



# BROKEN AGE

## Animation Style and Workflow

Raymond Crook

Lead Animator

[crookr@gmail.com](mailto:crookr@gmail.com)



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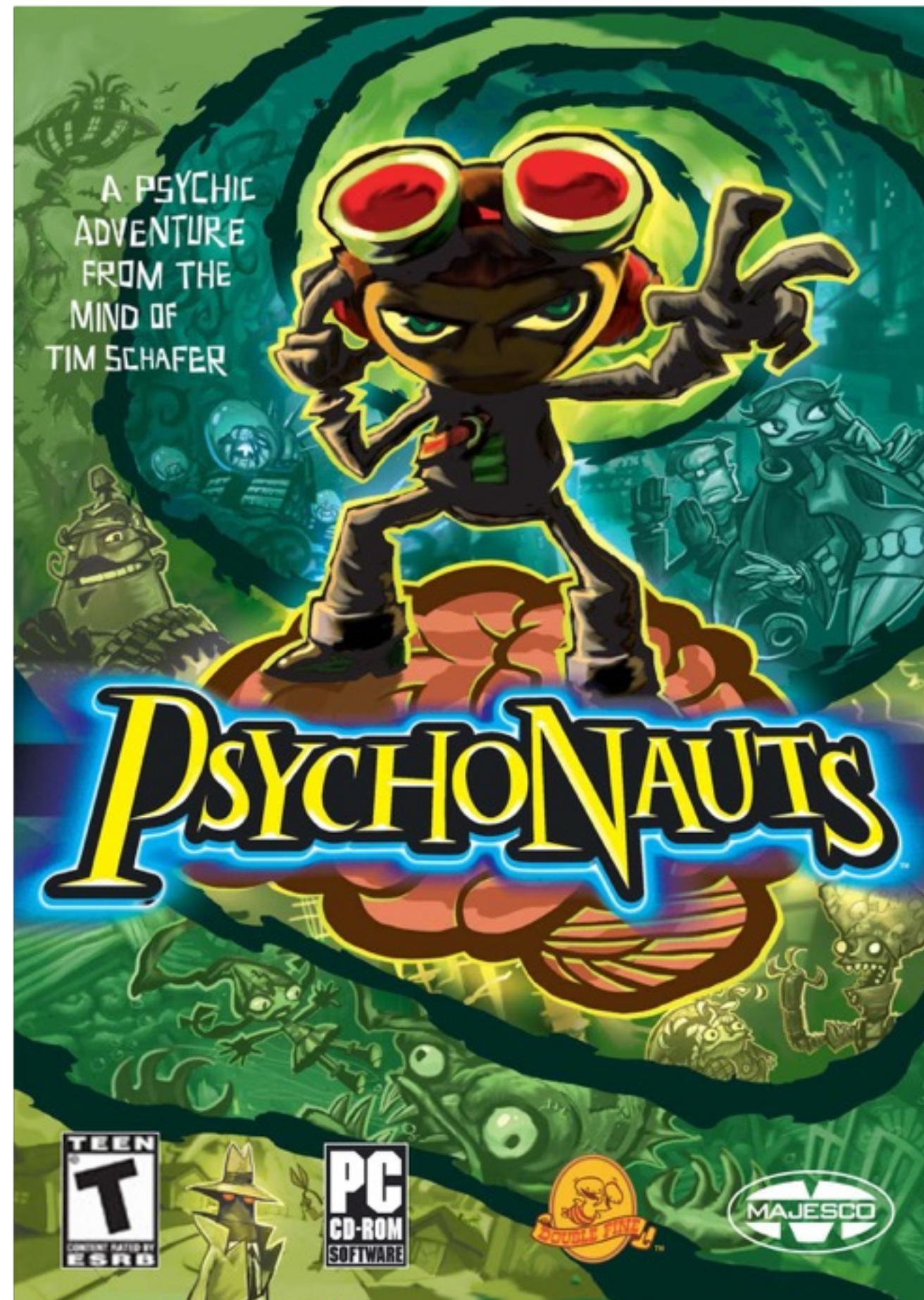




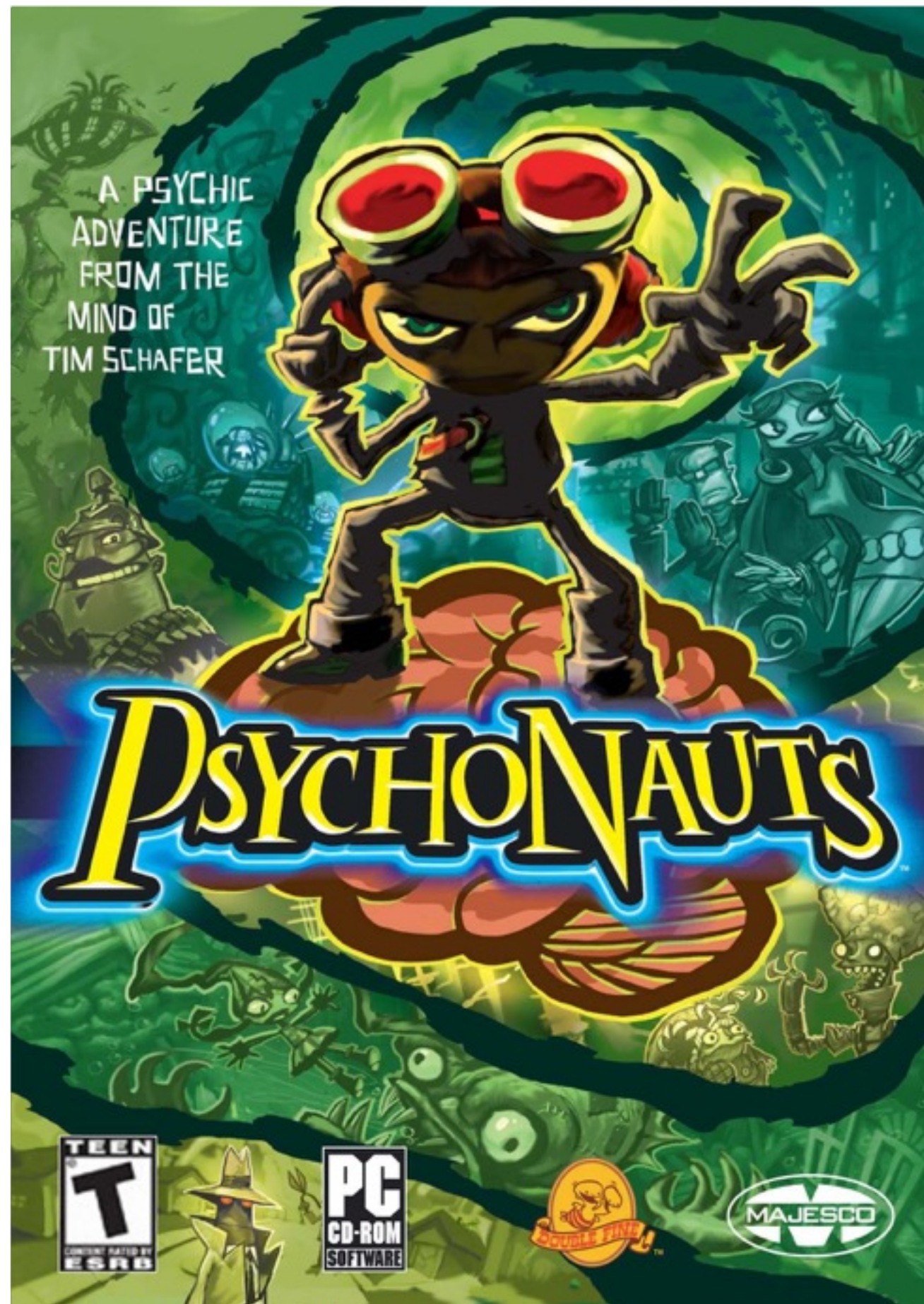








































# KICK STARTER





# BROKEN AGE

## KICK STARTER





# BROKEN AGE

KICK  
STARTER







# BROKEN AGE

## KICK STARTER





# Nathan (Bagel) Stapley

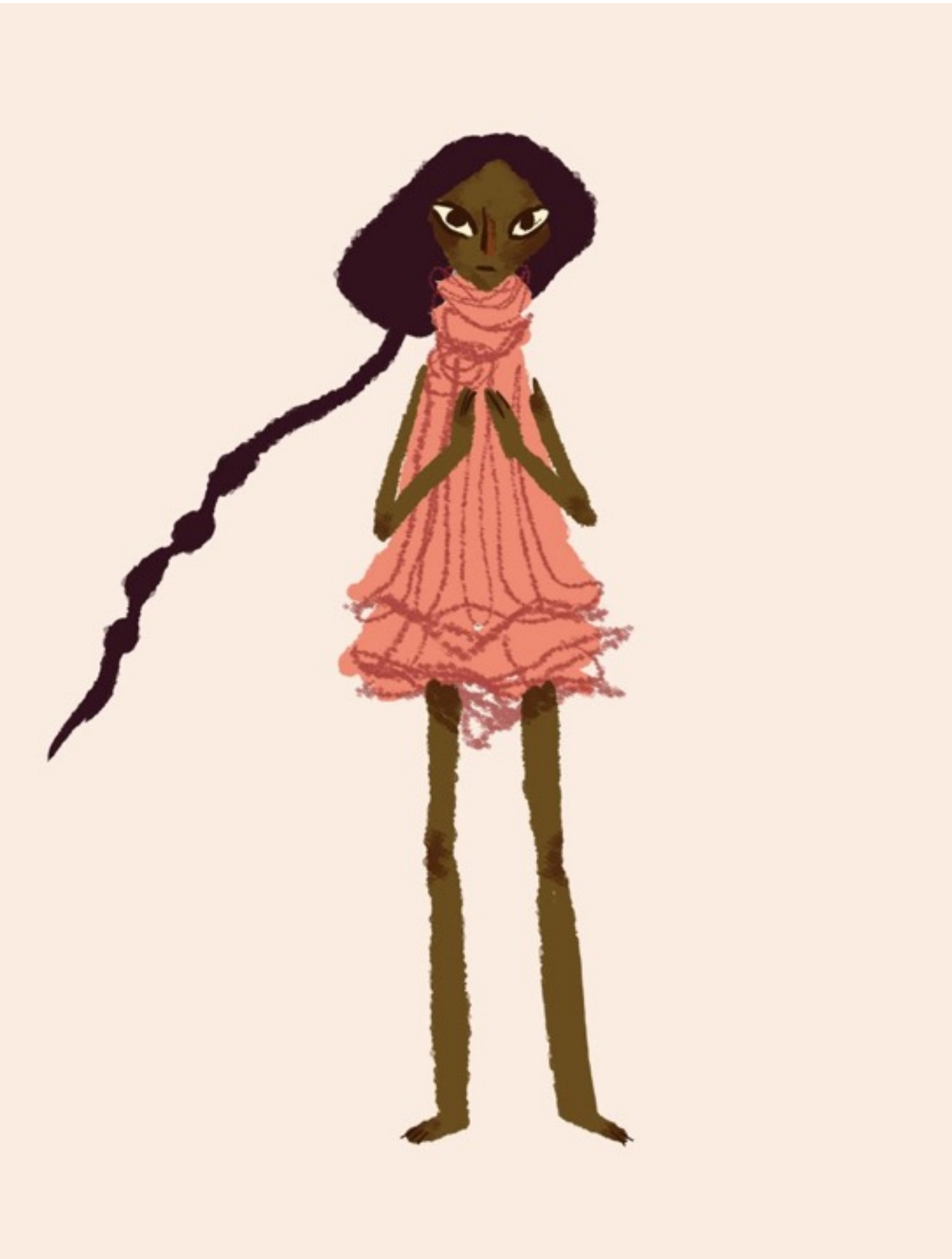




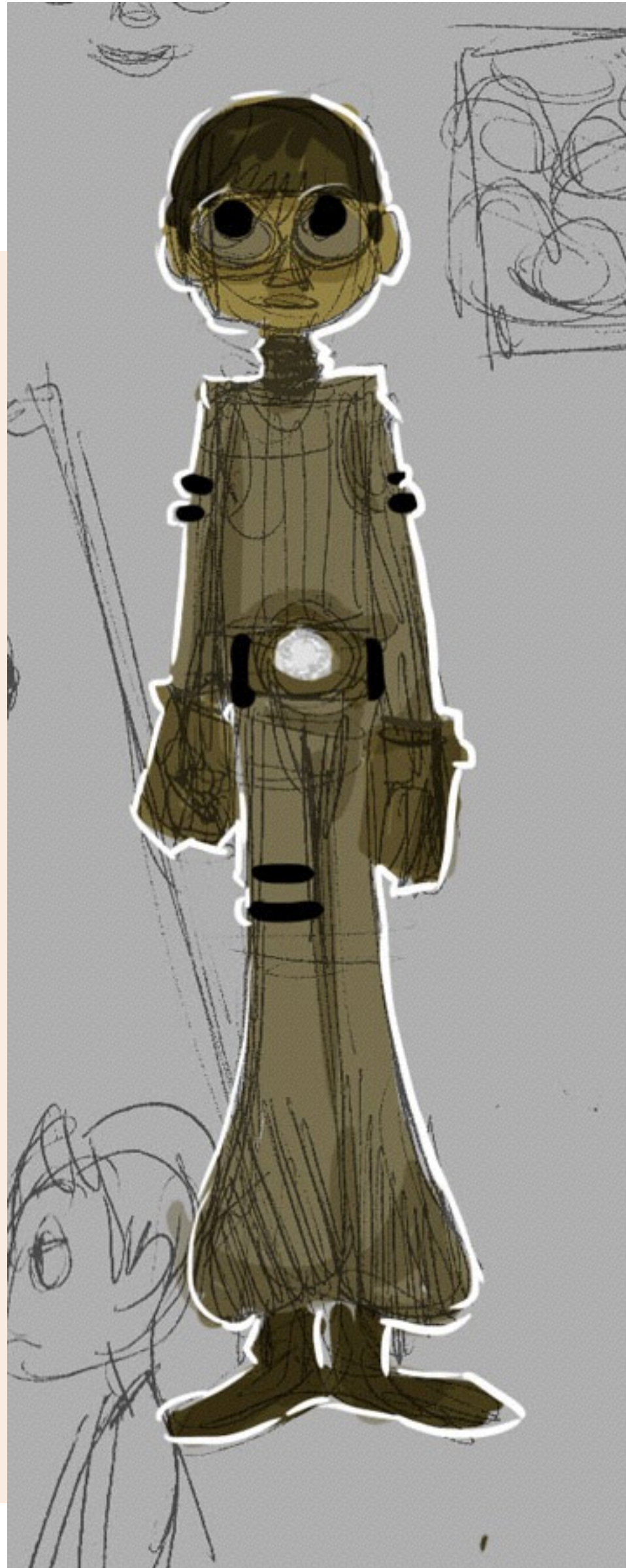
## Nathan (Bagel) Stapley











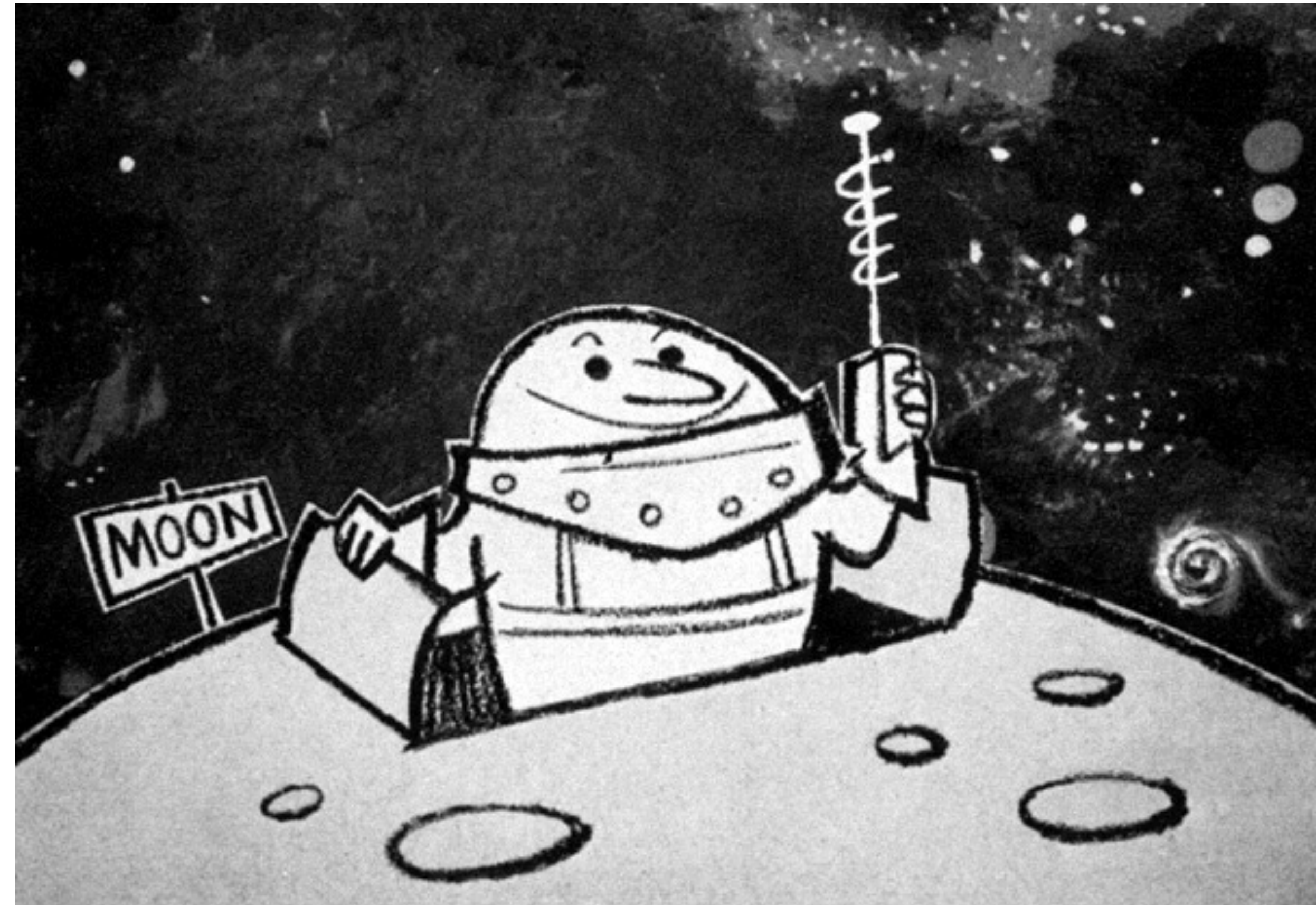
## SPACESHIP BOYS..







# Animation Research



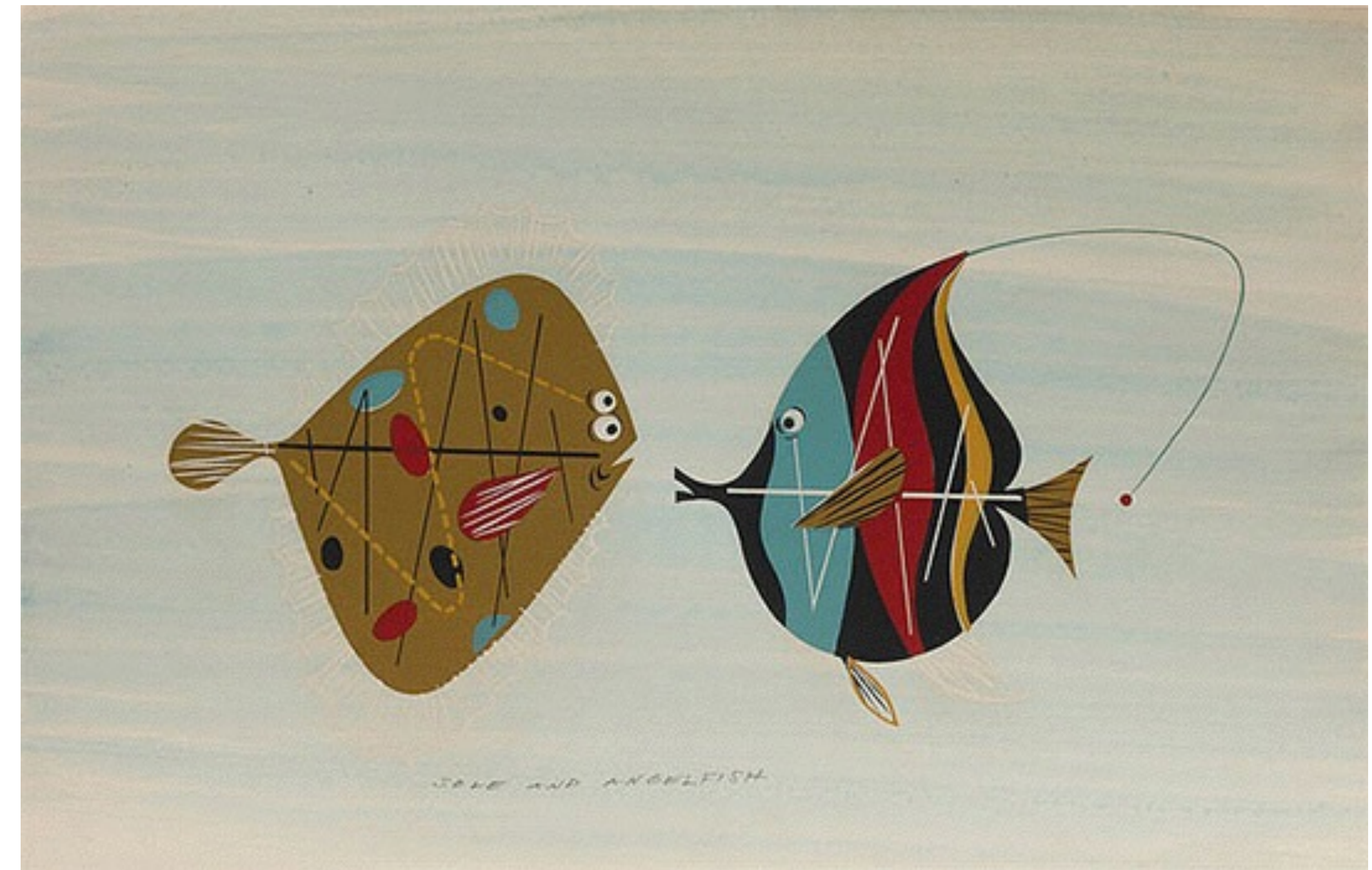




# Animation Research



**Bold Silhouettes**  
**Graphic Style**  
**Expressive**







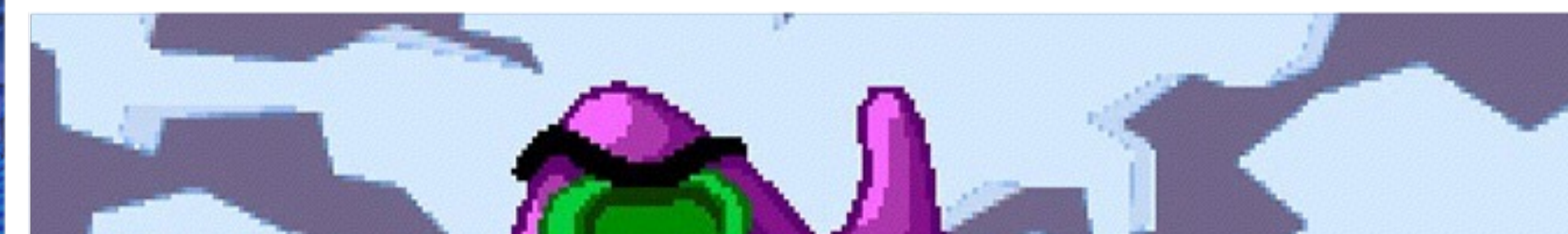
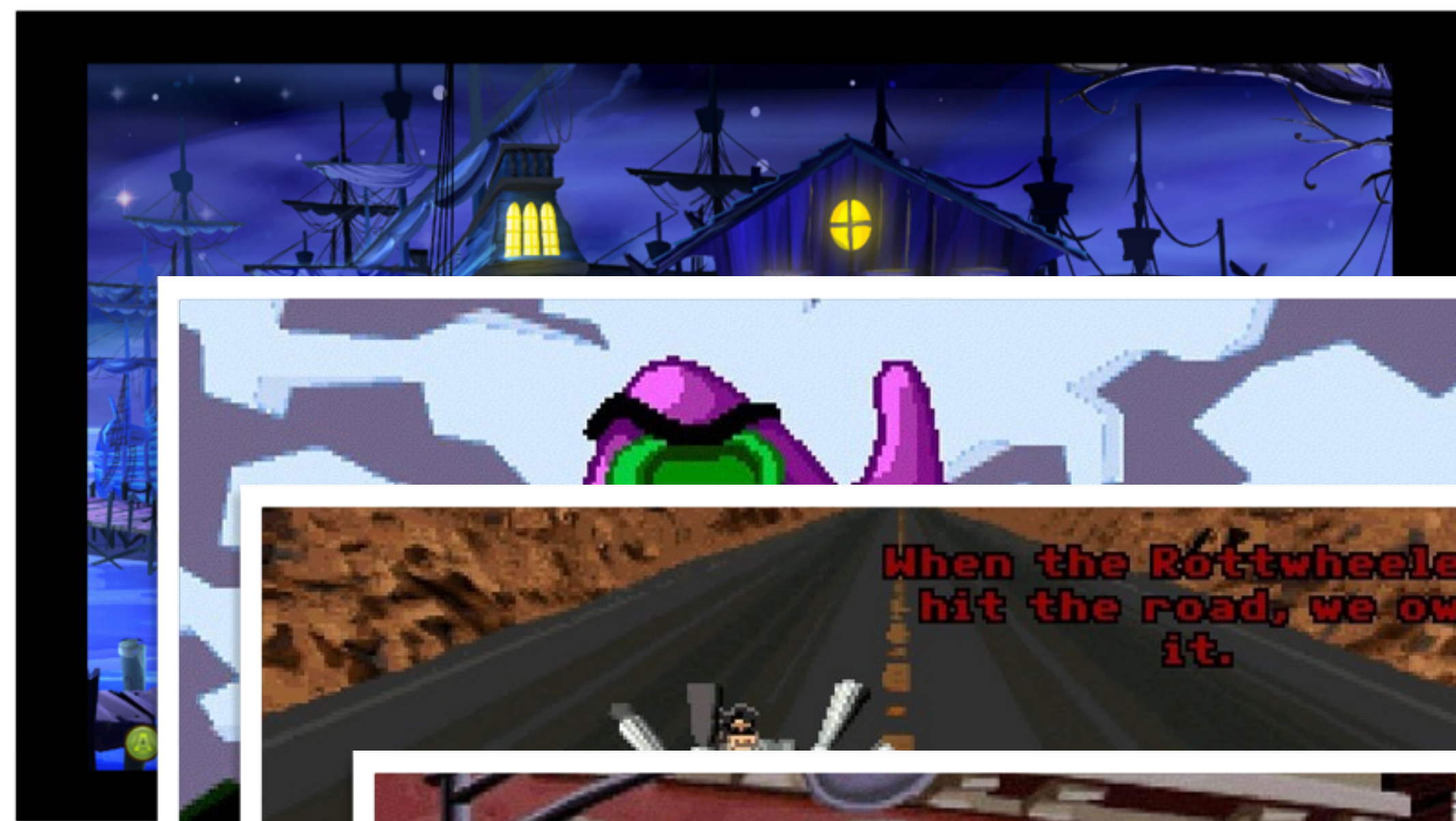
# Animation Research







