, we are taking the words on the page and planning how to get the images on the screen.

Previs Pro

Previs Pro is the best app for previsualizing your film, and it is available on iPhone and iPad. The app costs \$39.00 monthly, \$99.00 yearly, or \$299.00 for life. Teachers and students receive a 70% discount. You can pay for the months you need and cancel until your next production. This app is being used in Hollywood for major films and shows.

The app takes your script and brings it to life. You set the background, select characters to put in them, and adjust the lighting; you can have these avatars mimic your movements and set all kinds of buildings or exteriors where your film will take place. You can select your camera (or phone), and it will show you what is in the frame when you are at different focal lengths. When you finally make all the adjustments you want, you can export storyboards for everyone on the production team.

I know that is a significant expense. It really is a PRO app. Sometimes, the word pro is more marketing than professional. This app can save you time and

money in production, and just as importantly, it will ensure you get the images you want when you shoot. I believe it is worth it.

Storyboard Animator: This free application for iPhone and iPad allows you to draw your images and then animate them. This is only helpful if you have drawing skills.

tableread

When writing a script, it is hard to hear what it actually sounds like. *tableread* is an app you use to read your screenplay, and you can listen to it back; if you get the pro version for \$2.99 a month, you can hear different characters read your screenplay. They will even send you notes.

Canva

Canva is a graphic program with a mobile version that is free if you have a Canva account. You can create a storyboard within Canva. Working in Canva is more intuitive than most other graphic programs.

Storyboarder

Storyboarder is not a mobile app but a free application that can help you make great storyboards whether you can draw or not.

Shot Designer

This is an excellent tool for blocking your scene. There is a free version; the \$19.99 (one-time) version has file management, a desktop version, sharing, exporting, syncing, and collaboration. This app gives you a bird's eye view of your scene with your actors and camera. It can animate your camera and actors move so you can see what that will look like, and it will create a shot list. This app works well on mobile because you have the tactile action of your fingers moving the camera and actors and seeing what it will look like.

Shot Lister

This is a professional app for managing your production. One of the pre-production challenges is figuring out what scene to do with which actors on which day. Shot Lister is a modern way to help you get your production schedule. It is free to download but costs \$15.99 a month. While on set, this app will help you keep track of the production so changes can be made smoothly, with all the necessary info to help you make that decision.

Artemis Pro

This Emmy award-winning app is one of those used in Hollywood, and you can also take advantage of it. It is a viewfinder on steroids. You can scout your location and look at different frame sizes for various cameras and lenses. You can also add different looks and LUTS to see what that image will look like. Artemis Pro costs \$29.99.

Directors Finder Pro

This is another viewfinder app that can show you all the different camera and lens possibilities. The app costs \$19.99 (10 dollars less than Artemis Pro), but the interface is not as sophisticated.

Cadrage

This is another viewfinder app that is useful both in pre-production and on set. The \$19.99 app will create shot lists from your selections, which you can send to the crew. It also has looks and LUTS. You can also select the camera you will actually use and see how the focal lengths differ for the different sensors.

Helios Pro

This app is made by the same company that makes Artemis Pro. This app shows you what any exterior shot will look like on any given day, any time of day. It will show you how the light and shadows will fall. Helios Pro will integrate with Artemis Pro. It is available for iPhone and iPad for \$17.99.

Sun Seeker Pro

This app will let the cinematographers know where the sun will be on any given day, hour, or place. This app costs \$29.95, and there is a free light app.

Map-A-Pic

Map-A-Pic Location Scout for iOS is an all-in-one location scout app for only \$1.99. This app will help you find a location; print or email them; get the sunrise, sunset, golden, and blue hours for those locations; view them on a map; and get driving directions.

Production

These mobile apps help cinematographers on set and location.

Pocket Light Meter

I did not have high hopes for an app light meter. This will not substitute for a Sekonic or Spectra meter, but it was close in my tests. This app costs \$10.99 and is better than not having a meter.

myLightMeterPro

This meter has an interface that resembles the Luna Pro meter. It costs \$3.99.

