Final Review

Character Rigging

Ke Rong
03772442
3D Animation

Contents

Biography

I am Ke Rong. I am from China. I love animation and film. I'm an enthusiastic and passionate person concentrates on 3D animation, rigging field. I actively improve my professional skills and the ability of problem solving.

Before I came to Academy of Art University, I didn't know what is rigging and I didn't know how to use Maya. But I learned many things about animation, including traditional animation, character design and film language. I am a person who would like to try new things, so I decided to learn rigging. I'm curious about rigging. After I learned rigging, I realized that I really love the feeling of solving problems.

I like digging animation techniques and the related area. I would like to play with Maya, play with code to figure out the solution.

Resume

Rigging Experience

Technical Artist (February 2016 - Present)

Chronicles of Drasil, PC game collaborative project

•180 New Montgomery Street, San Francisco, CA 94105, United States

• Create character and prop rigs for PC game collaborative project

•Support character artists and animators to solve technical issues

•Test game assets in Unity game engine

Character Rigging Intern (May 2015 - July 2015)

Immersed Games

•802 NW 5th Avenue, Suite 100, Gainesville, Florida 32601, United States

•Create character rigs for 3D game, Tyto Ecology

•Support animators to solve technical issues

Character TD (September 2014 - Present)

Wake Up, animated short film

•180 New Montgomery Street, San Francisco, CA 94105, United States

• Create all character rigs and prop rigs

•Support the animator to solve technical issues

Character TD (September 2014 - March 2016)

Pig ZZ, animated short film

•180 New Montgomery Street, San Francisco, CA 94105, United States

• Create body rig and facial rig for character

•Support the animator to solve technical issues

Character Rigger (September 2014 - December 2014)

Buddy &Russell, animated short film

•180 New Montgomery Street, San Francisco, CA 94105, United States

•Create body rig and facial rig for character

•Support the animator to solve technical issues

Scripting Experience

Quadruped Auto Rig (September 2015 - Present)

▪ Python tool that can automatically create a rig for quadruped character.

Mirror or Combine Blend Shape (December 2015)

▪ Python tool that can automatically mirror blend shape from left side to right or combine to different blend shapes to create a new one.

FBX File Exporter (February 2015)

▪ Python tool that can automatically clean name space, mesh and control curves, then bake animation in Maya, export as a FBX file

Control Creator (February 2014 - May 2014)

▪ Create a python script to generate animation controls for improving working efficiency

Technical Skills

- Create hierarchical rig for 3D model
- Create full facial rig for 3d character
- Paint skin weights properly
- Blend shapes building
- Python scripting
- MEL scripting

Software

- Autodesk Maya
- Adobe Photoshop
- Adobe After Effects
- Adobe Premiere Pro
- ZBrush
- QT Designer

Resume

Contact Information

First Name: Ke **Phone Number**: 415-746-0701
Last Name: Rong **Home Address**: 905-F, Avenue B, San Francisco, CA 94130
Email Address: rongkegood@gmail.com

Education

Fall 2007 -Summer 2010, persuing the graduation certification, majoring in Animation
College Name: the College of Film and Television, in Zhongyuan University of Technology

Fall 2010 - Summer 2012, persuing the Bachelor of Arts, majoring in Animation
University Name: Henan Liberal Arts University (Nanyang Normal University)

Fall 2012 – Spring 2016 persuing the Master of Fine Arts
majoring in 3D Animation, Character Rigging
University Name: Academy of Art University

Demoreel


KE RONG
Character Rigging Thesis
showreel
Student ID 03772442

Abstract

My final thesis contains four projects, three rigs and one script.

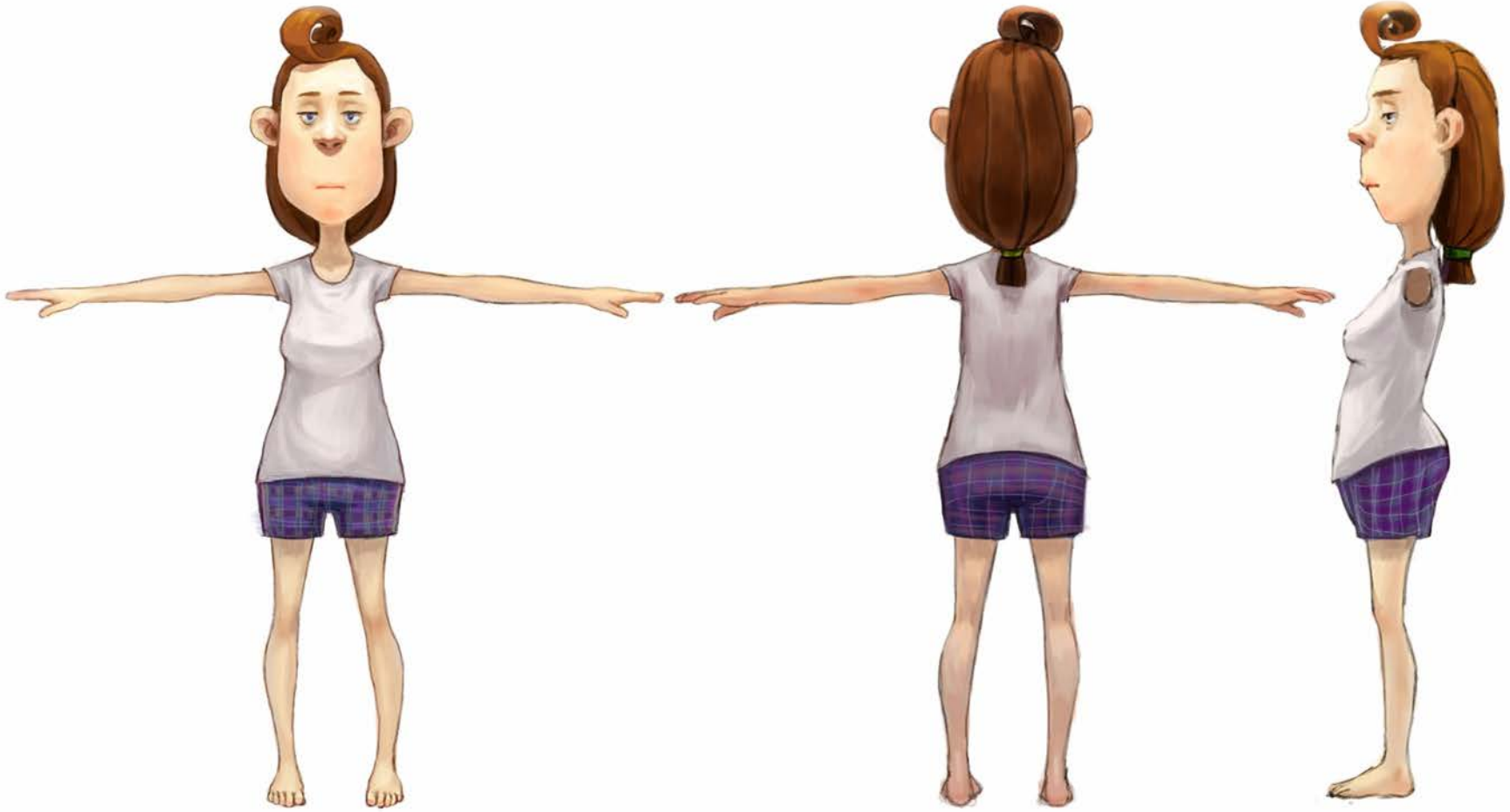
- A human rig. The character is a cartoony human. This rig contains the full facial rig.
  This character is for an animated shot film, Wake Up, directed by Jingyi Chen.

- A pig rig. The character is a cartoony with secondary control for enhancing deformation.
  Also, it has the full facial rig.
  This character is for an animated shot file, PigZZ, directed by Jiansong Zhao.

- A bat rig. This character is realistic style. For creating natural wings of the bat, this rig contains the nCloth system.
  This is my personal project.

- An auto-rig script for quadruped. It can be used on different types of quadruped. It can improve the efficiency of rigging quadruped.