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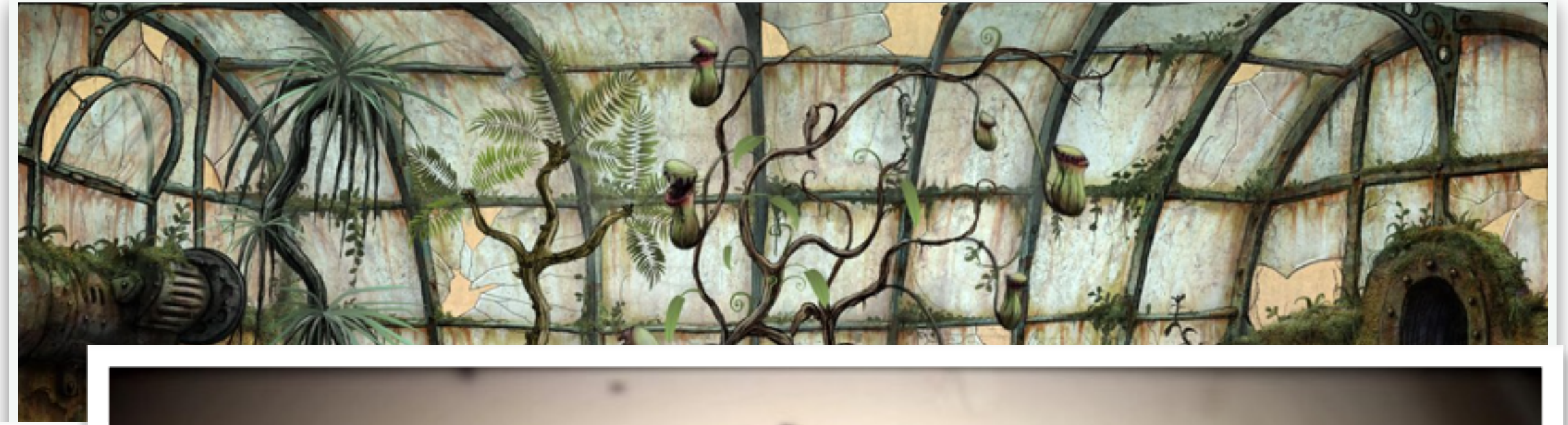




























# Discoveries





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- Art styles had expanded



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- Art styles had expanded
- Lots of expression and fidelity







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- Art styles had expanded
- Lots of expression and fidelity
- Show off bold silhouettes



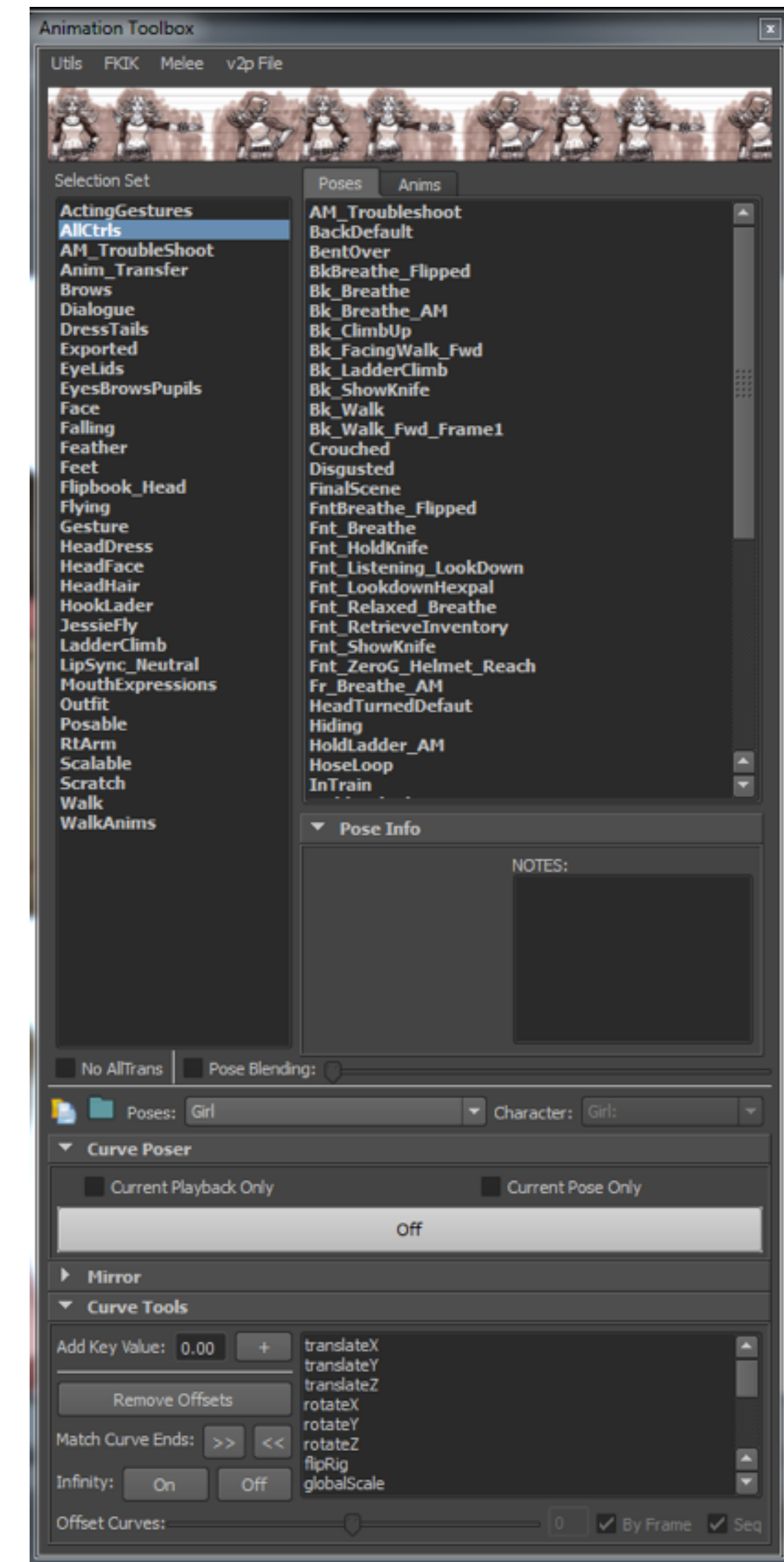




# Discoveries



- Art styles had expanded
- Lots of expression and fidelity
- Show off bold silhouettes
- Must be compatible with many of our current tools  
Modeling, Animation, Rigging, Implementation







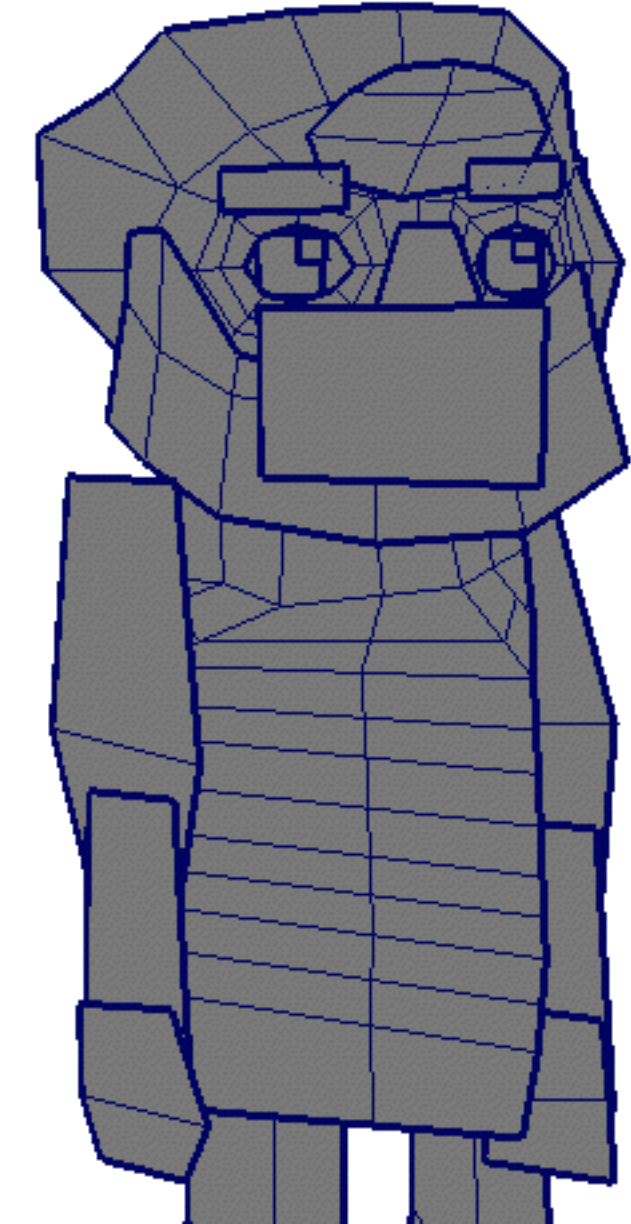
# Discoveries





# Discoveries

- 2D Planes

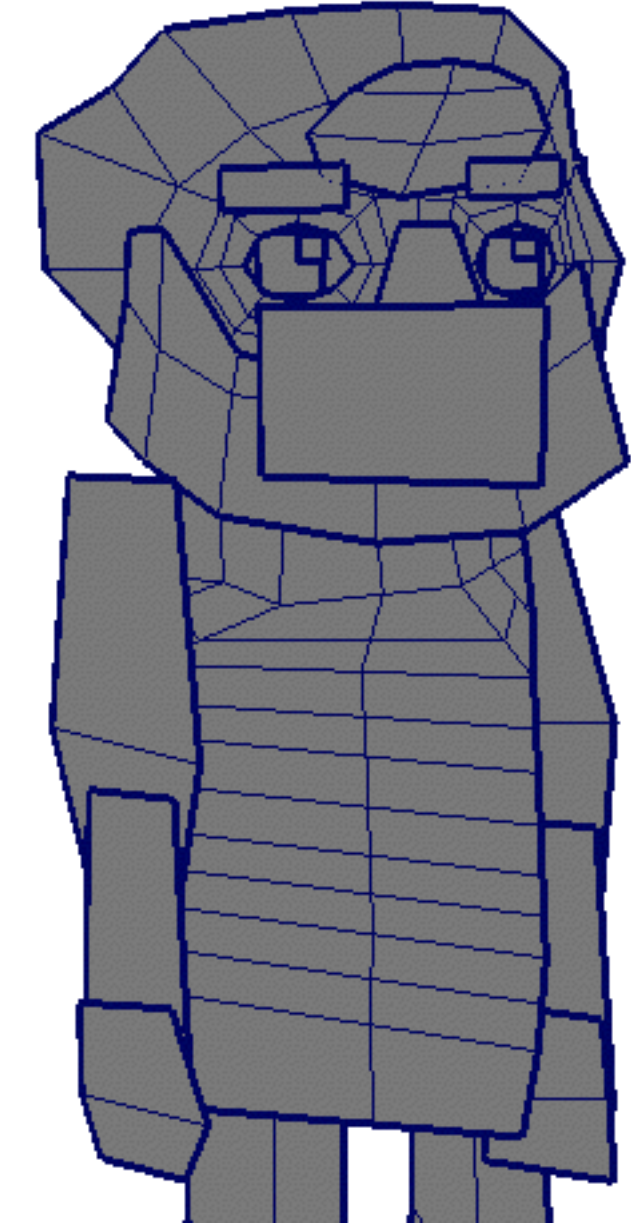






# Discoveries

- 2D Planes
- Use Alpha Channels for Soft Edges

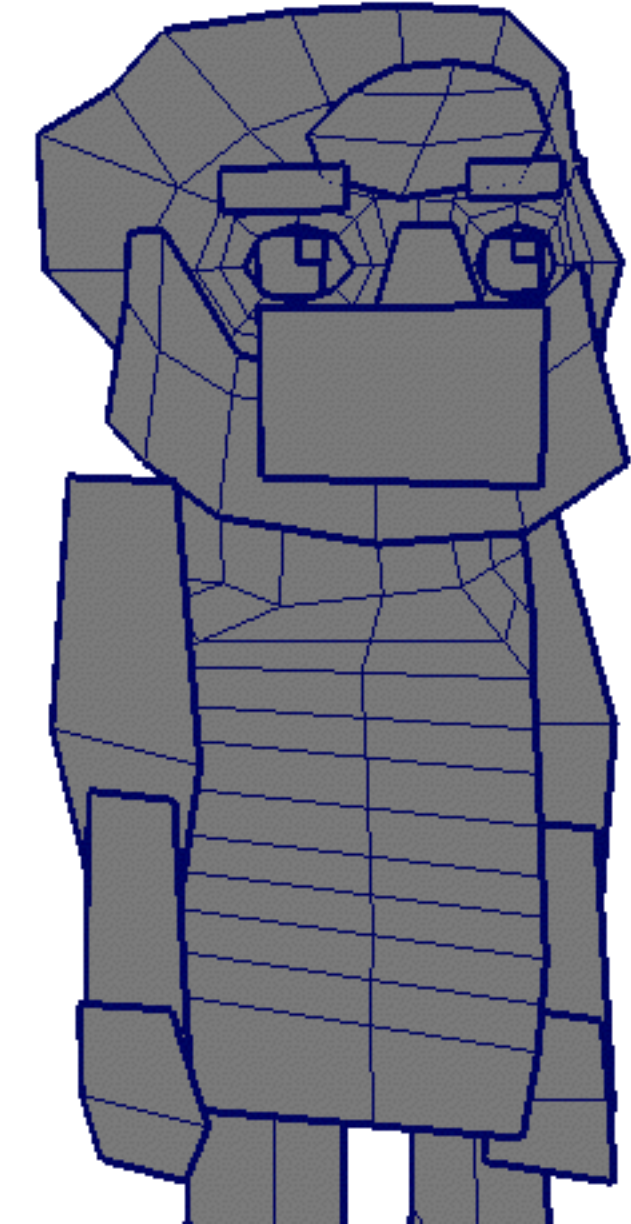
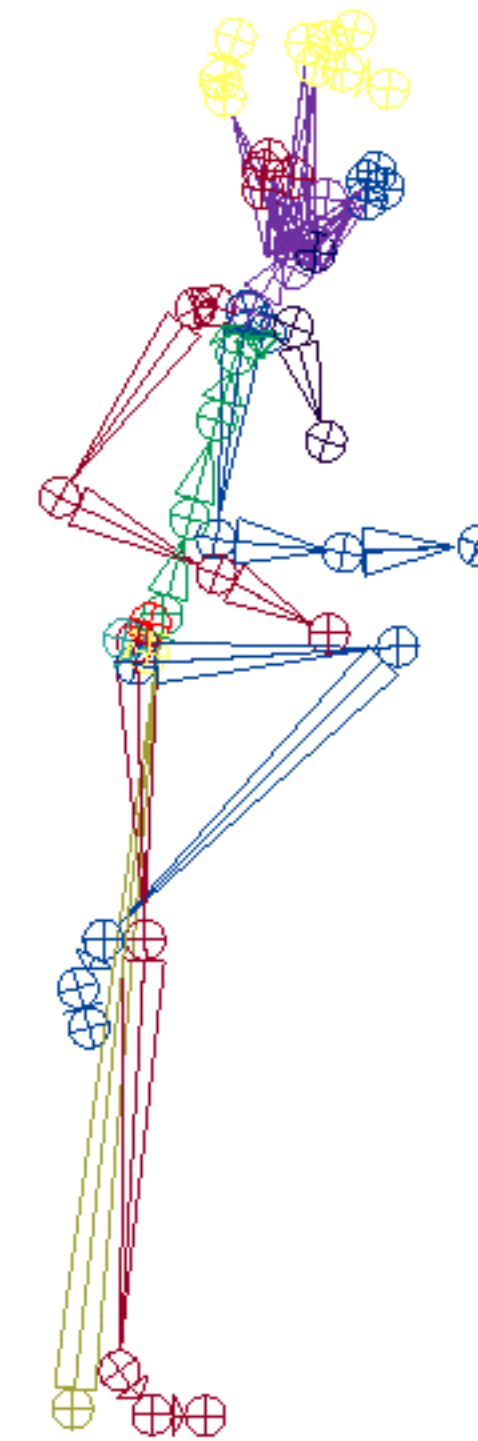






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- 2D Planes
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- Run Time Joint Driven System

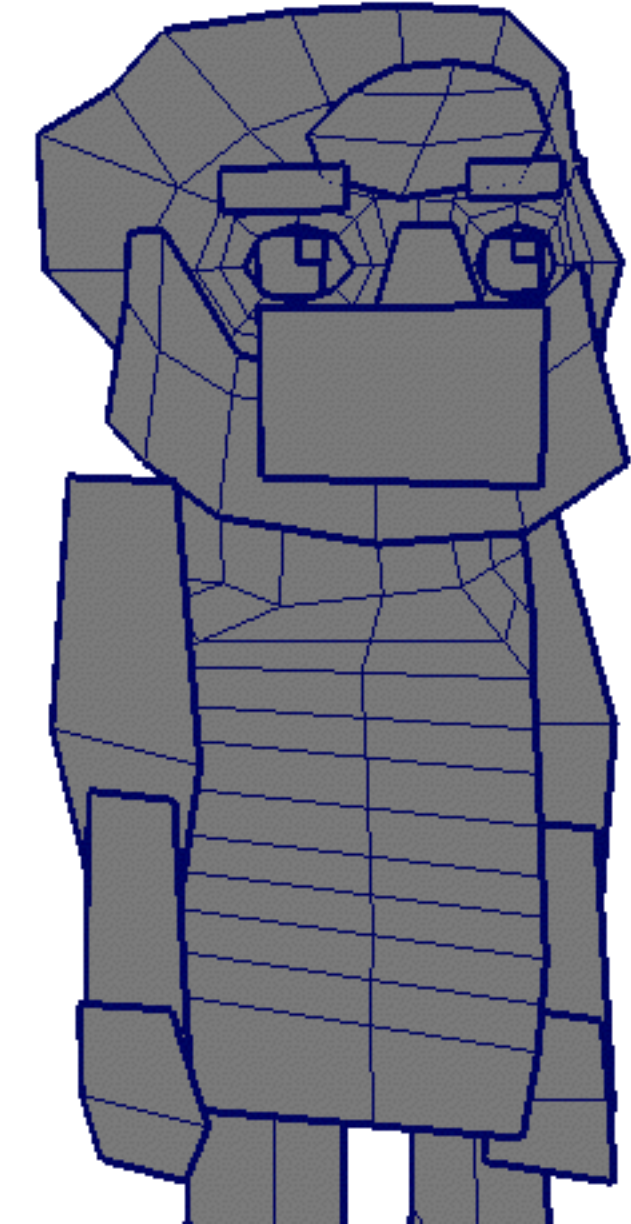
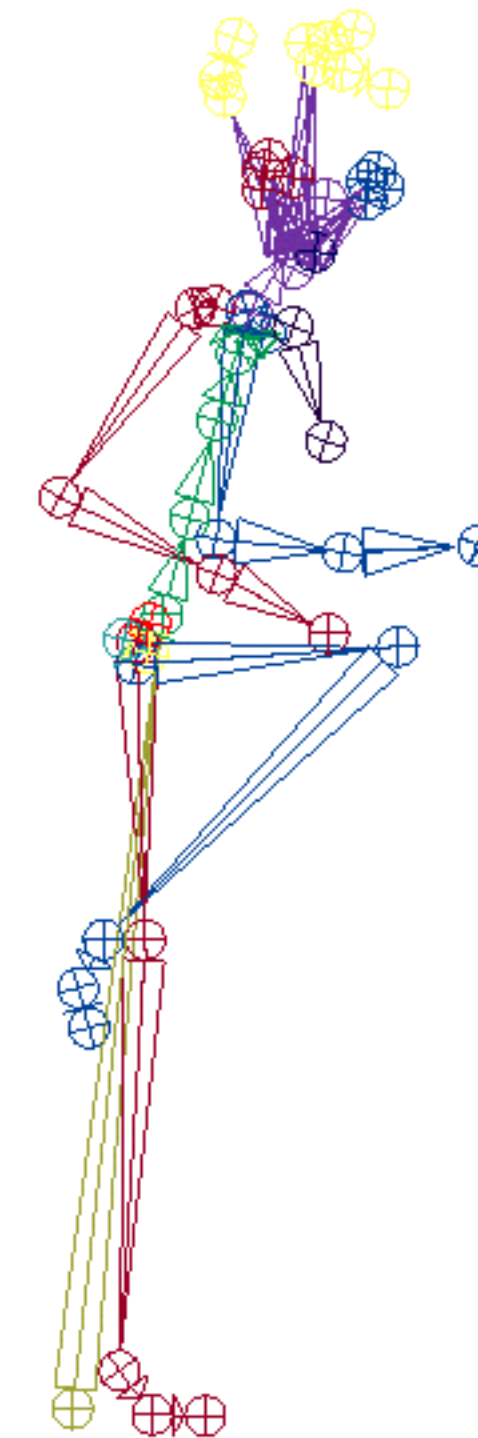






# Discoveries

- 2D Planes
- Use Alpha Channels for Soft Edges
- Run Time Joint Driven System
  - “Flipbook” Animation
    - Keyable Textured Planes







