PERSISTENCE OF VISION

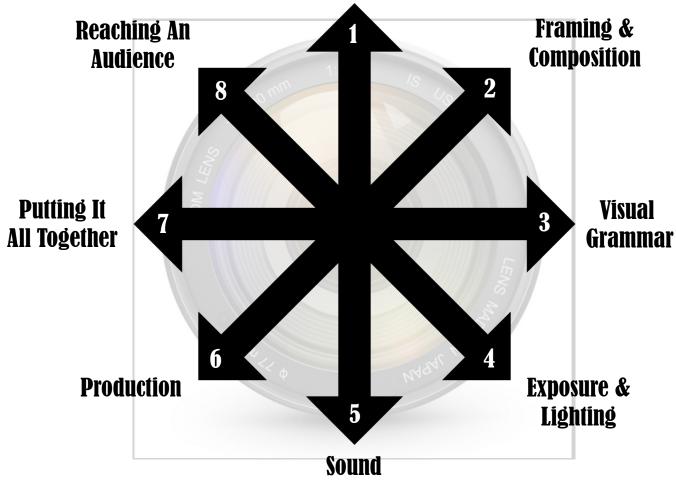
A MOTION PICTURE PRODUCTION WORKSHOP IN EIGHT PARTS



SENIOR VIDEOGRAPHER
UC ANR STRATCOM

PERSISTENCE OF VISION & OF VISION

A MOTION PICTURE PRODUPREPARATION WORKSHOP IN EIGHT PARTS

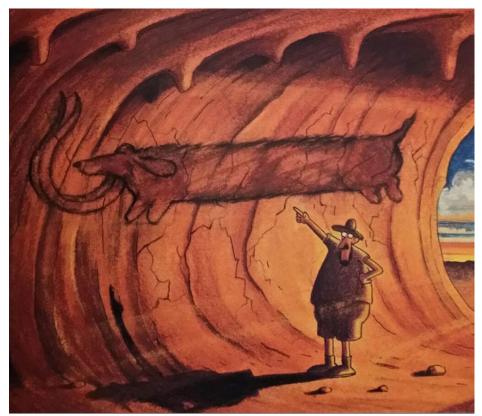


BY ETHAN IRELAND SENIOR VIDEOGRAPHER UC ANR STRATCOM

A BRIEF WORD BEFORE WE START...

"...but I'm not artistic!"

- Humans are instinctually artistic; it's a trait of our species.
- Storytelling, dancing, and singing are all part of what we naturally do as Humans. Part of being Human is making art.
- All children, even those with special needs, make art.
- Belief is powerful! If one believes that one is not artistic, then one will not be.
- Our culture has trained us to think that if we aren't making our sole living doing something, it's a waste of time. You may not be a concert pianist or an Olympic athlete either, so is it pointless to exercise or play piano?
- There is nothing magical or ineffable about art. It is a technical skill that can be learned and refined through practice.



Yes, In fact, you are an artist.

NOW LET'S GET CRACKING!

STRATCOM is Here for You!

Bespoke Media Production!

Your STRATCOM Senior Videographer can perform any part of media production -- development, production, post, and delivery -- and can be hired out to any department within ANR, including all of the Cooperative Extensions and RECs. Any / all formats of motion picture projects and podcasts are all possibilities!

Recharge rate is \$72.06/hour regardless of task performed.

Free Consultation!

Want to develop your idea, but you're not sure how to do it? Need to figure out the scope of your project so you can determine your budget? No worries! Your STRATCOM Senior Videographer has got you! With over 20 years' experience in media production (including on major films and television series), he is always happy to offer free consultation on how to do what you're trying to do – the *right* way!

Free Equipment Training and Rental!

Why not DIY? Keep in mind that training is considered STRATCOM core, so it's *always* free. Once you're trained on the proper operation of a piece of equipment you can check it out to produce your own project! I also provide training for those looking to develop skills in post-production: editing, motion GFX, etc. I'll even travel to your CE or REC if you can't make it to Davis.

Training & equipment availability may vary according to schedule. Check-outs are provided on a first come, first served basis. Unit checking out equipment assumes liability for replacement costs in case of loss or damage.



The 3 Key Take-Aways

Many of the following slides are very text-dense, so don't try to read & take notes on everything.

If you get nothing else from this lecture, you should come away with these three points!

1. Plan, plan, plan!

Thoroughly develop your idea, plan your strategy, and build your team before you even *think* about picking up a camera.

2. Build your frame with intent!

It is your responsibility to *show* your audience what is important to the story you're telling.

3. Make strong choices!

Motion pictures traffic in *emotion;* strong creative choices keep your audience invested.



THIS PRESENTATION WILL BE MADE AVAILABLE FOR YOU TO STUDY - EMAIL ME FOR A COPY!

PART ONEORGANIZATION & PREPARATION

Motion Pictures...

...for the purposes of this lecture, means "videos," "TV shows," "films," and everything in between.

...are still one of the most efficient & influential means of communication devised by humanity.

...could reasonably be called **eMotion** pictures because they traffic in **emotion**. Images & symbols speak to the emotional brain, which lives upstream of the rational brain. The limbic system (a/k/a the emotional or "lizard" brain) handles/filters input before it reaches the prefrontal cortex, meaning people **feel** first, then think.

...are used primarily to *inspire* and *influence*, not *inform* and *educate*. If your audience isn't **emotionally engaged** first, they will lose the message.

But First, Think!

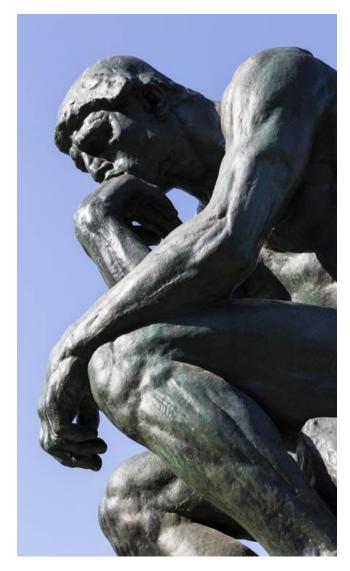
Don't be in a rush to pick up a camera, develop your idea!

Development is **CRUCIAL**, as much for yourself as for anyone else.

If you can't summarize your idea clearly and concisely, you certainly **will not** be able to tell a coherent visual story either.

Start by asking some basic questions:

- What's The Pitch? 1 to 2 brief sentences summarizing your idea, ideally using a comparison to other media. (i.e., Titanic was pitched as "Romeo & Juliet on a boat.")
- Who is the Target Audience? What demographic do you want to reach & how do they communicate? Be as specific as possible! (i.e. for blockbusters 1975-2015, this was "suburban white males 12-24.")
- Where Am I Talking To Them? Are you going to make something for cinema? TV? VOD? A social media platform? Which one? These choices dictate the format, length, and style of your content.
- Why Am I Saying This? To inspire people? To make money? Knowing your motivation is usually helpful in formulating goals that will achieve the desired actions from your audience.





Now Develop a Plan.

Once you've established what you're saying to whom, and where & how you're talking to them...

- Write an extended summary. 1-2 paragraphs, like the back of a DVD case.
- Expand the summary to a treatment. For narrative projects, this is a prose version of your story. If doing a documentary, this is where you state your intent and do preliminary research on the topic.
- <u>Create your script.</u> For narratives, you would draft your screenplay. For documentaries, you would research your topic to create a list of story goals, with a list of interview questions & interviewees.
- <u>Do a breakdown.</u> Break down your script into lists of the component parts needed, scene-by-scene. Important lists to include are:
 - ■Shots
 - •Equipment
 - Cast (actors or interviewees)
 - Crew
 - Locations

- Scenes by time-of-day
- ■Costumes
- ■Props
- Special FX (practical & digital)
- ■A budget
- Develop a shooting schedule. It should be compatible with crew, talent, and location(s).

So You Wanna Direct, Huh?

Good Directors...

- ...are foremost good communicators and team players.
- ...can articulate their vision to their team clearly & concisely without tyranny or micromanagement.
- ...understand their job is to turn pages into shot footage
- ...have a good understanding of everyone else's job, but fundamentally trust the specialists to do those jobs best.
- ...realize that doing everything themselves increases the odds that what they're trying to say will only make sense to them and nobody else.
- ...recognize that their team is also important for peer review. If the team doesn't understand what's going on, neither will the audience.



On Specialization & Teams...

- Don't feel like you have to do everything or even understand everything in today's lecture!
- Motion picture production is a team sport. Build a team of people who share mutual goals and interests, but who have different specialties. The whole is greater than the sum of its parts.
- Production teams are hierarchical to maximize time & budget, but they shouldn't be petty dictatorships.
- Not everyone will feel an affinity for every position, and that's okay.
- Don't be afraid to try different things. The specialty you fall into is often different than the one you think you're
 going to like at the start.



