

Camera Movement

An Explorations Project By
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Inspiration:

I wanted to understand the thought process and execution behind creating shots in the professional industry. I chose to zone in specifically on camera movement, because it plays a critical role in the composition of a shot, and if done properly, it can help the overall quality of a film immensely.



My Idea:

To better understand the skill, I tried to recreate the movement from iconic shots that demonstrate professional camera movement. This meant outsourcing the equipment, learning how to use it, and putting it to the test.

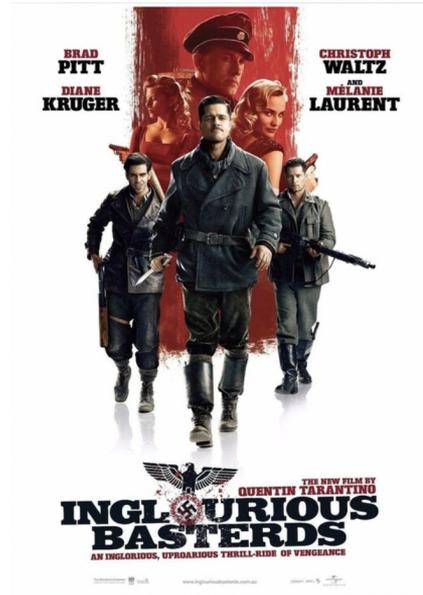
I wanted to see how close I could get to the film industry standard if I really emphasized this one skill.





Planning

I chose to recreate the camera movement in shots from three different films/shows.





Pre-production

Understanding camera movement took extensive research.

After researching was able to understand the different kinds of equipment used and its applications, different types of movements, and why they are effective.

Basics:

<https://www.youtube.com/watch?v=7LwFl7H02p4Q>

- There are six possible ways to move a camera
- Three axis of rotation (pan, tilt or cart)
- Three axis of translation (push track or boom)
- Any camera movement in 3d space is ultimately some combination of these six degrees of freedom

Main Camera Rigs:

https://www.youtube.com/watch?v=ha_260W7b-10g

- The handheld (shoulder or easy rig), movement is meant to be shaky, filmmakers can use jagged handheld shots to heighten the intensity of a scene or it can be used subtly to establish intimacy
- TriPods (tripods) fixed three legged support mechanism used for static shots or shots with pan or up/down movement. Static framing of a tripod is critical for the type of shot you are going for.
- Pedestal is a camera mechanism that moves vertically up/down for matching the movement of an actor, building suspense, or establishing an environment. In *Inglourious Basterds*, Tarantino uses a downward pedestal during the opening scene. Using Hitchcock's theory of suspense to reveal a metaphorical bomb under the table.
- Cranes and Jib arms to extend the camera outward and smoothly glide it left right up and down. They can highlight specific emotions in a shot and allow for long one take shots that bring out different elements of an environment.
- Overhead rig can capture perfect top down shots within a variety of budgets
- Only a wireless apparatus that a camera is mounted on. Tracks can be either straight or curved, it can allow you to smoothly push into a character or out as well as track their movements whether they are walking, running, fighting, etc. Dolly lets you follow a shot without camera shakes. Dollies require heavy equipment and operational effort causing people to turn to camera dollies as practical alternatives that achieve a smaller but similar effect, as well as cable cars to cover long distances. Dolly can be used for the vertigo/loolly effect if you change the focus while moving in and out.
- Stabilizer is an apparatus that holds a camera in a way that avoids camera shake by either using counterweights (steady cam) or a motorized gimbal. This gives the camera operator the ability to move freely without any unwanted shakes
- Crane/cambody mount is a device that rigs the camera to the body of an actor to establish a dynamic point of view that hinges on the movements of the actor which can be used to create vertigo/dizziness panic or help the audience feel the emotions of a character by capturing POV's and facial expressions. It can intensify the audience in the characters experience.
- Vehicle mount is a camera rig that mounts a camera to a fixed point on a vehicle used in cars motorcycle/bikes helicopters) used to capture realism and intensity of a moment.
- Drones are practical for capturing aerial shots and are accessible to film makers of all budgets. Motion control is a device that allows for complete control and precise repetition of camera movement. Effectively captures time lapse shots and is used in stop motion and animation. Its most common use in film is for special effects, and it can replicate precise camera movements.
- Underwater camera housing allows control of the camera when fully submerged underwater to make a shot more immersive or intimate