# Hybrid Approach 2.5D







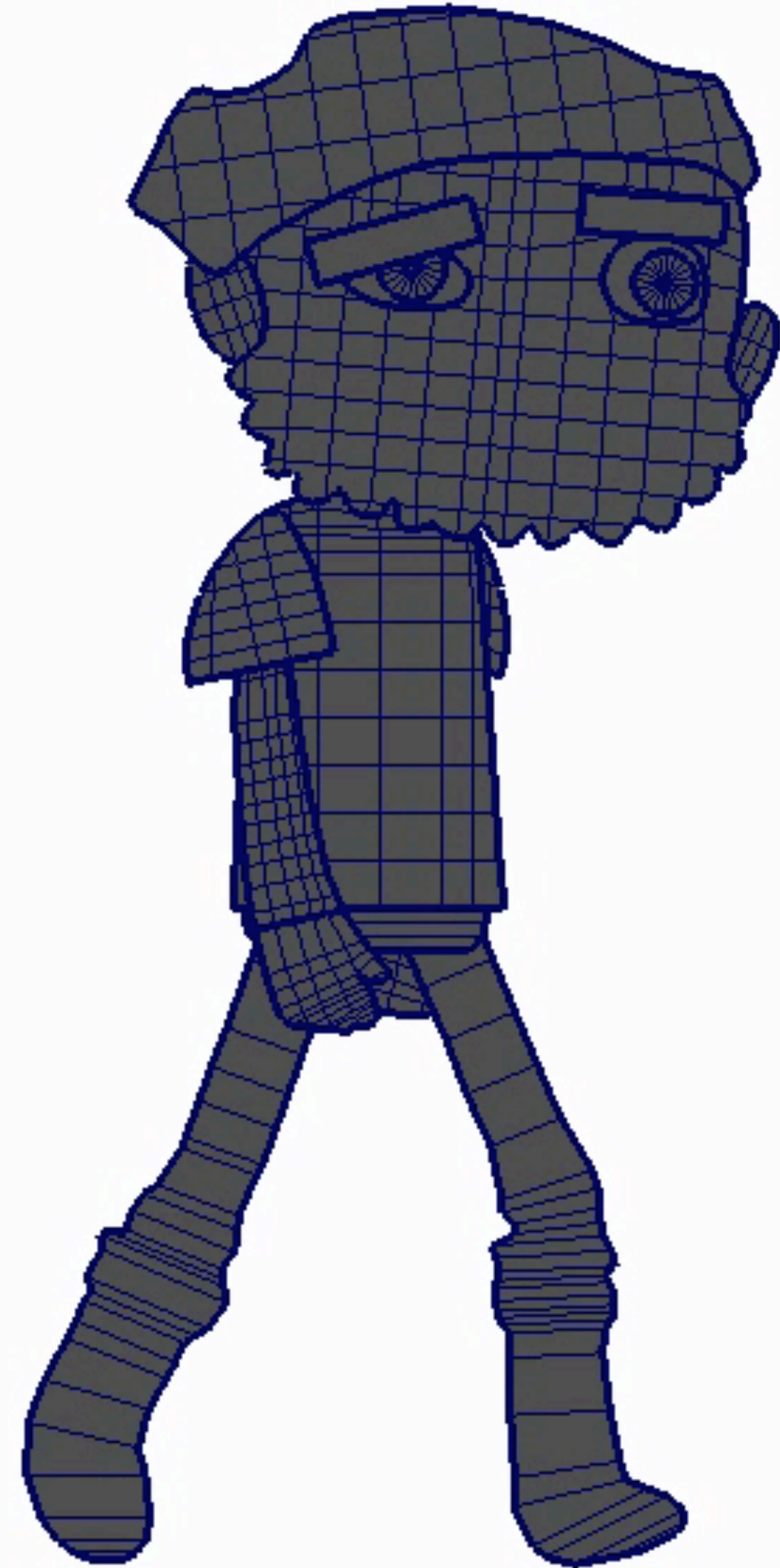
# Hybrid Approach 2.5D







## Early Tests







## Early Tests



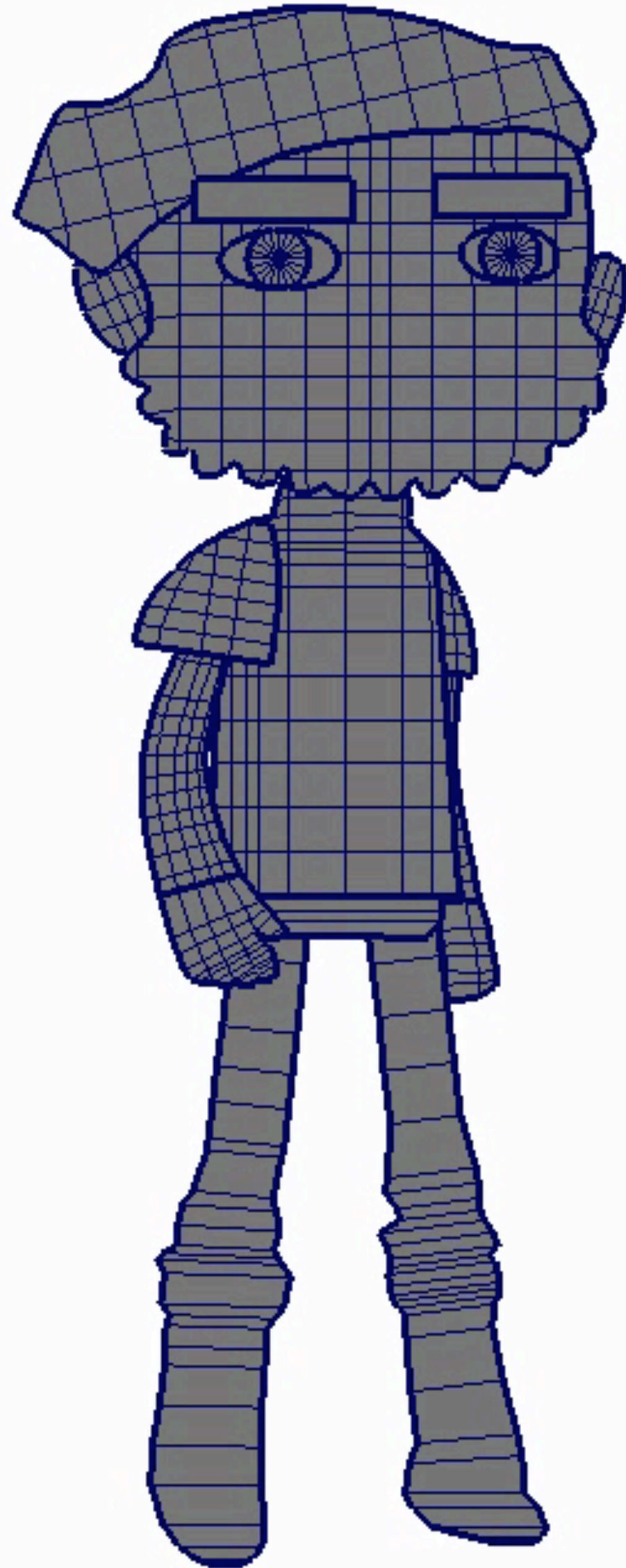




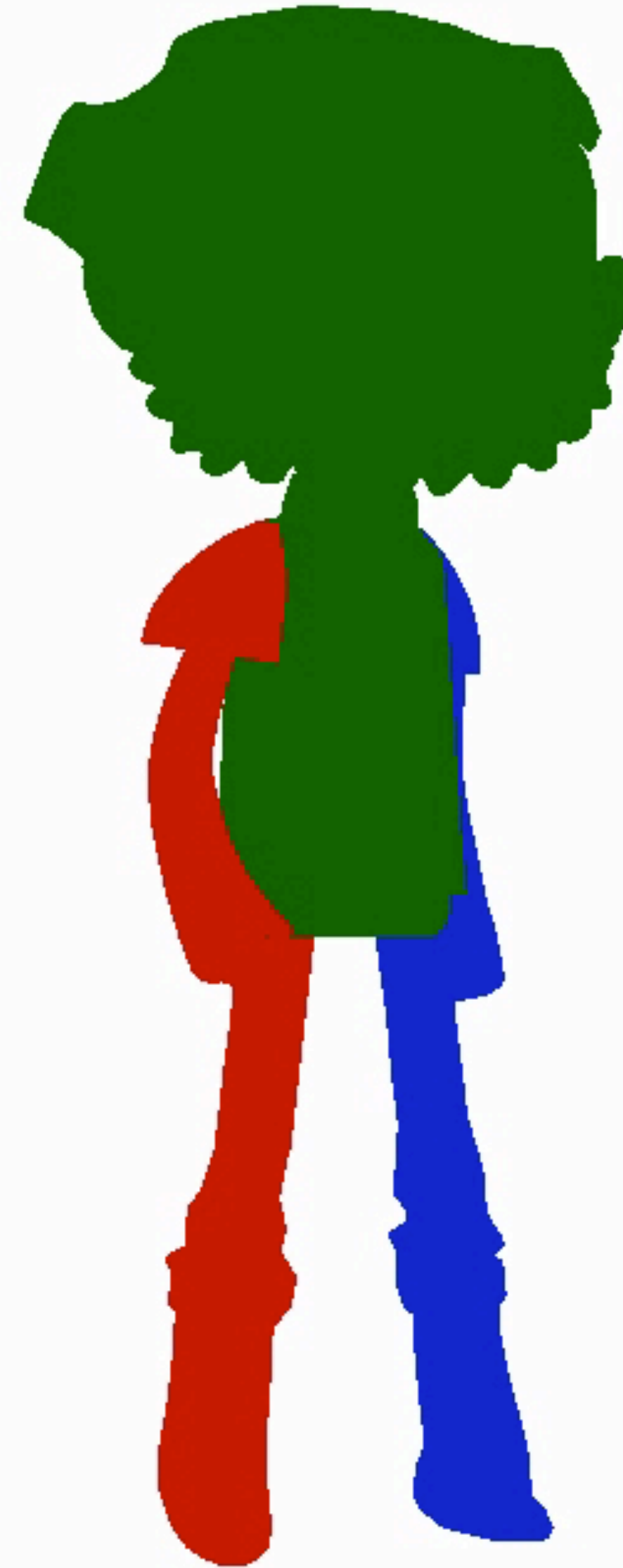




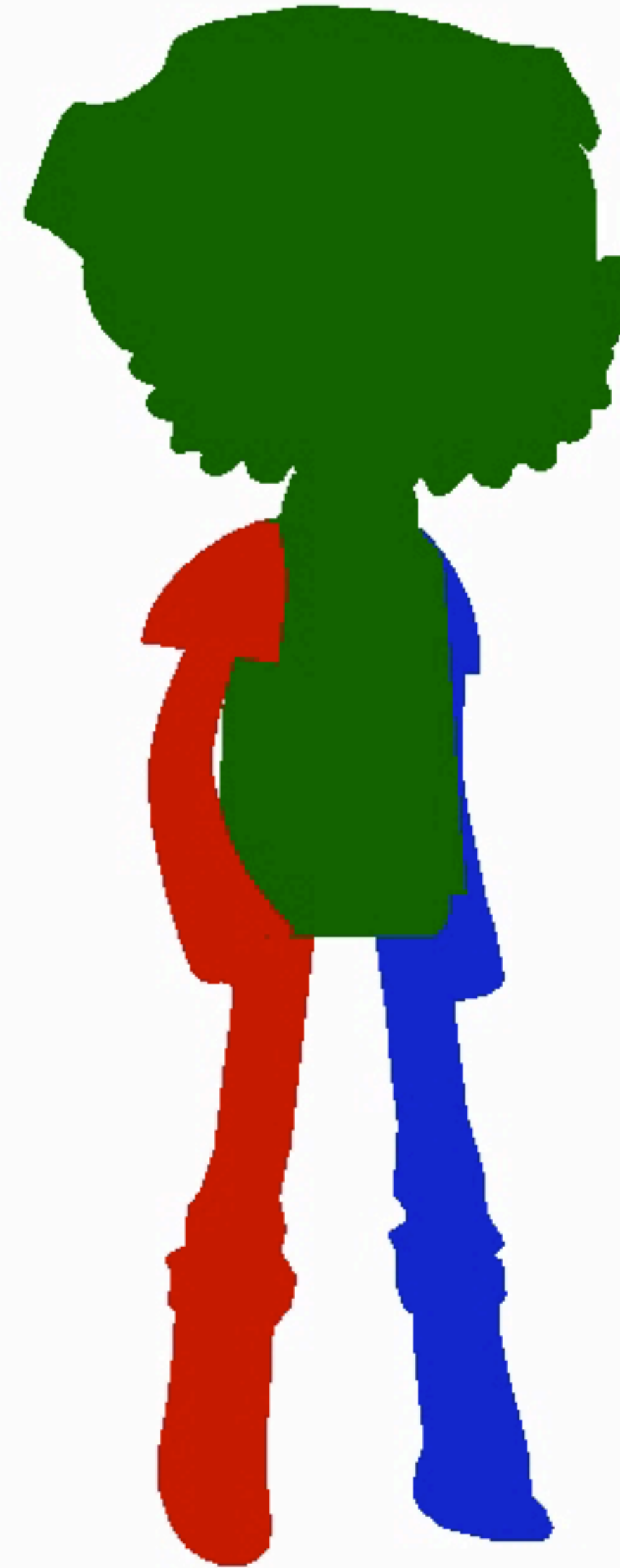
















# Early Dialog Test







# Early Dialog Test







Front



Side



Back







# Modeling a Character





# Modeling a Character

- Image Plane of Exploded View

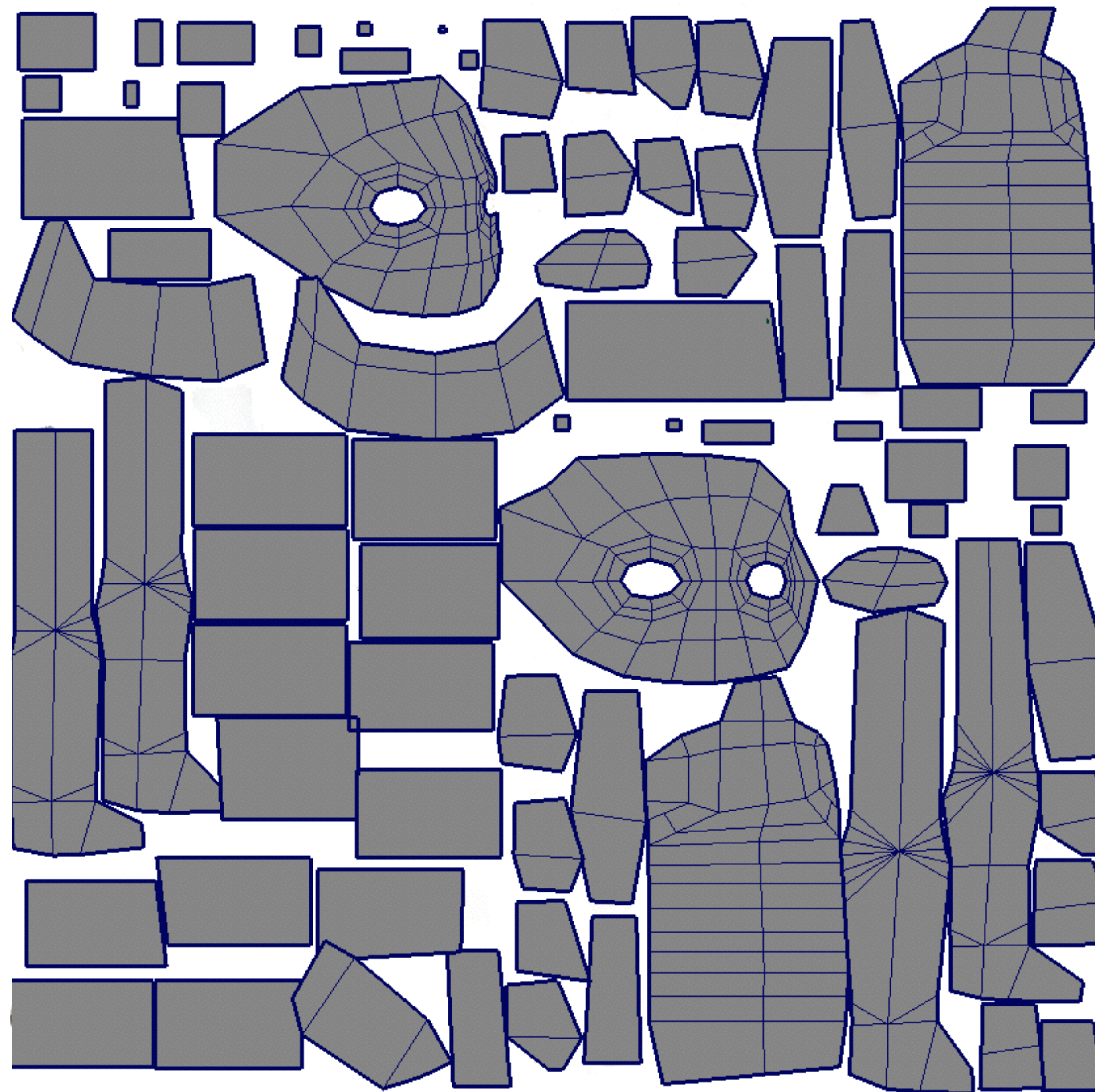






# Modeling a Character

- Image Plane of Exploded View
- Simple Flat Geometry for Each Element







# Modeling a Character

- Image Plane of Exploded View
- Simple Flat Geometry for Each Element
- Planar Map Geometry and Assigned Texture





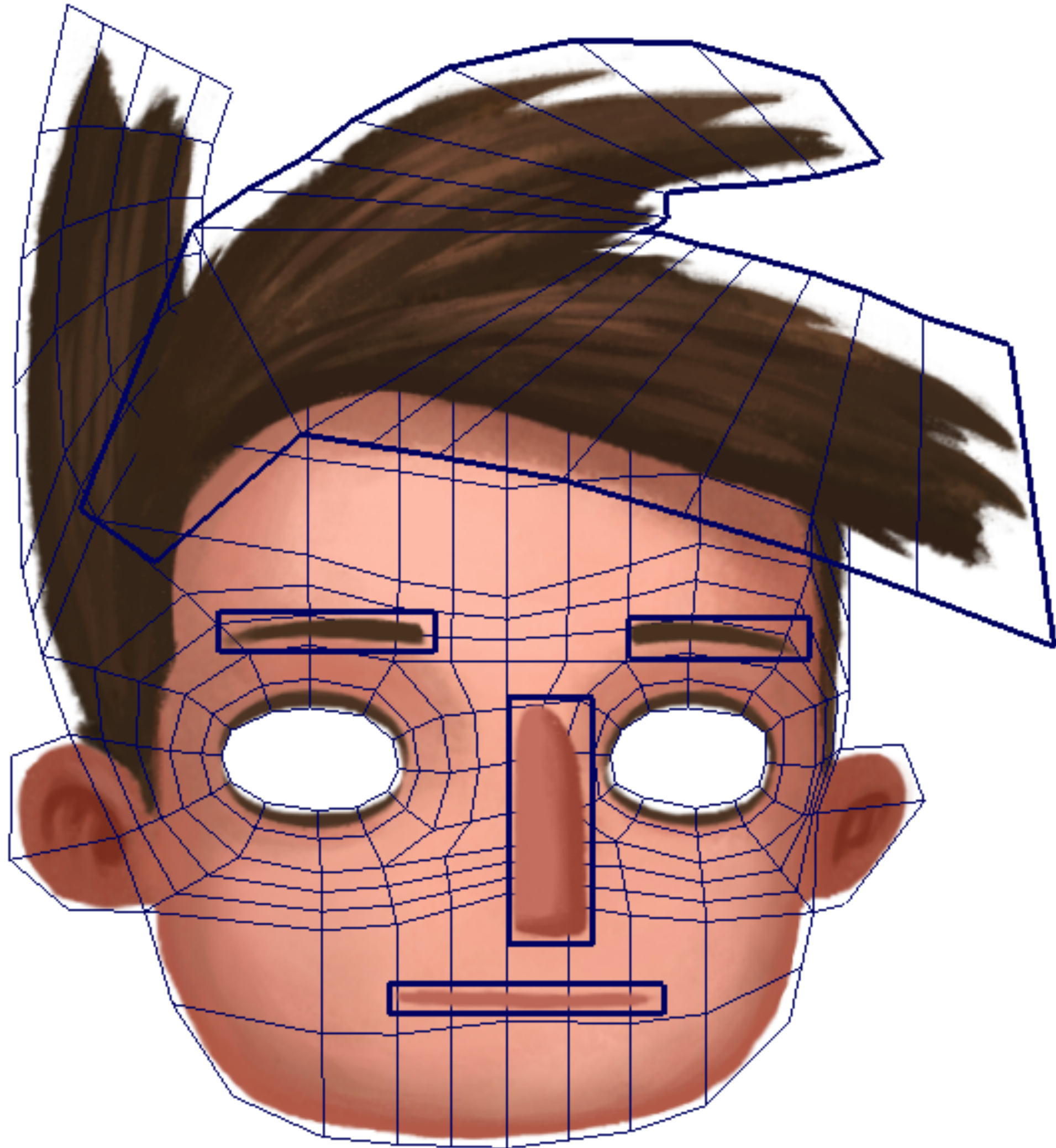


# The Eyes





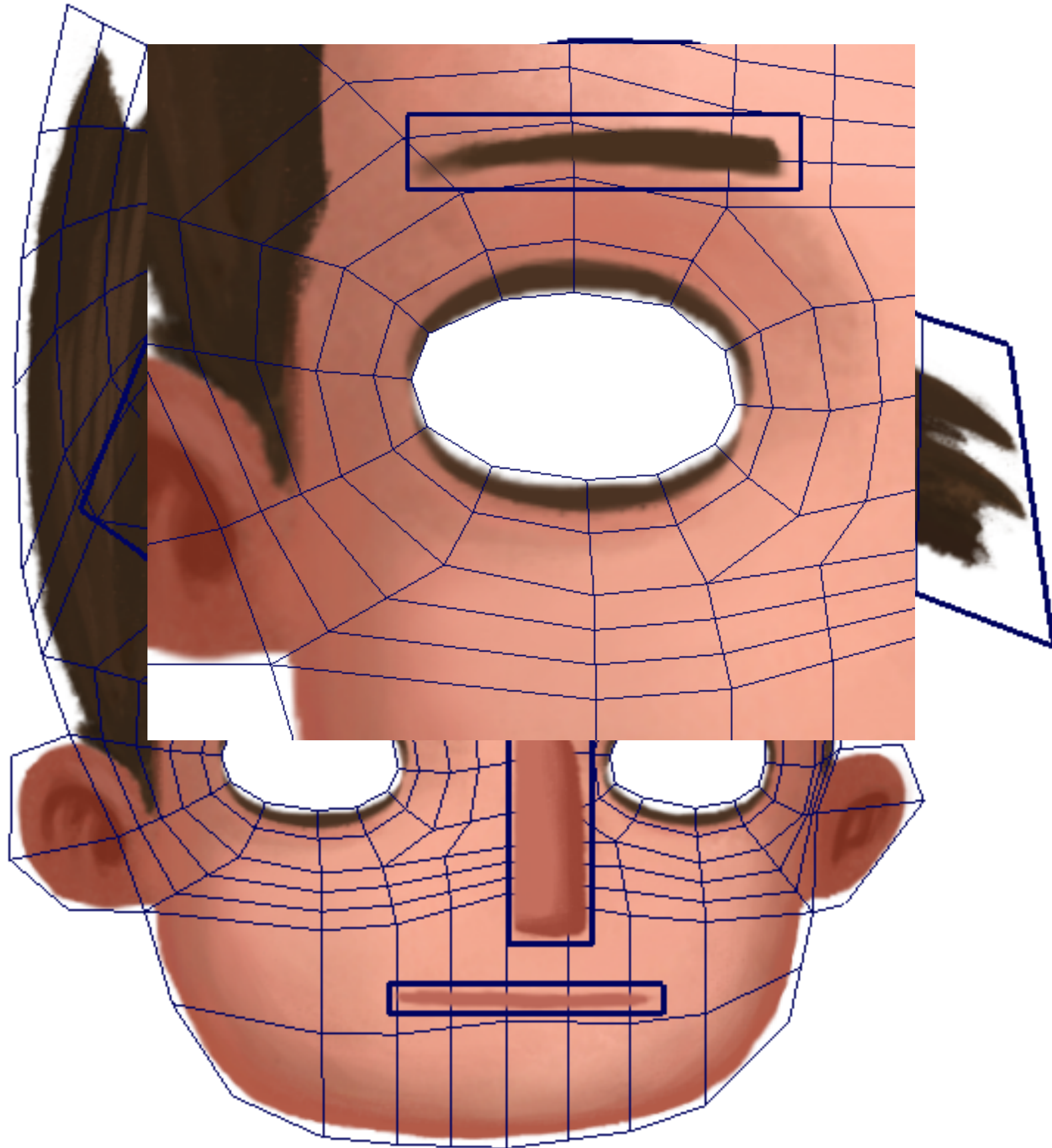
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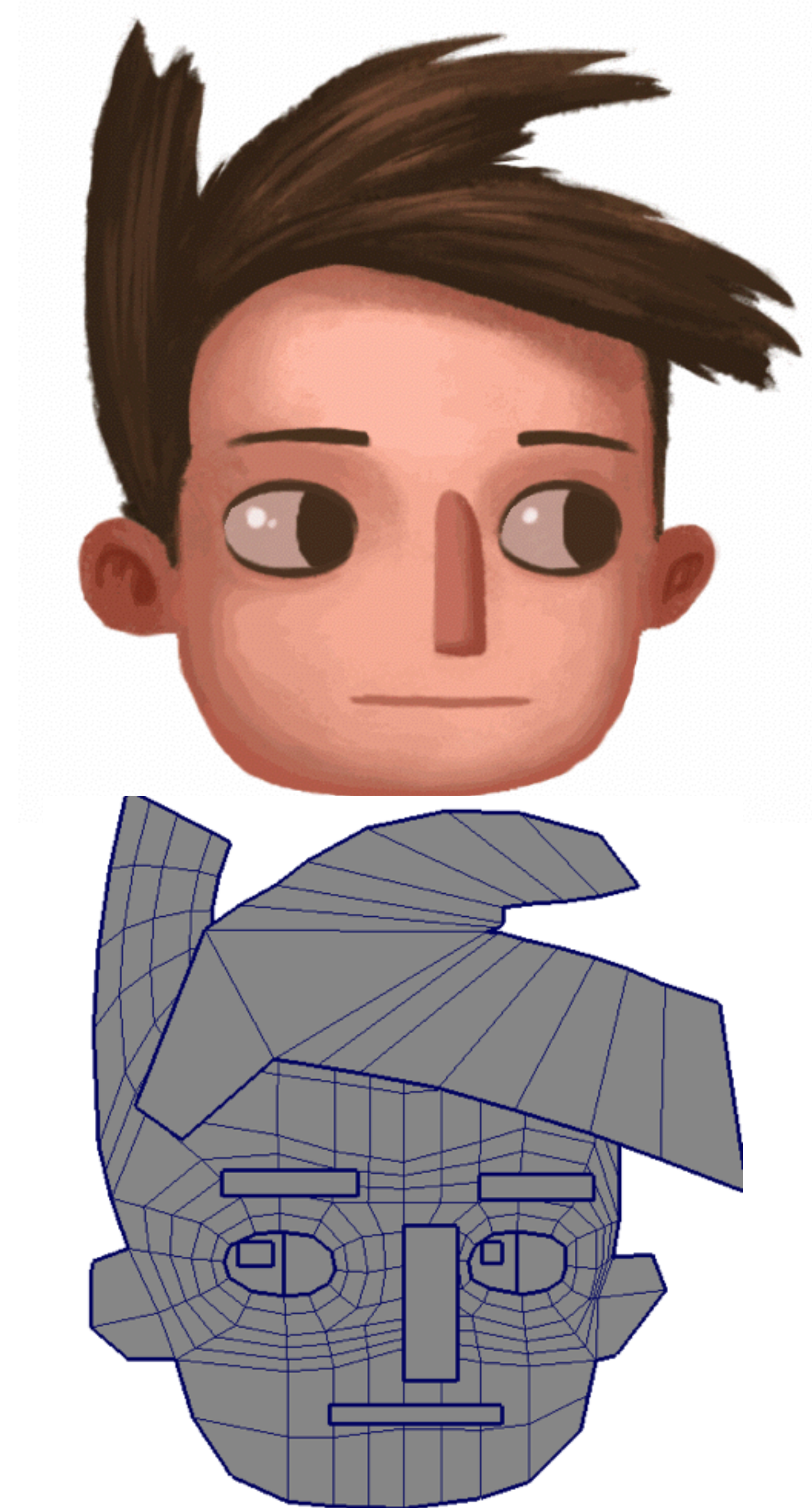
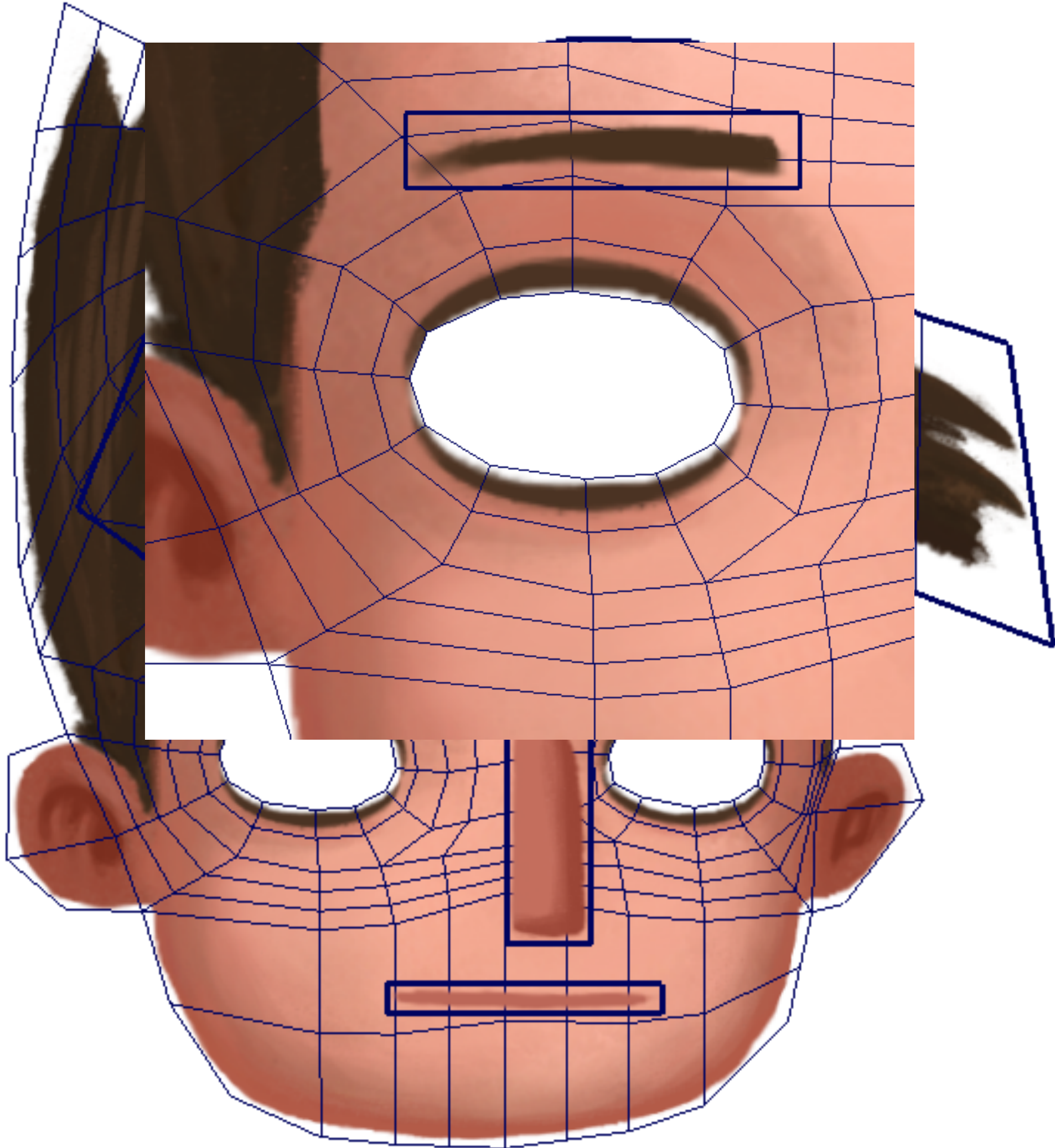
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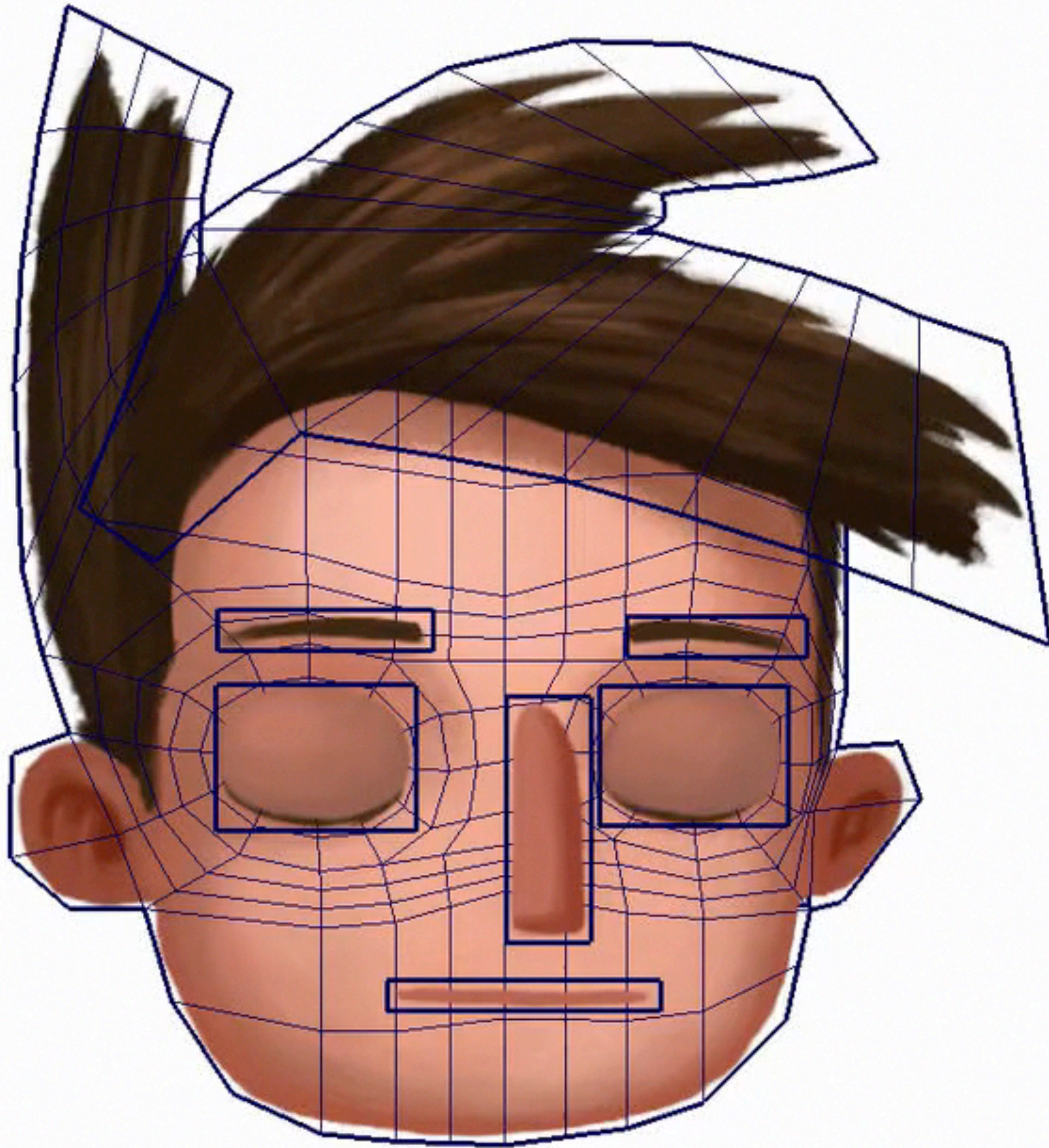