A Sample List of Positions

Producer / Production Manager

Meets production needs such as crew, supplies, locations, & other resources

Manages contracts, tracks timesheets, handles finances,

Handles business operations

Tracks whether production is on-schedule (and hence on-budget)

Camera Operator / Camera Assistant

Ensures camera is set up, focused, functional, and ready to record Maintains the frame as set by the DP Stewards the camera, accessories & support Sets toe marks for actors Marks & claps the slate

Art Director

Responsible for the "look" of the world Builds sets, fabricates props and/or models Monitors props, sets, models, and locations between takes for continuity

Electrician

Sets up lighting instruments
Supplies power to lights and to other places
around set

Tracks circuits and power usage to prevent location damage (i.e., fire)

Director

Sets the creative course (adapts screenplay) Composes the frame (often)

Blocks action of cast & supervises their performance

Inspires / guides creative efforts of cast & crew (has creative veto power).

Digital Image Tech (DIT)

Transfers data from shooting media to working drives and back-up drives

Verifies integrity of data / shot footage

Organizes files for the post team.

Often provides video playback on-set

Make-Up / Hair (MUH)

Ensures talent is properly made-up for camera (i.e. not shiny or having fly-aways) Monitors talent between takes to ensure make-up, hair, and wardrobe continuity Usually responsible for applying special make-up effects & tracking for continuity

Grip

Sets up stands & sandbags
Sets flags, scrims & other tools to shape the light per DP instructions.
Sets up & handles dollies

Assistant Director

Coordinates crew & manages on-set logistics so the director can focus on creative vision Creates & manages shooting schedule & call sheet, anticipates/adapts to changes RESPONSIBLE FOR SET SAFETY; wields veto power over the director's choices when

<u>Director of Photography (DP)</u>

"Paints with light and shadow."

Works w/director to compose frame

Makes technical photography choices
(camera, lens, & support methods, etc.)

Often (but not always) operates camera.

Sound Engineer / Recordist

safety is a concern

Chooses microphones & recording device, and ensures talent is appropriately mic'ed.

Sets & maintains sound recording levels

Monitors field audio for unwanted noises

Sets & tracks take number, and dictates data to go on the camera slate

Script Supervisor

Monitors script coverage (i.e., what take covers how much script & framing)

Tracks alterations to the script (accidental and intentional)

Logs which takes the director prefers
Ensures continuity shot to shot

Wardrobe

Obtains and/or fabricates costumes for characters

Tailors assets to fit actors
Stewards wardrobe on a per-character basis
Tracks wardrobe for continuity between
takes

<u>Armorer</u>

Stewards prop weapons and explosives on set & between takes, and is responsible for weapon safety

Tracks whether weapons are "hot" or "cold" (i.e., loaded with a charge)

Is the **sole** person who handles prop weapons other than the actor in-take;

Production Assistant (PA)

General set hand

Makes supply runs, distributes paperwork such as call sheets and starting paperwork

Maintains set cleanliness

'Locks things up" around set (ensures quiet) when a roll is called

Editor

Takes footage from DIT & Sound Engineer Synchronizes video & audio files

Uses script notes to build a cut of the motion picture, often with the director

Collates music, sound effects, graphics, and visual effects to build the final cut

A Sample 4-Person Team

Producer / Production Manager

Assistant Director

Art Director

Make-Up / Hair (MUH)

Wardrobe

<u>Director</u>

<u>Director of Photography (DP)</u>

<u>Camera Operator / Camera Assistant</u>

<u>Editor</u>

Script Supervisor

Digital Image Tech (DIT)

Sound Engineer / Recordist

<u>Grip</u>

<u>Electrician</u>

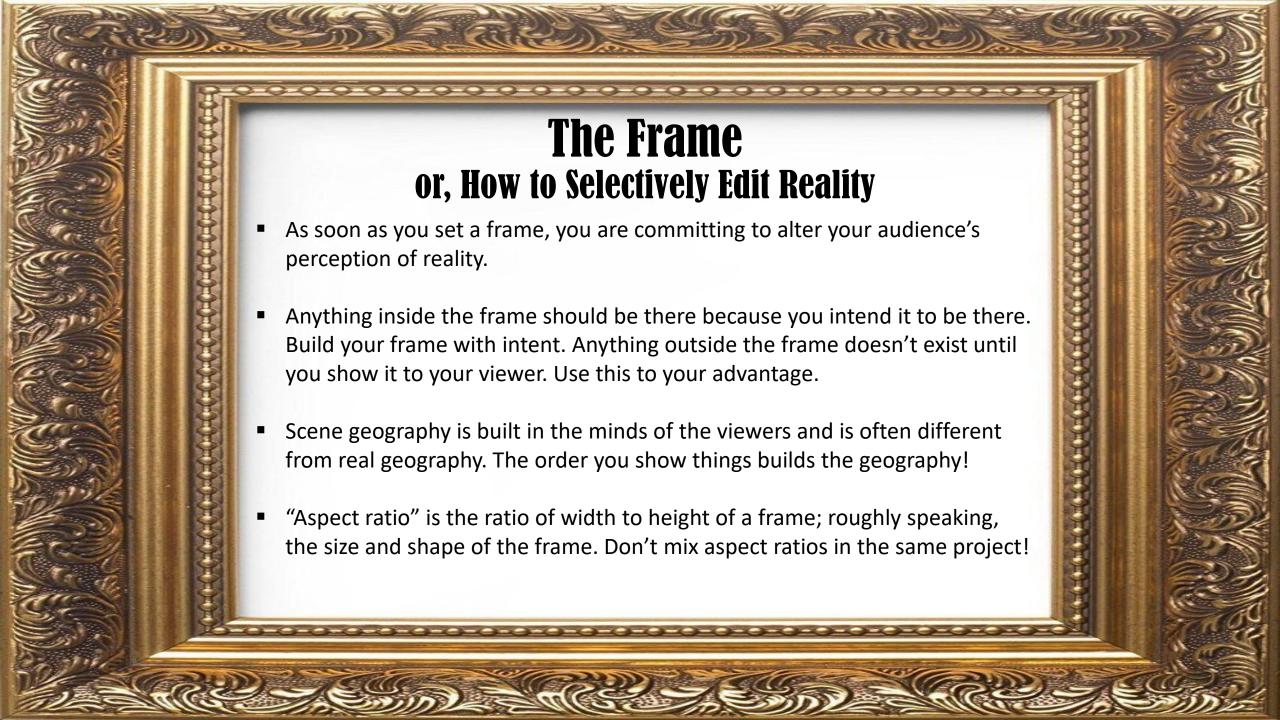
<u>Production Assistant (PA)</u>



- Belinda Messenger and some members of Davis IPM wanted to produced a series of short videos aimed at raising the profile of IPM.
- She and one of her colleagues consulted with ANR's senior videographer and scheduled some training sessions on how to operate lights & sound.
- On their next shoot, Belinda had organized a crew of about four, made up of IPM staff and some family members, who fulfilled many of the roles seen previously.
- Belinda's team were able to successfully produce a series of videos with improved efficiency and production value.

https://youtu.be/Gm02IJTrQU0

PART TWOFRAMING & COMPOSITION



Why Framing & Composition Are So Important...



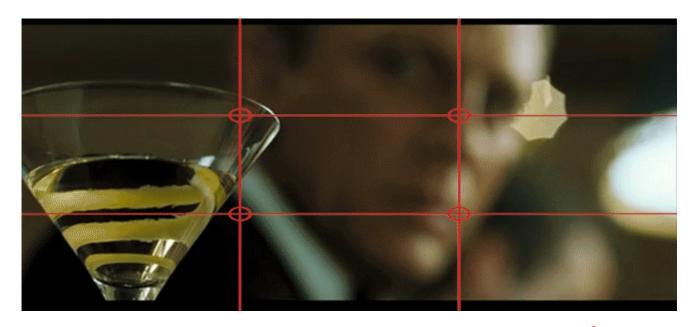
- It is your responsibility to make your show matter to your audience. NEVER assume that simply because there was a camera pointed in the direction of something you think is important that your audience will see it, let alone know it is relevant to your story.
- How something is framed matters as much as what is framed. Every one of the choices you make in composition and framing add up to evoke an emotional/psychological effect in your audience. Tools to use include: Ro3, Balance, Symmetry and Perspective.
- The worst response from your audience is *INDIFFERENCE*. Negative reactions are not. Plenty of motion pictures traffic in negative feelings and reactions. Indifference = boredom = death, especially in the age of Social Media because audiences are no longer captive. When someone swipes away to something else partway through your motion picture, *they won't come back*.
- So make strong choices and build your frame with intent!