Camera Movement:

<https://www.youtube.com/watch?v=lyt8j-cd-0uM8t4c>

- Countless variations of Camera movement with their own purpose, a good filmmaker can utilize them to make dynamic and compelling work
- Static shot is a shot with no movement which is good for dialogue, scenery, and putting the attention on the actor. Static shots can be used to trap a character as they offer a neutral and cold perspective
- The pan horizontally rotates the camera while remaining in the same position, they can be used to track a character or reveal information, a slow pan builds anticipation while a rapid pan heightens the energy of a shot, whip pans can create relationships between characters
- The tilt rotates the camera upward or downward from a fixed position to capture the verticality of a film's world, they can be used to give characters dominance or vulnerability. Tilt can reveal information like a character setting or scale
- Push In moves the camera towards the subject and gives a visual cue to the audience that this is important, you can push in on an external detail like an object or text to direct our attention to something specific, it can also be used to capture a characters thought process. It is an effective way to communicate internal conflict
- Pull of de-emphasizes the subject, it can disconnect you from the characters, it can unveil the context of a scene, its setting, or its characters, they can help convey feelings of isolation helplessness and abandonment
- Zoom changes the focal length of a camera length to zoom in and zoom out, zooms have no equivalent to human experiences because our eyes cant zoom (this movement is unnatural), it can turn our attention to a specific detail and can create uneasiness
- Dolly zoom uses camera movement and lens zoom to create the zolly/vertigo effect, this can be used to portray conflict both internal and external, the zolly changes the scale of the background while the foreground stays the same, dolly zoom can be used for a moment of realization
- Camera tilt turns the camera on its long axis while maintaining the direction of the lens, it can upset equilibrium as it isn't a very natural movement, they can match character movement in movements of panic, it can accent movement or dramatic shift in a narrative
- The tracking shot physically moves a camera through a scene typically following a subject, they generate to questions "Where is the character going?" and "What will they do once they get there?" It can draw our attention to specific actions or build tension.
- Trucking laterally follows a subject, it can establish a character and world of a film in storyboard fashion
- The arc shot orbits around the subject (horizontal or vertical arc). They are very dramatic and help keep our focus centralized on the subject for moments of intimacy, panic, or tension
- Boom shot moves a camera up or down utilizing a crane jib or pedestal, they can reveal information, capture a surrounding scene, or follow a character
- Sometimes random movement (uncontrolled movement), such as shakes, incidental zooms, or any "on the fly" movement, they are added subtly to create a subjective experience for a more intimate effect. They can be used stylistically to create a documentary effect. Makes events feel like they are happening in real time

Upside Down Transition from Stranger Things - Horizontal Camera Roll

- Rough explanation "at the end of the second season this was the closing shot that they used"
- Show the clip from the series
- Show clip from Beyond Stranger things where they explain how and why they made it
- Show my recreation
- Explain what I equipment I used to get the shot

Use gimbal to rotate camera while on a moving object to create a pull out

Inglourious Basterds Opening Scene (Table Shot) - Boom

- Show the clip from the movie
- Explain why its effective in communicating emotion (why did tarantino use it)
- Show my recreation
- Explain how I made it

Use a jib to create boom motion (we dont have the set used in the film to get the shot under the footboards so we have to get creative)

