

Video Documentation with Smartphones

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Video Documentation with Smartphones

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Part I: Best Practices for Shooting Video with a Smartphone

Do not shoot in vertical orientation (portrait)



Vertically shot video may display with a 90° rotation



Size is reduced and wings are added to fill space



Important movement is lost out of frame



Video shot in the vertical orientation will not playback optimally for viewers. Once uploaded to a computer, older video players will rotate the footage automatically and play it turned 90° left or right of the direction you filmed. Newer video applications will recognize vertically filmed video, scale it down in size and add black “wings” to fill up the horizontal area. In both cases, the video may still playback incorrectly on other computers and smartphones.

The vertical orientation severely limits lateral movement during filming. Subjects in motion will quickly fall out of frame, either in whole or parts of the body. To compensate the camera will have to move significantly more to keep the subject in frame, which often results in difficult to watch, shaky footage.

Exceptions: The applications for video are broad, you may have a use well-suited for vertical presentation. For this reason, it is important to consider the relationships you create with the subject, video medium, and audience in each new video project.

Think of it this way: The human visual field for both eyes combined (binocular) is 135° vertical and 200° horizontal. We already perceive our world with 32% greater lateral expanse, so shooting video on your smartphone horizontally (landscape) provides a more familiar visual experience, helping your viewer to better engage with the contents of the video, rather than being distracted by the awkwardness of its medium.

Human Visual Field: We see about 1/3 more of our world horizontally. Landscape orientation in film and video has long been standardized, with roots reaching back to the proscenium theater and Western landscape painting traditions.

Part I:

Best Practices for Shooting Video with a Smartphone

When filming yourself use a tripod if you can, create a secure stand if you have to

There are many smartphone clips and mounts with tripod attachments. If you have them, use them.

If you have a cell phone car-mount, and a tripod, look for creative ways to securely attach them. Test your methods low to a soft surface. Drops on hard surfaces such as concrete or hardwood are a common cause of screen breakage.



Tripods designed for smartphones come in many configurations and can make the self-filming process much easier

If you don't have any of these items, find a stable, somewhat elevated surface that will allow you to build a safe and steady place to prop up your camera

- * Stable desks, tables, countertops, and some chairs may work for you
- * If you have a smartphone propping device, such as a pop socket or folding stand, use that.
- * If you do not have a phone propping device, try using a soft cushion that can be shaped to set the phone upright on its side. This will add the benefit of more shock absorbance. Alternatively, you can use books to create a wedge.



Books are a solid option that can be rapidly reconfigured



The right pillow can be molded to support your phone and may reduce camera shake from floor vibrations

Part I:

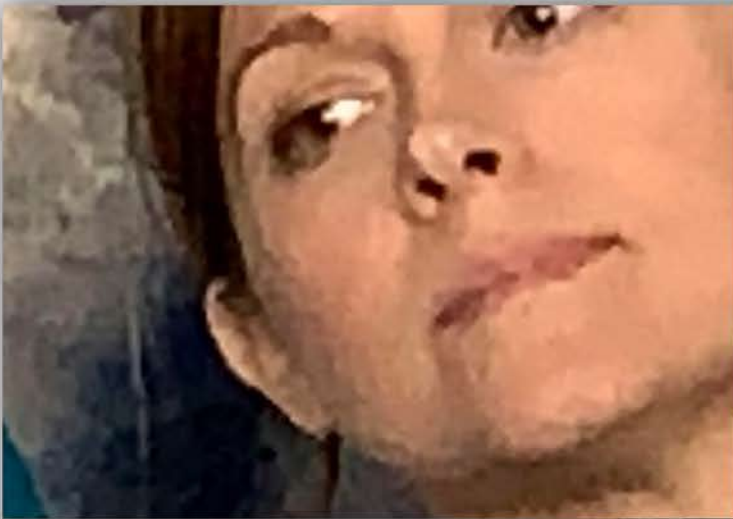
Best Practices for Shooting Video with a Smartphone

Avoid using digital zoom (get close to your subject)

Unless you are using one of the absolute latest models of smartphone, your phone only has the ability to zoom in digitally. This is different from optical zoom which occurs when a physical lens is changed, causing a magnification of the image before it hits the sensor. Digital zoom only enlarges the current image picked up by the sensor resulting in larger, more visible pixels.