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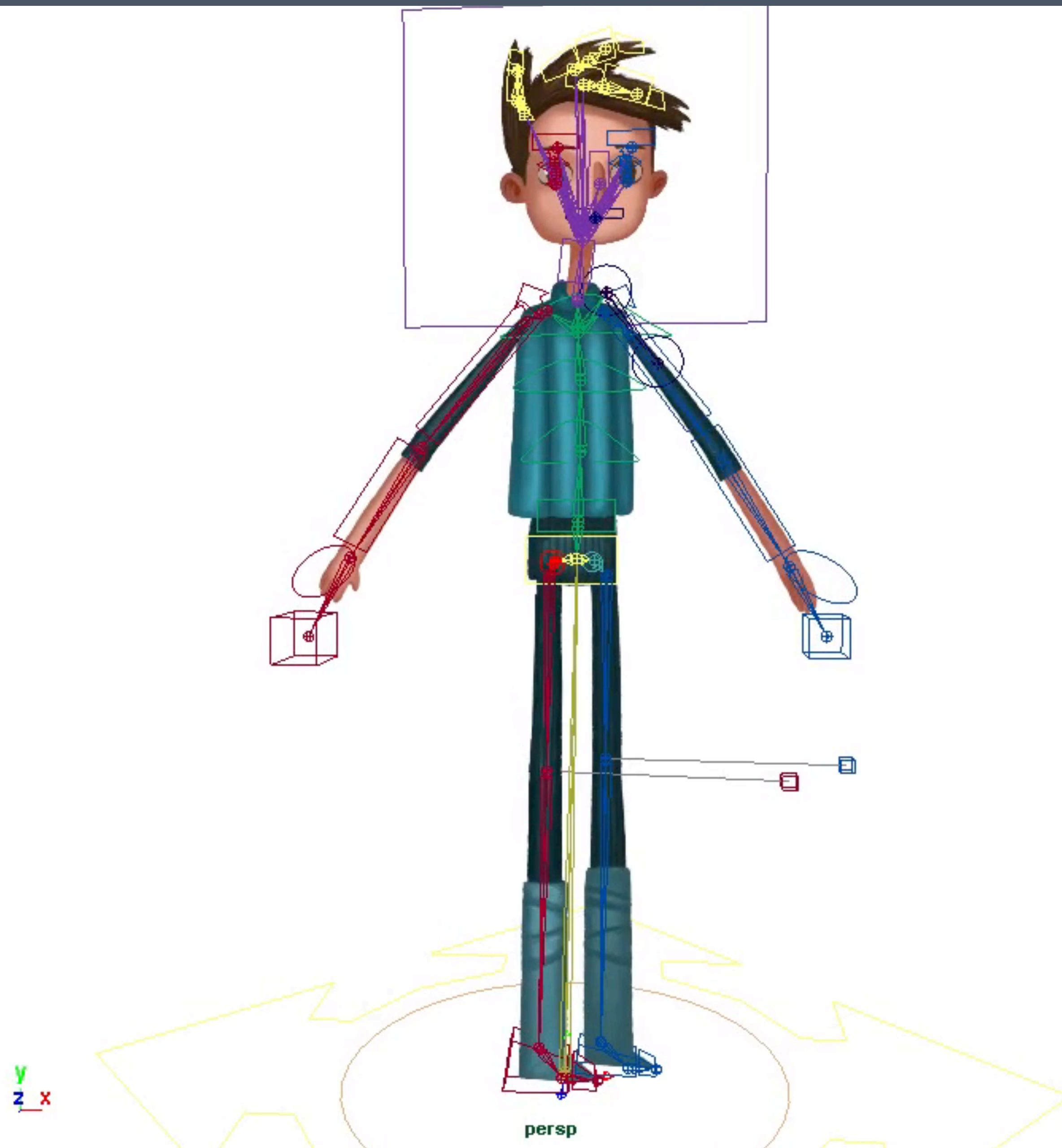
# Rigging a Character





# Rigging a Character

**20-60 Joints**







# Flipbook Animation







# Flipbook Animation







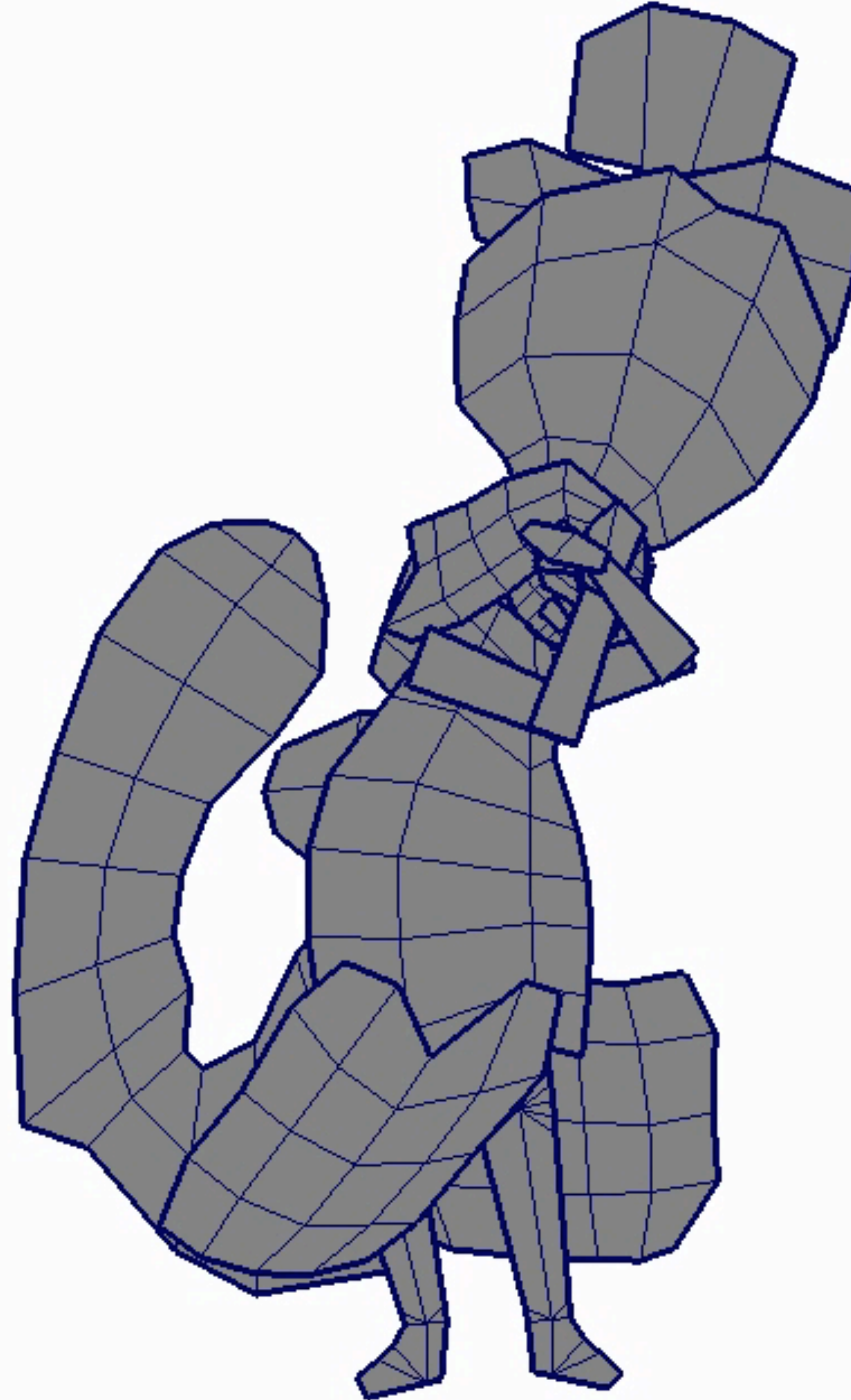
# Flipbook Animation



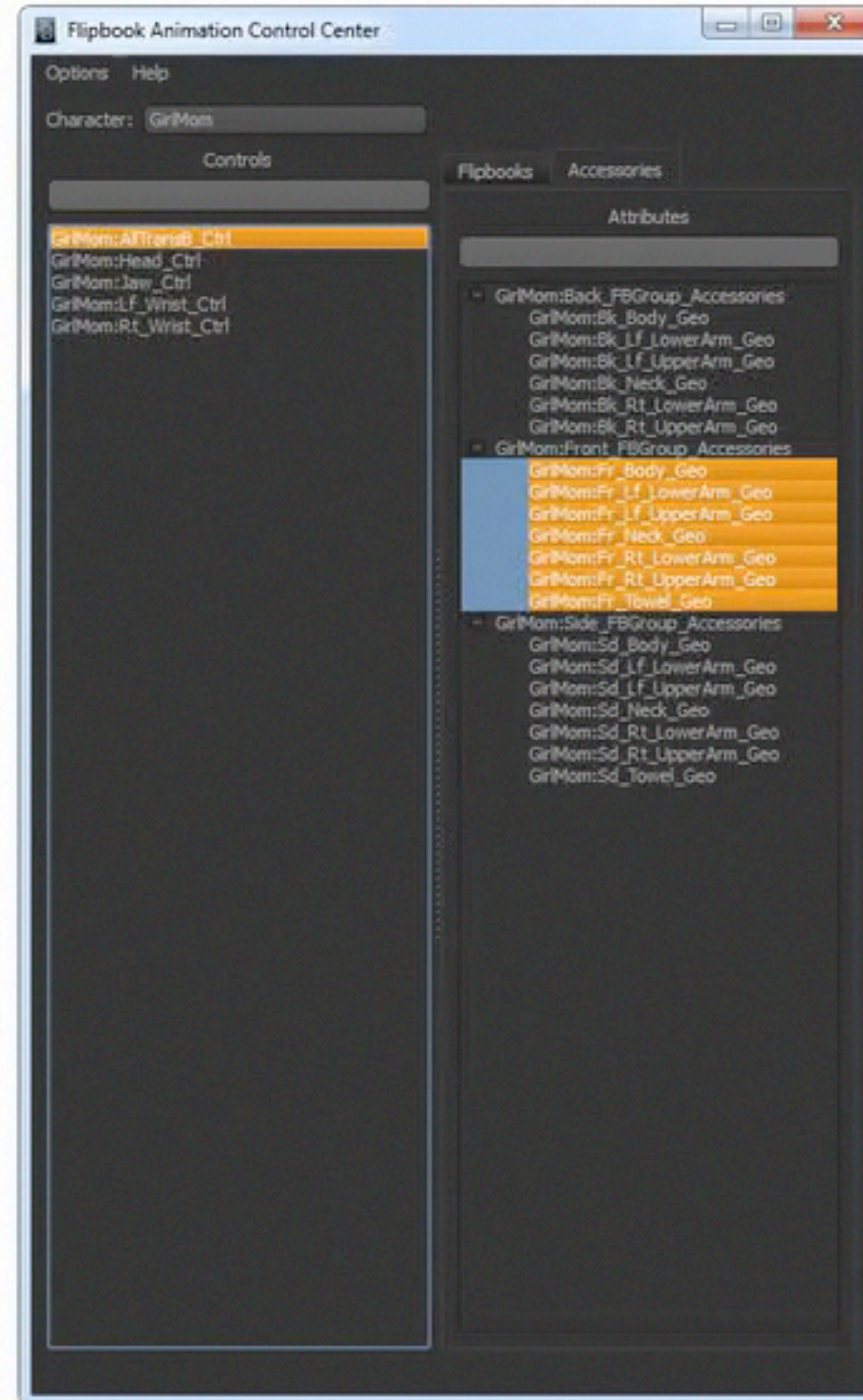
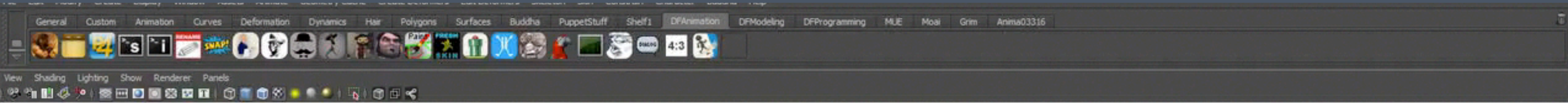




# Flipbook Animation











# Head/Facial Setup

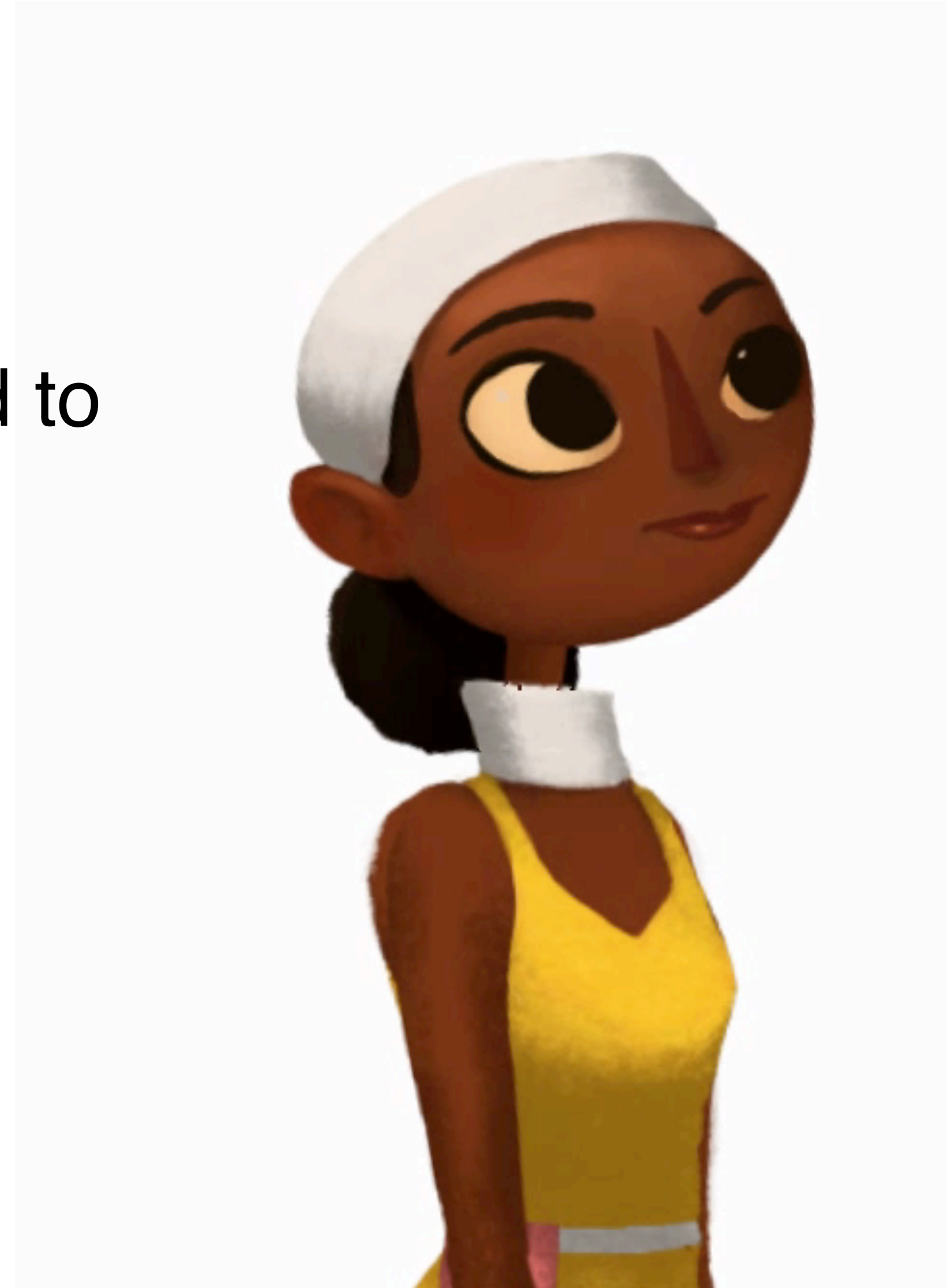
- Nose, Jaw, Eye Sockets, Eyebrows, Pupils are bound to joints
- Eyelids and Mouth have Flipbooks
- World Orientation





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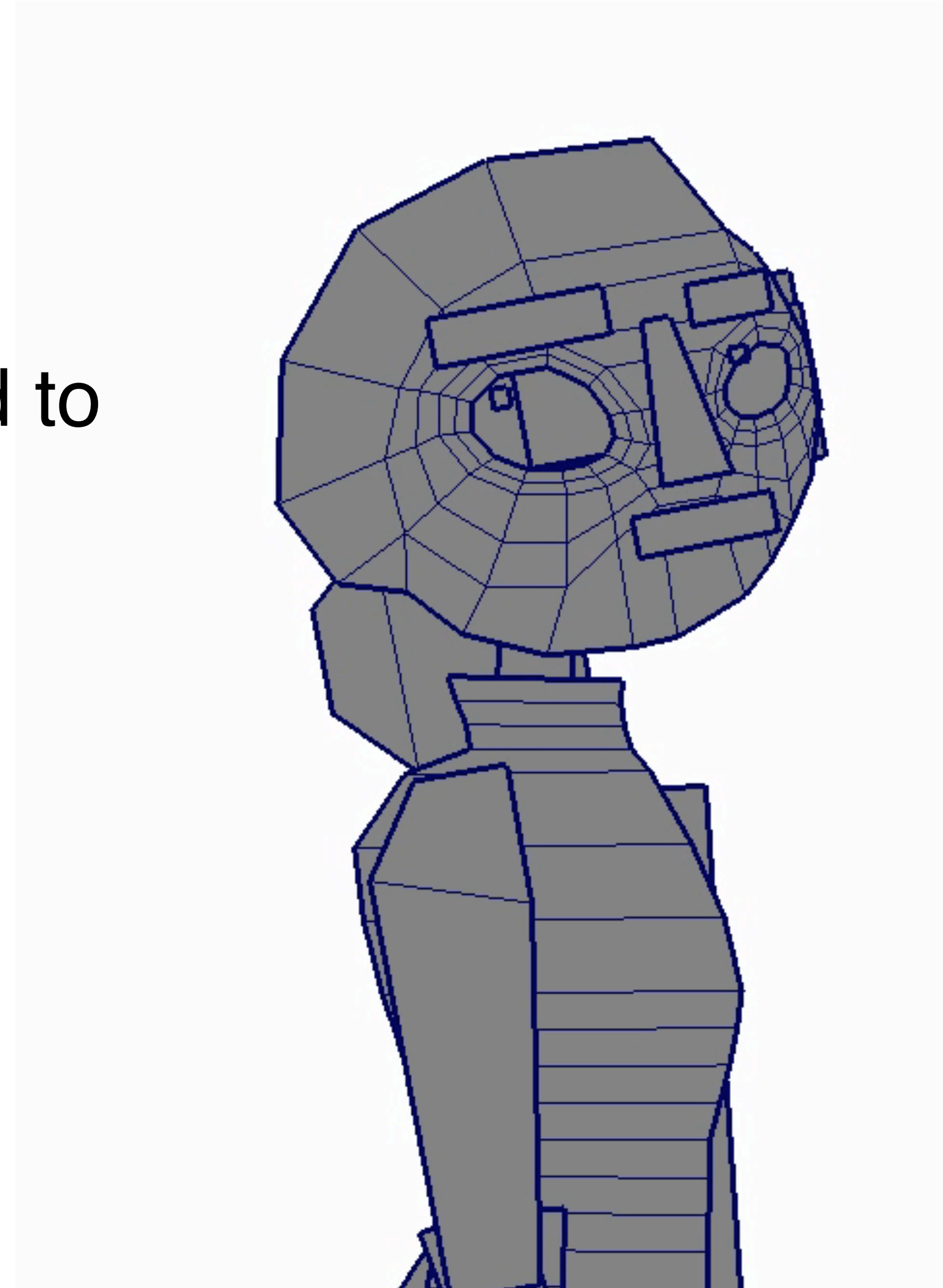






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# Viseme Set

- Flipbook Visemes
- Front View only



AH



EE



OH



U



MBP



CH



FV



consonant



TH



LL



neutral



smile



frown





# Viseme Set

- Flipbook Visemes
- Front View only







# Animation Types

- Fully Animated Cutscenes and Vignettes
- Scripted Cutscenes
  - Built using “canned” animation
- Stance Animation





