DOCUMENTARY MAKING

For Digital Humanists

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Cover image: Photo by Nathan Dumlao on Unsplash at https://unsplash.com/photos/ McztPB7Uqx8. Cover design by Anna Gatti. Moving the camera (and getting usable footage) is a deceptively difficult task. Handheld DSLRs and smartphones, thanks to their small size and lightweight nature, absorb the natural vibrations of the user's hands, arms, and chest. This can result in footage that is distractingly unstable. The natural vibrations in your hands, your arms, and your fingers can easily transfer into your device, creating off-putting footage which vibrates or shudders in unnatural ways. Holding a camera directly with your hands should thus be avoided.

There are, however, a number of solutions available if you wish to move your lightweight camera. These solutions assume that you do not have the budget to purchase sophisticated stabilisation kits and will instead aim to provide work-around solutions using the types of equipment you are likely to own as a part of your basic kit. These solutions use this basic equipment in imaginative ways to achieve effects that normally require specialised equipment.

Going Handheld

One quick and reasonably effective way to compensate for camera shake is to add more weight to your camera. This simple addition will help to compensate for the natural vibrations and movements that your hands introduce to your equipment. A tripod (with its legs closed) can be used as a rudimentary type of stabilisation rig — rather than holding your camera directly, instead grip the folded tripod to which it is attached. The additional weight will help to reduce the amount of shake that you introduce to your footage, whilst the tripod itself will absorb some of the vibrations and movement that can make handheld footage so unstable.

Understanding how your body works in relation to your camera can also help you to add a layer of stability to your footage. Every time you inhale, your chest rises and the position of your shoulders, and therefore your arms, changes. When using a camera handheld, you should thus be aware of your breathing and endeavour to control it, limiting the movement of your chest and arms. Shorter, more controlled breaths can help significantly and, combined with the additional weight and stability added by a tripod, will help you to capture more usable footage.

When particularly stable shots are required from a handheld camera, it may be necessary to hold your breath in order to ensure minimal movement in your chest and arms. If your arms are outstretched, they will be in a position of tension — inevitably, they will get tired and that will, sooner or later, result in them moving or vibrating in a way that will make your footage increasingly unsuitable. To compensate for this, bend your arms at the elbow and tuck them into your ribcage. This will ensure that the weight of the rig will be passed into your body with less strain on your arms, allowing you to hold your camera in a steadier position for longer. Combine with holding your breath (or controlled breathing) for the best results.¹

More specialised equipment — rigs — can greatly increase the ease with which you can move your camera. A gimbal adds moving parts and counterweights to your camera's support mechanism, allowing some degree of camera shake and wobble to be absorbed by the device. These devices are particularly useful for moving the camera, allowing an operator, with practice, to track a subject and collect usable footage.

A C-grip allows you to hold the camera from above, turning it in a number of different directions, without ever having to touch it directly (see Figure 49). The distance of the camera from the handle, coupled with the shape of a C-grip, helps to remove the shake that would otherwise be introduced by your hands. C-grips are particularly useful when you wish to be able to move the camera freely whilst standing in a stationary position. For example, if you wished to film a skateboarder performing tricks on a halfpipe, a C-grip would allow you to stand close to the action whist moving the camera freely to track the skater. Whilst some version of this type of camera movement could be replicated using a tripod, the camera would only be able to track the skater from a fixed pivot point (the location of the tripod head). In addition, tripods have

¹ Fenton, Cinematography.

a large footprint, which can make them impractical, even dangerous, to use in close proximity to a fast-moving subject.



Fig. 49. A homemade rig, assembled over time from inexpensive but effective component parts. A C-grip forms the basis of it. Cold-shoe extenders allow for external accessories, including lights and microphones, to be added to the rig. This is a handheld setup that has been attached to a tripod for stationary shots without needing to be disassembled.