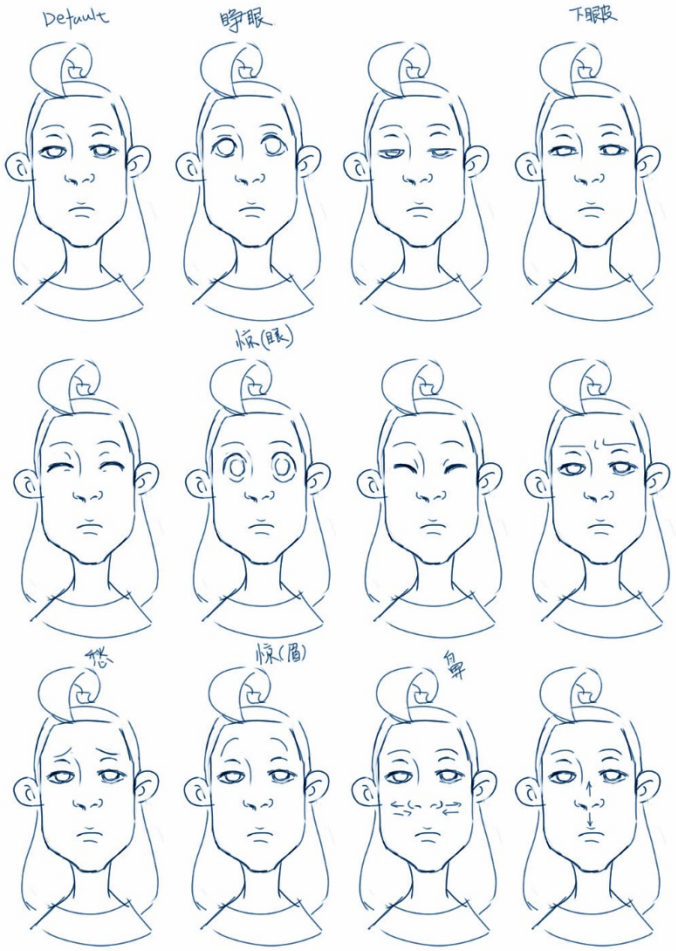
Project A Human Rig Character design

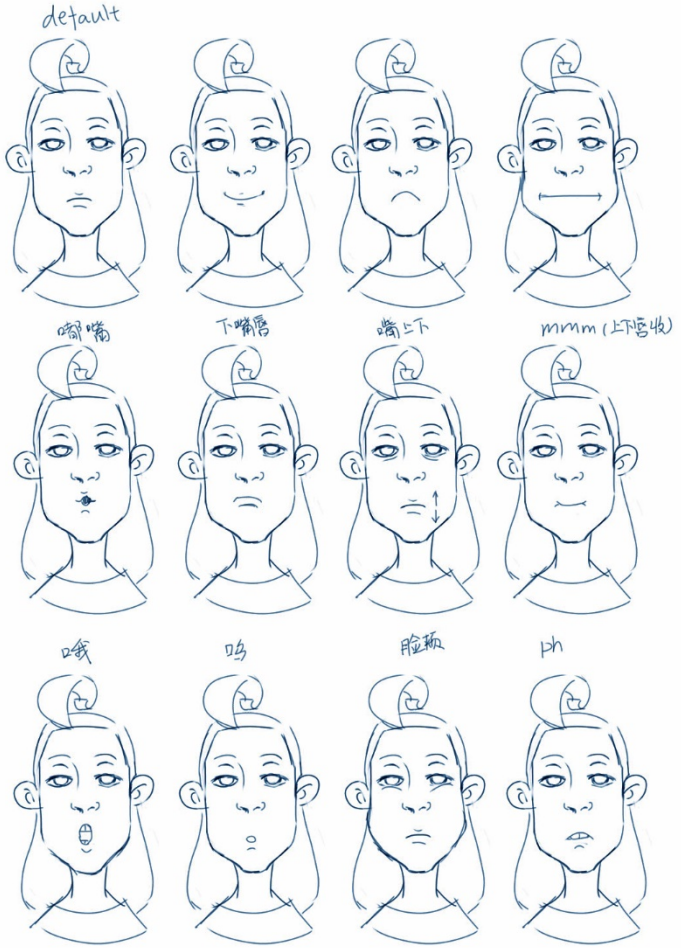


Wake Up Project

Created by Jingyi Chen

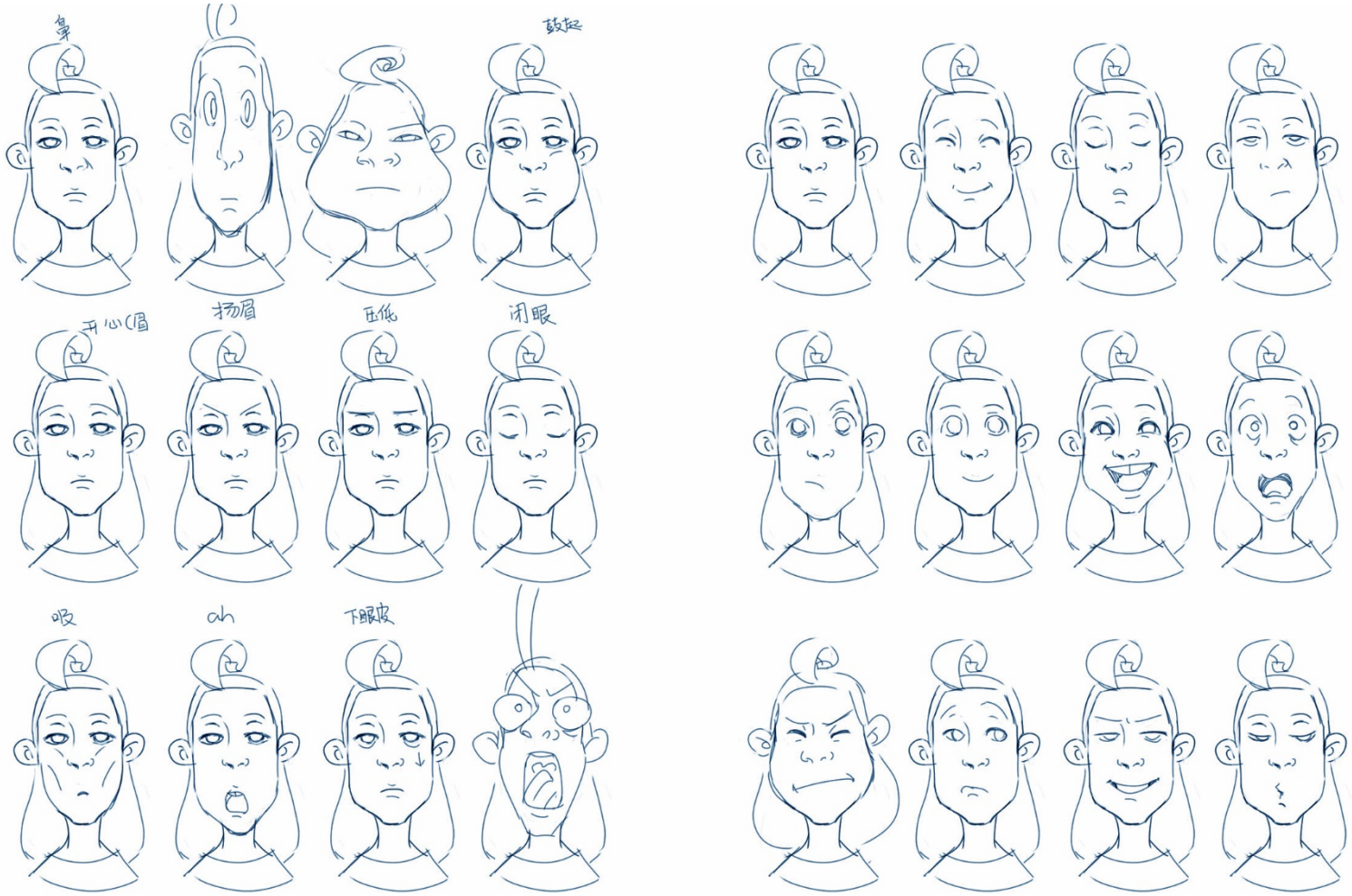
Project A Human Rig Facial expressions





Created by Jingyi Chen

Project A Human Rig Facial expressions

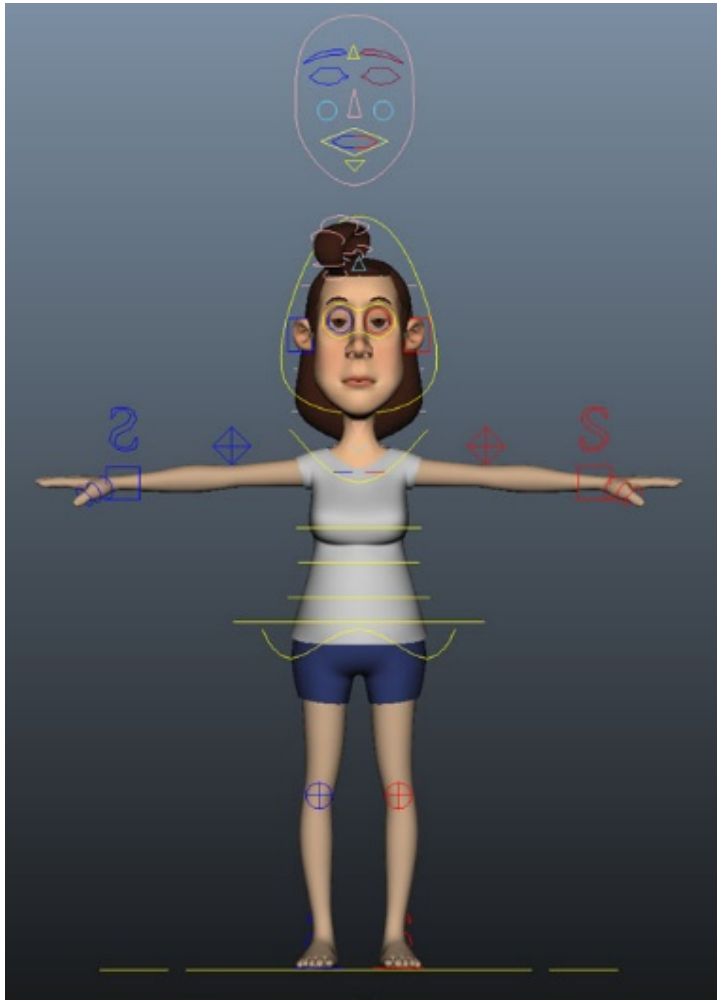


Created by Jingyi Chen

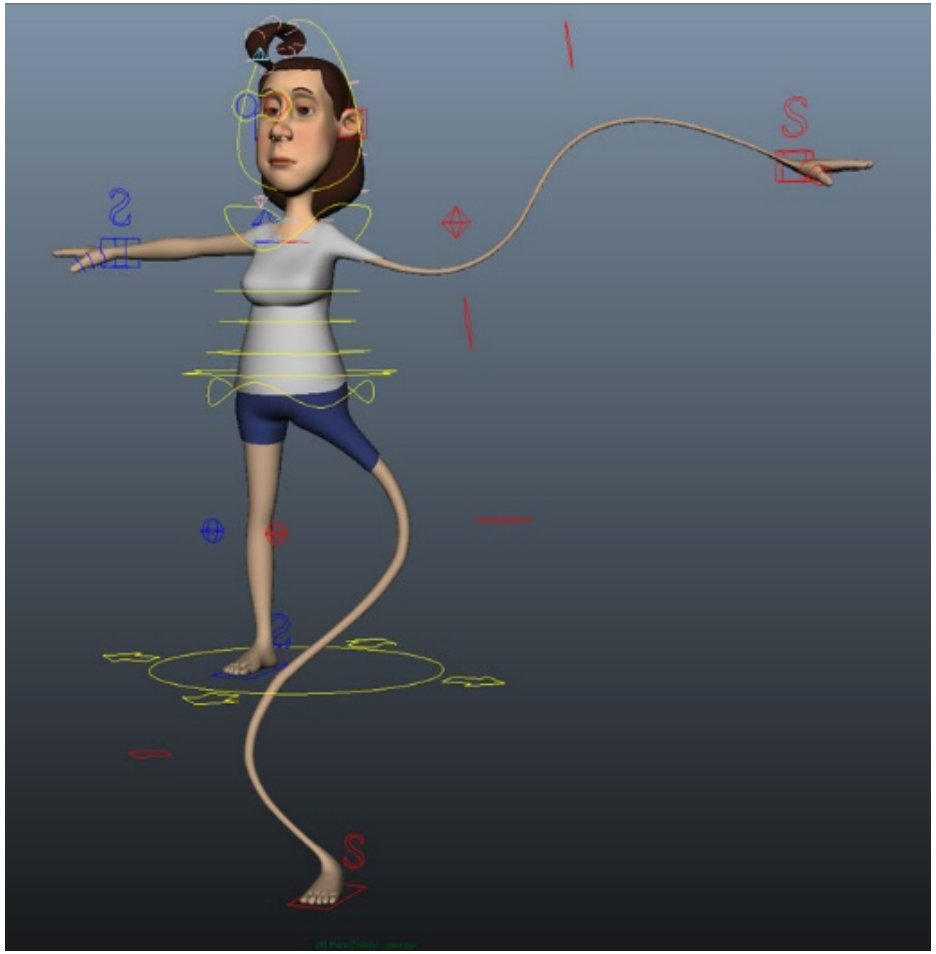
Project A Human Rig Functions