"TRAPPED LIKE A RAT" IS THE PHRASE THAT COMES TO MIND HERE...

The Psychology of Composition



- We have evolved to see human faces everywhere! In light sockets, in toast...
- We look at what's in focus first, then faces by order of size, then everything else.
- Size matters! Angles matter!
- Bright colors like RED & YELLOW draw attention and offer emotional shading.
- Manipulate these elements to guide your audience's attention to where you want it.



WHAT DOES YOUR GUT TELL YOU THIS FRAME IS SAYING?

Framing: Relativity Viewer/Subject Relationship

Objective

(less emotional)
These make the viewer feel like they're
neutrally observing what's in frame.



Subjective

(more emotional)
These make the viewer feel like they're



A POV (point-of-view) shot is the *most* subjective framing.

Framing: Working the Angles

Define the Viewer / Subject Hierarchy

<u>High Angle</u>



Level



...HOW ABOUT HERE?

The psychological power of subjective angles is self-evident. They may be combined with objective or subjective framing:

Dutch Angle



Dutch Angles instill a feeling of unease or even altered consciousness in the audience. They are often combined with high- or low-angle shots to amplify the effect.

Dutch angles can range from the subtle to the extreme depending on the needs of the story, and do not have to remain fixed during the take. Specialized Dutch heads exist for moving a Dutch angle during a take.

Framing: By the Numbers

Define Which Subjects Matter by Quantity

<u>Single</u>

Two-Shot (2S)

Three-Shot (3S)







The more people in frame, the less important any single individual is in it, and the longer it takes for a viewer to absorb the image.

Shots that include more than 3 subjects of equal importance tend to be for thematic / compositional purposes.

The size of the subject & their positioning in frame dictates their narrative importance, as well as their relationship to the other subjects.

Seven Samurai (1954)

POES ANYONE FEEL MORE IMPORTANT HERE?

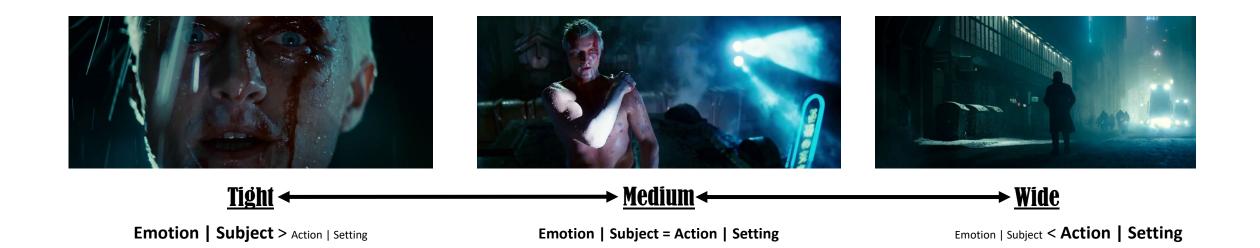
Group Shots



The Magnificent Seven (1960)

...HOW ABOUT HERE?

Framing: Size Matters The Spectrum of Emotional Importance



Framing: Lens Choices



Type:

The two general lens types are ZOOMS and PRIMES. Zoom lenses are more flexible in that you can change frame size without moving the camera. Primes are fixed, but more sensitive to light, usually have better bokeh, and are generally considered "prettier."

Depth of Field (DoF):

- The "field" is the area of acceptable focus in frame.
- Focal length (# of mm): Lenses with shorter focal lengths have deeper fields, but round the subject's features & distort lines of perspective.
- Longer focal lengths have shallower fields, but flatten the subject's features

Speed:

Speed is how much light makes it through the lens.
 This is shown either as f-stop or T-stop (which are similar, but not quite the same thing)

NOTE: Many phone cameras cannot zoom, only magnify an area of the sensor which causes loss of image resolution. This is one reason why more recent models of smartphone have several lenses.

PON'T HAVE ACCESS TO DIFFERENT LENSES? THAT'S OKAY!

IT'S STILL POSSIBLE TO PAINT A PICTURE WITH A SINGLE BRUSH!

Other Considerations in Lens Choices

Bokeh (the quality of soft focus in a lens)



Lens geometry



Composition: The Rule of Thirds





...BUT NEVER FORGET: IN ART, ALL RULES CAN BE BROKEN...

Composition: Balance

On the Importance of Lead Room

NOTICE HOW BOTH ARE FRAMED WITH THE RULE OF THIRDS, BUT ONE FEELS WEIRD?



Unbalanced Composition



Balanced Composition

- Lead room (a/k/a "nose room" or "looking space") is important, both when framing your subject and tracking their movement, because the audience will involuntarily fill in the blanks and anticipate what could be outside the frame.
- No framing is necessarily "wrong"; they're just options which could be useful—so compose with intent!
- Unbalanced framing feels cramped & apprehensive "what's going to come up from behind?"
- Balanced framing **feels more comfortable** because it gives space for the subject to move / look into, and emotional context for something in the subject's eyeline, but which is out of frame— "They see something; soon I will too."

When shooting movement:

- Lead room is even more important when composing for a moving shot.
- Let your subject enter frame, track movement while giving appropriate lead room, then let it exit frame.
- Keeping your subject in the shot without entry and/or exit creates the feeling of perpetual motion.
- Plan where your move will start & stop BEFORE recording.

Composition: Symmetry

Wes Anderson's Favorite Dirty Trick

Note how rule of thirds (RO3) on the x-axis is broken in favor of symmetrical framing, but RO3 on the y-axis is still preserved



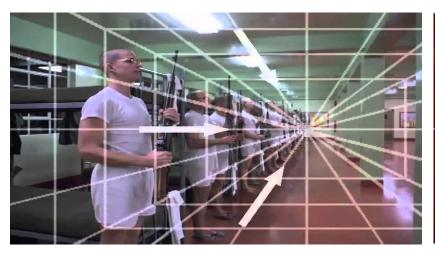
Some other examples of Andersonian symmetry:

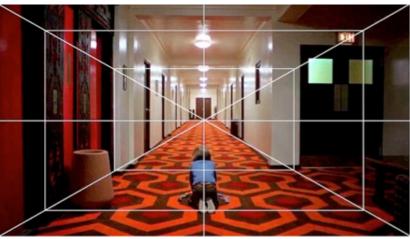




Composition: Perspective

Stanley Kubrick's Favorite Dirty Trick: Make the 2D feel 3D







"Humans don't usually see the world in one-point perspective. It happens, but it's not that common. If you're in a room, your eye line usually sits a bit above where it would have to be for the lines in the room to disappear into one vanishing point in the center. In order for this to happen, you have to lower your gaze by about a foot.

...Kubrick and his one-point perspective shots force you to look at the world differently. When you crouch down, you're looking at the world from the point of view of somebody of that height – a child perhaps. In this way the director forces not only a change of perspective, but a psychological change as well. He wants you to look at the world through the eyes of a child. He wants you to remember what the world looked like from that height, when your imagination was open, and you saw the universe with new eyes."

-Miguel Parga, writing for New York Film Academy

https://youtu.be/flq0t4jrqJQ

Composition: The 180° Rule

The line of action & why not to cross it



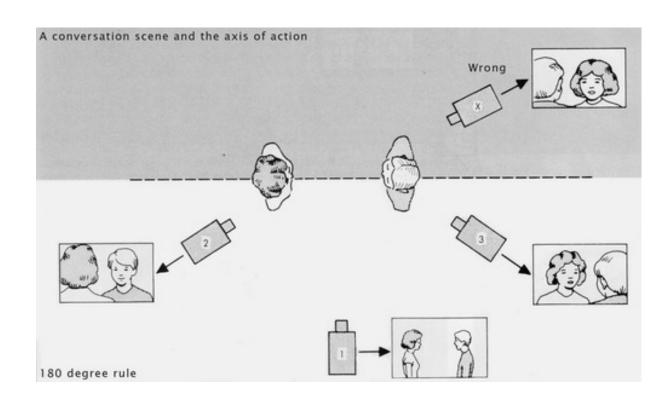


I Sold FAMILIES

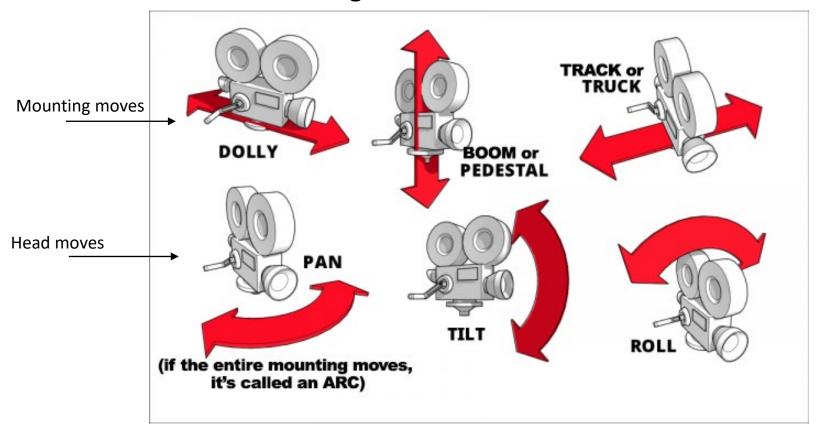


DOES IT FEEL LIKE THESE MEN ARE TALKING TO EACH OTHER?