It is also possible to acquire, even build, an inexpensive rig that combines different stabilisation elements which allow you to operate quickly and efficiently in fast-changing situations. Figure 49 shows a rig using a C-grip as its basis. It easily connects to a tripod whilst a range of cold-shoe extenders (simple metal devices that allow accessories to be attached to the socket where a camera flash would normally be attached) allow for the addition of external microphones, lights, and so on. By folding up the tripod and placing it across one of the operator's shoulders, this rig transforms into a shoulder mount. Such setups are less effective than dedicated stabilisation rigs, but they can be constructed from inexpensive materials over a period of time. For budget-minded filmmakers, such solutions are effective and versatile.

Handheld Tracking

If you want track a subject with your camera through a physical space then you will need to practice how you walk. Most people have a natural amount of bounce in their step — the human eye and brain compensate for this so we are unaware of it as we walk. The camera, however, will capture this bounce in uncomfortable, sudden shifts along the vertical axis.



Fig. 50. Tracking shot captured in New York by a camera operator following two subjects. *Looking for Charlie* (0:30:58–0:32:37).

In order to track a subject through space with a handheld camera, you will need to modify the way you walk. The final part of the step — literally, the spring in your step — needs to be excised. As you walk, notice that the heel of your foot lifts up before your toes spring your foot and leg into the air. When tracking a subject with a handheld camera aim to raise and lower the heel and your toes evenly. Bend your knees as you walk to ensure that you do not bob up and down as you move. This will result in a strange-feeling, flat-footed walk — but it will help create much smoother footage.

To gain additional stability for a complicated camera manoeuvre, fold the tripod so that its legs sit perpendicular to the camera, forming a horizontal bar that extrudes from the back of your camera. Place this bar (your folded tripod legs) onto one of your shoulders. With your hands, hold the end of your tripod closest to your camera. You now have a makeshift shoulder rig which, coupled with a bounce-less walk, will allow you to track people through physical spaces in a comparatively stable manner. Significant practice will be required to perfect your 'tracking walk'.



Fig. 51. A folded tripod placed across the shoulder can serve as a crude shoulder stabiliser. When using such a setup, walk with bent knees, raising and lowering your feet so that they remain parallel to the ground. Do not push up using the ball of your foot to avoid ruining your shot with a bounce.

Camera Pans and Tilts

A common but effective shot that you may want to employ is the camera pan: the camera remains stationary, but looks (pans) around a scene along the horizontal axis. This can be a particularly effective way to take in a scene that is too large to be effectively captured in a single, stationary shot.² It is a relatively easy effect to create as it requires you to loosen your tripod head just enough so that your camera is able to look around freely when you pull on the control handle. Like almost all types of human-controlled movement, however, unwanted shake and vibration can be introduced.

To compensate for this, loop an elastic band around the control handle on your tripod and pull on this (rather than on the handle

² Elliot Grove, *Raindance Producers' Lab: Low-to-No Budget Filmmaking. Second Edition* (Burlington: Focal Press, 2014), pp. 53–60.

directly) to create camera motion. The elastic band will absorb shake from your hand and, assuming you pull it at a steady rate, it should provide you with a smooth pan. Practice, however, is essential. As you drag the camera around, you may well find that, as your tripod head loosens, the speed of your pan increases. In order to compensate for this, you will need to practice the motion, gaining a sense for when the movement of your tripod head starts to speed up (or slow down) and compensate for it appropriately.

Camera tilts can be accomplished in practically the same manner. If a camera pan describes the motion of a camera as it looks from left to right (or right to left), a tilt describes a camera as it swings along the vertical axis. To accomplish this move, loosen the tripod head. Again, loop an elastic band around the control-handle, this time pulling it so that the camera tilts in the desired direction. Once again, practice the motion, learning when your tripod head will loosen or tighten to an undue degree.

Dolly Shot

A dolly shot is achieved when a camera is placed on a moving object — this, in theory, should provide you with a very smooth shot as the camera tracks closer to your subject. Dolly shots are, however, deceptively difficult to achieve. In professional productions, dollies are often placed on tracks and pushed by several members of the crew. This is a time-consuming and expensive way of creating such a shot.