features

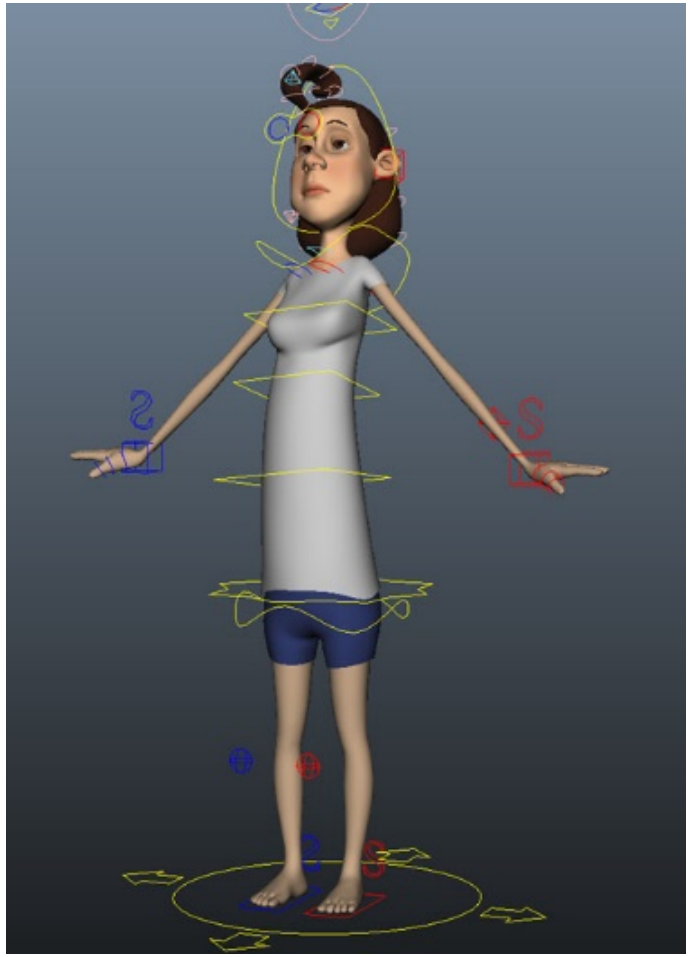
- IK/FK legs and arms
- IK/FK switch for legs and arms
- Bendy legs and arms
- Stretchy spine
- Stretchy and squashed head
- Foot roll
- Joint based facial rig
- Corrective blend shapes for facial rig
- Python facial UI



Project A Human Rig Technique

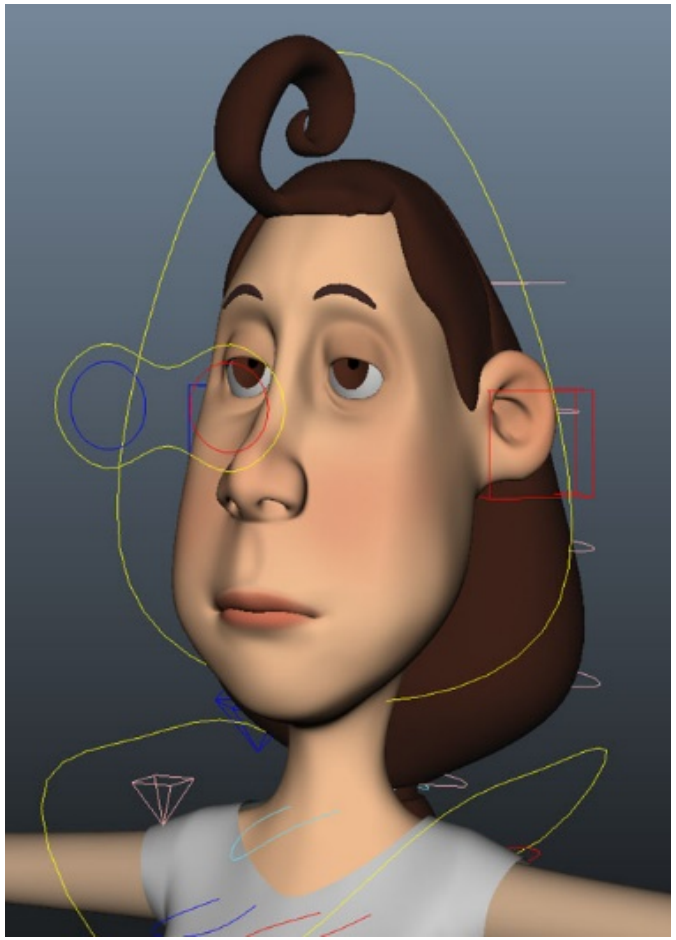


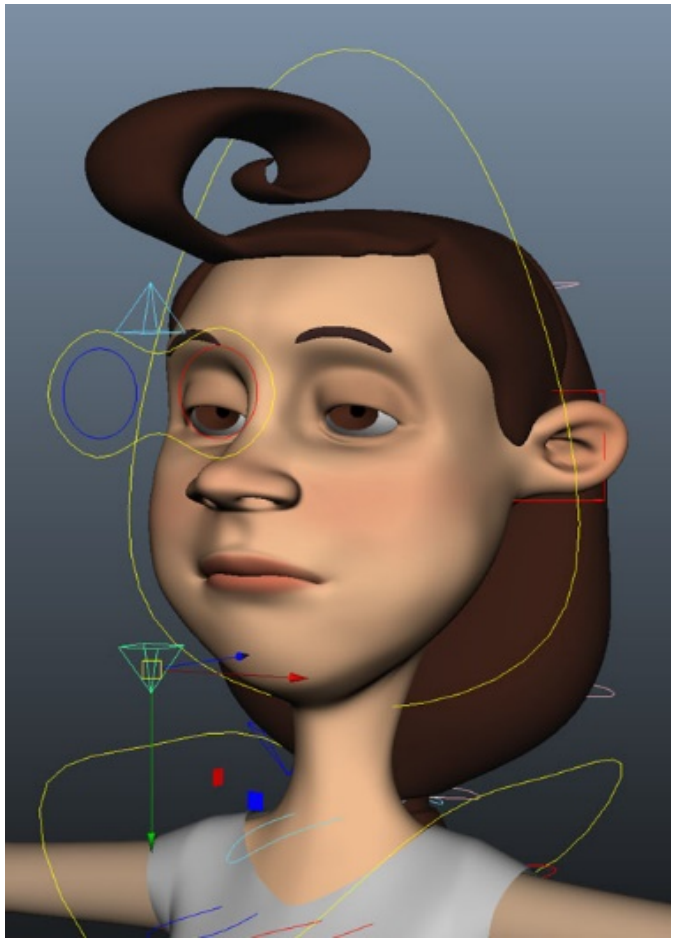
IK/FK legs and arms with stretching and bending