HOW ABOUT NOW?



Camera MovesPutting the "Motion" in Motion Pictures



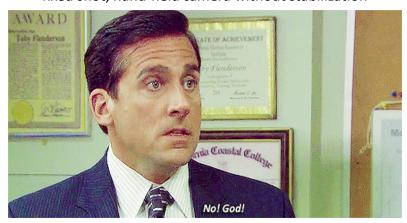
- Note that only ONE of these is a "pan."
- They're called "motion pictures" for a reason. Your audience isn't watching a play!
- Most of these same moves can be accomplished while the camera is hand-held or mounted on a gimbal.
- The top three camera moves are preferable are preferred over the bottom three

To Stabilize or Not to Stabilize?

<u>Hand-Held</u> moving shot, hand-held camera without stabilization



fixed shot, hand-held camera without stabilization



Stabilizedmoving shot, stabilized with Steadicam/gimbal



fixed shot, stabilized with tripod (a/k/a "static shot")



PART THREEVISUAL GRAMMAR

Index of Framing Categories



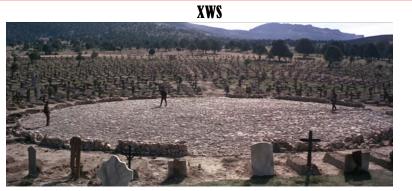






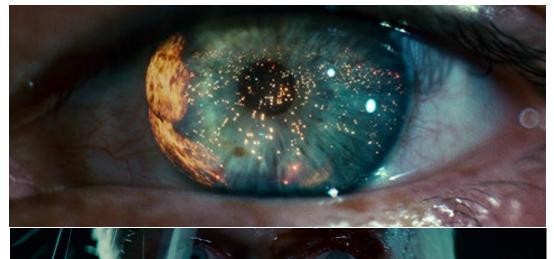






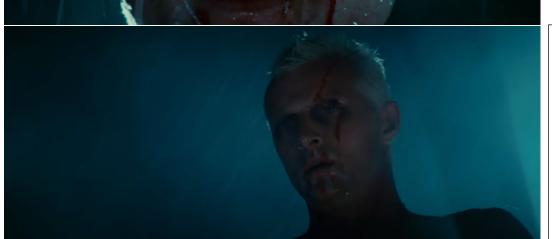
Wide Shots

XCU (Extreme Close-Up)



(Big Close-UD)

(Close-Up)



Close-Ups

Close-ups are intimate shots that are most strongly evocative of emotion.

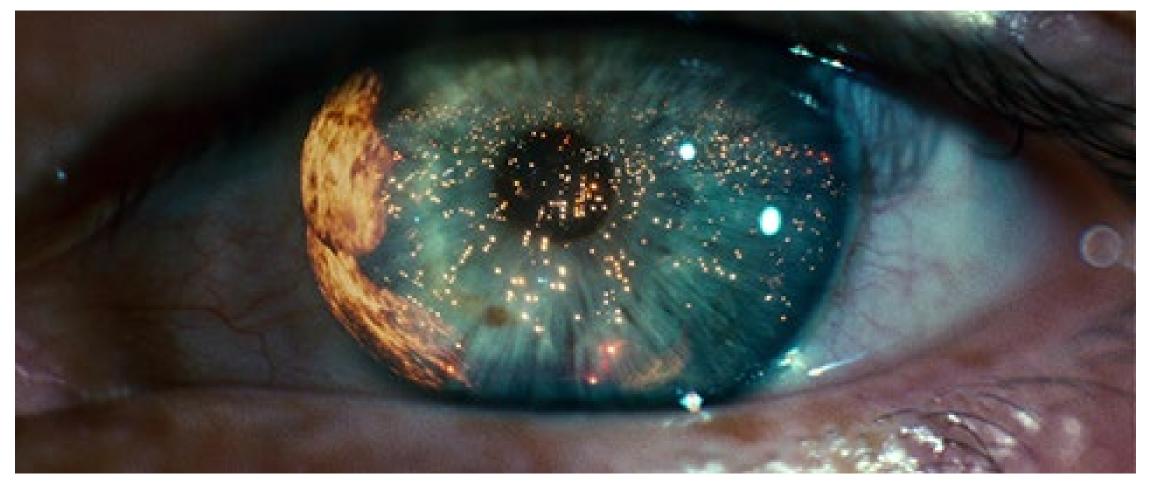
They are used to show your audience what is emotionally or narratively important.

They can also be used to show details which drive story; or which provide additional context about a character or location.





XCU (Extreme Close-Up)



"The Detail"

- Focuses on a single detail, often some part of the subject's face.
- Intensely intimate, but usually low-emotion because they are so abstract.
- No context for action
- No context for setting (usually)
- Also used for cutaways (a/k/a "Insert CUs")

BCU (Big Close-Up)



"The Min-Maxer"

- Focuses on a subject's face
- Extreme degree of intimacy.
- Maximizes emotional context over action
- Minimizes setting.

CU (Close-Up)



"The Portrait"

- Focuses on the subject's head and neck
- Moderate intimacy
- Prioritizes emotional context over action
- Minor context for setting

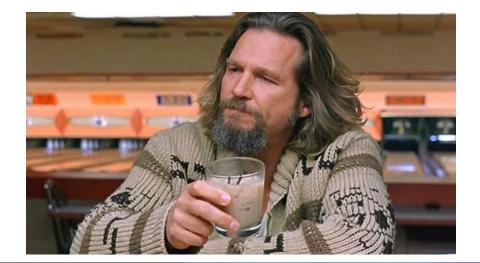
Insert Close-Up / Cut-Away Shot



"The Object"

- A subtype of CU that focuses on an object, specific details of a subject and/or a subject's actions.
- Used as something to which an editor can "cut away" from the main action in order to call attention to <u>narratively important details</u> or actions; or details that provide context about a character.
- Among the most commonly-used types of CUs.

MCU_ (Medium Close-Up)



MS (Medium Shot)



Cowboy Shot



Medium Shots

Medium shots blend subject and setting, emotion and action in relatively equal proportions.

They are common in episodic television, especially sitcoms.

These are most often used for conversations, fight scenes, or other exchanges between characters; or used to contextualize action within the setting.

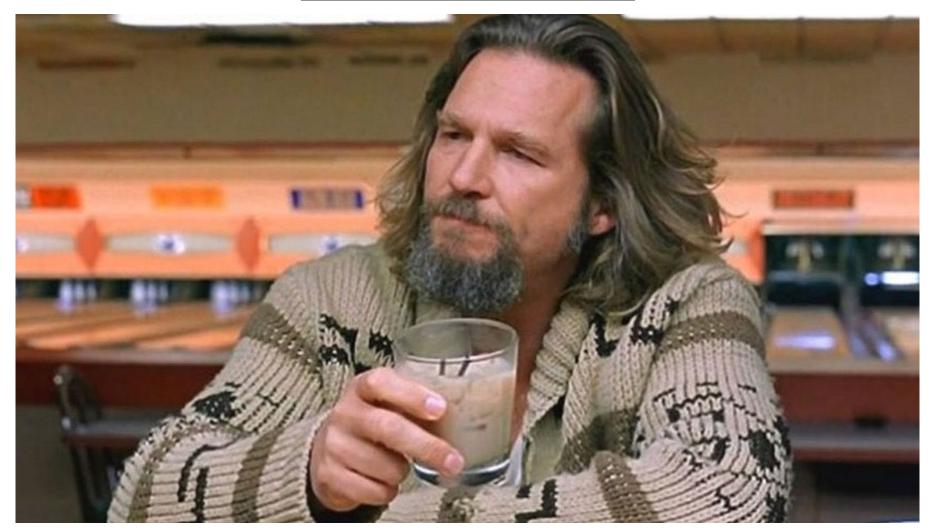
BEWARE OF OVERUSING MEDIUM SHOTS!

TOO MANY MEDIUM SHOTS CAN RENDER A MOTION PICTURE BORING...





MCU (Medium Close-Up)



"The Interview"

- A general-purpose shot that balances emotion and action, slightly favoring emotion
- Prioritizes subject over setting, but still provides good context for the setting.
- Often combined with the OTS

OTS (Over-The-Shoulder)





"The Conversation"

- A subjective framing subtype that creates a pseudo-POV shot.
- Subject is placed in context with both setting and another subject "dirty" in frame.
- Can be combined with any medium or a full shot, but is used most often with a MCU or MS, and often seen at a table for conversation.
- When used with screen direction and line of action, can make it seem like a character is having a conversation with themselves.