Moonrise Kingdom - Trucking shot

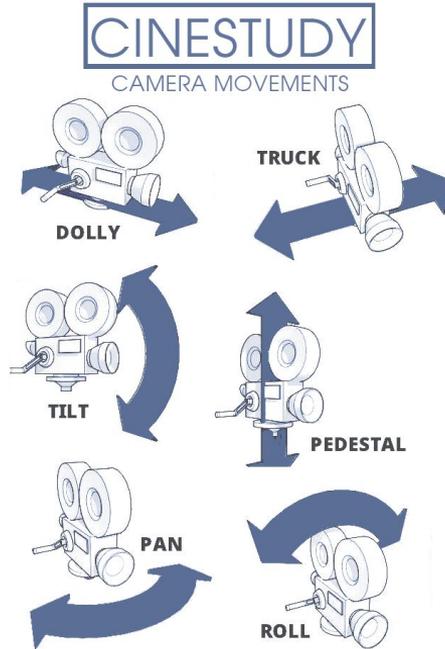
- Show the clip from the movie
- How does it change the viewing experience/communicate film language more effectively
- Show my recreation
- Explain how I made it

Use a dolly on a smooth surface to make the trucking shot

What Did I learn

The Basics:

- There are six possible ways to move a camera
- Three axis of rotation (pan tilt or roll)
- Three axis of translation (push track or boom)
- Any camera movement in 3d space is ultimately some combination of these six degrees of freedom





Equipment and Movement

There is a shocking variety of equipment and shots that can be used.

I will only go over the ones that I used in this project.





First Scene - Stranger Things

Original:

<https://www.youtube.com/watch?v=rzXLJNPDukA>

My Remake:

<https://drive.google.com/file/d/1uRiz33a1NCv7ZQCztmwxOB5dTBVtOrUK/view?usp=sharing>



Behind the scenes

- I used a monopod to create a 90 degree roll
- Took the same shot flipped and in reverse to recreate the movement
- Used a bit of VFX to sell the effect
- The Duffer Brothers used a special mount to create the motion, it allowed the camera to dolly out while rotating
- Using this movement helps the audience feel shocked as they see the juxtaposition between the two realities
- It wouldn't have been as memorable without the effort that went into movement





Second Scene - Inglourious Basterds

Original:

<https://youtu.be/K0dAghxfvlq?t=618>

My Remake:

https://drive.google.com/file/d/1268P8AaTDh16WbXF55ER7LAK8ZwSAh9S/view?usp=s_haring



Behind the scenes

- I used a jib to recreate the shot
- Jib creates a boom (vertical, up/down) motion and works like a see-saw
- Moves in the real world and is different from keyframing position (maintains perspective)
- The boom movement can be used to reveal information, capture a surrounding scene, or follow a character
- Inglourious Basterds uses the boom to convey suspense and immerse the audience in the secrecy and intensity of the situation





Third Scene - Moonrise Kingdom

Original:

<https://youtu.be/liyBo-gLDeM?t=1189>

My Remake:

https://drive.google.com/file/d/1uBCiwW1dQdKydmxfJ4_M_Pyv68SVhniw/view?usp=sharing

Behind the scenes

- I originally tried to use a dolly to create a trucking shot
- Dolly worked well inside but not outside (shots were terrible)
- I ended up using a car to replicate the movement of a dolly
- Trucking shots can establish a character and world of a film in storybook fashion


CamDolly





Takeaways

- There is a lot of preparation is involved
- There is TONS of equipment with very specific uses
- Sometimes unforeseen circumstances can ruin the outcome of a shot
- You need to familiarize yourself thoroughly with your equipment



Why is it important? Aside from looking cool.

- Why spend money and time (both valuable in the industry) on camera movement?
- Our responsibility as filmmakers is to immerse the audience in our world
- Camera movement helps translate emotions and feelings
- It is in human nature to move, camera movement replicates human motions and allows the audience to participate in the action
- It can make our storytelling much more effective and gives us control over our creative atmosphere



Fin.

Thank you so much for listening along. I encourage all of us to further explore camera movement as we enter our senior year. The implications of this skill are night and day.