Stretchy spine

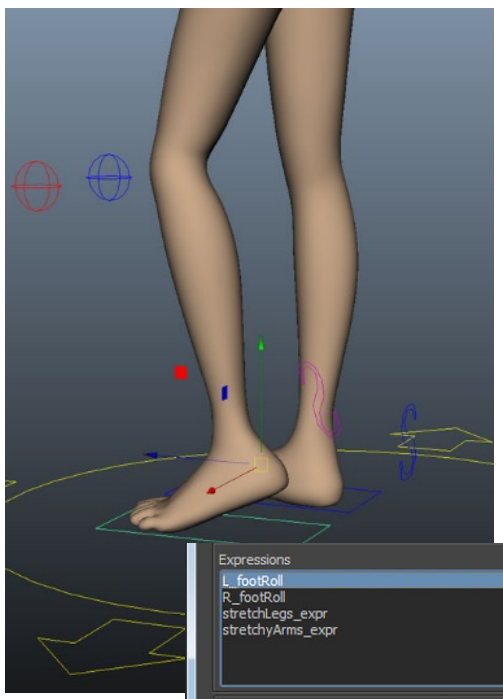
Project A Human Rig Technique

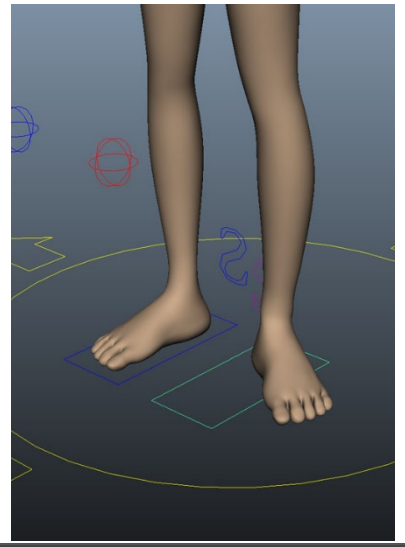


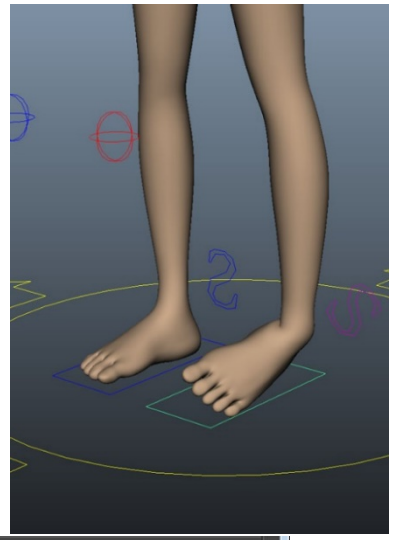


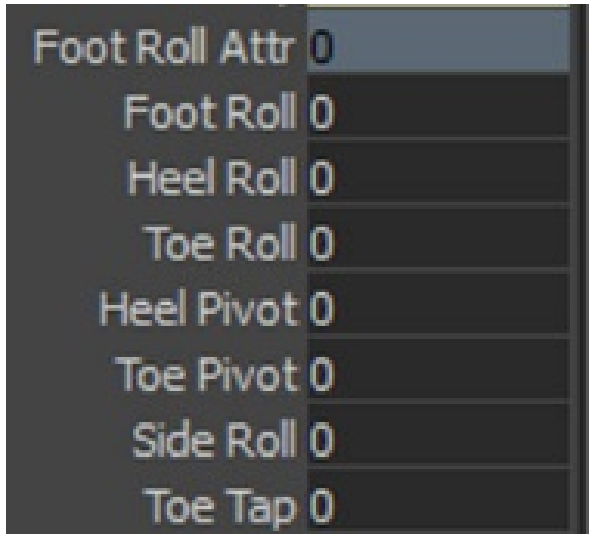
Stretchy and squashed head control

Project A Human Rig Technique

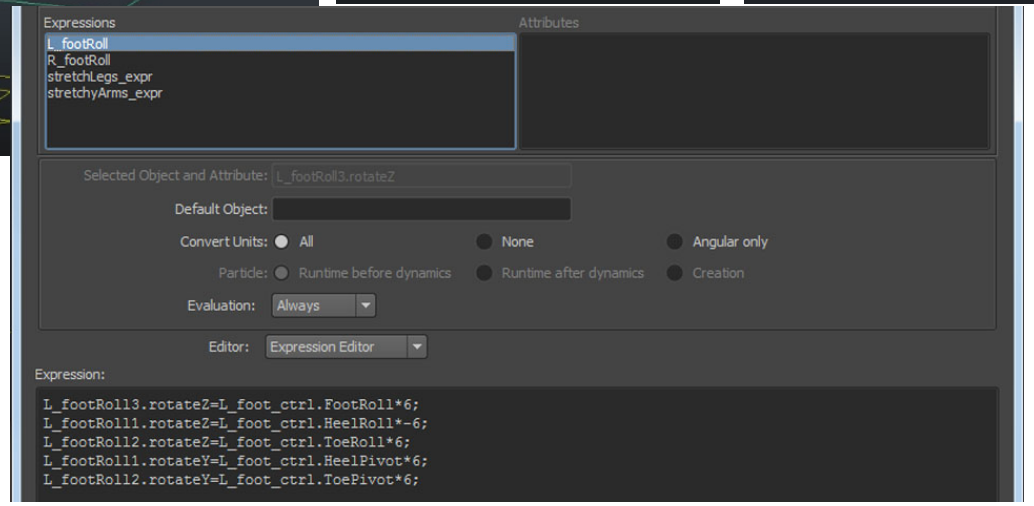






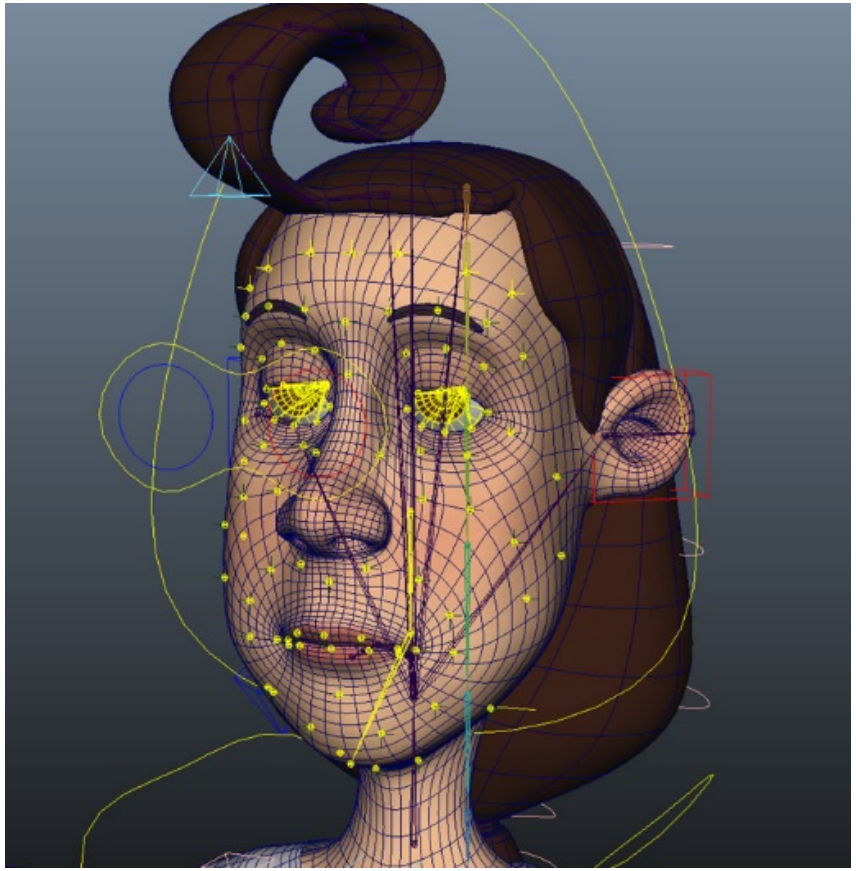


Foot roll customized attributes

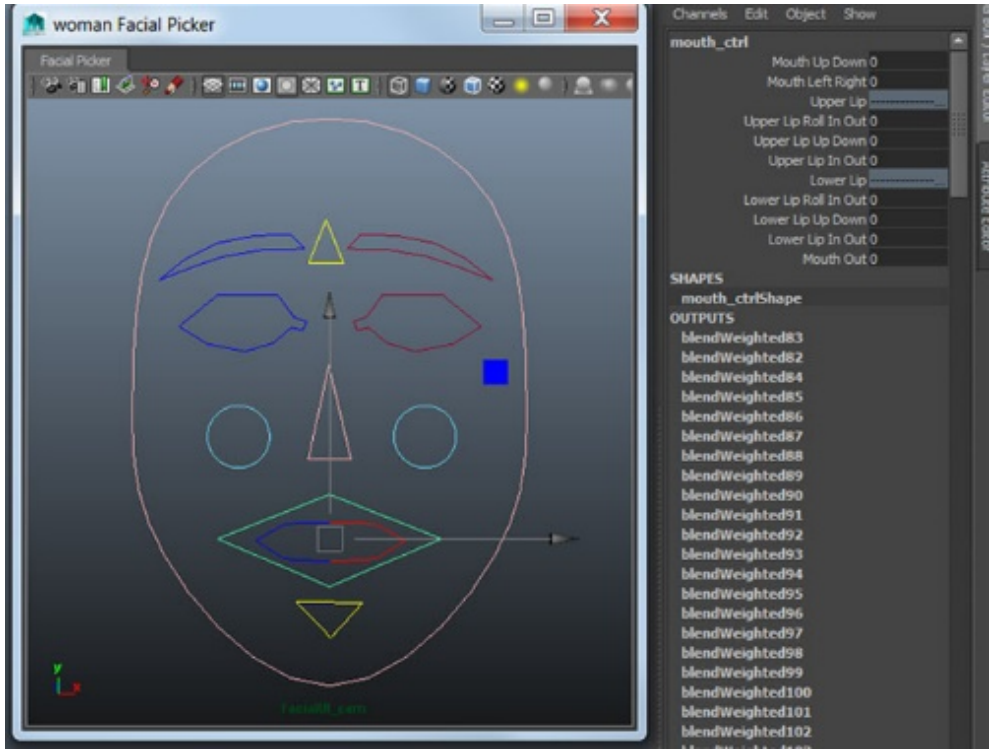


Foot roll expressions

Project A Human Rig Facial rig

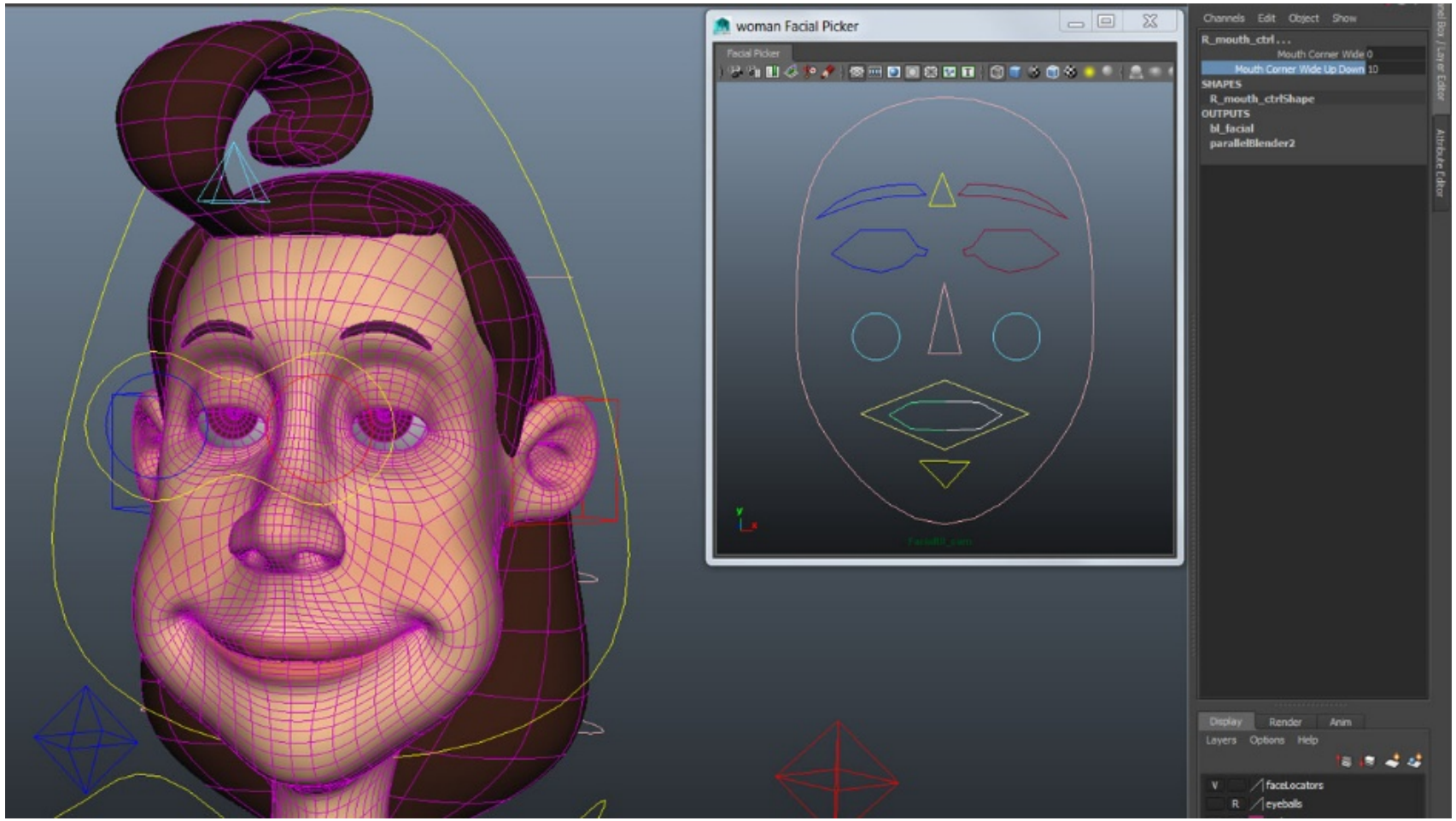


Joint placement for facial rig



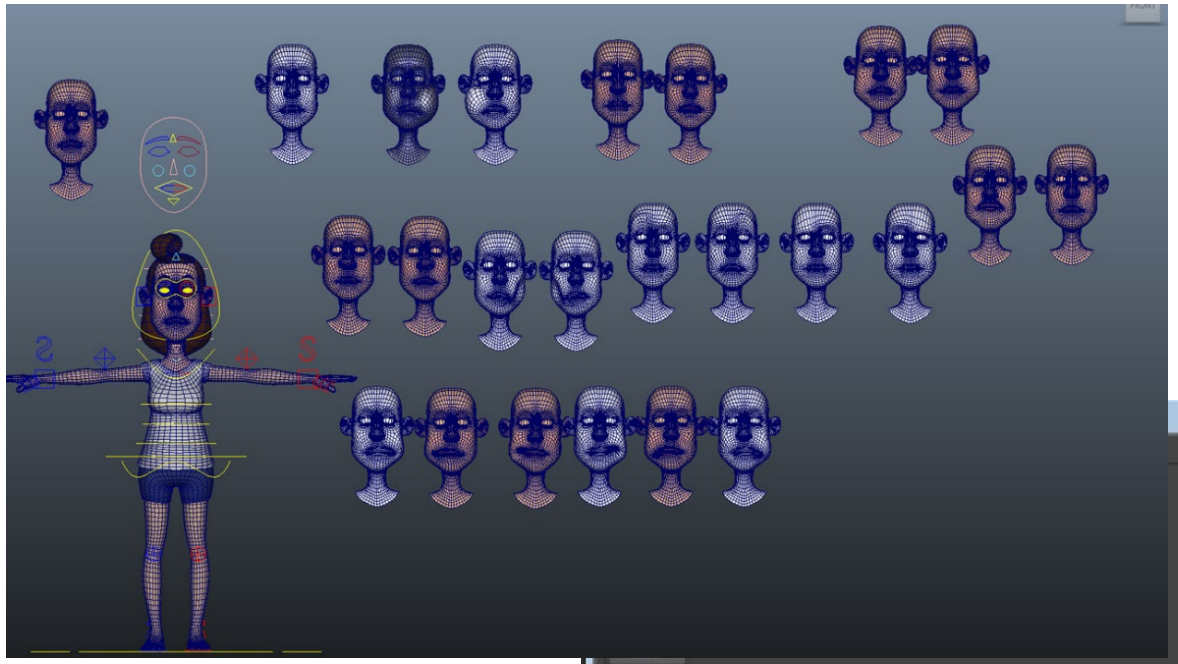
Customized attributes on facial control curve