# Cutscenes and Vignettes

































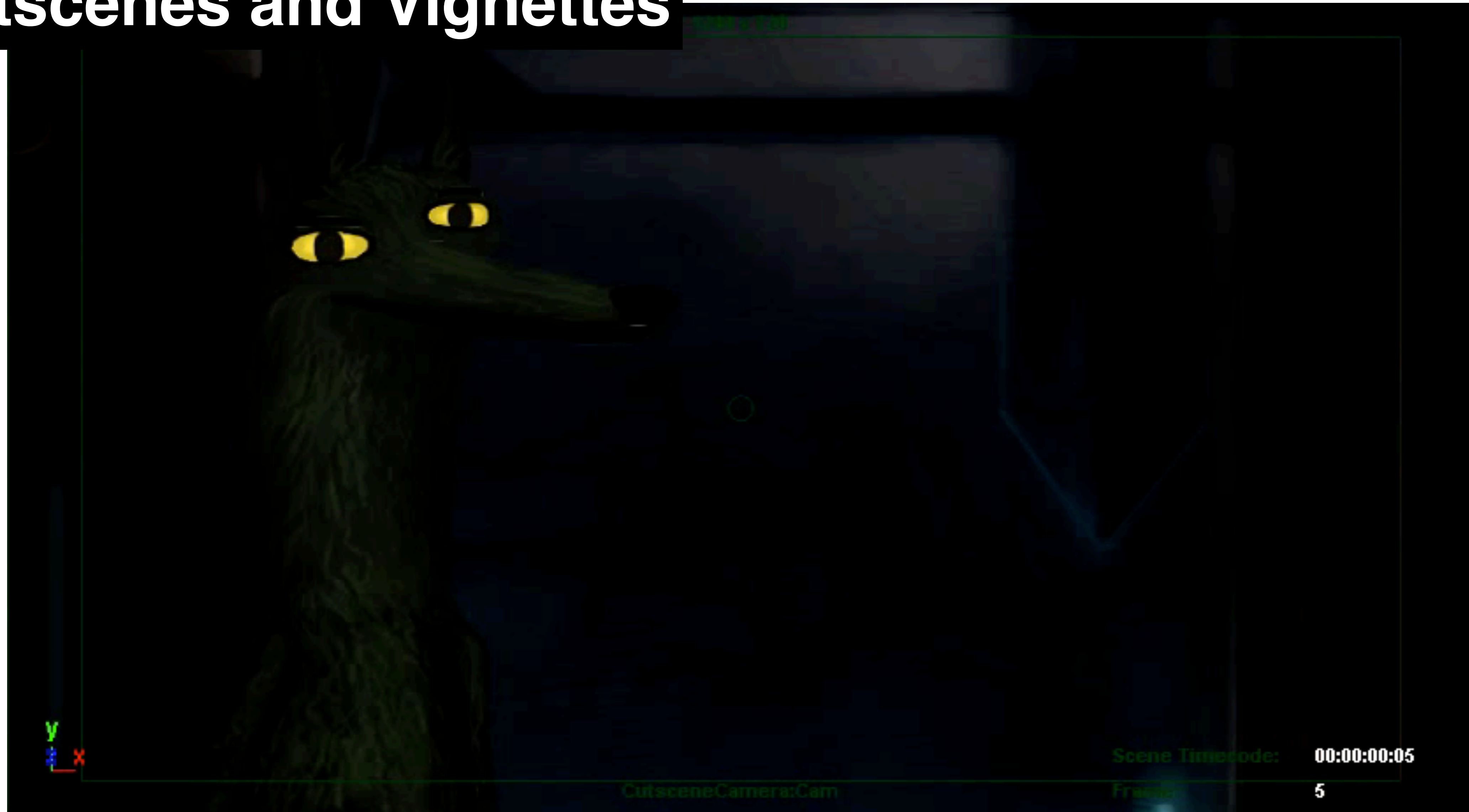






# Cutscenes and Vignettes

## Layout Pass

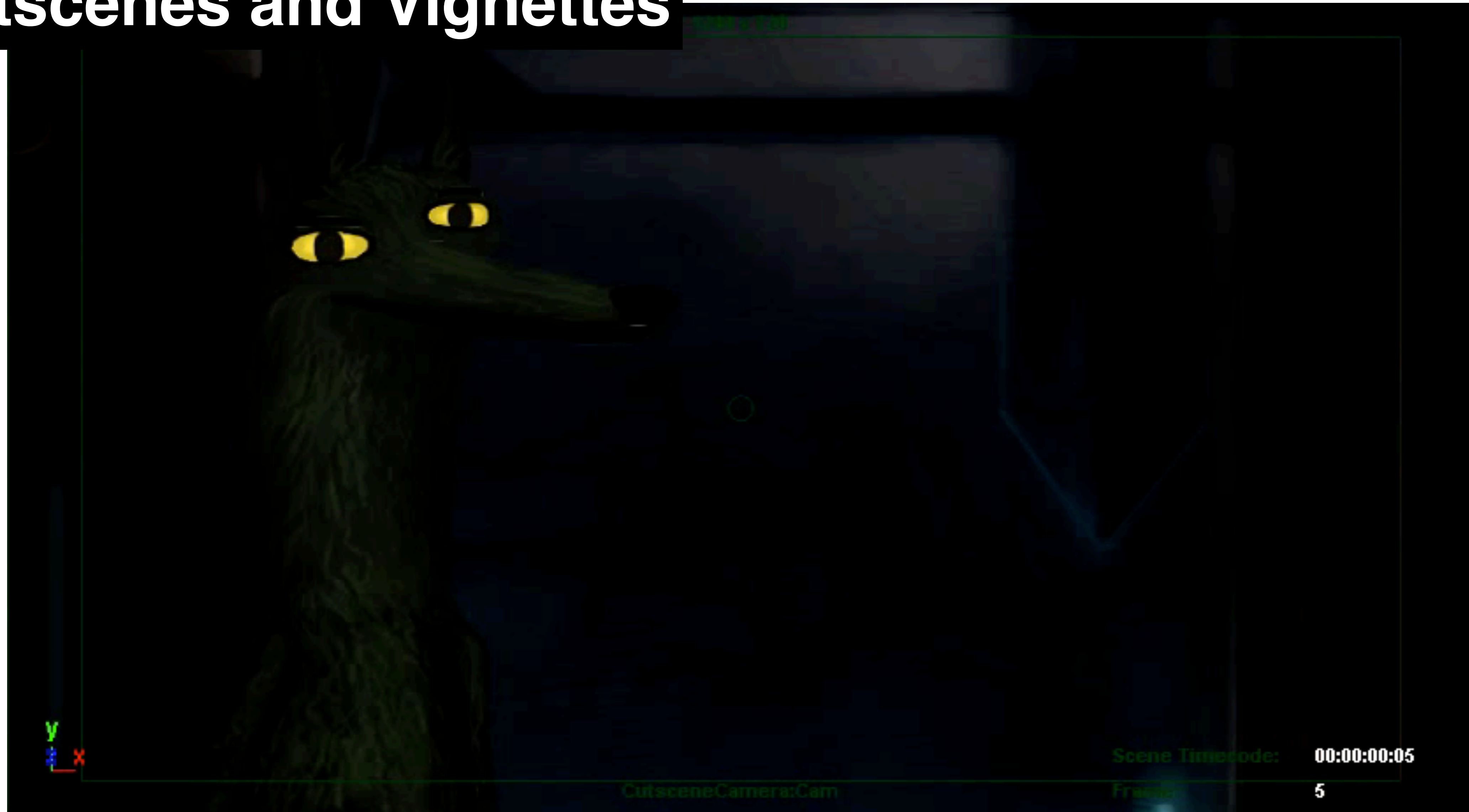






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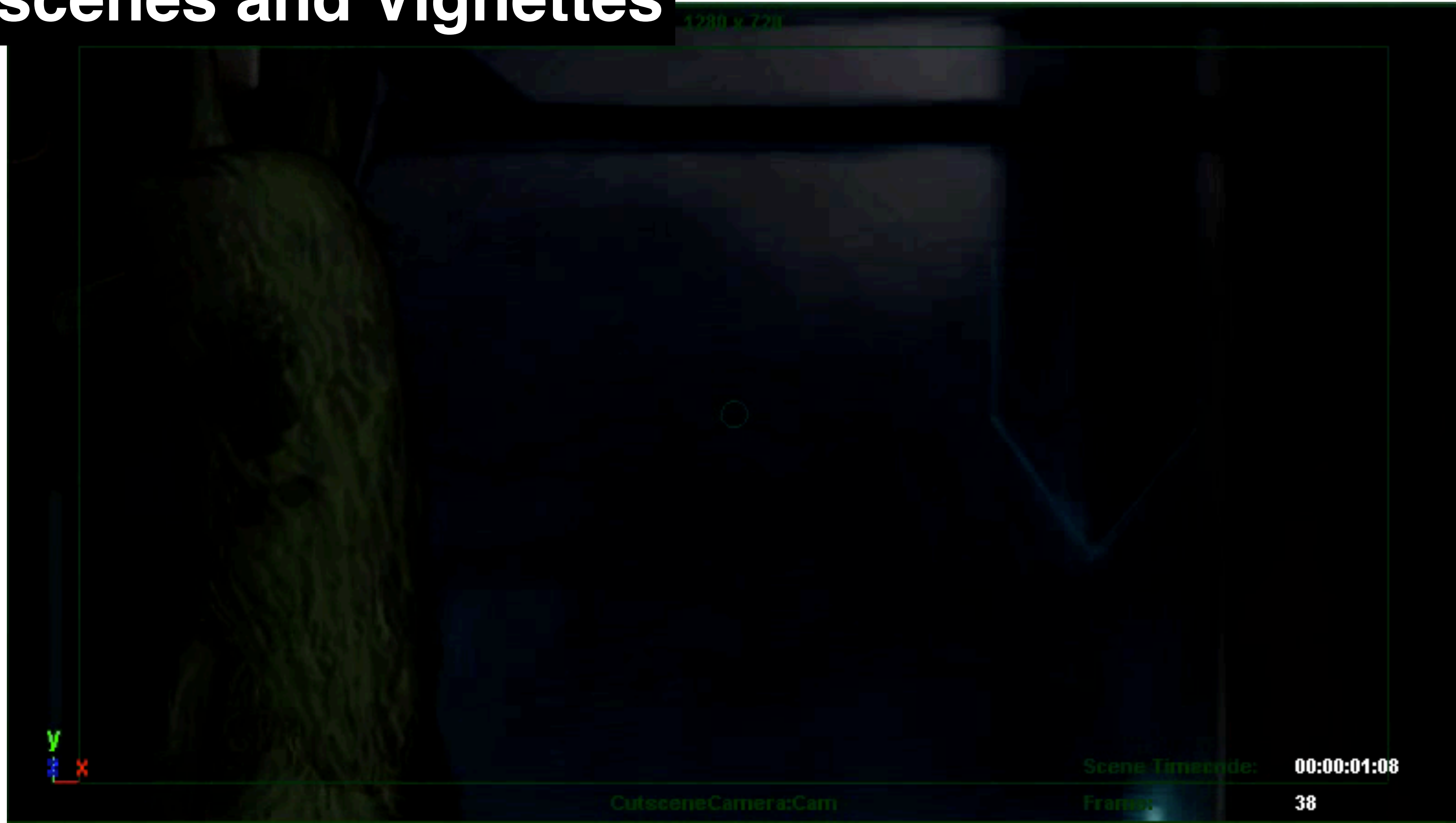






# Cutscenes and Vignettes

## Blocking Pass

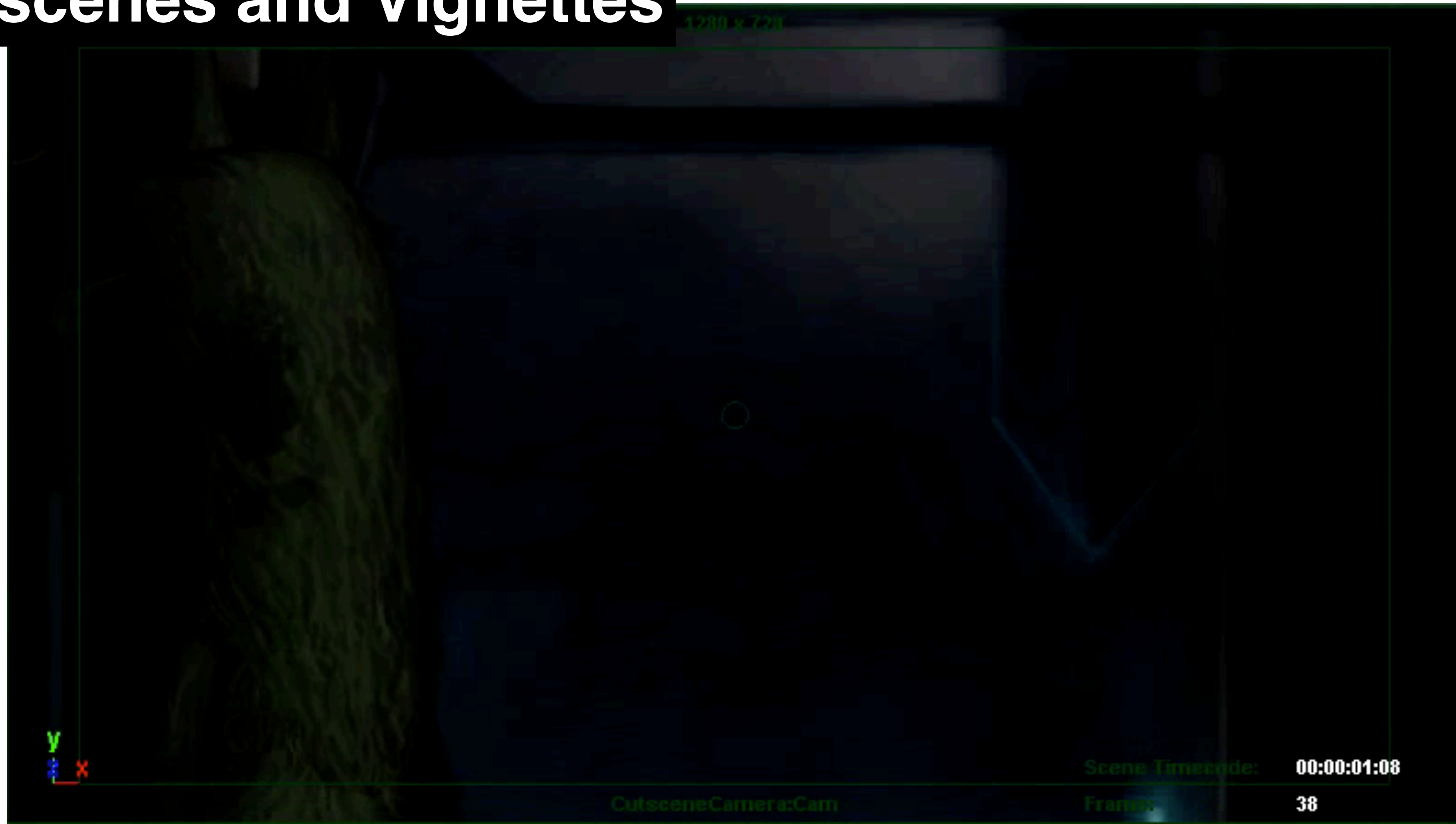






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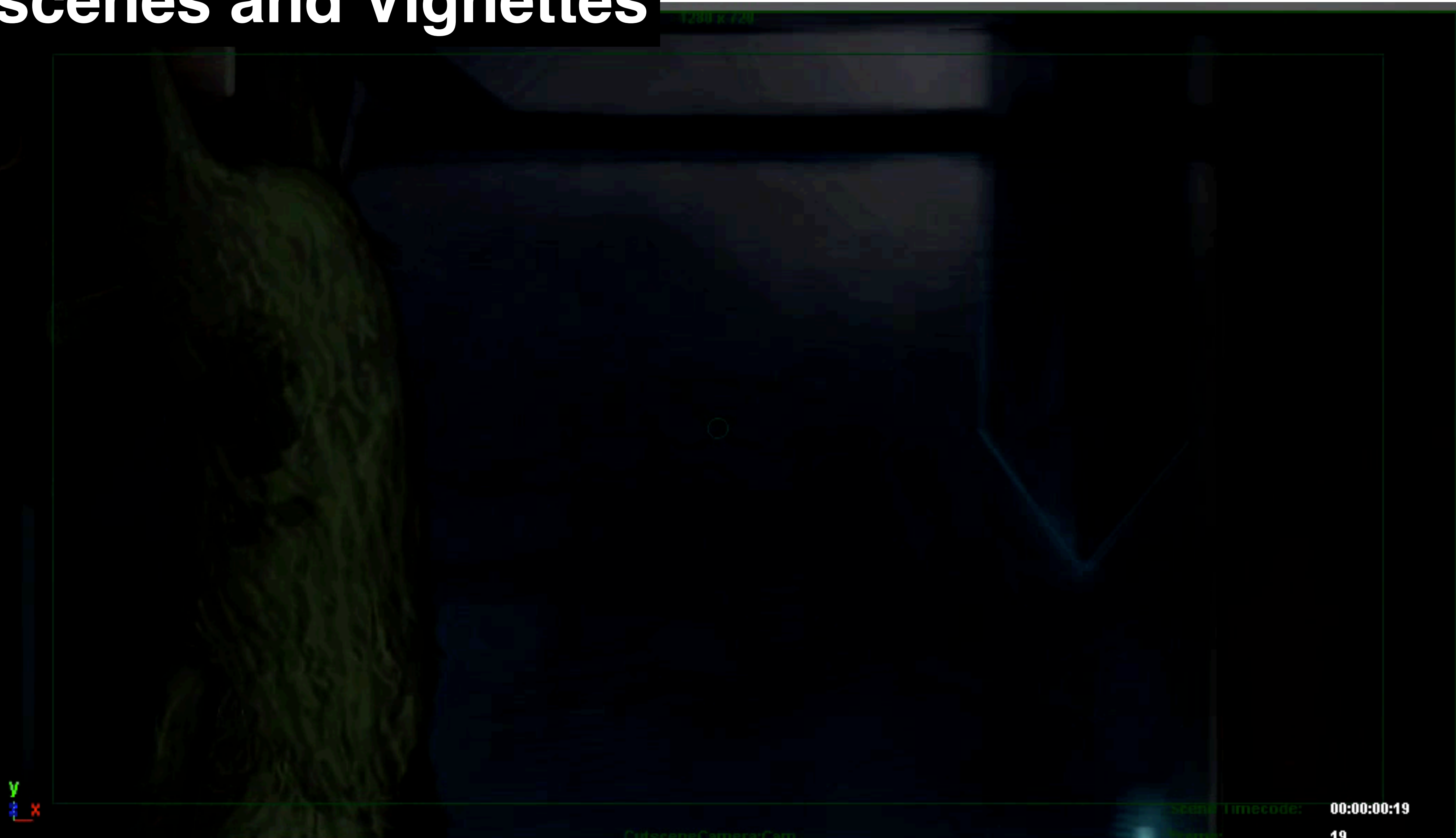






# Cutscenes and Vignettes

## Polish Pass

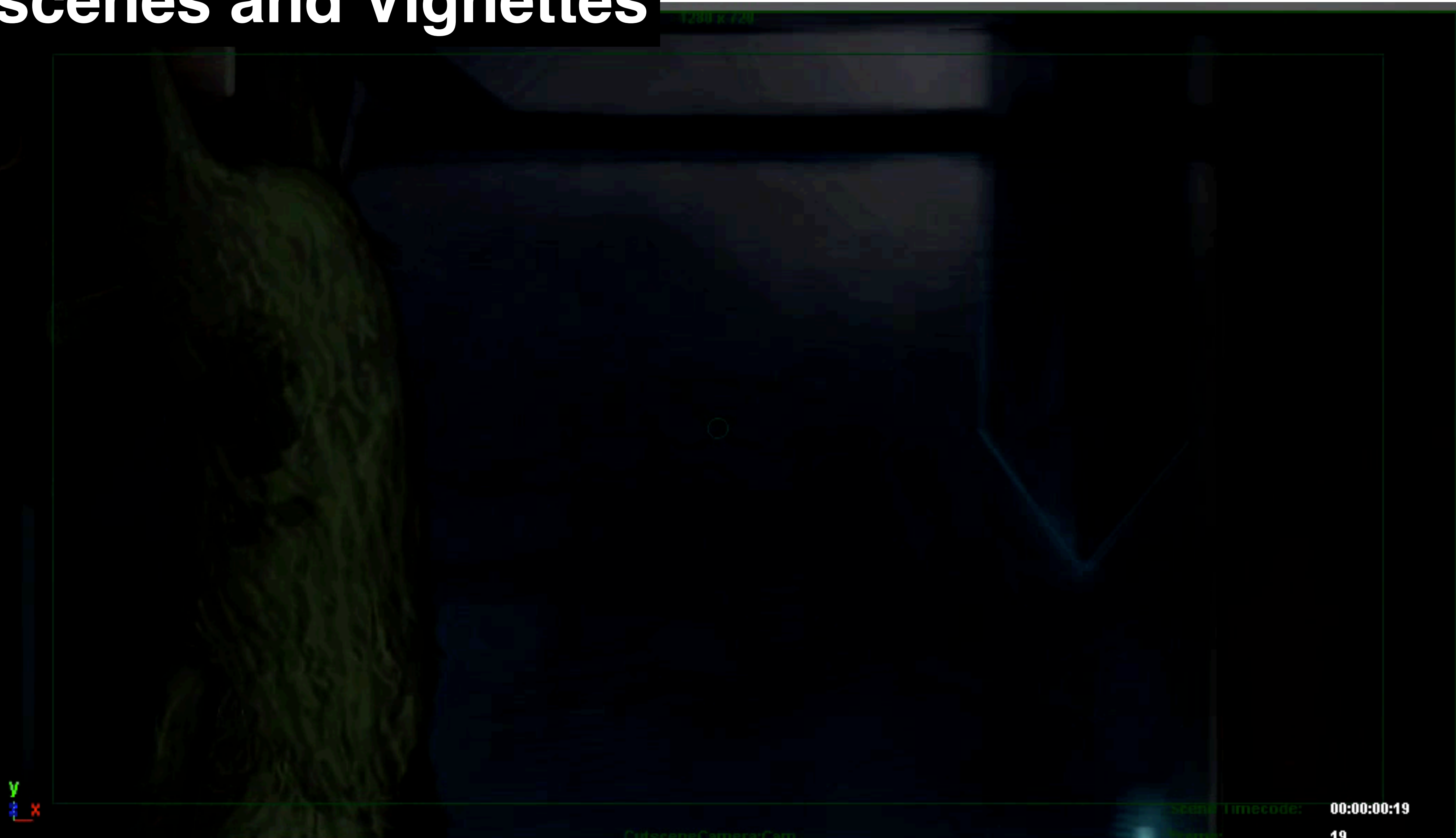






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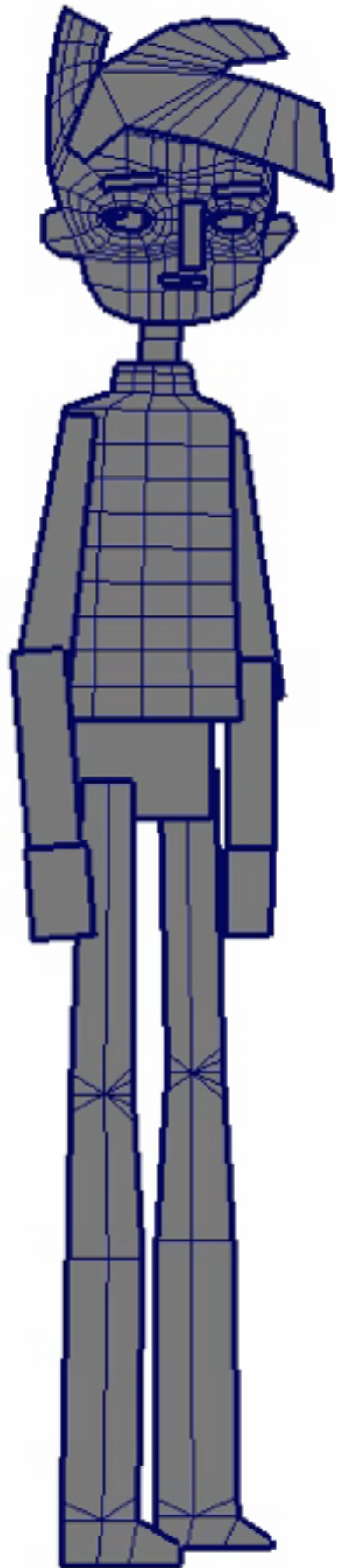






# Scripted Cutscenes

Pre-Authored Talk Animation  
Pre-Authored Gesture Animation



Nod Positive



130 Frames



Shrug



40 Frames



Point Back 90 Frames

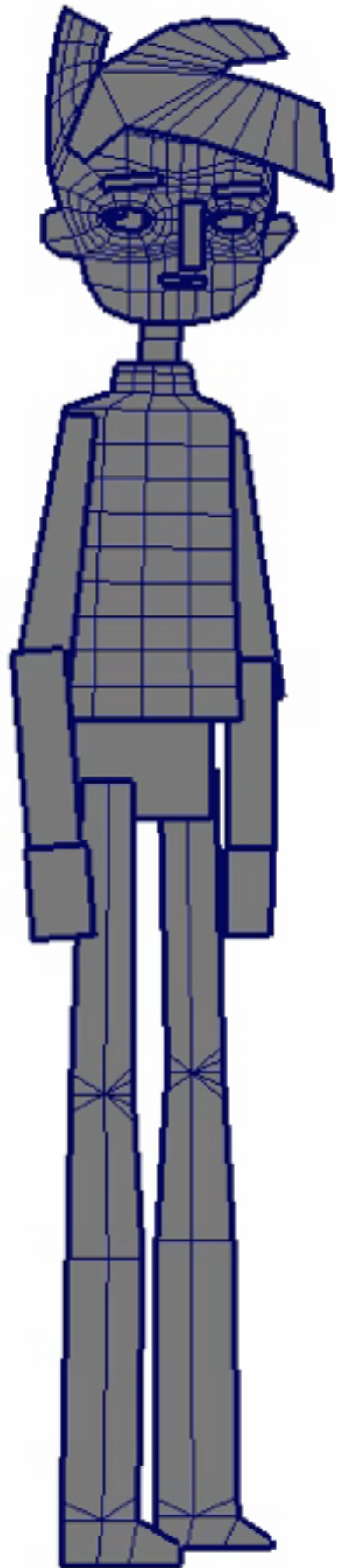






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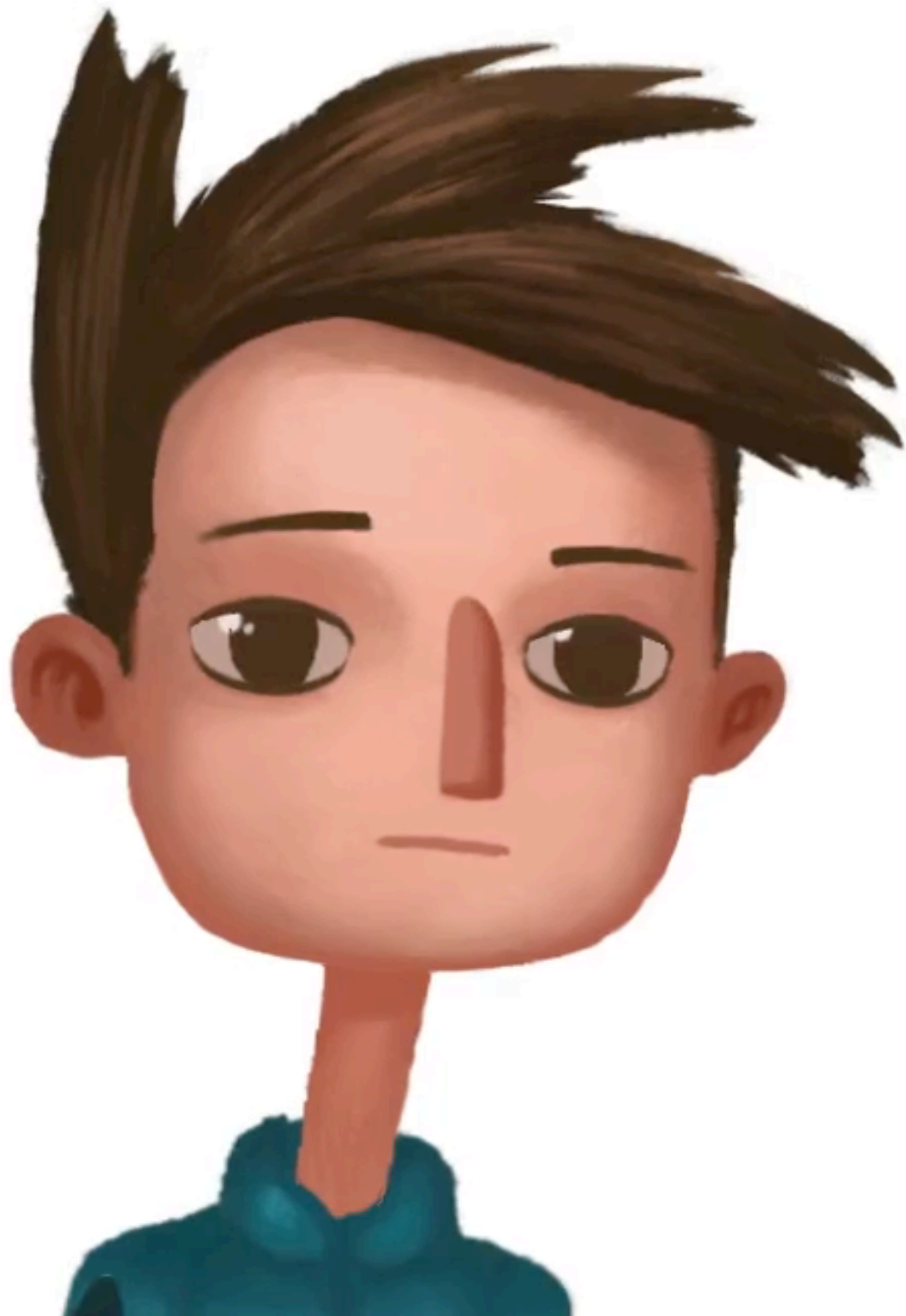






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# Scripted Cutscenes



Cutscene Editor - (not connected) - TramPreenerDT1-9 [read-only] - [TramPreenerDT1-9 [read-only]]

File Dialog Window Tools

	f	10f	20f	30f	40f	50f	60f	70f	80f	90f	100f	110f	120f	130f	140f	150f	160f	170f	180f	190f	
global	Lock Controls																				
camera	Switching Camera to: Cam Vella CloseUp				Switching Camera to: Cam TwoShot								Switching Camera to: Cam Maggie CloseUp								
logic																					
Girl	Create Entity		Play Anim: Characters/Girl/Animations/Fnt_Breathe_LookDown.anim																		
	Play Anim: Characters/Girl/Animations/Fnt_DialogEmotions_ShiftyEyes.anim																				
	Your Dad's pretty creepy.																				
TramPreener	Create Entity		He wasn't before he joined this CULT!										Play Anim: Characters/PreenerTram/Animations/Fnt_Gesture_Shrug.anim								
	Play Anim: Characters/PreenerTram/Animations/Fnt_Idle_PreenFeathers.anim										Play Anim: Char										
													Play Anim: Characters/PreenerTram/Animations/Fnt_Idle_HandOnHip.anim								
																Oh whoops. Did I say that too loud?					