...AND BEFORE YOU ASK, NO, NOT EVERY OTS INCLUDES TONY HOPKINS.

POESN'T IT LOOK LIKE YOUNG TONY IS TALKING TO OLD TONY, THOUGH?

MS (Medium Shot)



"The Standard"

- Equally balances emotion, action, subject, and setting.
- A good, general-purpose framing, but often lacks strength-of-choice and can become boring if overused.
- Also often combined with the OTS.

Cowboy MS / Cowboy Medium



"The Gunslinger"

- Ranges from upper thigh to knee ("let's see his guns")
- Slightly favors action and setting over emotion and subject.
- Provides room to show the subject on a horse or motorcycle
- Another general framing which can lack strength-of-choice and bore if overused.
- Occasionally combined with the OTS

FS (Full Shot)



WS (Wide Shot)



XWS (Extreme Wide Shot)



Wide Shots

Wide shots are used to orient audiences to the setting and the subjects' action in context with it.

These usually have the strongest artistic composition and are some of the most iconic shots of any motion picture.

START WIDE, WORK TIGHT!

Plan to do your wide shots first because they're easiest to set up and don't have as much granular emotional detail.





FS (Full Shot)



"The Player"

- Subject is depicted (mostly) head to foot in their setting.
- Setting and action are prioritized over subject and emotion
- Body language takes precedence over dialogue.
- Combined with OTS (rarely)
- Frequently used as a "master shot," showing the entire flow of action in a scene, which is then later shot in closer coverage.

WS (Wide Shot)



"The Stage"

- Subject is depicted theatrically in their setting
- Setting is prioritized over subject
- Emotion is minimized in favor of action / body language.
- Also often used as a "master shot," depicting the entire flow of action.

XWS (Extreme Wide Shot)

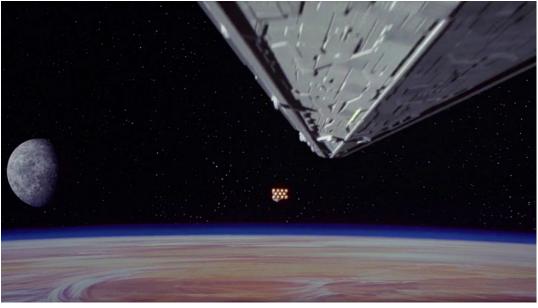


"The Vista"

- Subject is depicted as a tiny part of a landscape
- Setting is maximized over the subject and even action / body language.
- Emotion is marginalized if visible at all.
- Often used as an "establishing shot" (more on this in a moment)

Establishing Shot / Opening Shot





"The Scene-Setter"

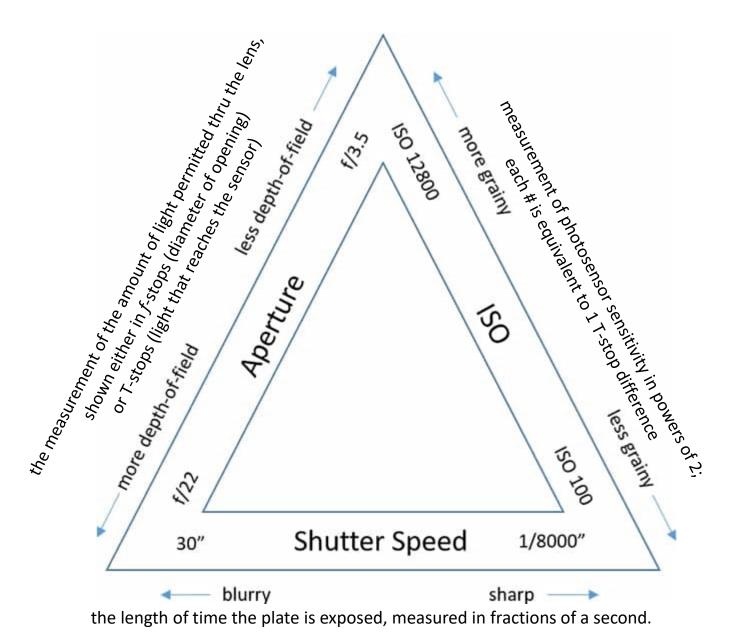
- Usually a WS or XWS
- Used to orient the viewers with what's going on & where establishes the scene is about to happen
- It's an Opening Shot if it's used at the beginning of a film to establish the setting, i.e., "Los Angeles, 2019" "New York, 1978," "A Long Time Ago in a Galaxy Far, Far Away...".

"...My thinking was that this is probably the most important shot of the movie – if we don't grab the audience with the beginning shot of the movie we're in trouble."

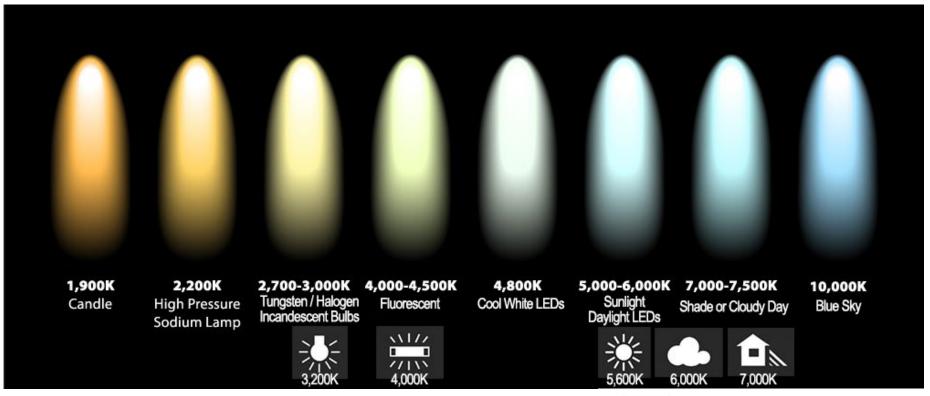
> --Richard Edlund, VFX director, *Star Wars: Episode IV*

PART FOUREXPOSURE & LIGHTING

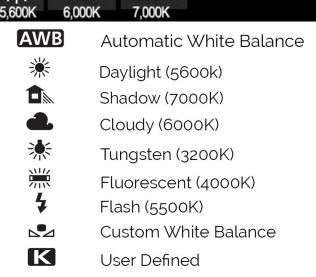
The Exposure Triangle



Color Temperature & White Balance



- Your brain tells you what "white" is; you have to tell the camera's brain what white is.
- AWB is unreliable, and not every camera has it.
- Don't mix lighting with different color temperatures!
- Recording in a WB setting different from primary CT will give you blue, orange, or green-appearing footage.



3-Point Lighting: A Primer







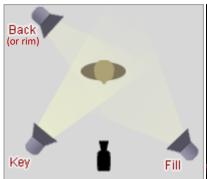
- The KEY light is the brightest light illuminating your subject, on one side of your subject's face.
- The key is usually a direct light source.
- If you're shooting on a sunny day, either outside or near a window, this will always be the sun unless you've controlled it with tools such as scrims, diffusion, or gels.

- The FILL light is supplemental light reducing shadow on your subject.
- Fill is often provided via an indirect light source, such as a bounce board or a white card.













- The BACK light separates the subject from their background, creating the illusion of threedimensionality.
- This can also be called a "kicker," "hair light," or "rim light" depending on where it lights the subject.
- You can also light the background instead of the back or rim of the subject.

THIS IS ONLY SCRATCHING THE SURFACE!

Just because we're talking about 3-point lighting doesn't mean we have to use all 3 points or stick only to 3! Your story dictates all!

Lighting for Emotion

Hard vs. Soft Light



Under vs. Over Light



Cool vs. Warm Light





THINK:
QUALITY, DIRECTION, AND COLOR!

Ad-Hoc Lighting Options



THE SUN IS USUALLY YOUR BRIGHTEST KEY OPTION

(PLUS IT'S FREE!)





PLASTIC SHEETING COMES IN WHITE & CLEAR — HANG IN FRONT OF YOUR KEY LIGHT TO SOFTEN!



TAPE THIS TO THE BACK OF A PRESENTATION BOARD SO YOU HAVE A CHEAP REFLECTOR FOR FILL OR RIM!

PART FIVE SOUND

The Importance of Good Sound

- Audiences have expected synchronized sound with their motion pictures since talkies debuted in 1927.
- Good sound is just as important as good visuals, but it's often overlooked because it's not something people see.
- Your images can be top-notch, but if your sound is trash you will still lose your audience!
- Sound quality is the "secret sauce" for your motion pictures...if you get high-quality sound, it won't matter if you shoot the visuals entirely on your phone!
- While there are tools that can repair bad sound in post, none of them is a substitute for recording clean audio in the first place.
- Make sure your team has a dedicated member whose only job is to record & monitor sound levels.