Project A　Human Rig　Facial rig

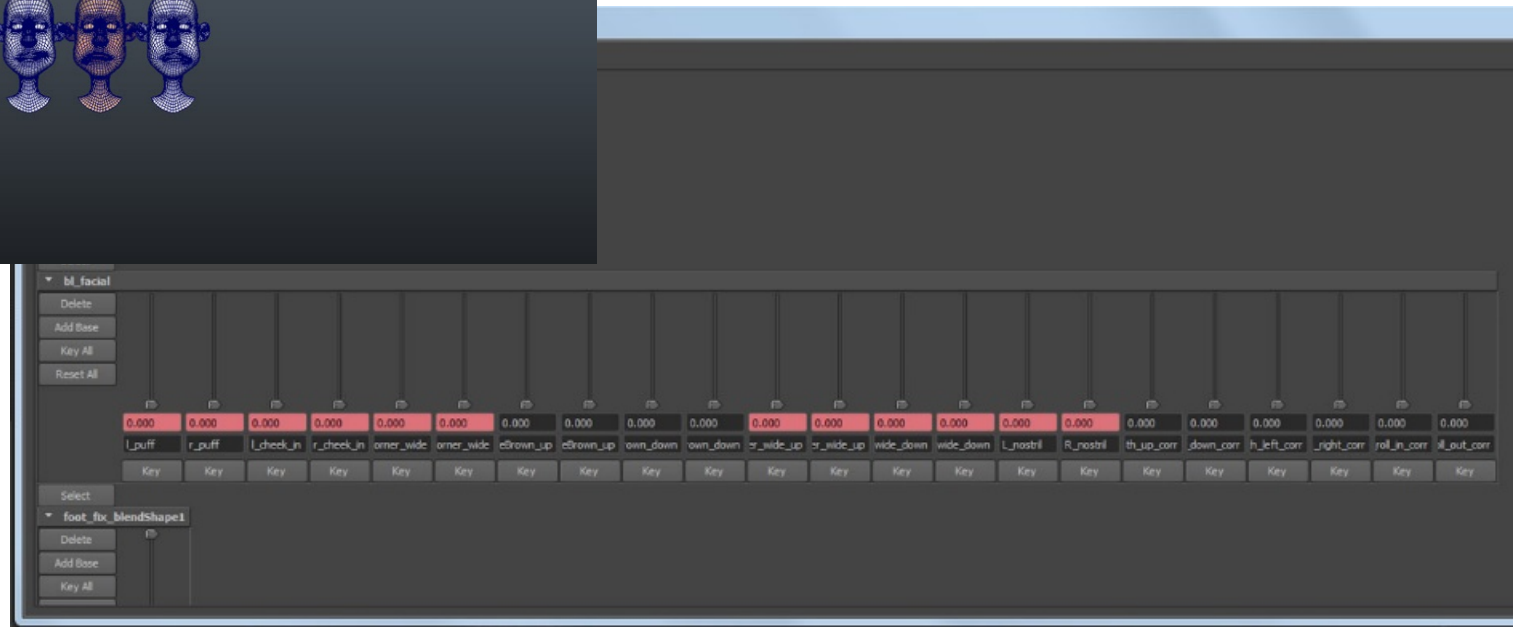


Facial setup result

Project A Human Rig Facial rig

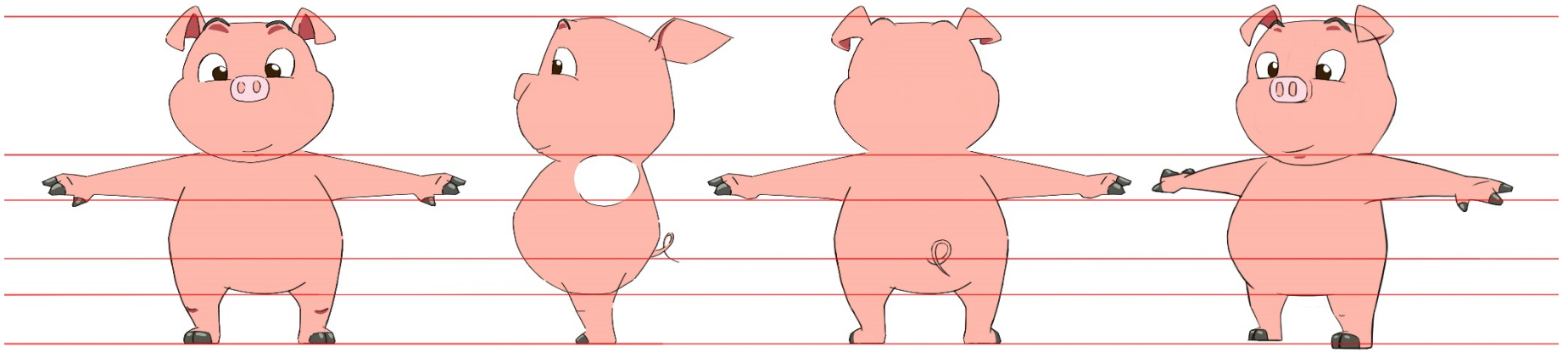


Facial blend shapes



Facial blend shape node

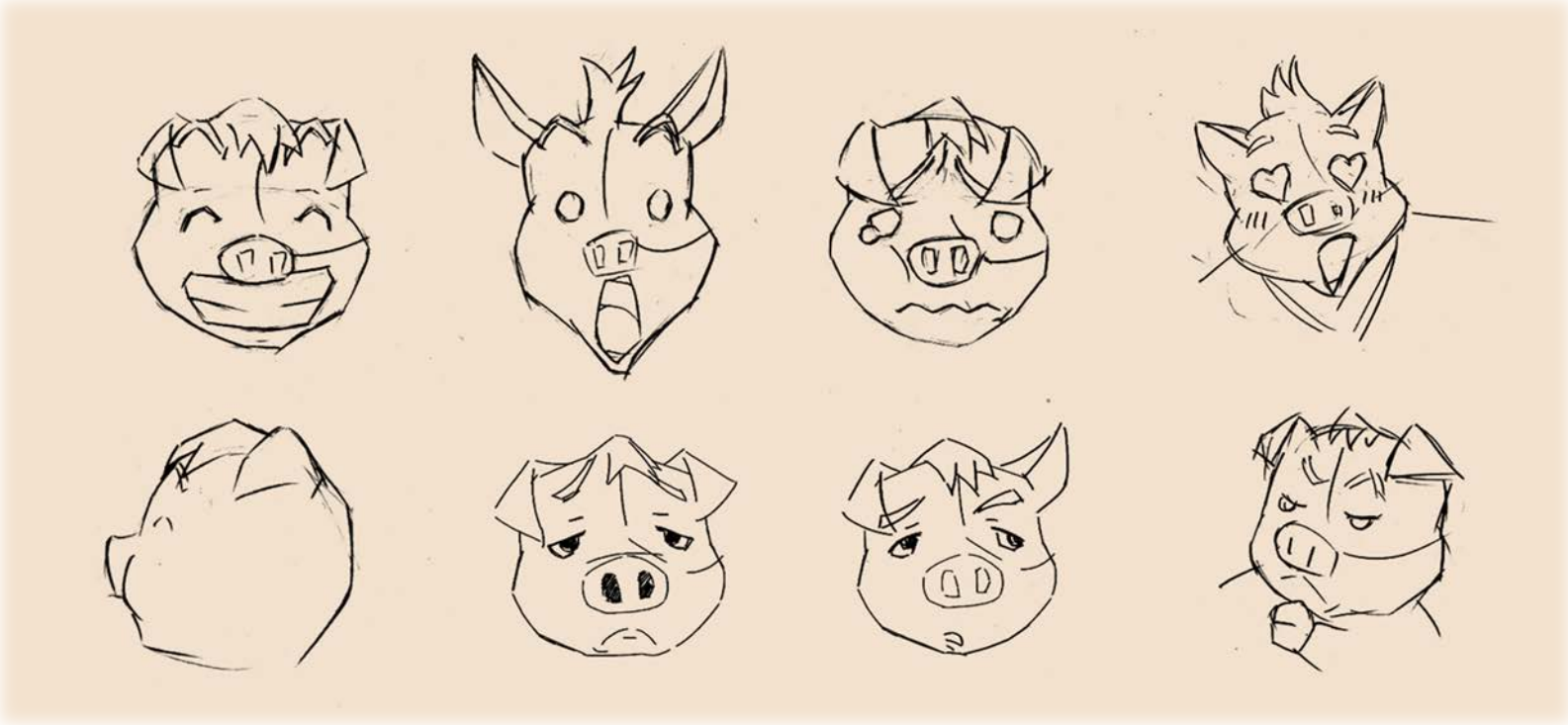
Project B Pig Rig Character design



Pig ZZ Project

Created by Jiansong Zhao

Project B Pig Rig Facial expressions

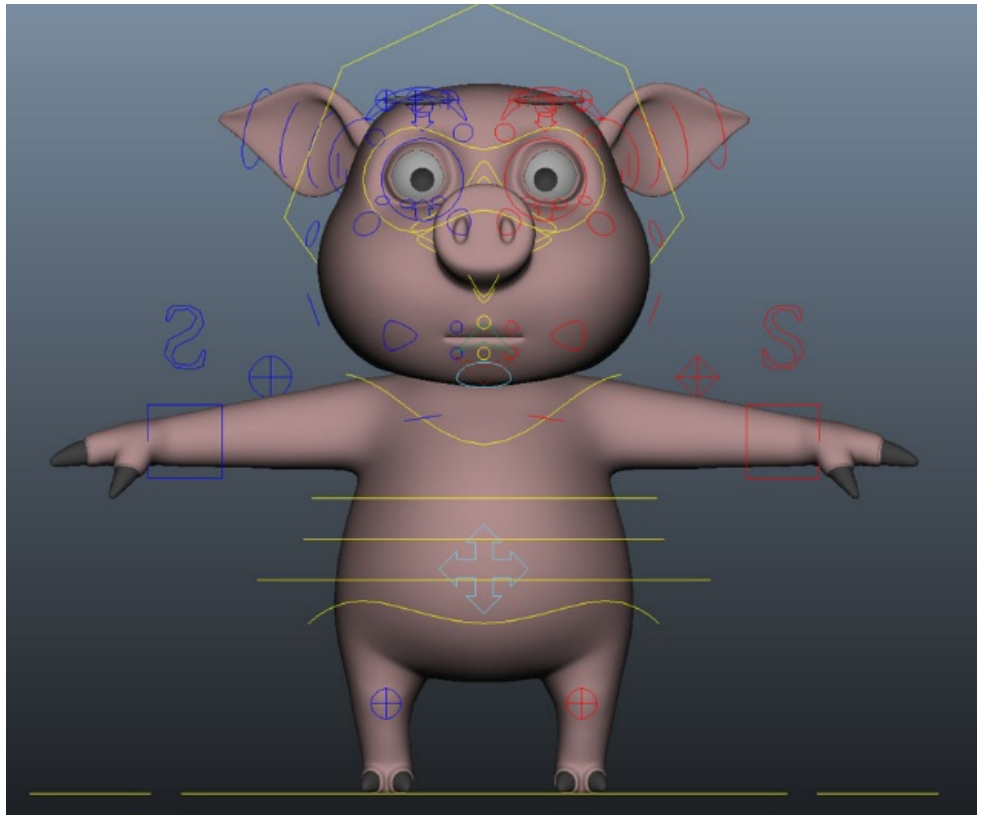


Created by Jiansong Zhao

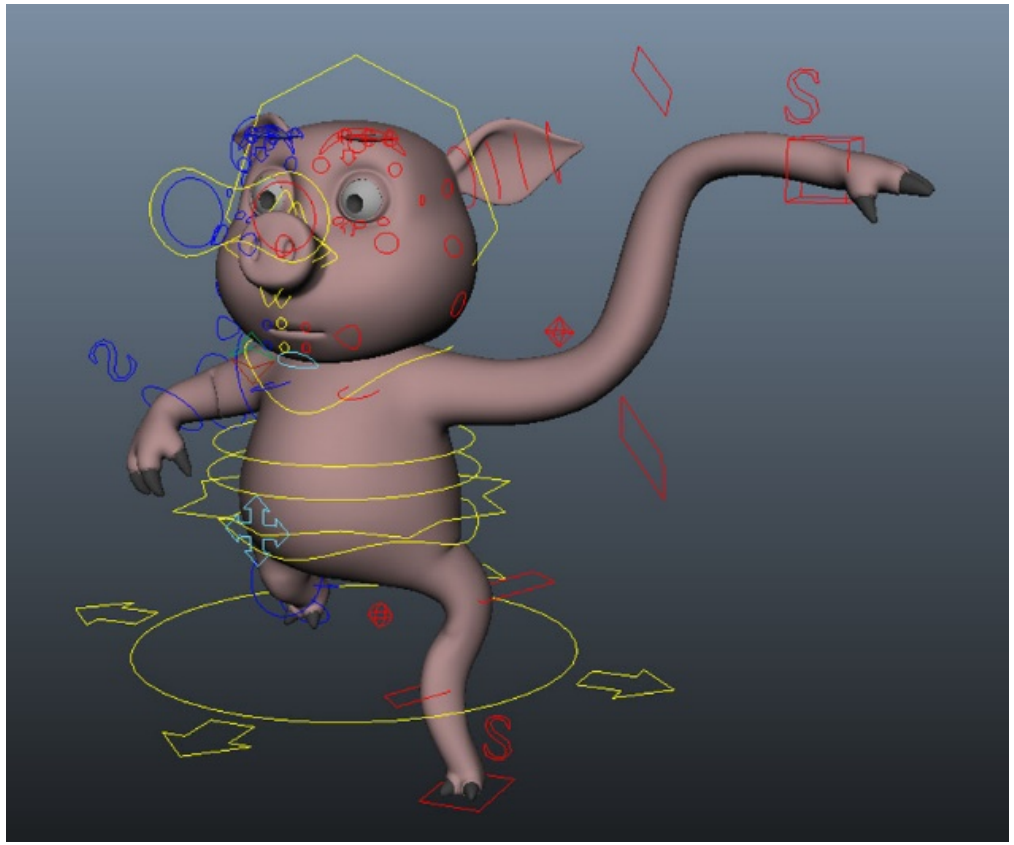
Project B　Pig Rig　Functions

features

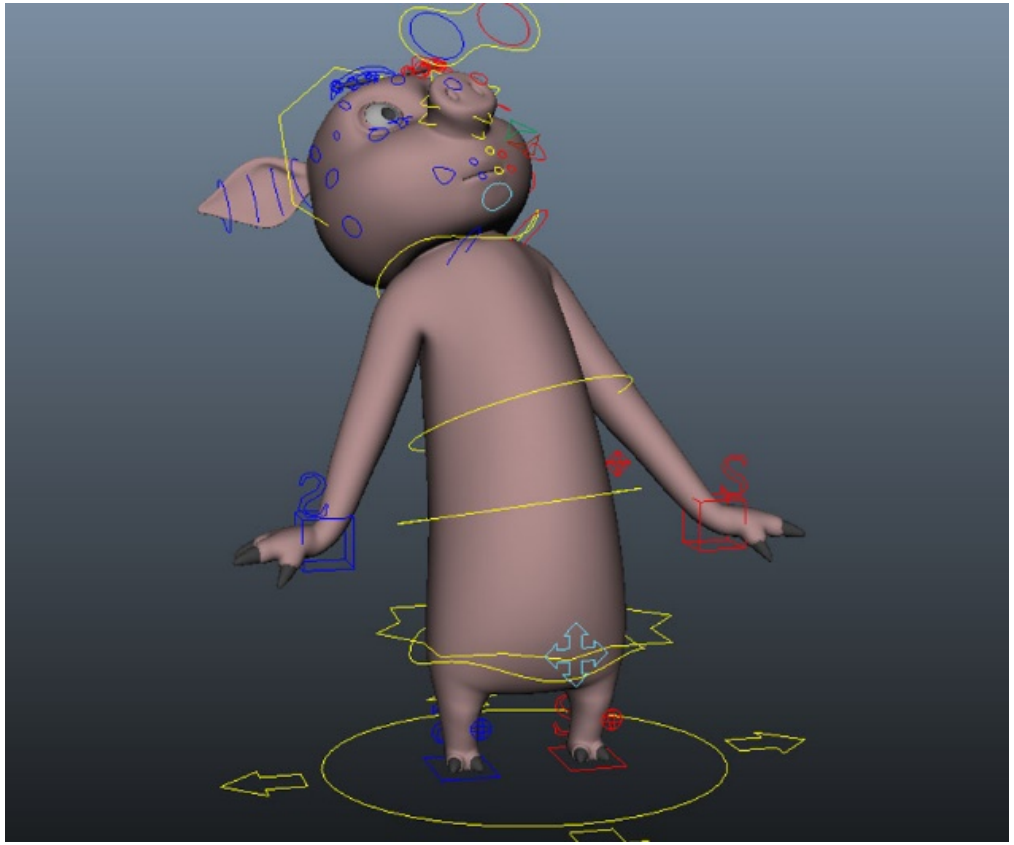
- IK/FK legs and arms
- IK/FK switch for legs and arms
- Bendy legs and arms
- Stretchy spine
- Foot roll
- Joint based facial rig
- Blend shapes for facial rig
- Manual control setup