Place the camera as close to the subject as you can. Not only will this allow for clearer detail of your subject, but will help to pick up better audio from the subject.

When you have no option but to use some amount of zoom, be sure there is plenty of light on your subject. This will help reduce the appearance of pixel noise.



Digitally zooming in with your smartphone lowers the total resolution of your clip



Part I:

Best Practices for Shooting Video with a Smartphone

Lighting

Optimal lighting for general video documentation:

If the main purpose for shooting video is to provide a clear demonstration of subject's action, then bright, even lighting will do the most to support the technical quality of your footage. Direction of lighting is given in relation to the lens of the camera, so "even" lighting means either:

- * Light that faces toward the subject and background, and away from the camera.

- * Ambient light that is bright enough to make details in shadow areas visible on the subject and background.



Window Light: Subject is facing window directly.



Backlit: Camera is facing window behind subject.



Smartphone LEDs: Maybe save these for a revival of The Blair Witch Project.

Backlighting

When you are setting up your area for filming, take a look around the room for its light sources. Are there lamps or a window with sunlight streaming in behind where your subject will be? If so, it may cause the scene to be backlit. Unless you intend to obscure your subject to appear in silhouette, this is generally a problematic lighting arrangement for video documentation. Try flipping your setup to place the light behind the camera.

Smartphone Camera LEDs

The small LED bulbs that many smartphone's utilize as flashlights aren't usually much help in shooting video. I recommend these as a worst case scenario option. The LEDs are somewhat useful for still photos, but provide uneven, harsh lighting that may interfere with the phone's auto exposure and cause loss of detail in shadow areas.

Part I:

Best Practices for Shooting Video with a Smartphone

Lighting

Finding and adding light sources

Indoors, windows: Windows may provide a good source of light for your subject. A room with many windows from different angles may provide ample, even, ambient light for your subject. Single windows will provide more directional light, try placing your subject facing toward the window with the camera between subject and window.



Overhead lighting: Your home lighting may provide sufficient light for filming.

Indoors, lamps: If windows are not available in your filming space, or do not provide enough light, you will need to utilize whatever lights you have at your disposal. Overhead lighting may provide sufficient ambient light, but may cause shadows in important areas of detail, such as a subject's eyes. Arranging table lamps or medium-height floor lamps in front of your subject to supplement the overhead lighting can help to create more even lighting on your subject.



Overhead and lamps: Watch for shadows that may be cast on important areas. Some light bulbs and lamp shades will cast warm or cool tones.

Outdoors, daylight - full sun: In full sun, there will be sufficient ambient light for clear detail in your subject and background, however there will also be strong shadows. To solve for this, place the sun at the back of your camera and your subject facing into the sun. Around noon when the sun is at its highest, your subject may have shadows obscuring important areas of detail, such as the eyes, you may want to find a lightly shaded area to place your subject, where the ambient light is still bright enough to see details.

Outdoors, daylight - overcast: This is a naturally occurring, even lighting scenario. Depending on how cloudy it is outside, this should provide sufficient ambient light with minimal shadows on your subject and background.

Outdoors, night time: The majority of smartphones are not capable of capturing clear video outside at night, even with street lighting; only the most recent model phones have made improvements for low-light scenes. In order to shoot outside at night, you will need to add light to your scene with high-intensity, broad-beamed floodlights. Some types of exterior lights, such as security lights, are floodlights. Portable floodlights can be found at hardware stores and online, and range widely in price.



Examples of floodlights for shooting outdoors at night. The more light, the better.

Part I:

Best Practices for Shooting Video with a Smartphone

Exposure and Focus

Automatic features

Most smartphones are designed to be “point and shoot” utilizing its own programming for selecting a focus and exposure setting. In most cases this will remain active throughout the course of shooting video, allowing the settings to adapt to changing environments and conditions. For many purposes, this program is robust enough to provide the user with sufficiently accurate focus and exposure. You can optimize conditions for these auto features by shooting in a space with bright, even lighting, and by removing objects from the field of view that may pull focus from the subject, like objects closer to the camera than the subject.