Lumu Light Meter

The problem with a light meter on an app is that it does not have a sophisticated light-sensing device, which is more important than the user interface for evaluating exposure. The Luma Light meter comes with hardware to measure the light more carefully. The Lumu meter can perform incident and reflected light meter readings. However, the price point of the sensor for the app, at \$326.00, is more than a professional handheld meter.

Simple DoF Calculator

When shooting, it is good to know your depth of field exactly; this app is much better than carrying the American Cinematographers Manual with you. At \$1.99, It belongs on your phone.

pCam

It might be hard to believe, but this Emmy Award-winning app was developed by a camera assistant for the Palm Pilot in 1998. It costs \$29.99 but has 26 functions, including depth of field, hyperfocal distance field of view exposure, running time length, HMI flicker-free, conversion calculator, an insert slate, and more. The interface is simple, but it is hyper-functional.

Kodak Tools

This is a free app that is useful if you are shooting a film. It has a good interface for the depth of field calculator and good info on film stocks and where to develop your film.

Green Screener

One of the problems when shooting with a green screen is evenly lighting the green screen. While this \$9.99 app does not change anything on your green screen, it makes it easy to see when the light is or is not even, which is helpful.

DigiSlate

This free clapper will display an ad every fifth time you use it, which could be annoying when on a shoot. You can easily add info and swipe across to slate it – simple and free.

Movie Slate 8

This slate app is very sophisticated, but it costs \$29.99. It allows you to set and sync timecode, has custom slate colors, adds logos, shows tail sync (when you do the clapper at the end of the shot), and more. This slate is customizable. However, many advanced features will cost more, like playing music for a music video.

Scriptation: PDF for Film and TV

This Emmy Award-winning app takes a Script supervisor's jobs and moves them onto an iPhone or iPad. The free version is limited, and the pro version is \$12.00 monthly.

Easy Release

This \$9.99 app allows you to obtain industry-standard releases in the field easily. It is helpful for on-location shooting, where you need to obtain many releases from extras, but it shines on documentary projects. Aside from being more convenient, it is less formal and makes it easier to get people to sign.

CamTrack AR

This app captures video and 3D camera tracking data simultaneously and gets 3D model placement, with a chroma key and the ability to import 3D virtual backgrounds for pre-visualization. There is a free version, which is limited to HD; the 4K version is \$12.99 a month.

Post-Production

There are fewer apps in post. Some help you control all the data in the post. Others are extensions of desktop apps that you are already using.

Cut Notes

This \$14.99 iPad-only app helps you take notes on the fly while watching your dailies. The app syncs timecode with most editing applications like FCP,

Premiere, and Avid. It has buttons like “Too Loud,” “End Scene,” and “Zoom In” that you tap while watching, and they become a hit list for you to attack rather than take notes. You can export these notes into your nonlinear editor. You can customize the buttons and sort the color for function: for example, red for sound and green for picture.

Rob’s timecode calculator

This is not an app but a website with a timecode calculator. When you need it, it is there for you.

Vimeo

This is just an app version of Vimeo, a service similar to YouTube that filmmakers use to view and send work. If you have an account using the free app, you can upload videos from your phone. You can also change passwords or adjust settings. Vimeo accounts begin at \$7.00 a month.

Frame.io

Frame.io is a sophisticated system that takes video files from the field, allows your team to make comments, and tracks all these comments through post-production. This enables the director to select takes with their iPad at home and have the editorial staff build selects from the director’s notes. Adobe now owns Frame.io, so it integrates well with Premiere, and works with other editing systems. There is a free version for two users and two gigs storage. For \$15.00 a month, you can have five users and 2 TB.

Dropbox

Dropbox is a file storage service. The app is just a mobile version of their desktop app. For \$9.99, you can get 2 TB of storage. When Dropbox files sync with your desktop computer, they can take up significant hard drive space. You can make the files available online only to save that space.