Project B Pig Rig Technique

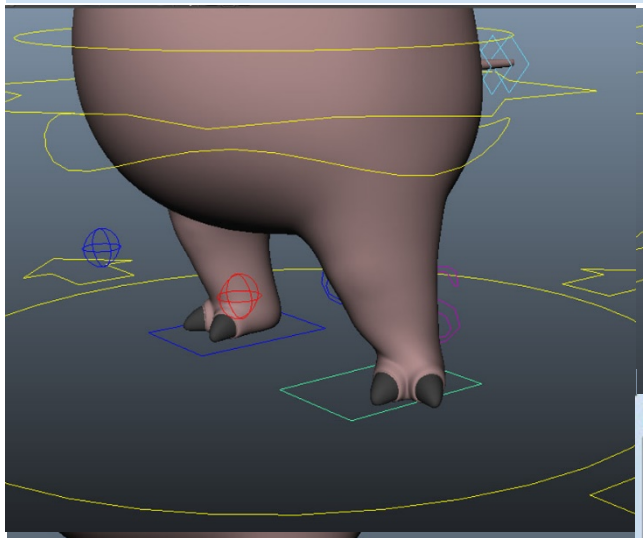


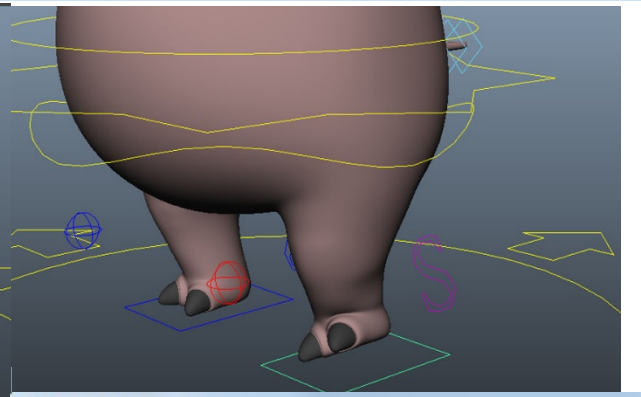
IK/FK legs and arms with stretching and bending