Manual settings

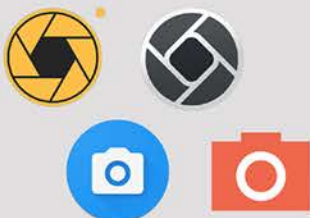
- * Some phones will have options allowing users to set a variety of exposure and focus controls. This is typical for many phones that use Android operating systems. You can experiment easily with the different controls to find the right setting for your scene. However, if your scene will have changing light conditions or significant shift in your subject's distance to the camera, initial settings may not be suitable for the whole clip. See the section below on manual exposure settings for more detailed explanations of each setting.
- * Other phones allow the user to select an area within the frame by tapping on an area on the screen directing the program to focus and adjust its exposure at that point. This is typical for iPhones.
- * The exact operation for manual controls will vary across phone brand, operating system, and camera application. If you find that the automatic program and manual settings for your phone's camera are insufficient for your needs, there are many camera control applications you can download that offer alternatives for operating manual settings, both free and paid.



Most phones require little manual adjustment to produce video clips that are in focus and well exposed. Try tapping on your subject on your screen to automatically adjust the focus and exposure.



Pro Mode on some Samsung Galaxy phones allows you to control individual settings much like a standard camera.



There are many free and paid apps available for both Android and Apple phones. If you've never used one, try out a free app to see if it is more useful than your phone's automatic settings.

Part I:

Best Practices for Shooting Video with a Smartphone

Audio Recording



Microphones are typically located at the receiver end (bottom) of the phone. Due to design choices for the newer iPhones, the microphone and one of the speakers also on the bottom look identical, with the microphone on the right side of the lightning charging port



The good news about investing in an external microphone is that unlike smartphones, a quality, well cared for microphone can serve you for many years, and won't need to be regularly replaced with newer models.



If you need to capture audio that is in front of the camera, but need a greater latitude of movement, a mini shotgun mic may be an excellent option for you. This is the Rode VideoMic Me Compact TRRS Cardioid Mini-Shotgun Microphone for Smartphones and costs around \$50 USD

Smartphones are not equipped with high-quality microphones, so nearly all strategies for improving audio are in creating optimal circumstances to record the needed sound. The strategies below may not be possible in all recording situations, so you must consider where priorities lie in the material you need to present via video in order to select which will work best for you.

Ensure nothing is covering or blocking your microphone. Start by locating the microphone on your phone, it is typically on the bottom, or the general area that would be closer to your mouth if you were using the phone for a telephone call. Some smartphone cases will not impede your microphone, others will. If you do not know, make test recordings or simply remove the case while recording.

Position your subject as close to the microphone as possible. The best case scenario would be to point the microphone directly at the subject, however since you are shooting video with your phone, the physical facing of the camera and subject will likely be of greater importance.

Reduce noise: Listen to your space for a moment. Is there chatter from other people around you? A TV in the background? Perhaps a loud appliance or air conditioning? Reduce as many of these as you are able; you may even want to consider filming in a different place entirely.

If clear, high-quality audio is critically important and you have the means, you may want to consider purchasing a microphone designed to plug into the audio jack on your phone, or utilizing a separate audio recording device to sync the audio with the video later in editing software. Microphones designed specifically for smartphones will connect via 1/8th inch (3.5mm) audio cables into your phone's audio jack (headphones port). The latest iPhone models did away with these important audio ports, requiring the addition of a lightning to 1/8th adapter to plug in a microphone.



If you are recording a speaker that is seated, or who will stay the same distance from the phone with relatively little movement, you may want to opt for a lavalier microphone. These small microphones are designed to be worn attached to clothing near the speaker's face and are excellent choices for single interview. This is the RODE smartLav+ Omnidirectional Lavalier Microphone for Smartphones and costs around \$65 USD

Part I:

Best Practices for Shooting Video with a Smartphone

Selecting your site and subject

Site: Where you choose to film will be dependent on the purpose of the video and the places you have available to you to accomplish it. Whatever and wherever that is, take time to scan the entire environment for objects and people that may be problematic or distracting from your purpose. Always look for safety hazards first. It is easy to get involved with your project and miss noticing something that could cause serious harm or injury.



Most of us didn't design our living spaces to be video studios, and many of us share our homes with family and friends. Take time to notice the items sitting around that you may not notice anymore, as they can be both distracting to your viewer and dangerous to you or your subject while filming. Make sure family and friends know when you're filming and take care to see that your fur children are safely out of frame.