# Auto Lip-Sync





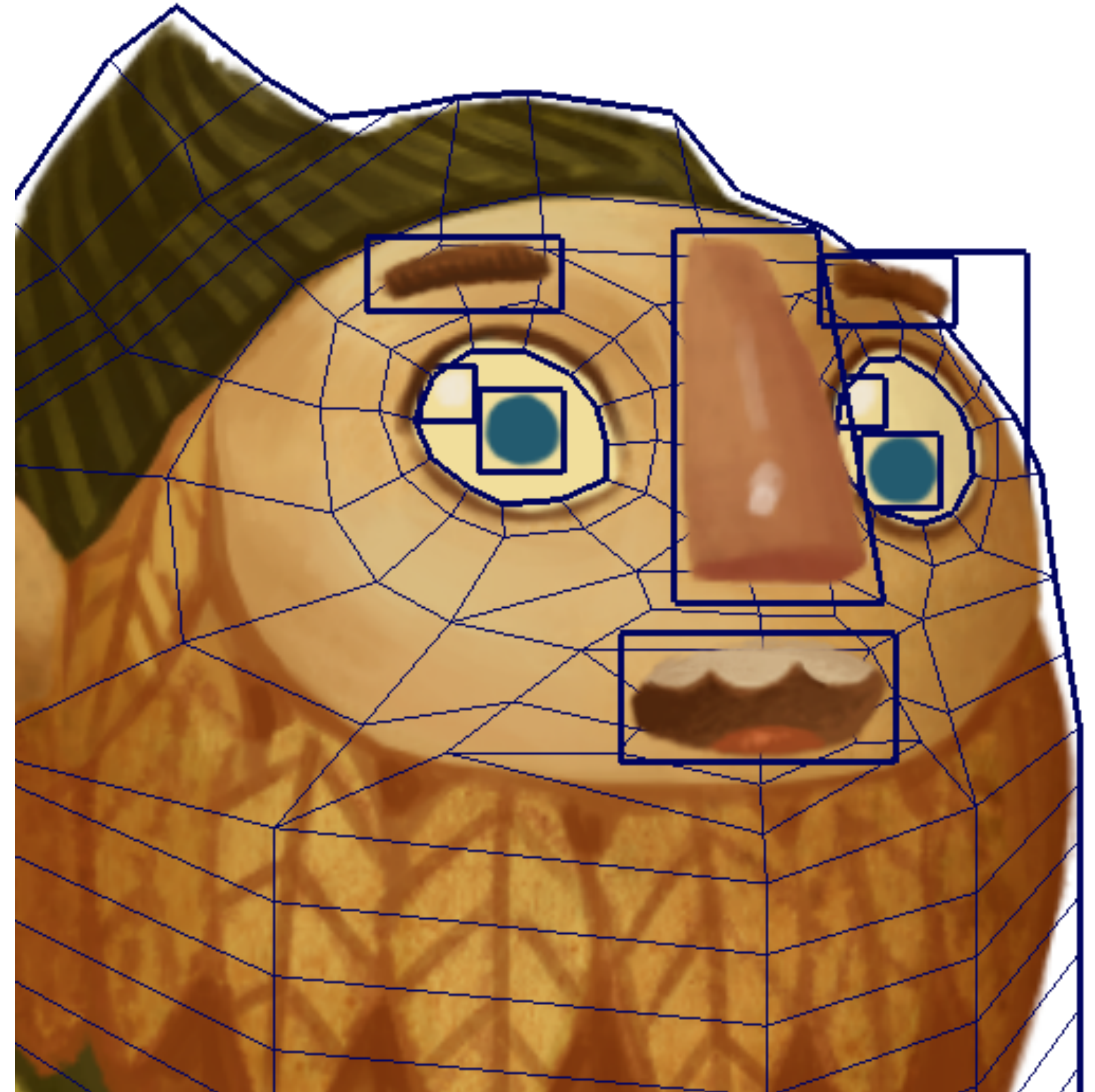
# Auto Lip-Sync



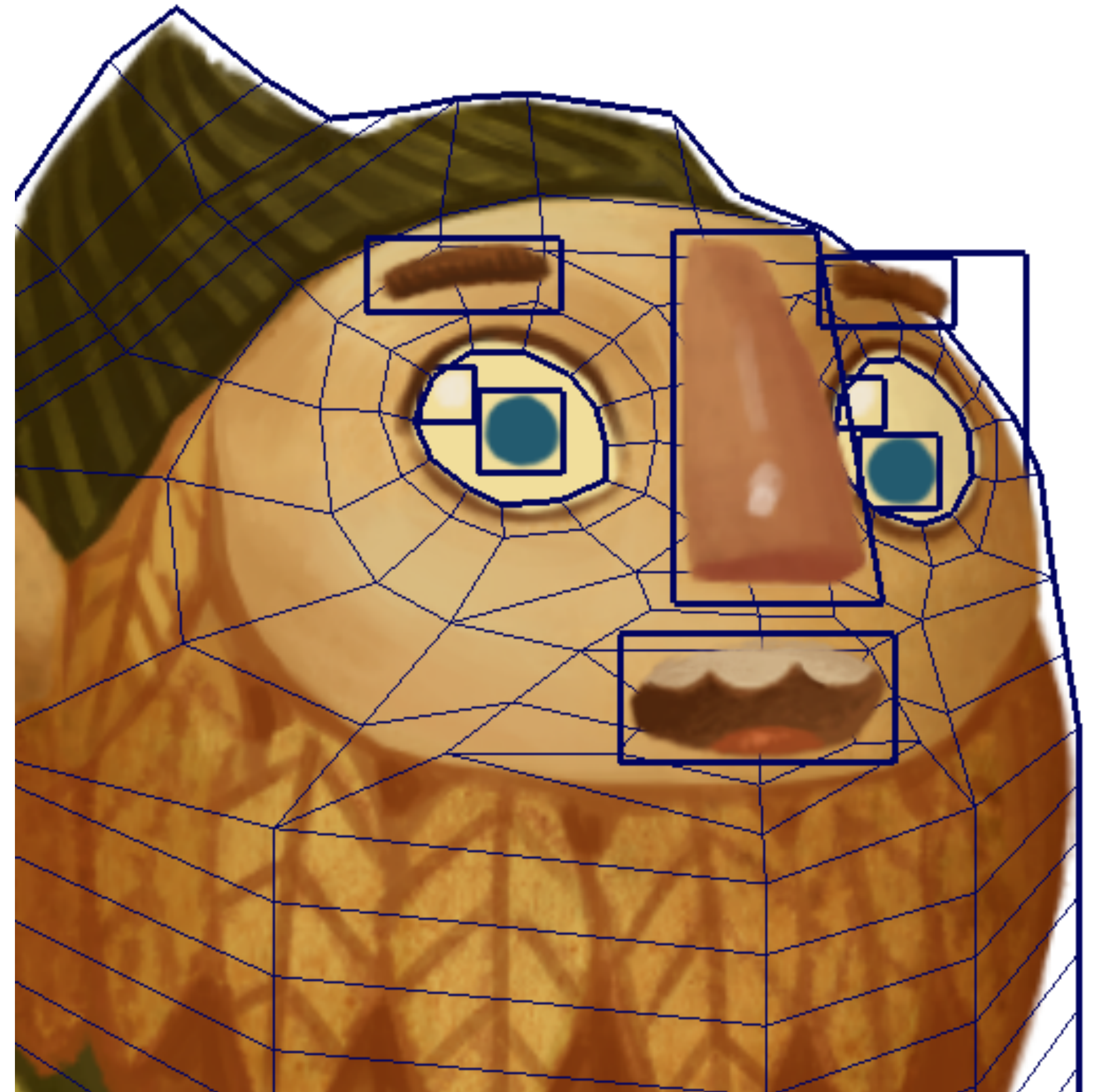




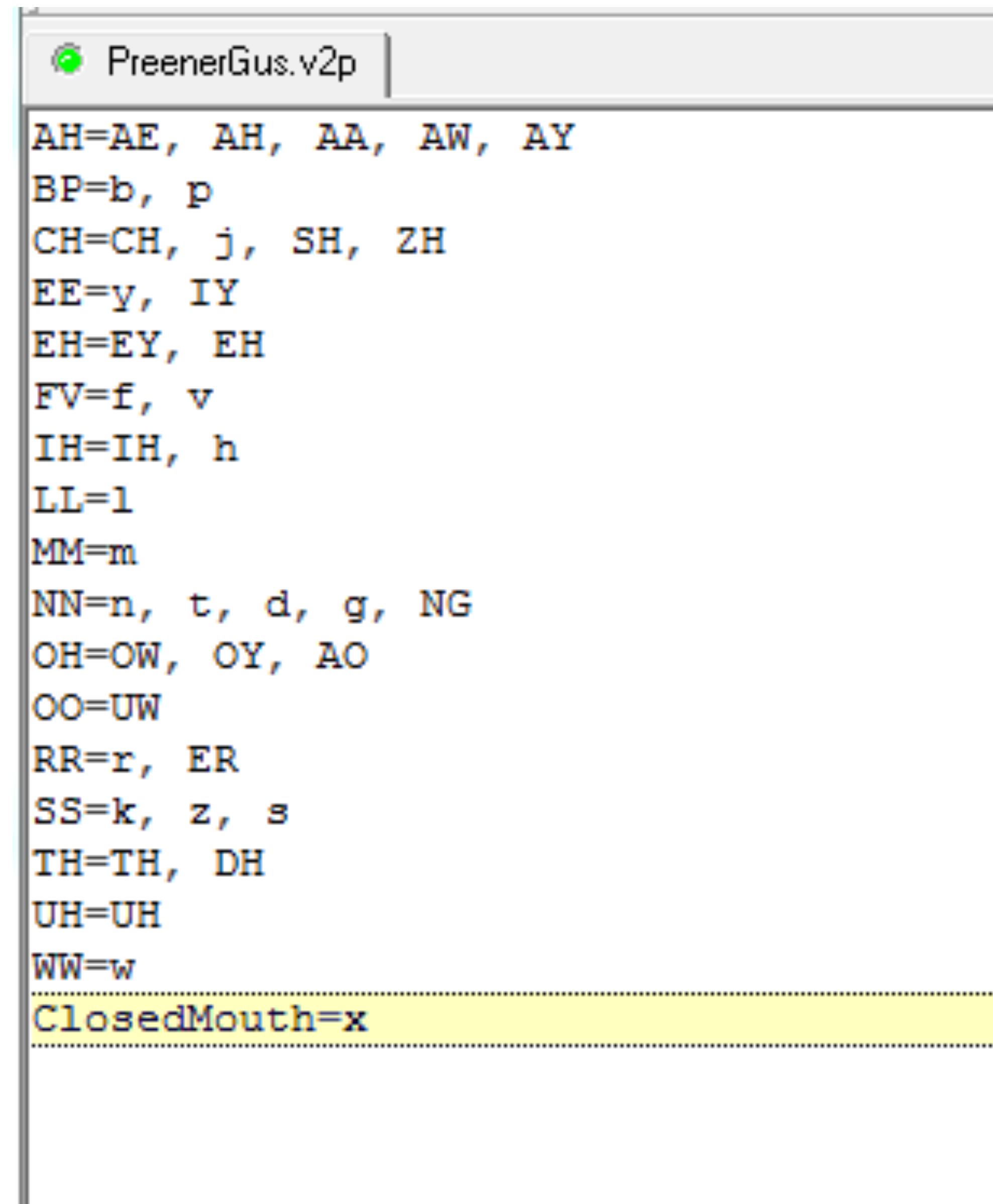
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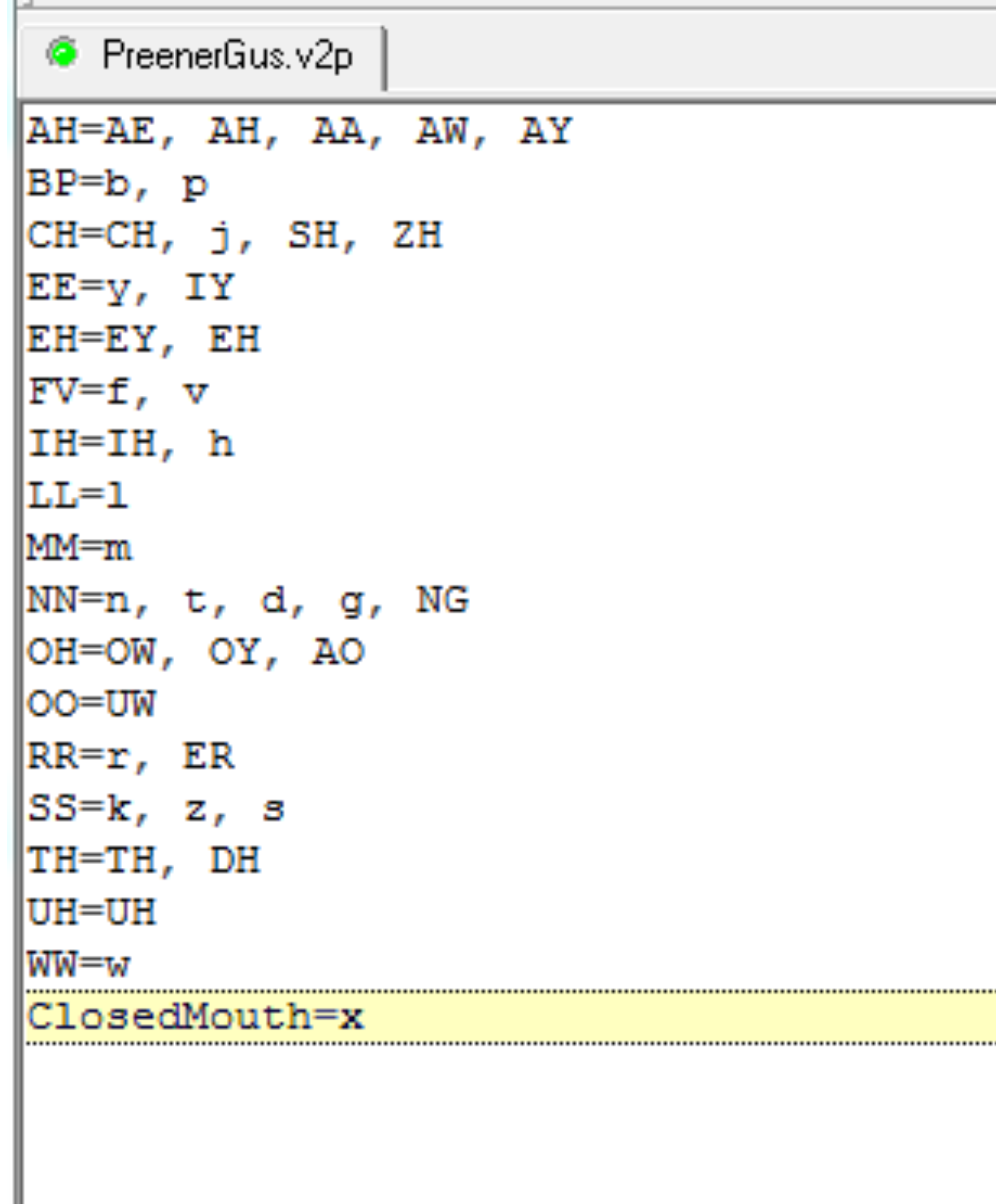
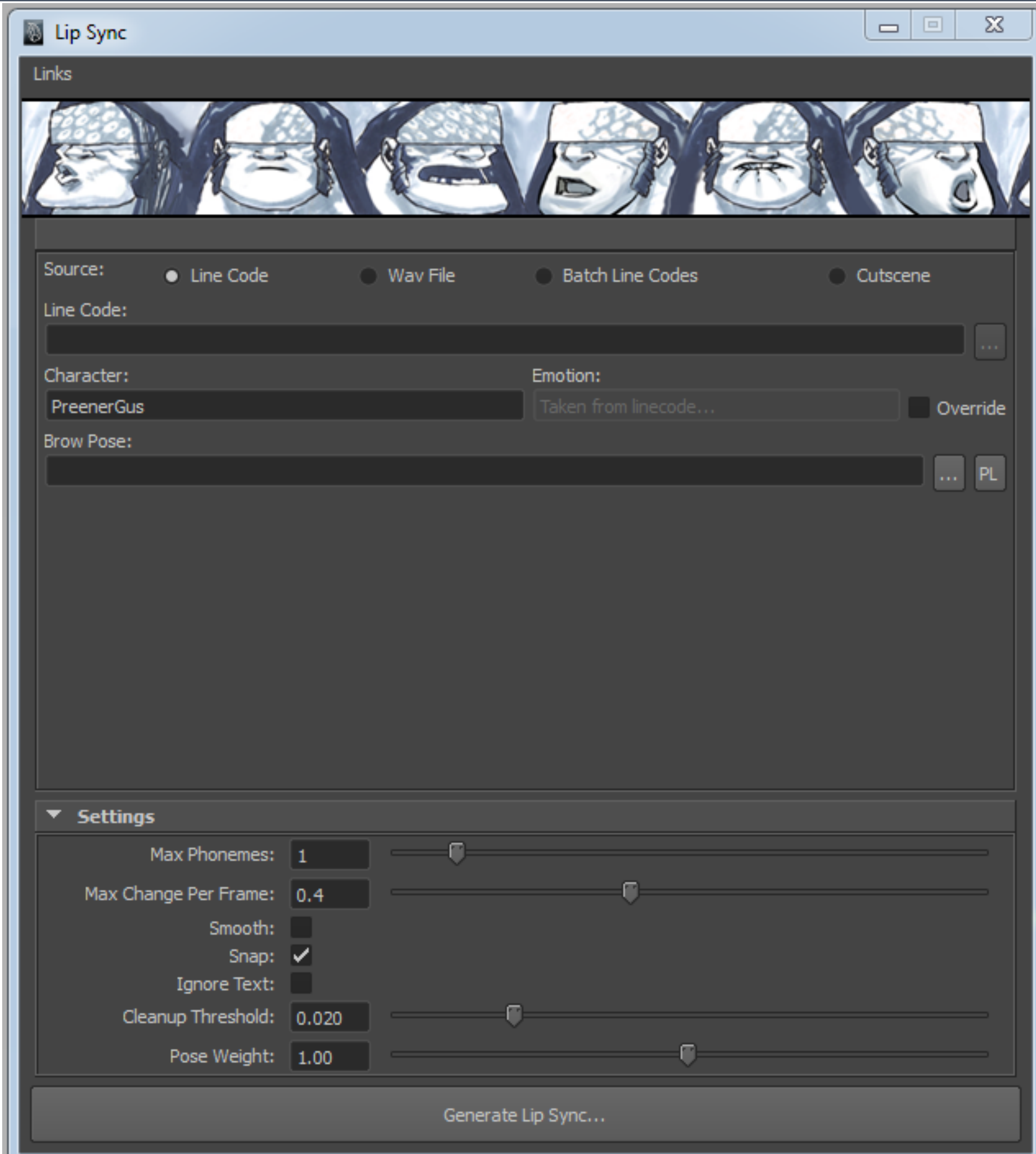