Some Tips for Recording Clean Audio

- Always try to record audio in at least two places.
 - Use a separate device such as a digital audio recorder to record program audio
 - Record audio from the camera's onboard microphone as well, as a reference for synchronization in post reference and/or for a back-up if the primary source fails.
- Before recording, listen to the recording environment through the microphone.
 - Be attentive for intermittent machine noises, especially those that might come on automatically during a take.
 - Refrigerators, HVAC systems, leaf blowers, lawn mowers, machine fans, aquariums, etc.
 - Try to silence those items wherever possible by turning off refrigerators, thermostats etc. before recording. Don't forget to turn them back on!
- It is almost impossible to remove environmental sounds ("bogeys") from program audio, especially sudden/unexpected sounds! (airplanes, noisy vehicles, dogs, etc.)
 - If you get a bogey while recording, pause while you wait for the audio to clear.
- If you're recording outside and time is a factor, you may need to ask or even bribe! people using leaf blowers or lawn mowers to stop their activity until you're done recording



Silence matters as much as sound!

- Every time you are finished recording in a location, record 30 seconds of "tone" (the sound of the silence in a given recording environment), which is vital for editing.
- Tone will sound different in an empty environment versus one that's been filled with people & gear. Just have everyone freeze for tone after you're done with takes.

Microphone Types

Power Types

- Dynamic (no power needed)
- Condenser (needs battery or ext. power)
- Ribbon (needs ext. power, expensive)

Pick-Up Pattern

- Omnidirectional
- Bidirectional
- Cardioid
- Directional

(Supercardioid, Hypercardioid, or Lobar)

Configuration

- Lavaliere (worn)
- Hand-Held (can be mounted)
- "Shotgun" (needs boom or grip)

Hand-Held <u>Dynamic</u>



Shotgun Condenser



Wireless Lavaliere Condenser



omnidirectional or cardioid

Ribbon Mic



bidirectional

Pick-Up Patterns



Omnidirectional

- Picks up sound from all directions equally
- Easiest to use, provides the least discrimination & least control



Cardioid

- Heart-shaped pick-up pattern
- Provides some discrimination against sound coming from the back of the mic



Bi-Directional

- Picks up sound from two directions equally
- Great for interviews and podcasts



Directional

 Supercardioid / Hypercardioid / Lobar_are all variations on the pattern above with increasing directionality and discrimination.

SOME MICS HAVE A SWITCH TO VARY THEIR PICK-UP PATTERN!

(SHAMELESS PLUG FOR THE YETI PRO MIC)

Microphone Use Tips



General Principles

- Microphones work like a flashlight: point it at what you want to "illuminate," and remember that the closer it is the "brighter" it will be.
- The microphone should always be pointed at your subject's mouth and placed as close to it as possible to without interfering with framing.
- Pop filters mitigate hits from plosive phonemes ("P," "T," etc.) and should be used for interiors and still days.

Hand-Held Microphones

- Often a convenient choice, but it's the most intrusive to subject and audience.
- Subjects without camera or media training will often feel uncomfortable holding a microphone.
- Uncomfortable subjects give poor / unnatural performances.

Boom Microphones

- Neither mic nor boom should ever be in frame! The boom shadow should never be visible either. Watch for it!
- Require a dedicated operator or a special stand
- Wind muffs and zeppelins should be used when recording outdoors to reduce wind rumble. Even light breezes can cause wind rumble!

Lavaliere Microphones

- Conceal lavalieres as much as possible. You want your audience looking at your subject, not your sloppy mic placement!
- Common placement areas are ties and jacket lapels.
- Hide the mic cable in your subject's clothing and place the transmitter pack somewhere it won't be seen (e.g., the subject's belt or pockets).
- Be conscious of jewelry or clothing rubbing on the mic. If practical, cover the mic itself with a small piece of pantyhose and tape it to the inside of your subject's blouse.
- Mute the channel if the subject needs to go to the bathroom during the interview.
- Remember to get the mic back from your subject before releasing them!

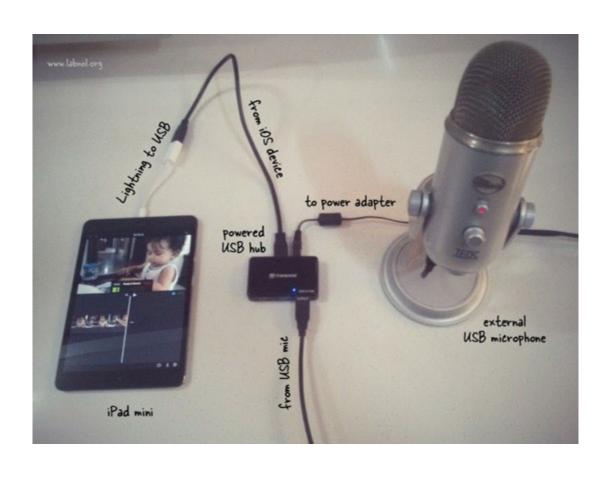
Mixer Use Tips

Running a mixer is a job that requires your ears and your eyes!

- Recording Level and Volume are different things.
 - Volume is for monitoring quality of signal with your ears through the headphones.
 - Adjusting volume only changes what's heard through the headphones; it does not adjust recording level.
 - Recording levels are monitored via the VU meters, which you watch to ensure they do not peak, and are adjusted with the gain knob.
 - Adjusting the gain knob changes the level of incoming signal, which means it appears to adjust volume through the headphones.
- Track levels and adjust them in real time to maintain the signal at or around -0.6db.
 - Try not to let levels exceed -0.3db.
 - <u>Do not</u> let audio levels peak (exceed 0.0db), or the signal will be "clipped" and distorted. This is not fixable.
- Increasing gain increases grain. If levels are too high, machine noise will pollute the feed. Put the mic closer to your talent if possible.
- If levels are still too high, turn on the "pad," which attenuates the incoming signal by -20db. Likewise, if levels are too low and the gain knob is topped out, check to see if the pad is on
- Make sure the date and time are set correctly on your mixer! This will help you keep track of your files on the SD card.
- Don't forget to take out the SD card and lock it when you're finished recording.



An Example of an Ad-Hoc Audio Set-Up For Doing Synchronized Voice-Over and/or Recording



Cheap Sound Equipment Recommendations



Zoom H5 Recorder

- 4 channels
- Stereo cardioid mic capsule
- \$100-\$200 (eBay or Amazon)



Zoom SGH-6 Shotgun Mic

- Attaches to any Zoom recorder
- Supercardioid with wind muff
- \$130 (on Amazon)



Zoom MSH-6 Mic

- Attaches to any Zoom recorder
- Bidirectional or cardioid
- \$80 (on Amazon)



Zoom H6 Recorder

- 6 channels
- Stereo cardioid mic capsule
- \$150-\$300 (eBay or Amazon)



Blue Yeti Series Microphone

- \$100-\$300 (varies by model)
- All have variable patterns (bi, cardioid, omni)
- High-end models have both USB and XLR connections



Sony MDR-7506 Headphones

- \$80-\$100 (B&H)
- High-quality audio
- Any headphones will do, but must be over-the-ear.





PART SIXPRODUCTION

SO MANY CAMERAS!

There are lots of camera and recording media types out there! So many that I'm not going to go all the possibilities because we don't have the time.

Instead, let's focus on what's most accessible & practical:

- A phone camera
- ANR's gear (shown below).

STRATCOM has three options available for check-out. Sign up for a course on one!

Panasonic P2



<u>Canon XF400</u>



BlackMagic 6K Pro



Stabilization & Mounting Solutions

Monopods & Tripods

- Wide range of options & prices
- Some specific styles for phone cams
- Very low-end tripods are trash



<u>Gimbals</u>

- Requires training to operate
- Great for reducing shake
- Pairs well with phone cameras



Dollies

- Big, heavy, lots of set-up
- Great looking moves
- Can be combined with other stabilization solutions!



RECORDING FORMAT

Minimum Standards

- Any camera you select **must shoot in 1,920 x 1,080 pixels at a minimum** (a/k/a "Standard HD").
- Progressive frame (i.e., **1080p**) is preferable over interlaced frame (i.e., **1080i**), but both are acceptable.
- Do not mix progressive and interlaced footage in the same project. (NOTE: The difference between progressive and interlaced is a technical & I will not give it here.)