Subject: Ensure you've obtained explicit permission to film your subject if it is not yourself. The subject should always be given the opportunity to refuse to participate in filming. Permission should be obtained for every aspect of the video process, from capturing to final use of the video. Best practices dictate that you should share with the subject the final version, where and how the video will be used or published, and whenever possible, revisions should be duly considered as reasonably requested by the subject. As the filmmaker, it is strongly advised to have your subject sign a release. This should state the intention and uses of the video unambiguously for the mutual protection of subject and filmmaker.

VIDEO RELEASE FORM

I, _____, hereby grant permission to _____, the rights of my image, in video or still, and of the likeness and sound of my voice as recorded on audio or video tape with payment of \$ _____ (US Dollars) without payment or any other consideration. I understand that my image may be edited, copied, exhibited, published or distributed and waive the right to inspect or approve the finished product wherein my likeness appears. Additionally, I waive any right to royalties or other compensation arising or related to the use of my image or recording. I also understand that this material may be used in diverse educational settings within an unrestricted geographic area.

Photographic, audio or video recordings may be used for ANY USE which may include but is not limited to:

- Presentations;
- Courses;
- Online/Internet Videos;
- Media;
- News (Press);

Boilerplate text for creating your own video release forms is widely available online, both for free, and through paid services. If you are using a free source, be absolutely sure you read every word and edit it to fit your situation precisely.

Special note: It is legal to film people without their permission in public places, so long as you are not violating any other laws or posted restrictions, or engaging in illegal/immoral behaviors like stalking. You should not film in semi-public spaces like bathrooms or locker-rooms, without prior consent. You cannot film in private businesses or spaces if restrictions are posted or you are ordered not to film. Legal filming restrictions can vary by local jurisdiction, make sure you understand those legal limitations.

Part I:

Best Practices for Shooting Video with a Smartphone

Manual exposure settings

Shutter speed: This is the duration of time a single frame is exposed to light. The smaller the fraction (sometimes displayed as a whole number, in that case it would be the higher the number), the more you're going to freeze any moving objects in your frame. The bigger the fraction (or the lower the displayed whole number), the more you'll see motion blur from the same moving objects.

Frame rate: This is how many individual frames are captured per second. The most common settings are 24 and 30 fps. If you wish to shoot footage you will later slow down, you will want to utilize higher frame rates; many current smartphones offer frame rates of 60 fps and higher.

ISO: This refers to how sensitive the camera's sensor is to light. The higher the ISO number, the more sensitive to light, brightening the image. Changing the ISO can be a helpful tool, but because high ISOs cause increased pixel noise, you will want to use the lowest possible ISO that works for your scene.

White balance: This refers to the color temperature of light. You may have settings with small pictograms of a sun, cloud, house casting a shadow, different light bulbs, and the letter K. These represent presets for white balance in lighting situations corresponding to full sun, cloudy, in shade or shadow, tungsten lighting, or fluorescent lighting. The K setting is to allow you to manually choose a temperature on the Kelvin Color Temperature Scale. Warm light colors, such as candle light, tungsten light, or a light shining through a warm colored lamp shade, are at the low end of the numerical scale; cool light colors, such as overcast or daylight, are at the high end of the numerical scale.

Focal length and f/stop: In most smartphone cameras, your lens (focal length), and aperture (f/stop), are fixed by the physical construction of the phone, and you will not be able to change these parameters. Clip on lenses that go over your current camera lens are available for many smartphones, and some of the most recent smartphones do have more than one lens you can switch between as well as digital sliders that allow you to mimic the function of changing the f/stop. When you change the f/stop you are adjusting your depth of field, or controlling how much of the scene is in focus, and how much is blurred. Small numbers in f/stops represent narrow depths of field, causing more blur in front of and behind the subject in focus, higher numbers (and sometimes the infinity symbol) represent long depths of field, bringing more of the scene into focus.

Part II:

Transferring video files from phone to computer

Apple iPhone

iPhone to PC

Connect your iPhone to your computer using the lightning charger to USB cable. If you receive a message asking to authorize or accept the device, accept, or unlock your phone to allow the computer/phone to access.

Open an explorer window, locate and click through the following folders:

This PC > Apple iPhone > Internal Storage > DCIM > 100Apple

Here you should find all of the photos and videos that are currently stored on your iPhone.