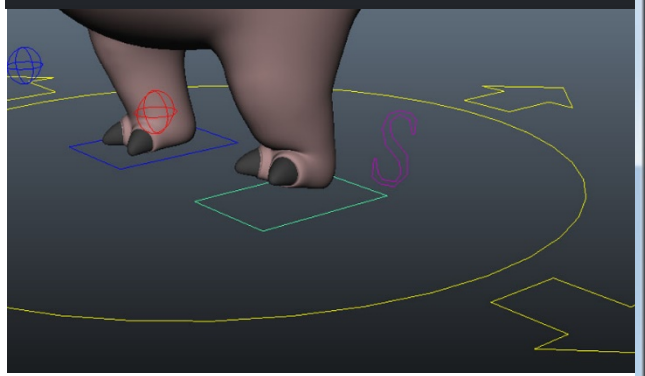


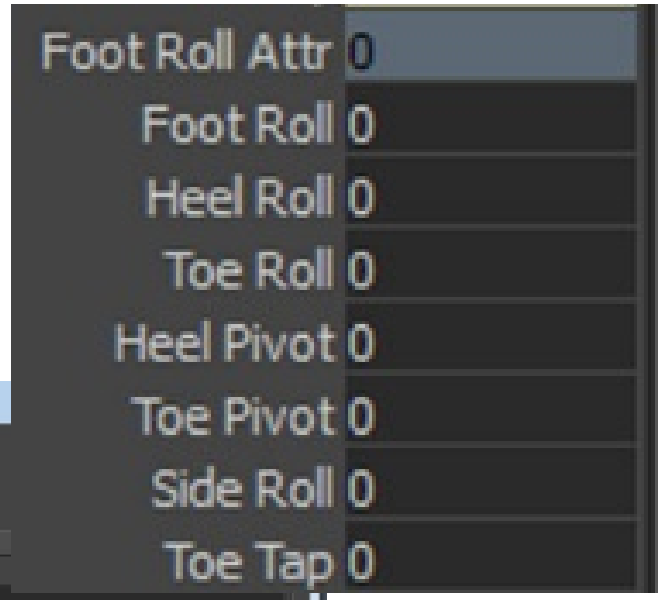
Stretchy spine

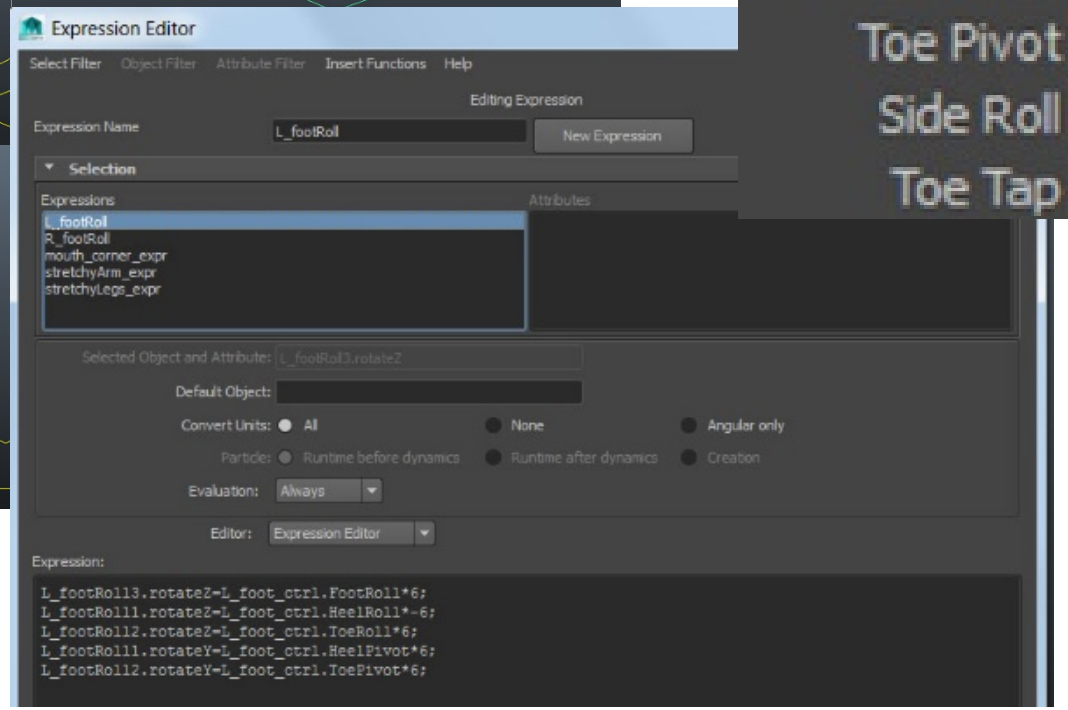
Project B Pig Rig Technique





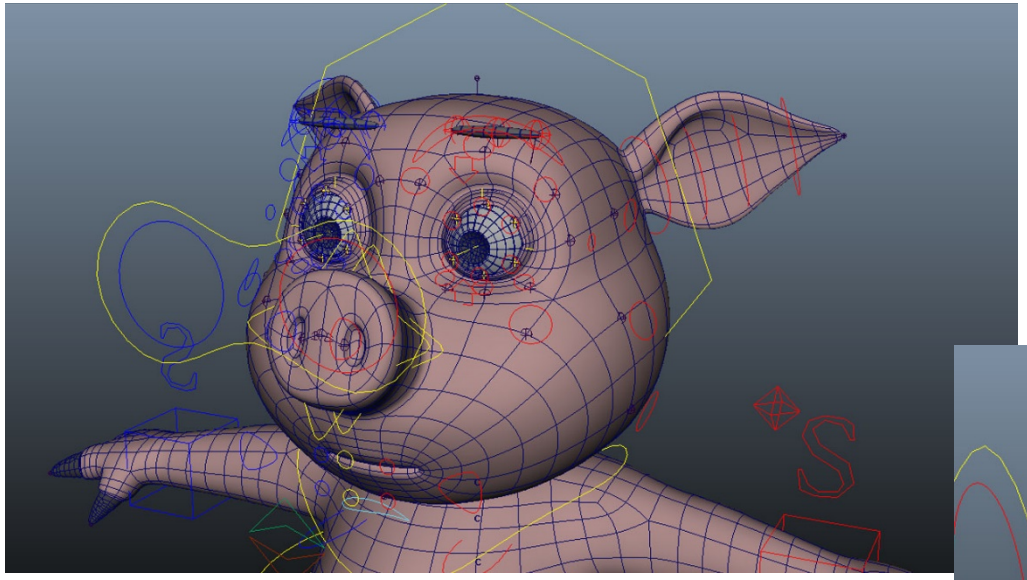




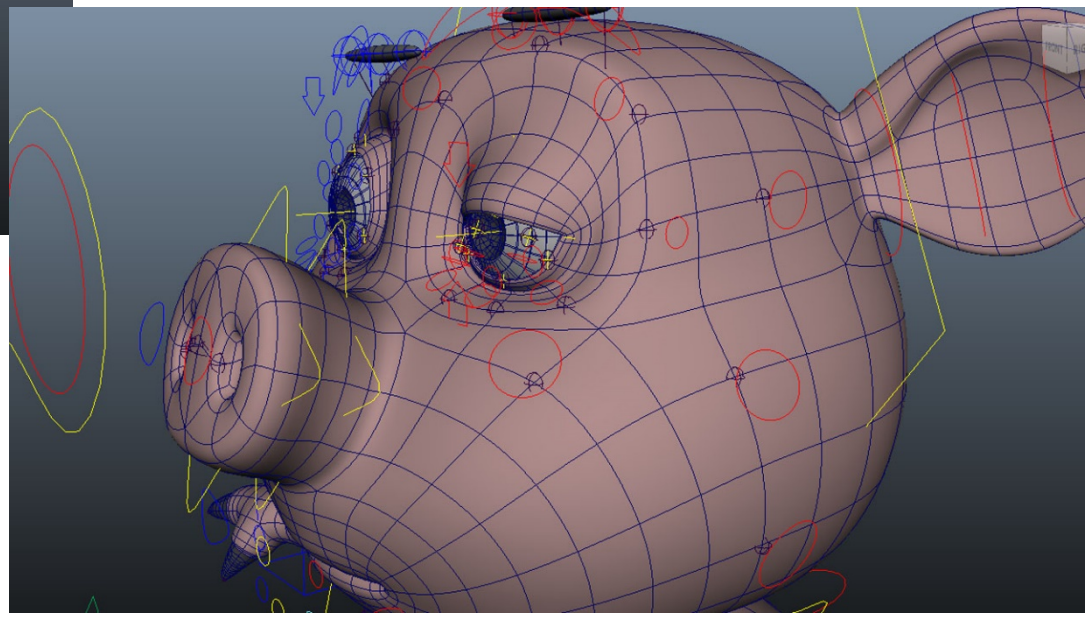


Foot roll expressions

Project B　Pig Rig　Facial rig

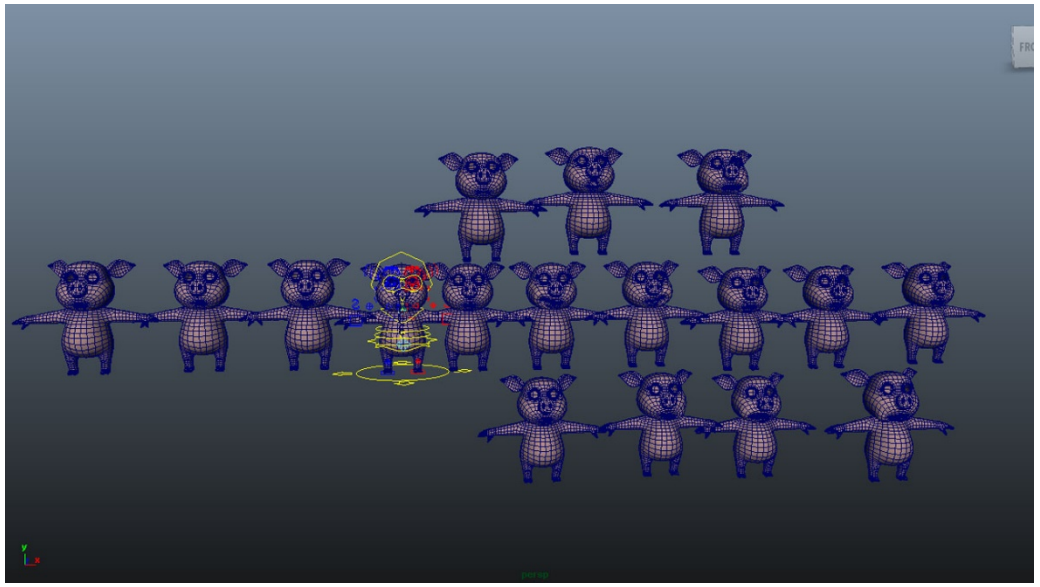


Joint placement for facial rig

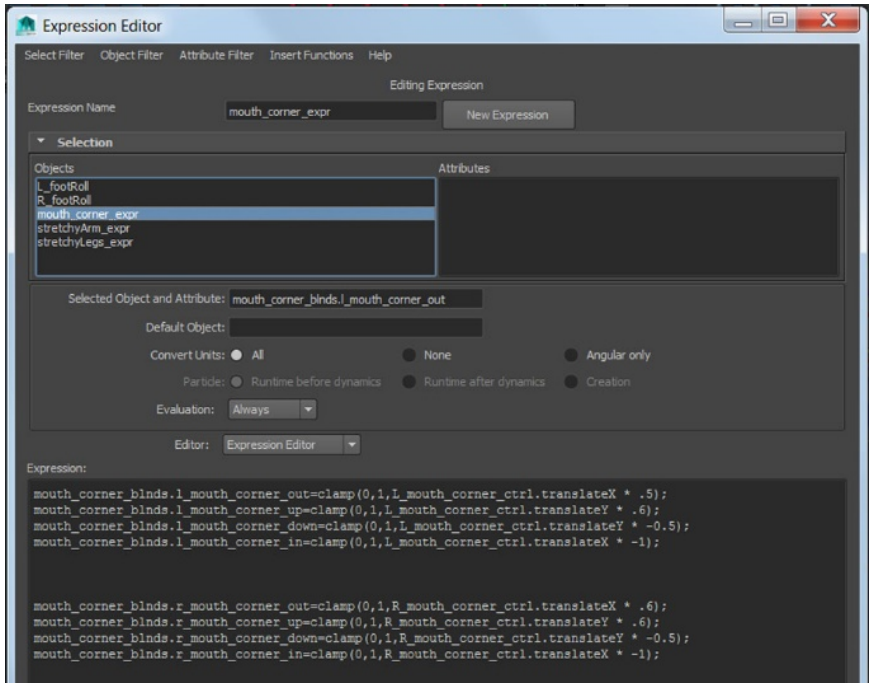


Facial setup result