Higher Standards

- Many cameras offer options to shoot in higher resolution: 2K (super HD), 4K (Ultra HD), and even 6K.
- Keep in mind that the highest resolution is not always the best choice! Your finishing resolution is what matters.
- Finishing in 1080p is usually fine for social media releases.
- 2K will permit simulation of changed focal length in post without losing resolution.
- You can mix different resolutions in the same project, just be aware that you may need to scale the frame and adjust the aspect ratio to make it fit properly in the sequence.
- Codecs (the wrapper in which the video file is packaged) matter, but I won't go into detail about them today.



FRAME RATE

When you are shown individual frames in rapid sequence, your brain fills in the gaps and creates the illusion of movement.

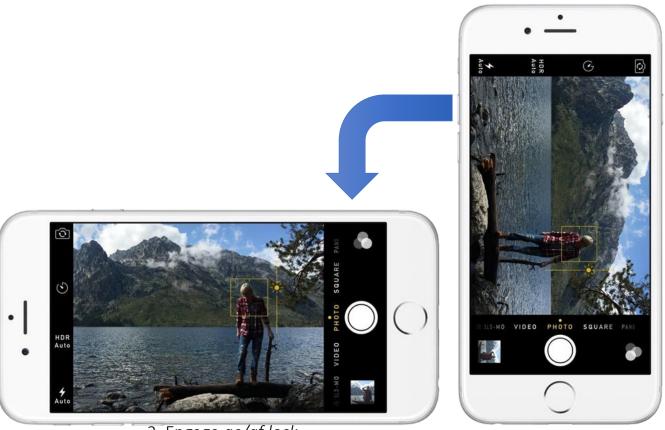
This phenomenon is called "persistence of vision."

- File sizes are larger with higher frame rates because it's literally taking more pictures per second.
- You can mix different frame rates in the same project and sequence; the sequence settings dictate how the playback looks.
- Choice of frame rate has a big effect on the appearance of the footage.
 - 12fps feels kind of "Charlie Chaplin," when played at 12fps; and looks "fast-motion" at ≥24fps.
 - 24fps feels more "movie"
 - 30fps feels more "T.V. sitcom"
 - 50-60fps feels hyperrealistic when played at 50-60fps; and looks "slow-motion" at ≥24fps



Before Recording with a Phone Camera...

1. Rotate to Landscape You can crop for portrait mode in post, but you can't go the other way!



2. Engage ae/af lock tap and hold an area on the screen to lock exposure and lock focus on that area.

<u>NOTE:</u> IF YOU KNOW **FOR SURE** THAT YOU'RE ONLY EVER GOING TO USE THIS FOOTAGE ON INSTAGRAM OR TIKTOK, YOU CAN RECORD IN PORTRAIT ASPECT.

OTHERWISE, SHOOT IN LANDSCAPE ASPECT!



Shooting on Phone Cameras

- Many phone cameras now record at resolutions above HD like 2K or even 4K! Some phones also now permit their users to record in a variety of frame rates: 24fps, 30fps, and even 60fps.
 - BEWARE! Phone cameras use space-saving tricks such as heavy compression codecs, variable frame-rate, etc. which can compromise quality and consistency of the footage and can complicate editing.
 - Phone camera footage is usually optimized to work best with an editing application installed on the phone (i.e., iMovie).
 - If you're going to edit using an external application, it is typically best to transcode phone camera footage into a stable codec / framerate before editing.
 - If shooting in high resolution at a high frame rate, you will probably run out of storage space on your phone. BACK UP YOUR FOOTAGE REGULARLY!
- It can be time-intensive to download footage from your phone to the backup. If you're shooting with a phone camera, consider using multiple phones during your shoot so you can keep shooting on one while copying footage from the other. *Don't forget to match settings!*

"When working production, time BLuRS..."

Block, Light, Rehearse, Shoot

- **BLOCK** the action. Go over the action that will occur in that set-up with cast & crew. Who's moving? Where? How is the camera getting the action?
- LIGHT the scene. Set up lighting, camera, and sound equipment. Build the frame!
- **REHEARSE** the scene. With all equipment in place and actors prepared, run through it a couple of times (sometimes you record the rehearsal, too).
- SHOOT! Record takes until you get it the way you want it (or you run out of time). Make sure to clearly communicate rolls and cuts with your team, then... "roll sound, roll camera, mark it, settle...and action."
- Got it? Great! move on to the next set-up, and do it all over again. And again. And again and again.



DISCUSS RELEASE FORMS!
PUBLIC PLACE / PUBLIC EVENT / PUBLIC EMPLOYEE

NEVER FORGET!

A SET IS A FACTORY FOR TURNING SCRIPT PAGES INTO SHOT FOOTAGE!

Interviews

- **Be prepared.** Have a list of questions prepared that will prompt natural conversations that meet your story goals. Many subjects want you to provide the list of questions you intend to ask beforehand so *they* can be prepared most folks don't like 'gotcha' interviews. Also, most people aren't media-trained, so it's generally a good idea to put your subject at their ease.
- Try to get two angles. Use 2 cameras if you have them, one with a wide angle and one with a tight angle. If you only have one camera, frame a MS or MCU and shoot at high resolution (ideally 2K or 4K) so you can simulate a tighter angle to cover cuts in editing.
- Try to keep a low profile. Sometimes it's best not to let your subject know when you start recording so they feel comfortable and natural on camera. You may also want to conceal crew and equipment to minimize camera-shyness. Low profiles also minimize human interference when shooting in public spaces—HEY YOU GUYS MAKIN A MOVIE? CAN I BE IN IT? HI, MOM!
- Tell the interviewee to reincorporate your question into their response. Interviewers are not usually depicted, so it's vital for the interviewee to speak in complete sentences and thoughts. Depending on your subject's familiarity with interviews, they may need to be reminded of this frequently.
- Be prepared to ask follow-ups. You may already have an idea of where things could go from the research you've done, but interviewees can still often bring up completely new information that can affect your story. Take notes while they speak so you can keep track of additional points you want to investigate.
- Always keep B-Roll in mind. "A-Roll" is the footage of the interview; "B-Roll" is the visual context you provide for your audience, and shots to which you will cut away in the edit. For example, if you're interviewing an expert on coyotes, you'll want footage of coyotes to use as cut-aways— If for no other reason than to give them a break from the talking head. Keep notes so you can figure out what other shots you want to get, including scans of still photos. You might also ask your subject to bring relevant still photos to the interview so you can scan them.

NEVER FORGET THAT DOCUMENTARIES AND JOURNALISM ARE NOT ALWAYS THE SAME THING!

Legal Concerns

Consent Forms & Likeness Usage.

People must consent to being recorded in California. Someone who doesn't want to appear on camera can sue after the fact and demand their likeness be removed. Yes, even if they consented to sit for an interview at the time.

- For public events, recording advisories must be clearly posted around the perimeter of the event and at entrances, and photographed with date-stamps.
- You must obtain signed releases which grant consent to be recorded, and permit use of their likenesses in audio/video products from everyone who formally appears on camera or in the audio recording, i.e. interviewees or actors.
- STRATCOM will provide on request templates for these forms which can be modified to fit your circumstances.

DON'T TAKE CHANCES! REMEMBER TO C.Y.A.!

Shooting Permits

You must obtain permits to conduct most motion picture operations in public places. Criminal penalties including fines and jail time could result!

Shooting a film on a public thoroughfare, especially if it obstructs traffic in any way



PART SEVENPUTTING IT ALL TOGETHER



Sorry! *sad trombone noise* Video Editing is Too Intensive to Cover Here.

- There is simply too much, technically, procedurally, and artistically.
- "YouTube University" is a great place for tutorial videos on editing techniques and operation procedures. Take heart! Even professionals use these because not everyone knows everything!

Consumer-Level Apps

- iMovie (Mac) / Windows Movie Maker (PC)
 - Consumer-level interfaces are often so user-friendly that they get in their own way. Tools are oversimplified and have limited functionality. For a skilled user, using these to edit is like trying to use a Fisher-Price piano to play Beethoven.
- Filmora (smartphone app) (I can't recommend any you're on your own!)
- OpenShot (and other open-source video editing apps): BEWARE OF THESE!!!
 - Buggy, usually not worth the headache, no cross-platform compatibility once you start there, you have to finish there, no user support, either from the manufacturer or from STRATCOM. DO NOT USE UNLESS YOU HAVE LITERALLY NO OTHER OPTION.

Professional-Level Apps

- Adobe Premiere
 - Excellent, all-round editing application that can be used by both beginners and pros.
 - Requires a subscription.
- DaVinci Resolve
 - Free to download for basic video editing
 - Requires purchase for full functionality (LUTs and coloring tools) but it's cheap!
- AVID Media Composer / AVID MCXPress
 - Requires training and specialized hardware. Also it's very expensive.









Data Management

BACK UP YOUR DATA IN AT LEAST TWO PLACES!

Your camera, phone, or Digital Audio Recorder DOES NOT count as a storage place!

