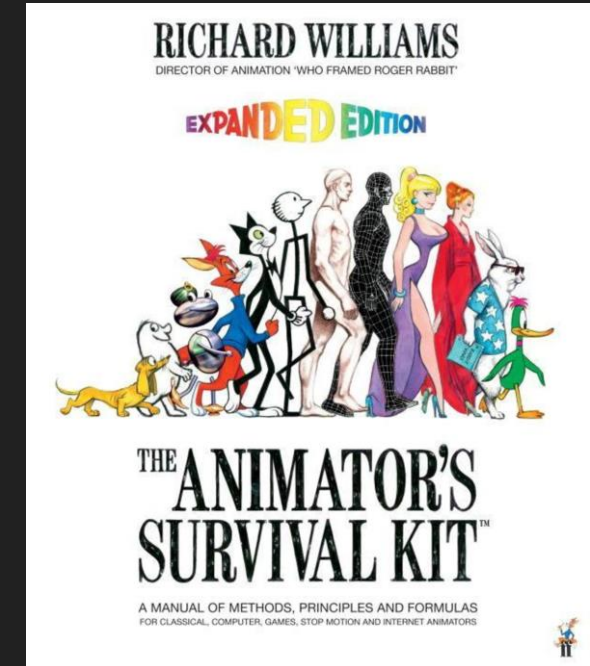


# Animation For Games

# Course Content

- 12 Animation Principles
- Games vs. Films
- Motion Capturing
- Cinematography
- Camera Animation
- Rigging & Animation: Hands-On
- Performance Optimization for Game Engines



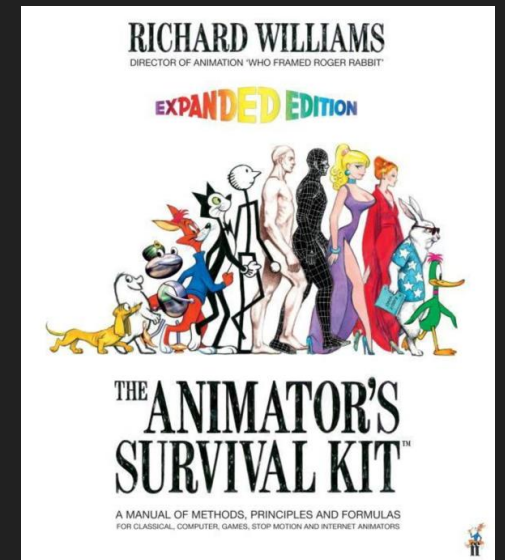
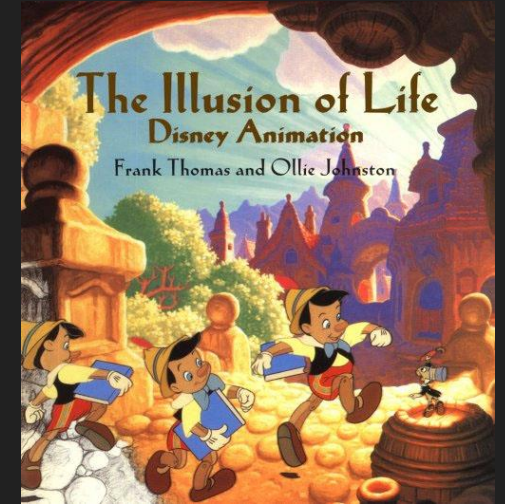
# 12 Animation Principles

- Squash & Stretch
- Anticipation
- Staging
- Straight Ahead vs. Pose To Pose
- Follow Through & Overlapping Action
- Slow In & Slow Out
- Arcs
- Secondary Action
- Timing
- Exaggeration
- Solid Drawing
- Appeal

Links:

<https://www.youtube.com/watch?v=uDqjldl4bF4>

<https://www.youtube.com/watch?v=dd1goyY3eXg>



# Animation Games vs. Films

- Game Animations have to work for multiple angles
- Animation Cycles vs. Animation Sequence
- Often less (or no) Anticipation for Game Animations
- Animations for games (usually) have less passes than for films
- Motion Capture is more used in Games than in Films
- Games: User controls the animation | Film: Animator controls the animation
- Animation mistakes/glitches are more forgivable in games than in movies



# Motion Capturing

- Two main types: inertial and optical
- Optical Systems: Optitrack, Vicon, Qualisys, Mo-Sys
- Inertial Systems: Rokoko, Xsens
- New - AI Motion Capture (Rokoko Vision)
- MoCap Data Online Sources:  
Rokoko Motion Capture Library  
Mixamo  
ActorCore
- Facial MoCap – Mostly Markerless