You can reduce the expense — but not the time — by placing a camera on an office chair or similar device. When shooting *Looking for Charlie*, a camera was placed on top of a suitcase and then slowly wheeled towards its target to create a tracking shot. This solution worked, but it was time-consuming. An entire unit had to dedicate themselves to the task of capturing a single, simple tracking shot which, in the end, took upwards of an hour to shoot and resulted in only a few seconds of screen time. Such budget-minded solutions also carry risks. A camera placed on top of a suitcase is liable to fall and break. If the surface over which a makeshift dolly is moving is uneven, a significant amount of distracting shudder might be introduced to a shot, ruining the take.

Makeshift dollies also have a tendency to wander off course — without tracks they can be difficult to move in a perfectly straight line.

These problems are not insurmountable, but they do require time, patience, and practice. Set aside a sizeable amount of time to achieve a dolly shot. You will in all likelihood need to practice the shot and, if you are working with others to achieve it, you will all need to work in an effective, collaborative manner. All of this requires significant patience, not only on the part of the director but all of those working to accomplish the shot. Many takes are likely to be required and repeated failures can lead to frustration.

Considering the difficulty of attaining tracking shots, inexperienced filmmakers should consider the effort/reward ratio involved in a given shot. If the dolly shot communicates something to the audience that would not be easily replicated with another type of shot then, by all means, work towards achieving it. But do so understanding that it will likely take you longer (and require greater patience) than you imagined. The results, however, can be really quite effective when a successful take is finally captured.³

As difficult as a dolly shot can be, there are some hacks you can employ:

Tripod Dolly: not only can your tripod act as a rudimentary camera rig, it can be used to create a type of faux dolly effect. This can be accomplished by loosening your tripod head so that your camera is free to move on its vertical axis (up and down). By stepping forward so that your tripod pivots on to its front two legs, you will be able to move the camera forward in a comparatively smooth manner (see Figures 52 and 53).

Makeshift Dolly: what is a dolly? Potentially anything with wheels, on which you can place your camera. Whether or not it is effective depends on a number of factors. Is your dolly going to be moving over a smooth enough surface; is it stable enough; have you the time and patience to repeat the shot, over and over, until you think you have captured precisely the effect that you want?

³ Barry Andersson, *Filmmaker's Handbook: Real-World Production Techniques. Second Edition* (Indianapolis: John Wiley and Sons, 2015), pp. 50–52.

Drone Dolly: this is an emerging solution to the dolly shot; high-quality video drones are now able to capture smooth tracking footage which, if used in tandem with a skilled pilot, can open up many possibilities for creating dynamic, moving shots. The main issue with drone technology is that, at this stage, it remains expensive, with even modest video drones capable of capturing usable footage starting at approximately \$600, with more sophisticated devices costing upwards of \$1,500. Whilst there are a range of inexpensive drones which claim to be able to capture high-definition footage for less, these should typically be avoided. Cheap drones tend to have poor-quality cameras, which are mounted in a way that fails to compensate for the vibration created by the vehicle's motors. As drone technology continues to improve, look for more effective and affordable solutions appearing on the market.⁴

Train Dolly: a simple, low-cost, but effective solution to create an environmental dolly shot is to place your camera flush against the window of a moving train, subway, or tram car. If the vehicle is moving through an interesting urban environment, it is possible to create dynamic, moving shots which can greatly add to your production. Rush hour and other busy periods should be avoided, and shots tend to be most effective when the vehicle is moving at a slow but steady pace through a spatially interesting area. If you are able to coordinate all of these factors, however, this is an inexpensive and easily actioned method of capturing environmental dolly shots.

⁴ Eric Cheng, *Aerial Photography and Videography Using Drones* (Berkeley: Peachpit Press, 2006).

Tripod Dolly





Figs. 52–53 The tripod dolly: the tripod's front legs remain stationary as the entire set up is pushed forward. The tripod's head is loosened so that the camera can remain perpendicular to the ground.