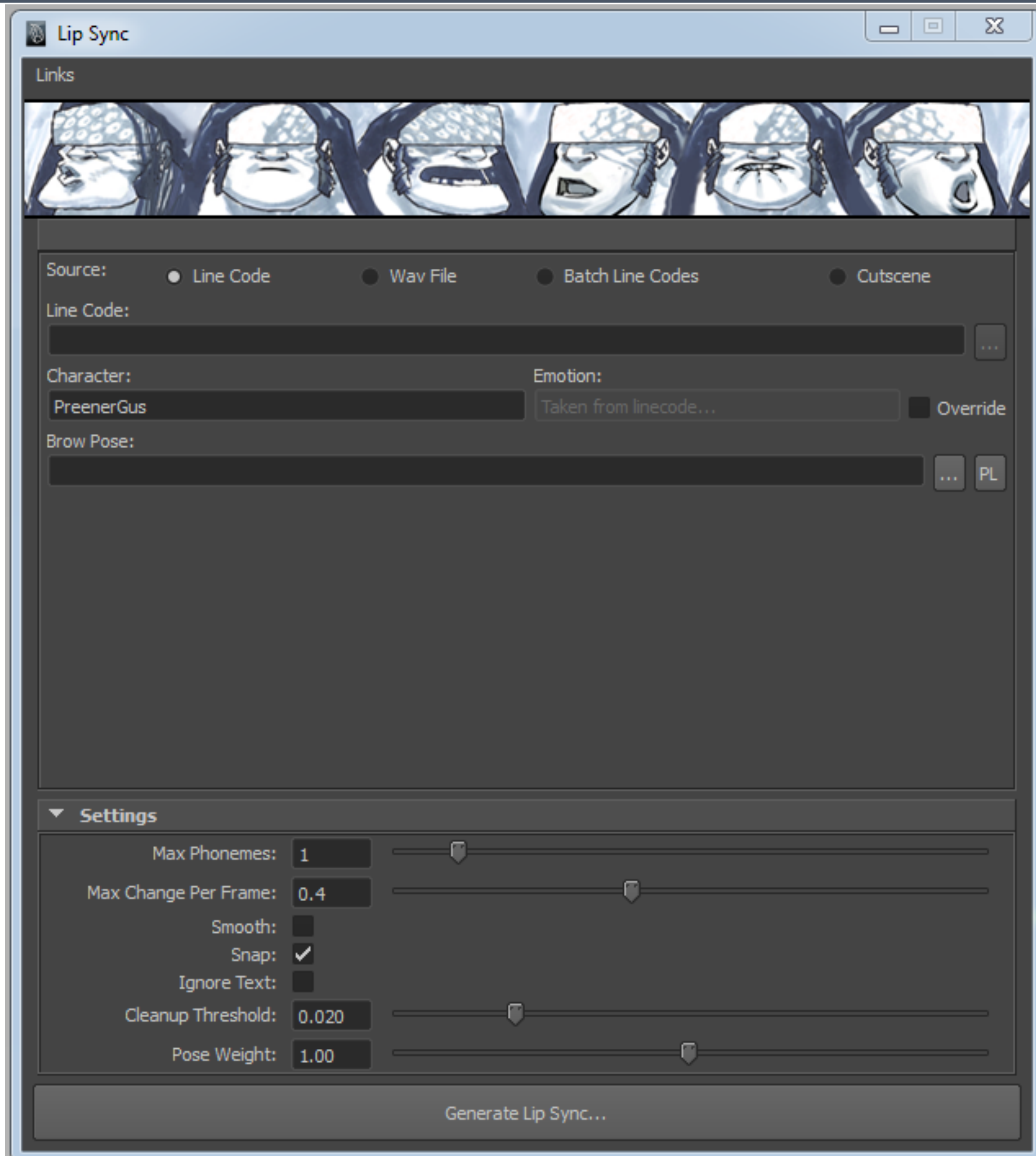




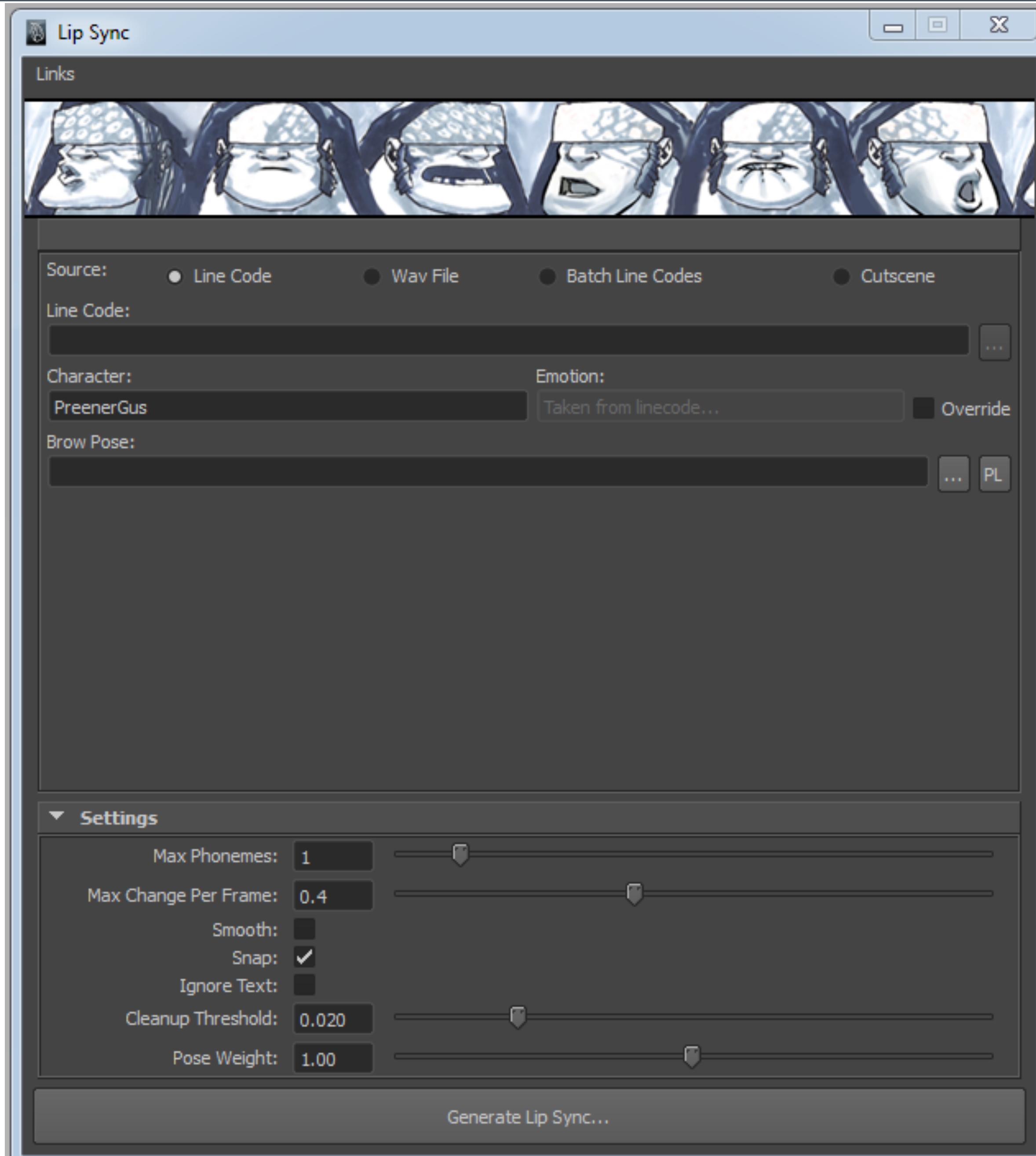
















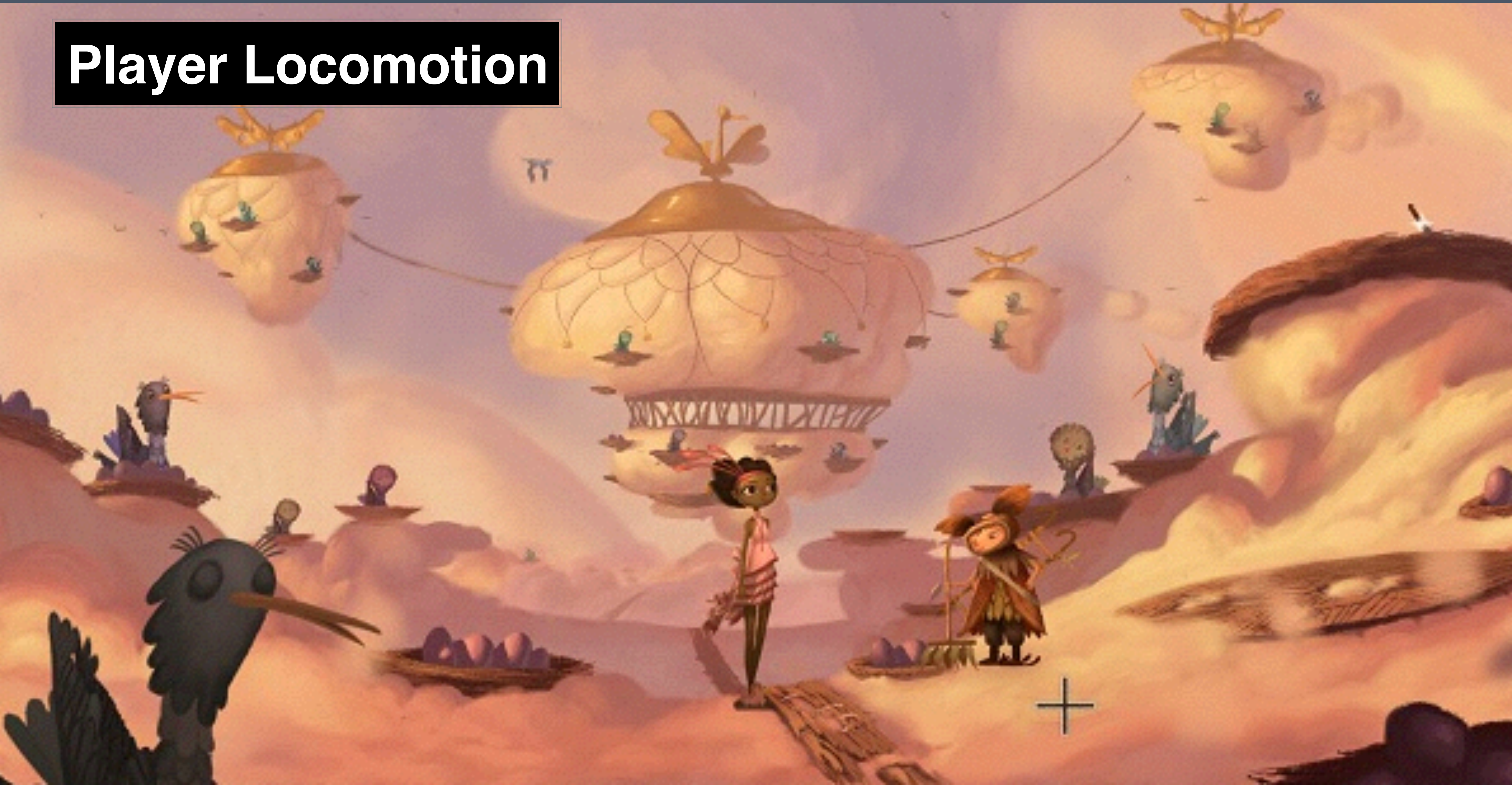
**Anna Kipnis**  
**Dialog Systems in Double Fine Games**  
**Friday 1:30-2:30**  
**Room 3020, West Hall**







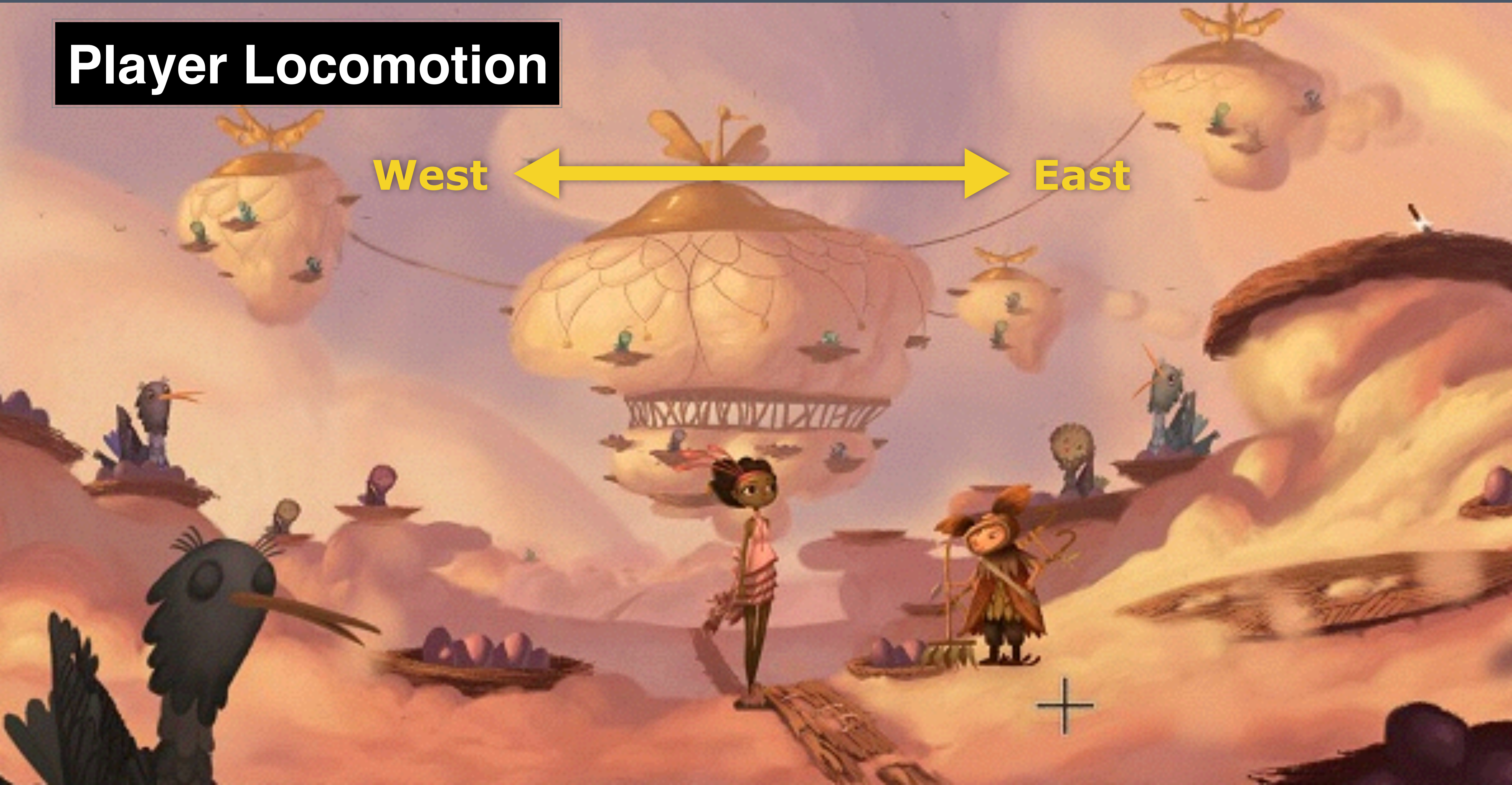
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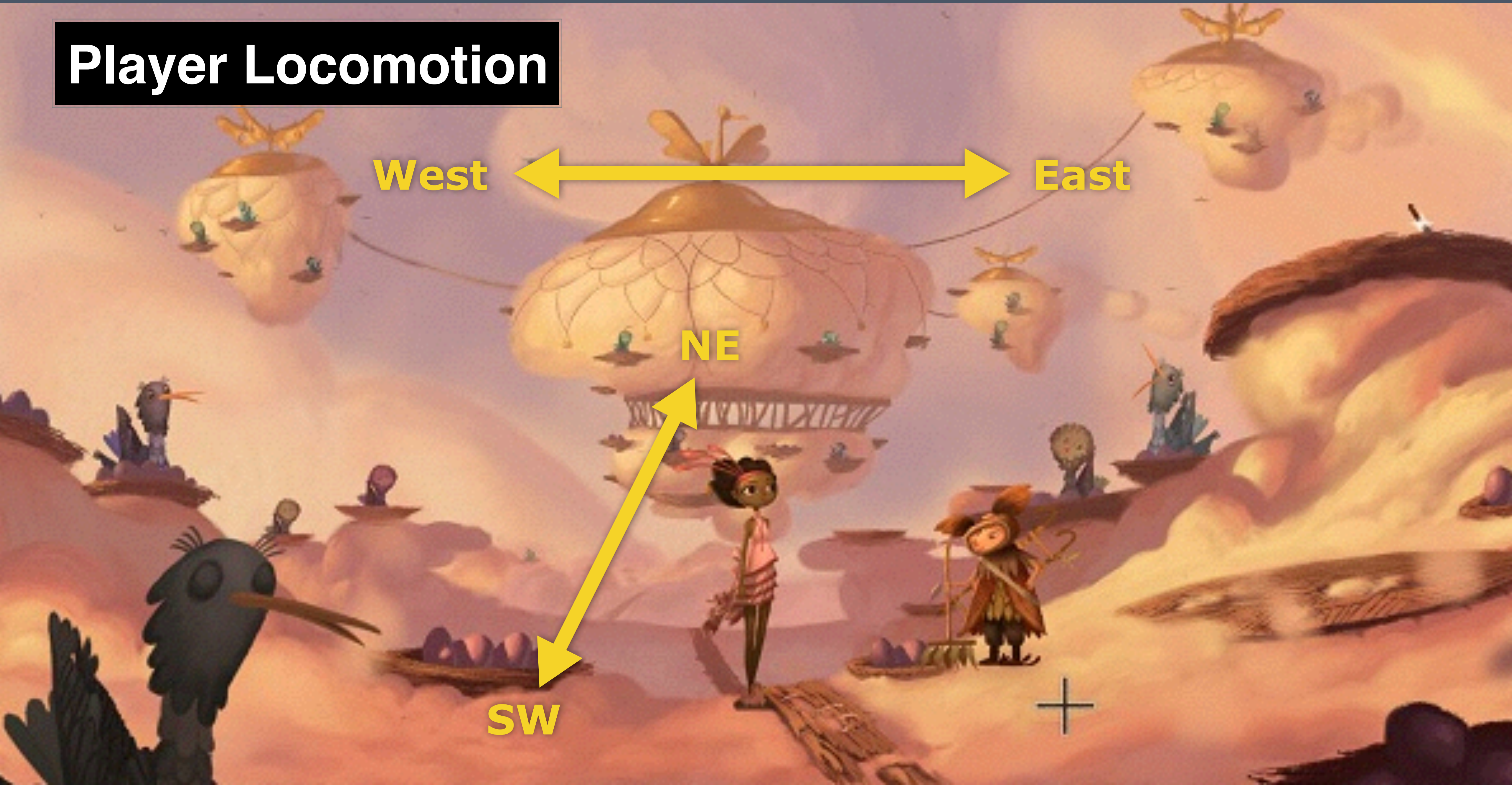
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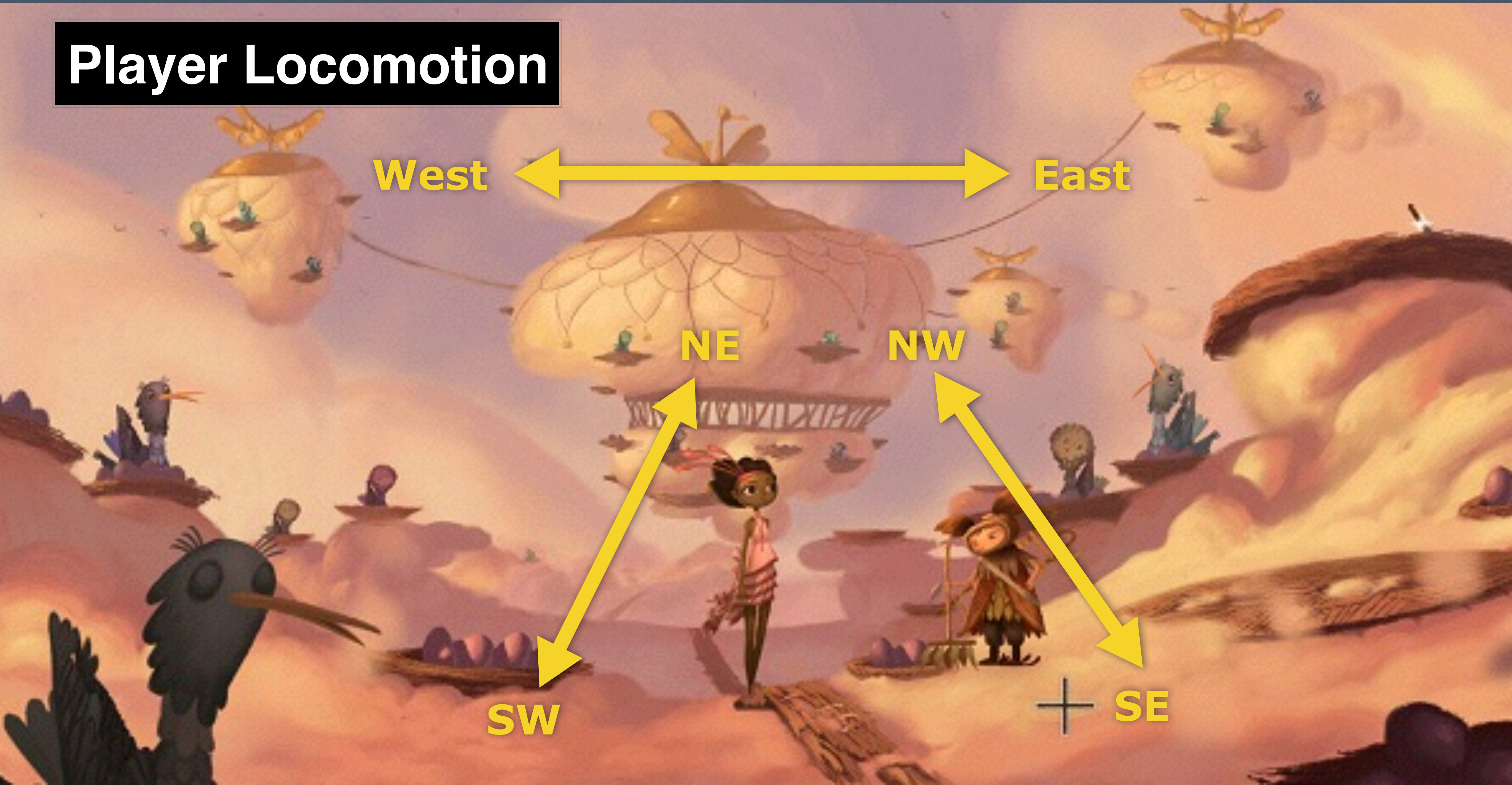
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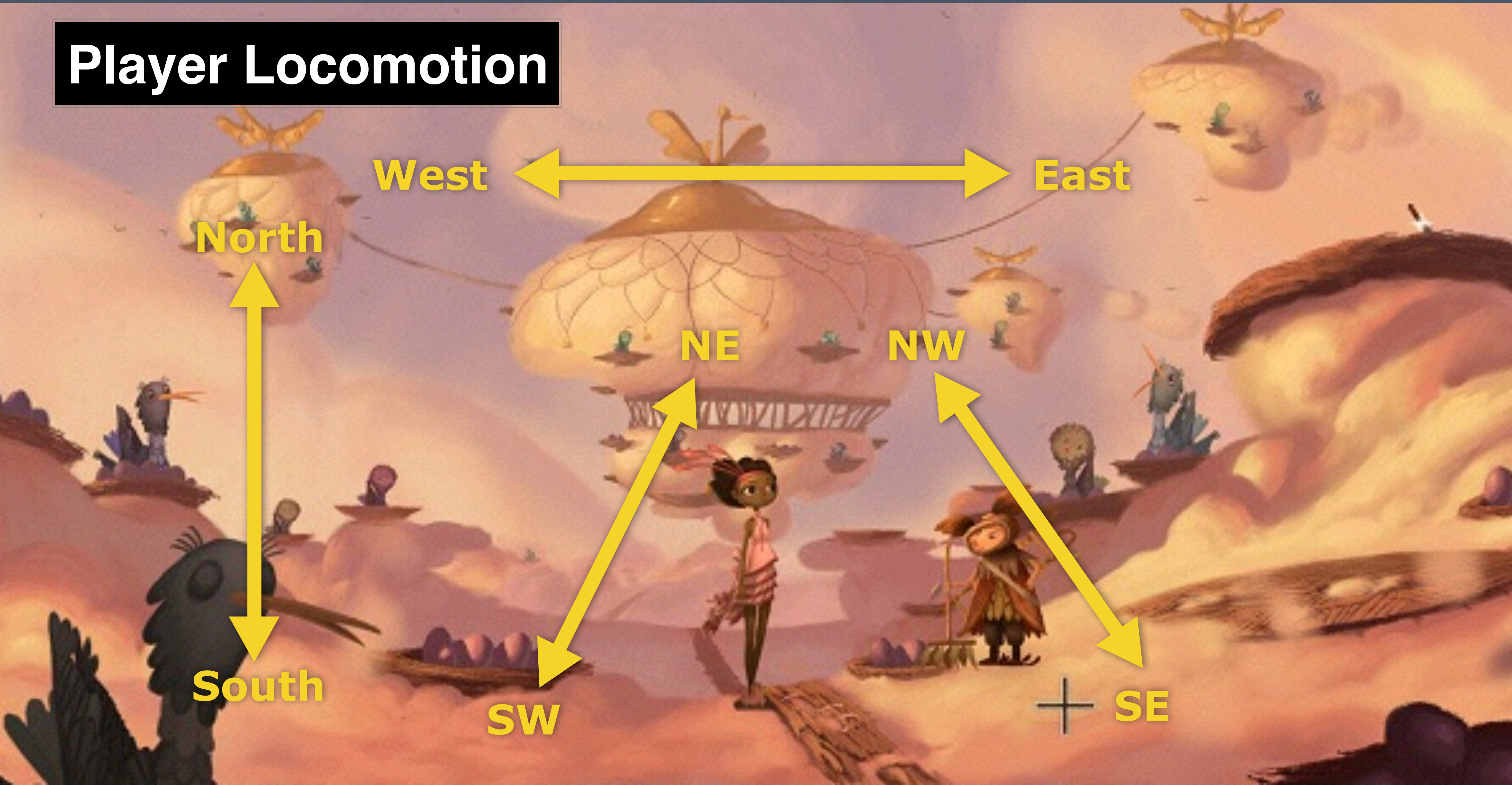
# Player Locomotion