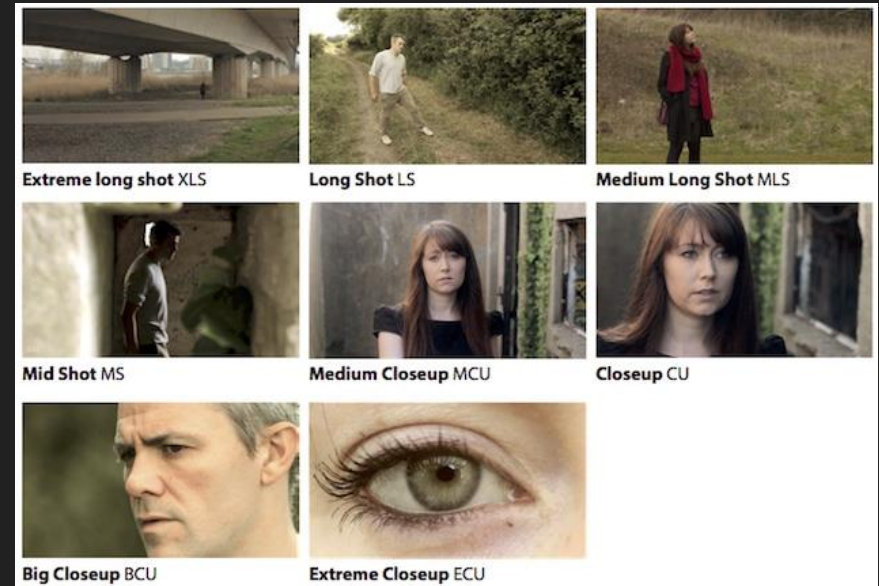


# Cinematography

- Responsible for:
  - Visual Style and Storytelling
  - Lighting
  - Composition
  - Camera Placement & Movement
  - Shot Size
  - Focus
  - Coordination
- Aspect Ratio – 1:1, 4:3, 16:9
- Shot Sizes – Wide Shot, Medium Shot, Close-Up, etc.
- Camera Moves – Pan, Tilt, Boom, etc.
- Equipment on Film Sets: Tripod, Jib/Crane, Dolly

Links:

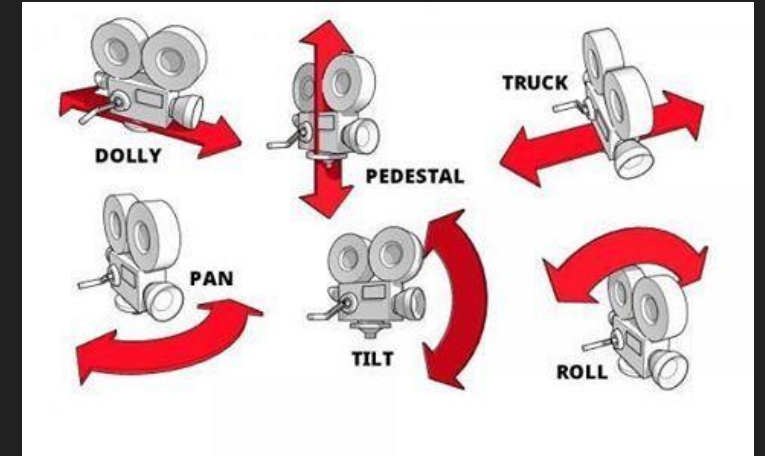
<https://www.pixpa.com/blog/what-is-cinematography>



# Camera Animation

- Pan
- Tilt
- Zoom (Reverse Dolly Zoom)
- Dolly
- Crane
- Pedestal Shot
- Steadicam
- Handheld
- Rack Focus
- Drone

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



# Cuts

- Cutting on Action (during motion)
- Cut Away (Away from Main Scene)
- Cross Cut (Relationship of 2 scenes)
- Jump Cut (Time Passing or Urgency)
- Match Cut (Match Similar Shots)
- Smash Cut (Abrupt Transitions)
- <https://www.youtube.com/watch?v=3pCs2Z6gMcE>
- <https://www.youtube.com/watch?v=WrlwflmLXOA>
- <https://www.youtube.com/watch?v=KmpU7vEkNU>
- <https://www.youtube.com/watch?v=wH4cNrUB4ss>
- [https://www.youtube.com/watch?v=BPumZgU\\_-p4](https://www.youtube.com/watch?v=BPumZgU_-p4)
- <https://www.youtube.com/watch?v=04P3H9XRLy8>



# Transitions

- Fade in / Fade out
  - <https://www.youtube.com/watch?v=Ywiz8Q88Wrk>
- Dissolve (One shot to another)
  - [https://www.youtube.com/watch?v=MRX9SkkM\\_sw](https://www.youtube.com/watch?v=MRX9SkkM_sw)
- Iris
  - <https://www.youtube.com/watch?v=lqDhAW3TDR8>
- Wipe
  - [https://www.youtube.com/watch?v=IVW\\_fdPVQHQ](https://www.youtube.com/watch?v=IVW_fdPVQHQ)
- Invisible Cut
  - <https://www.youtube.com/watch?v=JuiPGRP-m3Y>
- L-Cut & J-Cut (Audio Transition)
  - <https://www.youtube.com/watch?v=eyH-a964kAs>

# **Rigging & Animation Hands-On**