PRE-PRODUCTION

- Purchase, or otherwise obtain & assign a <u>minimum</u> of two external hard drives, 1TB or greater in capacity, with USB 3.0 (the one with the blue chip) or USB Type C.
- Designate one as the project drive and the other as the back up.
- Determine which member of your team will be responsible for data management during production.

PRODUCTION

- The data manager MUST download footage from your camera & audio recorder regularly during production. This is often done during lunch break or at predetermined intervals (i.e. every 2 hours or when the card is full, whichever comes first)
- Once the footage has been fully downloaded, the files should be checked for integrity and then *immediately* copied it to the back-up drive.

POST-PRODUCTION

- Save your editing project frequently!
- Regularly back up your editing projects daily or semi-daily.
- Store your backup drive in a separate physical space from your project drive except when actually backing up your project drive.



Ad-Hoc Editing in iMovie:

- A. Create a new event
- B. Upload all your clips
- C. Follow the tutorial below

Tutorial on YouTube

https://youtu.be/B_5oZ0vI968



Putting Music in Your Motion Picture

Should I Use Popular Music?

(TL;DR: Don't. It's not worth the headache.)

- It is your responsibility to research who owns the copyright on the track you want. This is not always easy to find either. Many small-scale record companies deliberately make themselves hard to find because they make money through "gotcha" charges on infringers.
- Infringement can get you in legal trouble! Best case, you'll get a cease & desist letter. At worst, a lawsuit with financial damages and criminal charges (remember that FBI warning at the head of video cassettes?)
- Any unlicensed use is infringement. Putting "No infringement intended" in the YouTube description does not absolve you of liability. You must pay license fees, and sometimes annual royalties in perpetuity on top of the fee!
- Music licensing is <u>expensive!</u> Permissions aren't guaranteed as usage licenses are negotiated on a per-case basis, and fees can run from several hundred to several thousand dollars per use. A big portion of feature film budgets pays for licensing popular music tracks.
- You have to pay for licenses twice. You will need to acquire permission from and pay both the composers' association (ASCAP) which holds the license on the composition and the company that owns the copyright on the recording of the song you want to use.
- Each time you sync any part of a music track with your editing project, it is considered "use" & must be paid for! This includes each time the same track occurs on an edit timeline.
- **Don't bother trying to litigate "Fair Use."** ANR is an educational institution, but the law on Fair Use is murky. Even when Fair Use clearly applies recording companies sue in bad faith all the time, and social media companies will default to the recording company's position out of fear of liability. In most cases, you have to prove Fair Use in court.
- Most popular social media outlets have algorithms trained on popular music. These can automatically mute your video's audio or even flag your account with a copyright strike if you cannot provide a license. Don't risk the UC's channel by using unlicensed music.

IF THE SONG YOU WANT TO PUT IN YOUR VIDEO WAS EVER PLAYED ON THE RADIO, ASSUME YOU CAN'T AFFORD TO USE IT!

So What Music CAN I Use?

Use Public Domain Recordings

Many thousands of recordings exist in the public domain and are absolutely free to use...if you can find them.

- It is in the public domain if it was:
 - published before 1923
 - an unpublished work and the author died over 70 years ago
 - written by an anonymous author over 120 years ago
 - Released to the public domain by the copyright holder
- Visit archive.org then search "public domain" and specify "audio files" under the "media type" filter.
- Visit commons.wikimedia.org, select the "audio files" category.

Subscribe to a Royalty-Free Production Music Library

"Royalty-free" does not mean "free-use." You still need to purchase a license to use the track; sometimes this is included as part of a subscription.

- STRATCOM's own library of production music (email me or Ricardo Vela for more info)
- Universal Production Music / Killer Tracks (universalproductionmusic.com), APM (apmmusic.com), De Wolfe Music (dewolfemusic.com) free to create an account and download files, but licenses must be purchased for synchronization.
- Epidemic Sound (epidemicsound.com) Tiered subscription service with automated licensing; also includes a sound FX library.

Search Bandcamp, Soundcloud, and other Online Music Collectives

- There are many "copyleft" artists hosted on bandcamp.com (and elsewhere) who produce music for use in media productions. Many offer free licensing included with the purchase of the track, provided use is attributed.
- It is your responsibility to check each artist's licensing policies on their page. While many state their policies clearly, many do not. If in doubt, email them and ask.

Do It Yourself!

- Compose, perform, and record it yourself, or find (and pay) someone local to do it for you.
- ANR has many talented people in its ranks. Try reaching out and see who you find!

PART EIGHTREACHING AN AUDIENCE



Remember Your Distribution Strategy?

If you planned properly, "who is my target audience and how will I talk to them" would have been one of the first questions you asked!

The Conversion Funnel

...or "something that turns viewership into action." Viewers who have gone "through the funnel" have taken an action you want, which may be one or any of these (or others):

- Clicking through to another site (i.e., YouTube → UCANR.edu)
- Making a donation
- Writing their elected representative
- Buying a product (including other media)
- Engaging with your media in a different format (i.e., movie preview → feature film → TV spin-off → merchandise stream)
- Advertising via word-of-mouth or social media
- Educating themselves further on your desired topic (i.e., you show a video on sheep shearing, someone sees it and signs up for an ANR workshop on it)

Weigh Your Options

Every distribution option has pros and cons. Consider each carefully.

Comparing Social Media Distribution Platforms

Odds are you're going to pick at least one of these for some part of your distribution strategy. Know thy enemy.



PROS

- No subscription fee to upload
- Large audience & usership
- Instant name recognition
- Easily-tracked metrics
- Multiple ANR and CE Channels exist with established audiences
- **Built-in captioning tools**

No permanent hyperlink for your video means errors cannot be fixed without losing view count.

CONS

- Aging audience (younger viewers are mostly found on other platforms)
- YouTube's "Up Next" algorithm has been reported as pushing conspiracies & junk science.

- **PROS**
- Maximizes creator control Creates a permanent hyperlink, which allows errors to be fixed & maintain view •
- Permits paywalling
- Easy metrics

count.

Professional audiences who tolerate longer-format content

- **CONS**
- Requires a subscription fee to upload more than a token amount
- Comparatively small user base
- Platform has low recognition outside professional circles



PROS

- No subscription fee to upload
- Popular with youth audience
- Interoperability with Facebook
- Instant name recognition
- Optimized for smartphones

CONS

- Optimized for smartphones
- Videos formatted exclusively for this platform cannot be used elsewhere.
- Short attention span viewership
- Metrics are hard to track beyond gross viewership.
- Instagram has been reported as contributing to depression and poor self-image, especially for females.

- No subscription fee to upload
- Highly popular with youth audience (this is where you reach them)
- Contains shooting & editing capability built-in to the application
- Instant name recognition
- VERY low expectations for production value (trashy aesthetics trend well)

TikTok CONS

- Videos formatted exclusively for this platform cannot be used elsewhere
- Short attention span viewership
- 1m30s max for most users (can be upped to 3m if threshold is crossed).
- Little transparency over who they promote on their FYP and why.
- Platform has banned accounts without recourse or explanation.
- Goy't, officials have said there are serious infosec and privacy concerns.

PRO TIP: DON'T LIMIT YOURSELF TO ONE - OPTIMIZE A VERSION FOR EACH PLATFORM AND USE THEM ALL!

Other Distribution Methods

Other Social Media Platforms

These may not be optimized for video, but they're still looking into as options to find audiences

- Facebook. Huge, global reach...but is perceived as having an aging audience, and problems with accountability and security. Audiences still generally leave the platform or click through to other sites when they engage with motion pictures.
- Twitter. Huge, global reach, but rapidly dwindling usership due to what many have perceived as mismanagement.

Four-Walling

Rent or borrow a space to screen your project to an audience.

- Provides the greatest amount of control AND requires the greatest amount of responsibility.
- Many independent cinema houses are willing to work out screening partnerships.
- We're a university. There's no shortage of places optimized to show things to audiences. Get creative!
- It's up to you to get your audience to your space, which means you need to do your own P&A or hire / delegate it to someone else.
- You have to handle all your own A/V and tech support or hire / delegate it to someone else.
- ANR Program Support may be able to assist.

The Film Festival Circuit

Just because you're producing motion pictures for ANR doesn't mean you're excluded from the festival circuit!

- **Expensive**. Submission fees range from \$25 \$100 per festival.
- Builds reputation & prestige. Getting selected builds reputation for your motion picture; even more so if you win any awards.
- Guaranteed audience...if your motion picture is selected, that is. Odds are good that some festival somewhere will take it, though.
- Could land you a distribution deal with a VOD service or a studio.

That's all Folks

For Questions, Comments, Bookings, and Training

email: eireland@ucanr.edu

phone: (530) 220-2208