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# Perspective Scaling











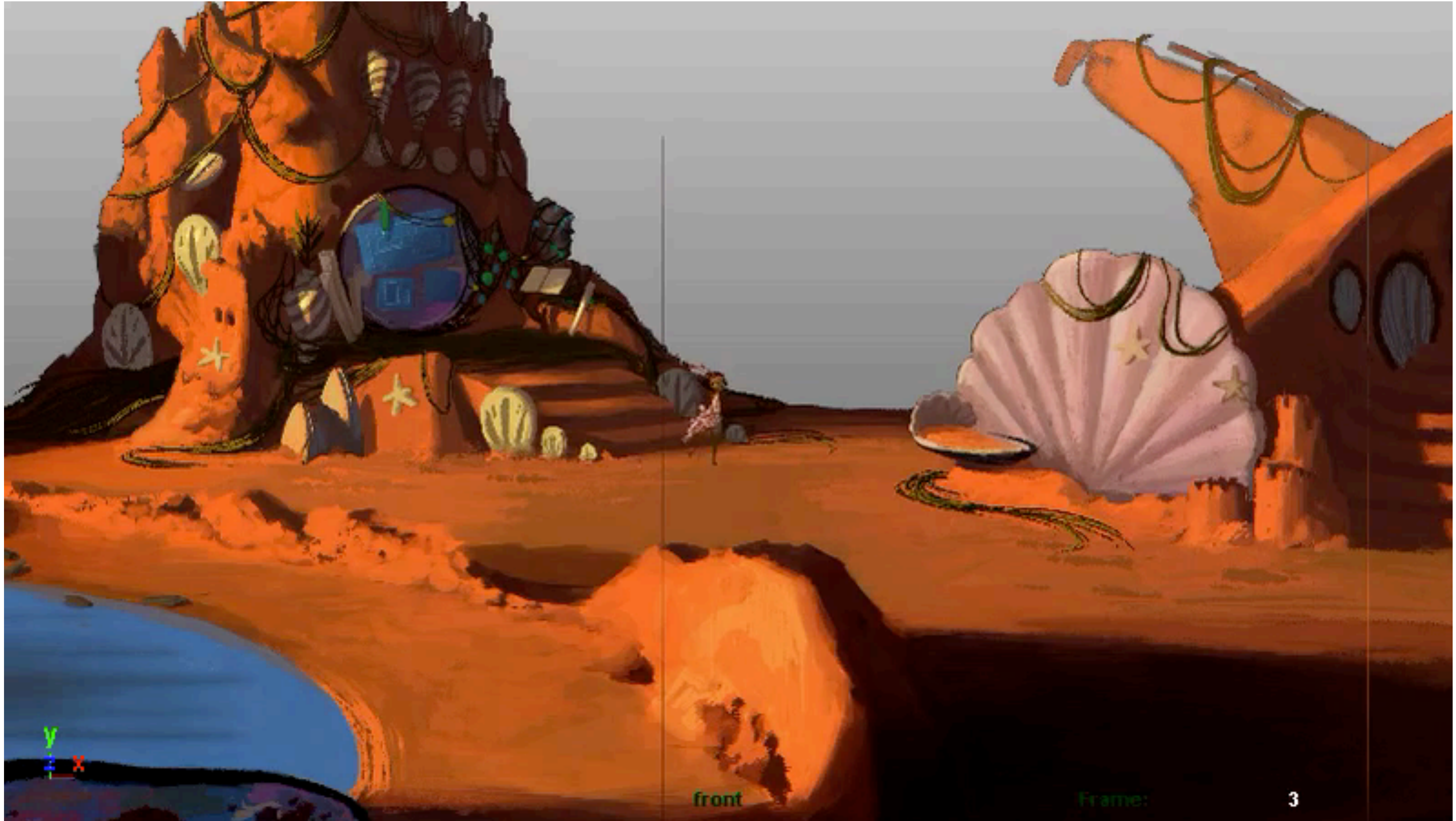




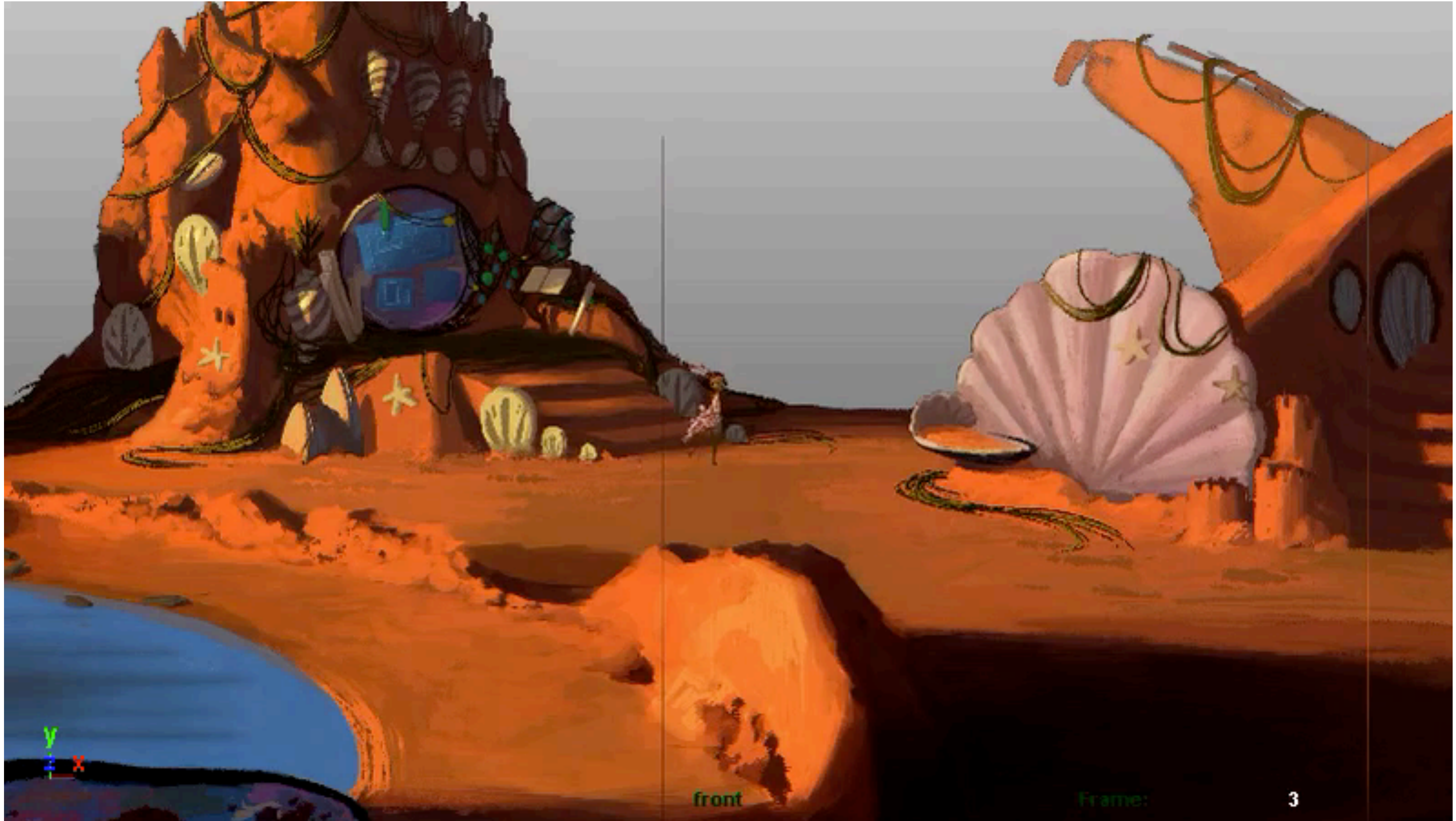




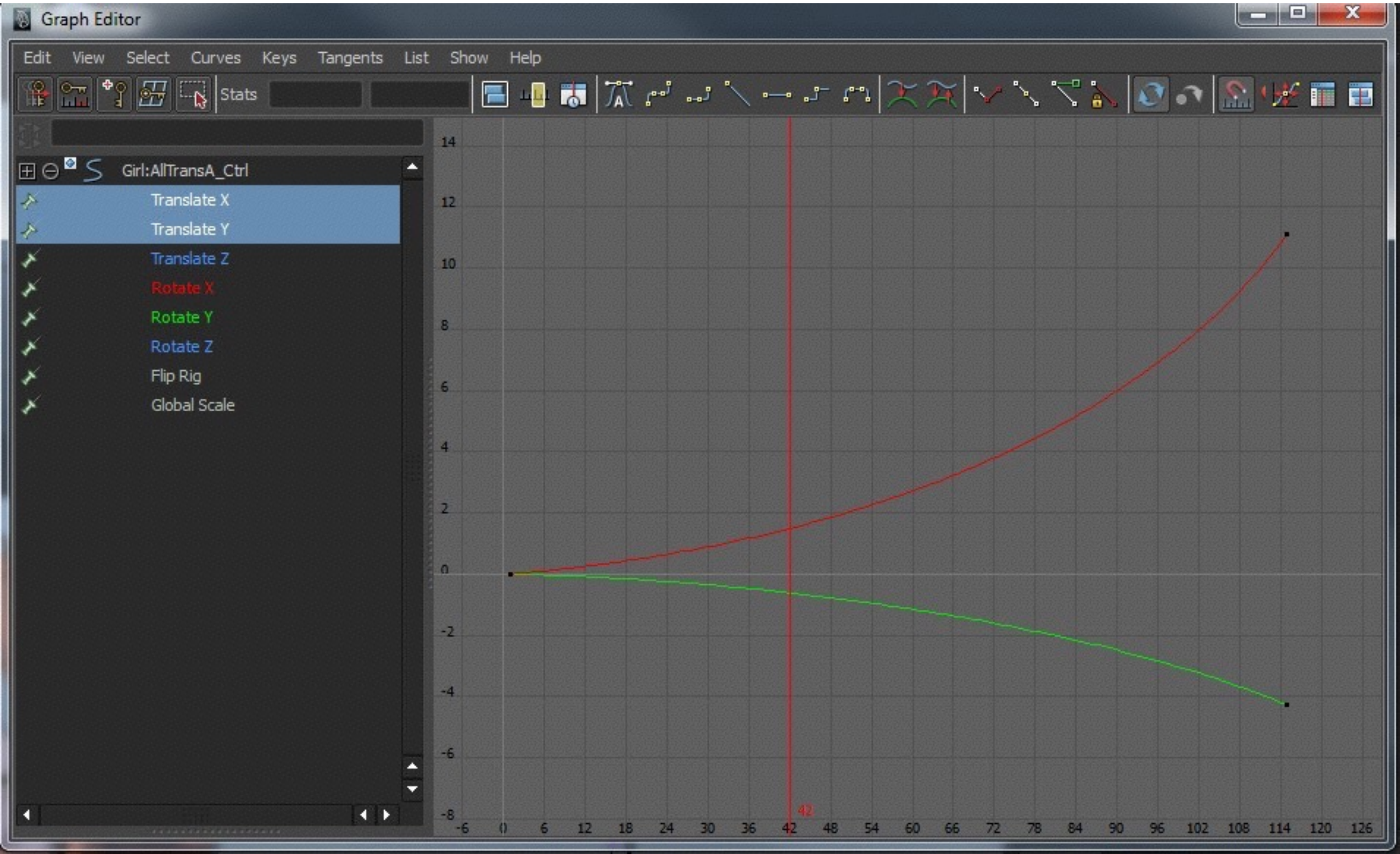




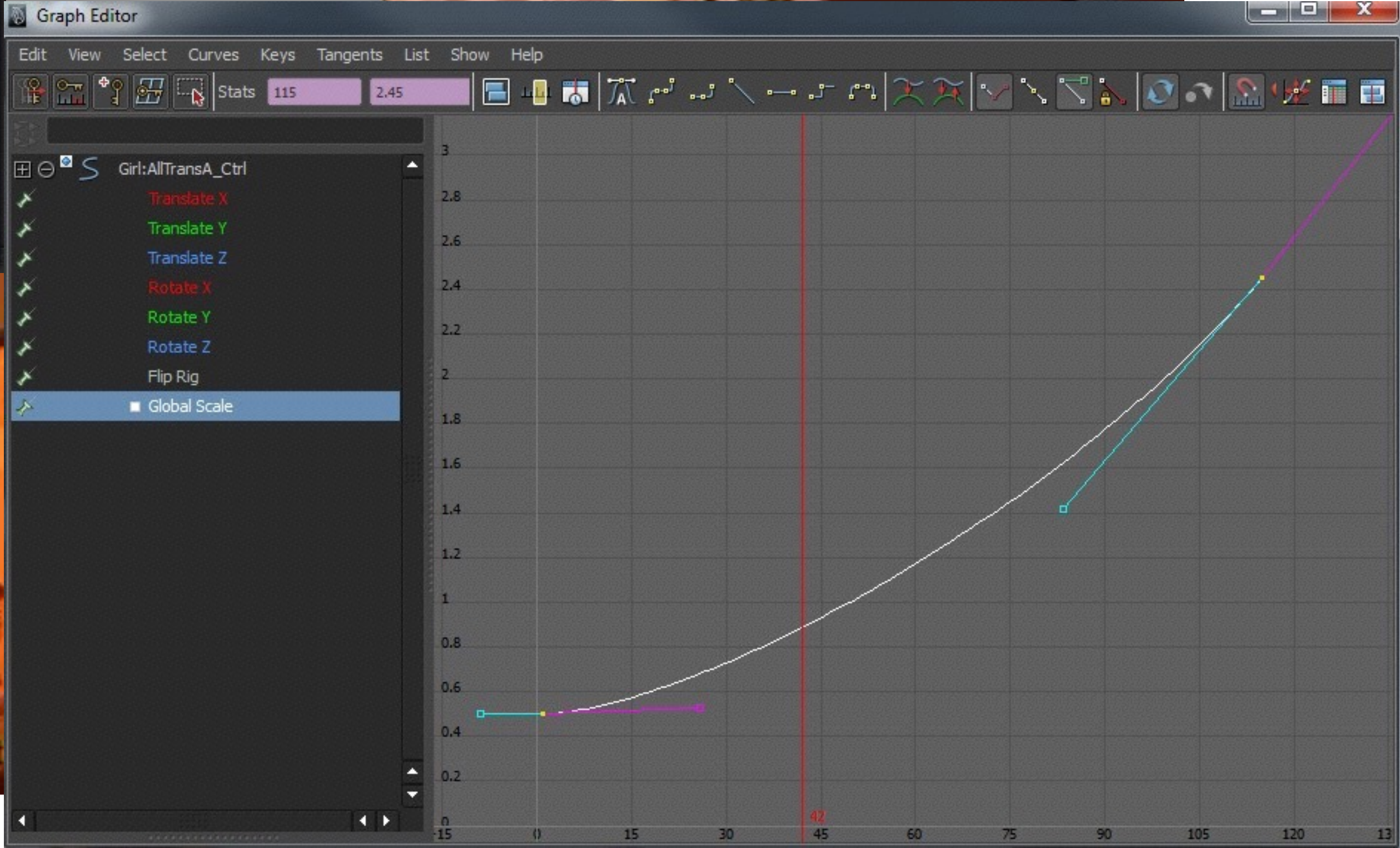
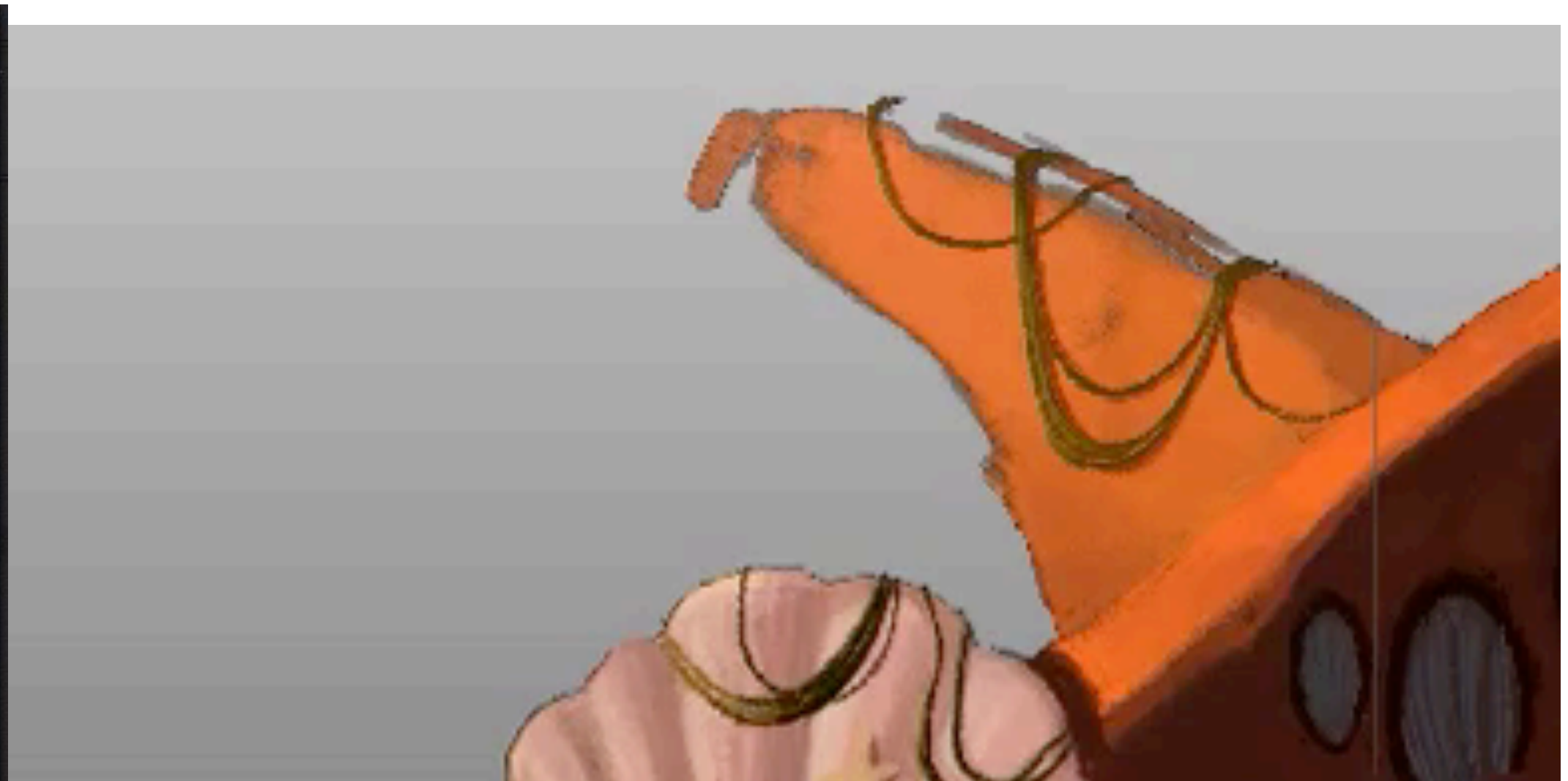
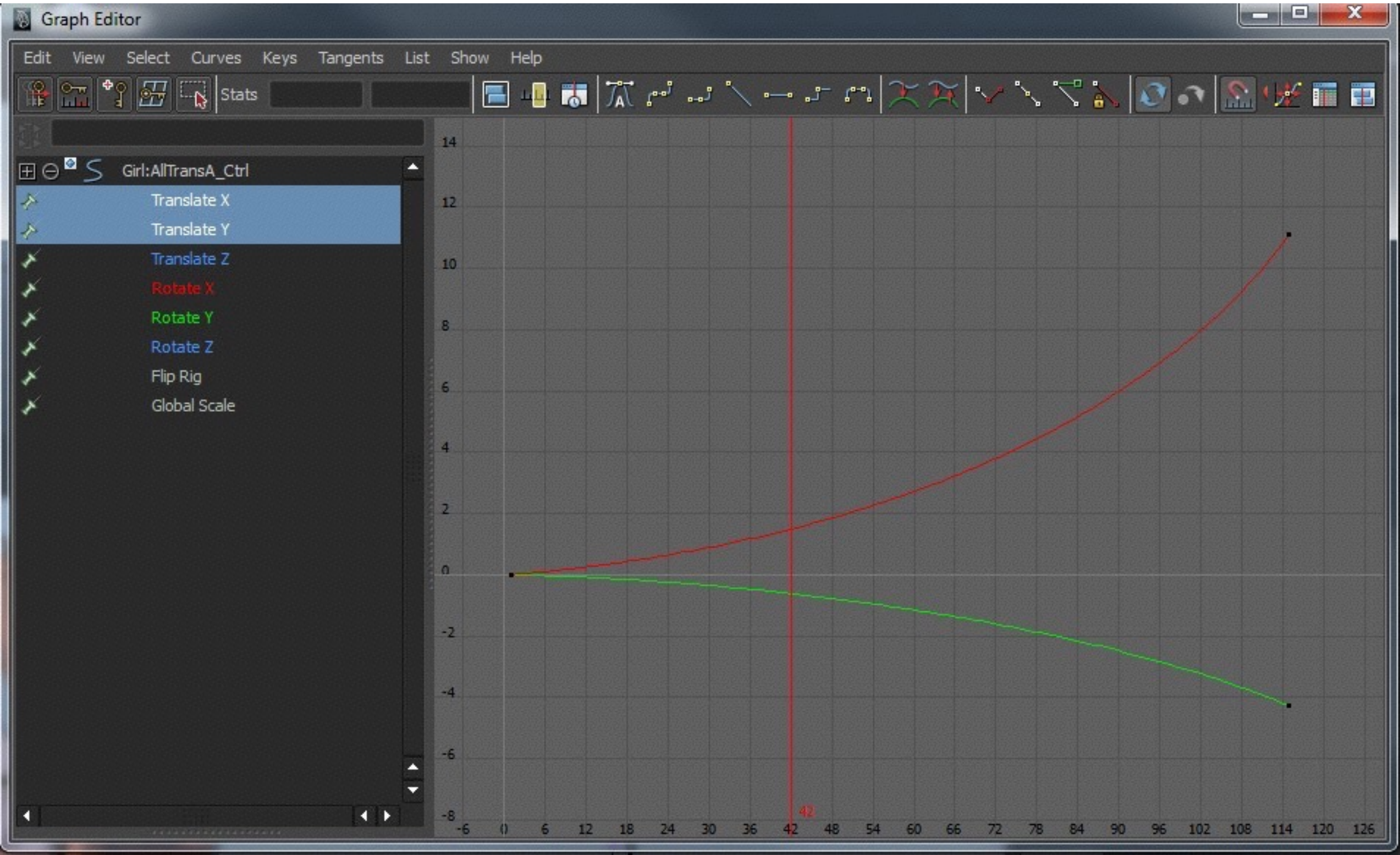





























From 30fps  15fps






From 30fps  15fps








From 30fps  15fps







From 30fps  15fps











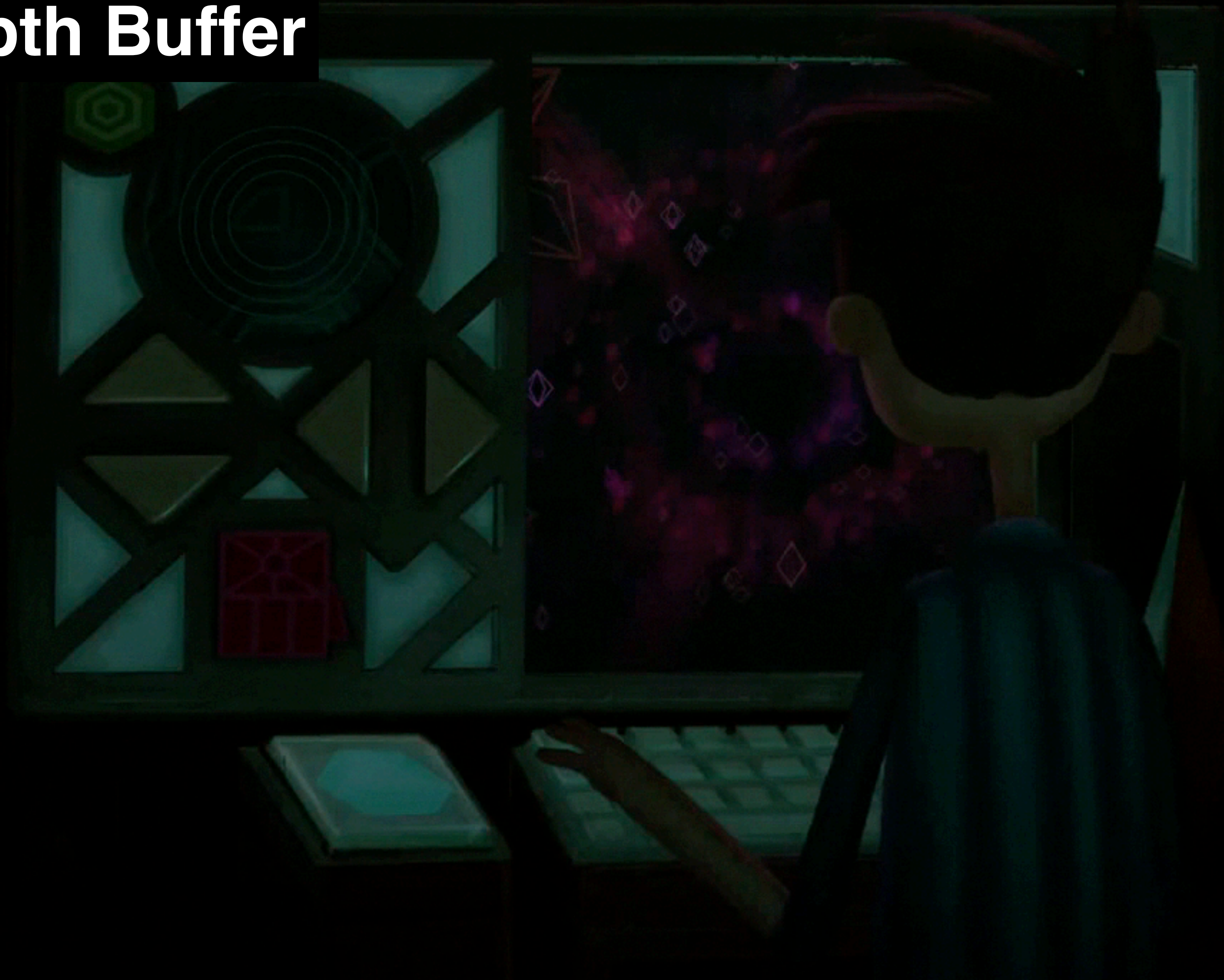








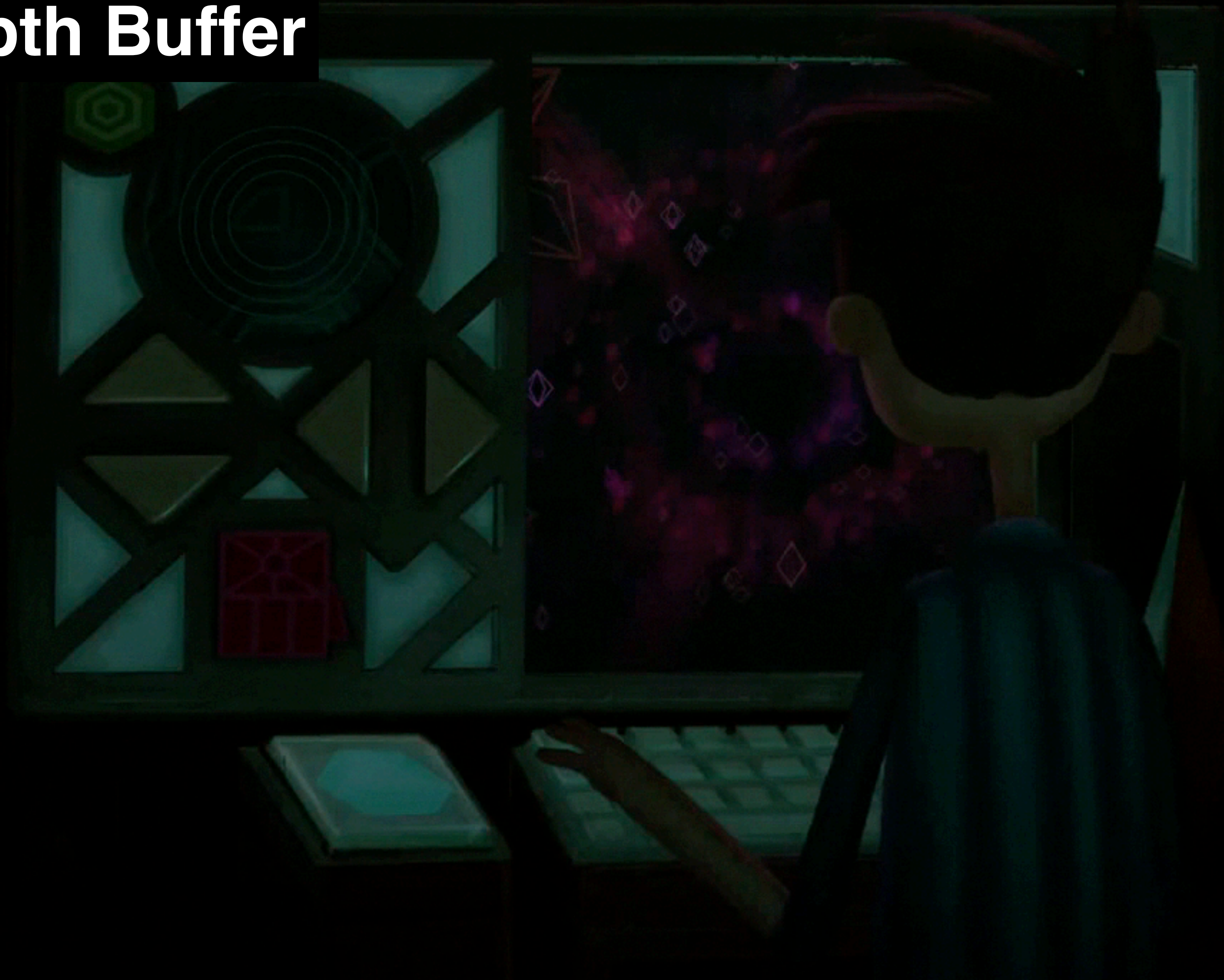
# No ZDepth Buffer







# No ZDepth Buffer







# No ZDepth Buffer

**Oliver Franzke**

**<http://www.p1xelcoder.com>**





# What we learned from the hybrid approach





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- Mold pipeline to current tool set





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- Mold pipeline to current tool set
- Huge performance advantages using joint deformation
- Easy Ramp-up for 3D animators
- Joint driven deformation allowed desired fidelity
- 15 frames per second blended well with flipbooks
- Scripted Cutsscenes will save thousands of animation hours





- Additional flip books required a painter and rigger to implement





- Additional flip books required a painter and rigger to implement
- Using transparent objects required us to lose Zbuffer









# Shay Memory Totals





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*Rig + All Animation*





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## ***Rig + All Animation***

10.7MB = 122218 Frames

170KB = Rig

25.3MB = Textures(DXT5)





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Total Memory 7.4GB



# Questions?

Raymond Crook  
CROOKRL@gmail.com