Copra4

This is an app to view dailies, like Frame.io, which is an app to view and make detailed comments on dailies. It is free to download and use just on set, but if you want to move the data to and from the cloud, it will cost \$149.00 a week.

o/DALIES

This is like CoPra4 and Frame i.0 but has more metadata info that can sync with the files. It will also send you reports on your phone. It will keep track of the DIT transfers (DIT is a Digital Image Technician that copies and transcodes the set files); this app will send you a message on your Apple watch when the transcoding is done. There is a free limited version. The pro version is \$82.00 a week.

Throughout the production process, your phone can help you in your filmmaking. Here's one last suggestion.

Rehearsal Pro

This is an app for actors to help them rehearse. You might suggest it to your actors. It costs \$19.99 for iPhone and iPad.

Workshop 13

Go back through this list and download at least three of these apps: one from pre-production, one from production, and one from post-production (many are free). Open the apps and learn their interfaces and functionality.

14 Resources

The mobile filmmaking space is constantly evolving, with new gear, new films, new approaches to making mobile films, and new mobile filmmakers. Many YouTubers have information as varied as anything else on the internet. Some of these give you some info on how to get paid for more.

Be warned: when visiting these resources, the urge to buy something does not take long to creep into your head.

Newsletters

Peta Pixel is an excellent daily source of information on mobile gear and mobile phones (PetaPixel.com). This is both an informational website and a daily email. Most of the material they cover is for still images, but their coverage of media is very detailed. When new phones come out, I go to their reviews first.

I don't love the name, but I love NO FILM SCHOOL (nofilmschool.com). They have a weekly email, podcast, and website with information about production information and how-to information. I don't always agree with their articles, but even the ones I disagree with make me think.

Podcasts

Susan Botello from the International Film Festival has a podcast ("SBP Podcast Mobile Filmmaking") with good interviews with mobile filmmakers.

Two other podcasts to listen to are "The Future Film Podcast," the "iPhoneography Podcast," and "The Almost Professional Podcast."

Other good podcasts for film are the "Team Deakins Podcast," "No Film School," and my podcast about documentaries, "The Fog of Truth."

On the Web

The iPhone Cinema channel on Vimeo is an excellent place to watch films made with iPhones: <https://vimeo.com/channels/iphonehd/videos>. The site has over 600 videos and over 11,000 viewers. Visit to be inspired.

HandHeldHollywood.com is an excellent source of information about mobile filmmaking and using mobile devices in filmmaking. It was created by Taz Goldstein, who also wrote a book with material from the site called *Hand Held Hollywood's Filmmaking with the iPad and iPhone*. Taz has not posted for a while, but the information there is still valuable.

Dave Basulto has a company that makes mobile gear primarily geared toward mobile journalists. He sells many items, but the big thing he has is the iographer. He invented this when he was teaching to steady the phone or a tablet and hold lights, mics, and filters.

His website is <https://www.iographer.com>, but he has some great videos on YouTube at

<https://www.youtube.com/user/iOgrapher/videos>.

Robb Montgomery, who runs the Mobile Journalism Awards, has some great info on his website

<https://robbmontgomery.com/>, including details on all the gear he uses.

There is some helpful information on this website as well: <https://mobilemoviemaking.com/>

There is Facebook group called Mobile Filmmaking Network.

There are many YouTube mobile videos at all levels, and some are good.

The Sundance Collaborative has a *free* mobile filmmaking online class at <https://collab.sundance.org/catalog/Mobile-Filmmaking-Presented-by-Xiaomi-On-Demand>.

One of the great things about Apple is that it makes its products accessible. In the iPhone settings, many powerful tools assist otherwise excluded communities. Many of these tools and settings are good for all of us.

Accessibility

Tim David, who works for Apple, has some useful links on his Accessible Film Production site

<https://padlet.com/tim/accessible-film-production-5wzz890v3qtt1pf4>.

One way to make a film more accessible is to have an audio description that can be embedded into a second soundtrack. In this film <https://www.apple.com/accessibility/the-lost-voice/>, select English audio descriptions when you click the subtitle speech bubble. You can hear the descriptions between dialogue.

As you journey through this world of mobile filmmaking, consider how more people can enjoy your work.

Now that you have read the book. Put it down and go out and shoot.

If you want to get in touch with me with questions, you can find me on LinkedIn.

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