Select the video files you wish to move to your computer and drag them to the folder where you want them to be stored or onto your desktop.

iPhone to Mac

Connect your iPhone to your computer using the lightning charger to USB cable.

Open the Application **Image Capture**. This comes with every Mac. You should not need to download it from the app store.

Select your iPhone from the upper lefthand list. You will now see all of your photos and videos

Select the video files you wish to move to your computer and drag them to the folder where you want them to be stored or onto your desktop.

Note about iPhone videos for both PC and Mac:

Only the images and videos stored locally on the iPhone will be accessible through these processes, it is possible for an image to appear to be on your iPhone, but actually be stored in iCloud. These tend to be your older images and videos. You will need to access your iCloud account to download those files to your computer.

Part II:

Transferring video files from phone to computer

Samsung Galaxy

Galaxy to PC

Connect your Galaxy to your computer using the charger to USB cable. If you receive a message asking to authorize or accept the device, accept, or unlock your phone to allow the computer/phone to access.

Open an explorer window, locate and click through the following folders:

This PC > Galaxy > Phone > DCIM > Camera

Here you should find all of the photos and videos that are currently stored on your Galaxy.

Select the video files you wish to move to your computer and drag them to the folder where you want them to be stored or onto your desktop.

Galaxy to Mac

Note: To move files from the Android operating system to a Mac computer you will first need to install additional software. The link below is the standard software from Android called Android File Transfer

<https://www.android.com/filetransfer>

With Android File Transfer installed, attach your USB cable to your Galaxy and your Mac.

Swipe down from the top of the screen on your Galaxy

Tap **Connected as a media device**

Tap **Camera (PTP)**

On your Mac, open Android File Transfer

Click through the following folders:

DCIM > Camera

Here you should find all of the photos and videos that are currently stored on your Galaxy.

Select the video files you wish to move to your computer and drag them to the folder where you want them to be stored or onto your desktop.

Part II:

Transferring video files from phone to computer

Google Pixel

Pixel to PC

Connect your Pixel to your computer using the USB cable. If you receive a message asking to authorize or accept the device, accept, or unlock your phone to allow the computer/phone to access.

Open an explorer window, locate and click through the following folders:

This PC > Pixel > Internal Storage > DCIM > Camera

Here you should find all of the photos and videos that are currently stored on your Pixel.

Select the video files you wish to move to your computer and drag them to the folder where you want them to be stored or onto your desktop.

Pixel to Mac

Note: To move files from the Android operating system to a Mac computer you will first need to install additional software. The link below is the standard software from Android called Android File Transfer

<https://www.android.com/filetransfer>

With Android File Transfer installed, attach your USB cable to your Pixel and Mac.

Swipe down from the top of the screen on your Pixel

Tap **USB charging this device**

Tap **File Transfers**

On your Mac, open Android File Transfer

Click through the following folders:

DCIM > Camera

Here you should find all of the photos and videos that are currently stored on your Pixel.

Select the video files you wish to move to your computer and drag them to the folder where you want them to be stored or onto your desktop.

Addendum:

Basic Video Editing Resources

Guides and Tutorials for Free Editing Softwares

Movie Maker - PC

Movie Maker is a Windows program that has both a free and paid edition. The free edition provides the following features: make movies and slideshows, trim video, join video, add music, and save and export your video file.

Kent State University Libraries has a number of beginner guides to video editing in Movie Maker. The link below leads to their Video Production Tutorials page. Here you will find several helpful PDF written guide as well as a video tutorial. (Scroll down page to find the video)

Note: The KSU Library Video Production Tutorials page has several broken links, so I only recommend their PDF and embedded video guide.

<https://libguides.library.kent.edu/smsvideo/moviemaker>

iMovie - Mac

iMovie is an Apple program that either comes pre-installed on your Mac computer or is available for free download in the Apple App Store. iMovie has many features above and beyond basic trimming and joining, and many video tutorials are available for free on YouTube to help you learn how to use those tools. The guides below walk you through the essentials of editing to get you started.

Written guide from Apple: How to create an iMovie project

<https://support.apple.com/en-us/HT210410#mac>

Written guide from Apple: How to edit in iMovie

<https://support.apple.com/en-us/HT210430>

Excellent video tutorial for beginners (YouTube)

https://www.youtube.com/watch?v=aRLT9L_LIPw