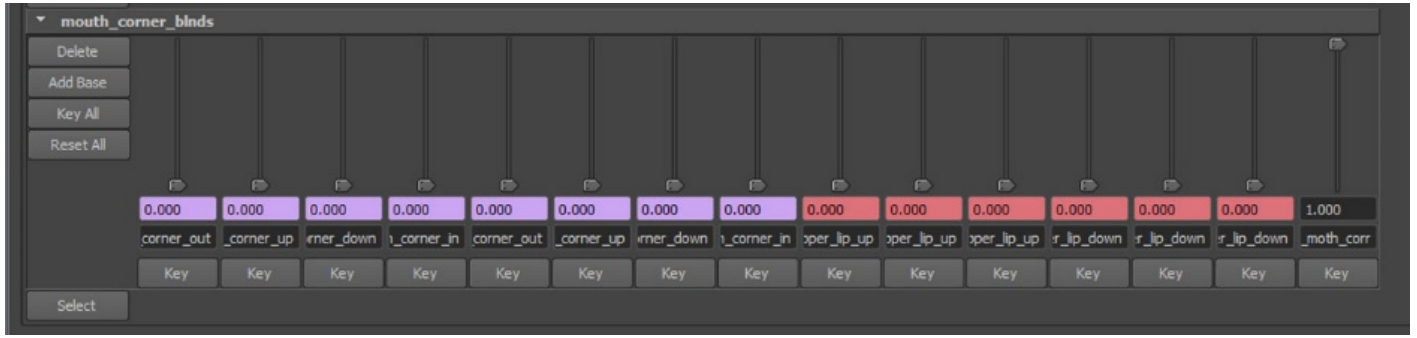
Project B Pig Rig Facial rig



Facial blend shapes

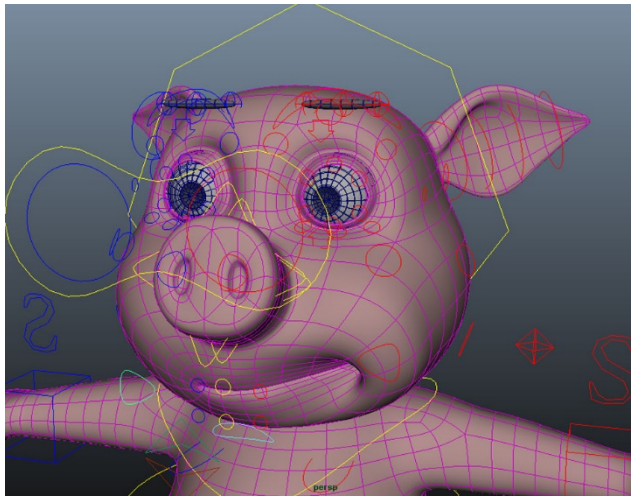


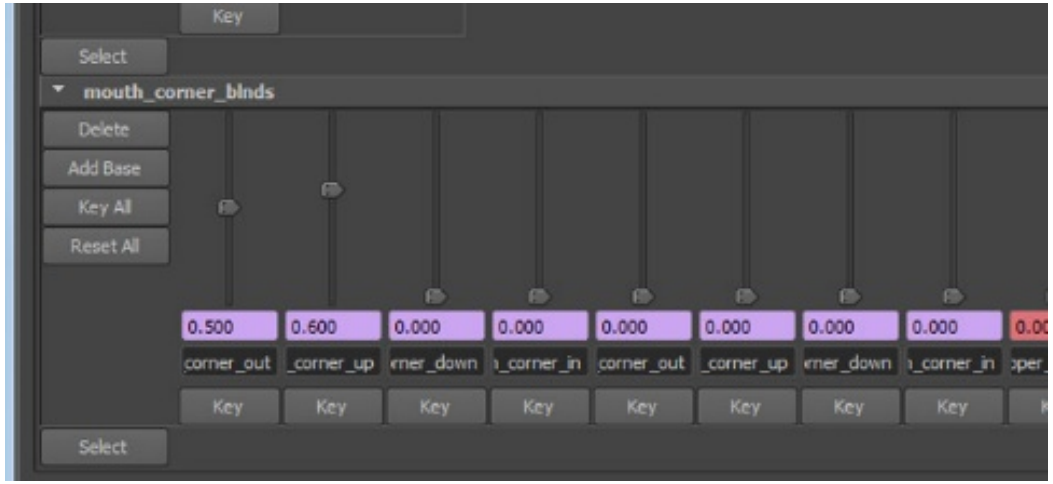
Facial blend shape expressions

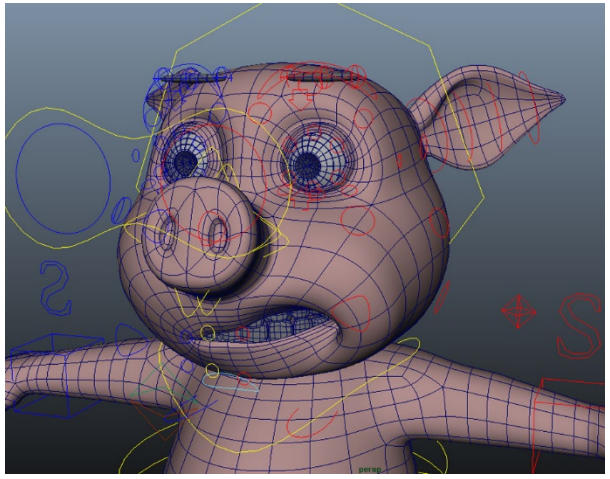


Facial blend shape node

Project B　Pig Rig　Facial rig







Facial blend shape setup result

Project C　Bat Rig　Character design

Project C　Bat Rig

Final render result

Texture & Fur by Yayu Chen

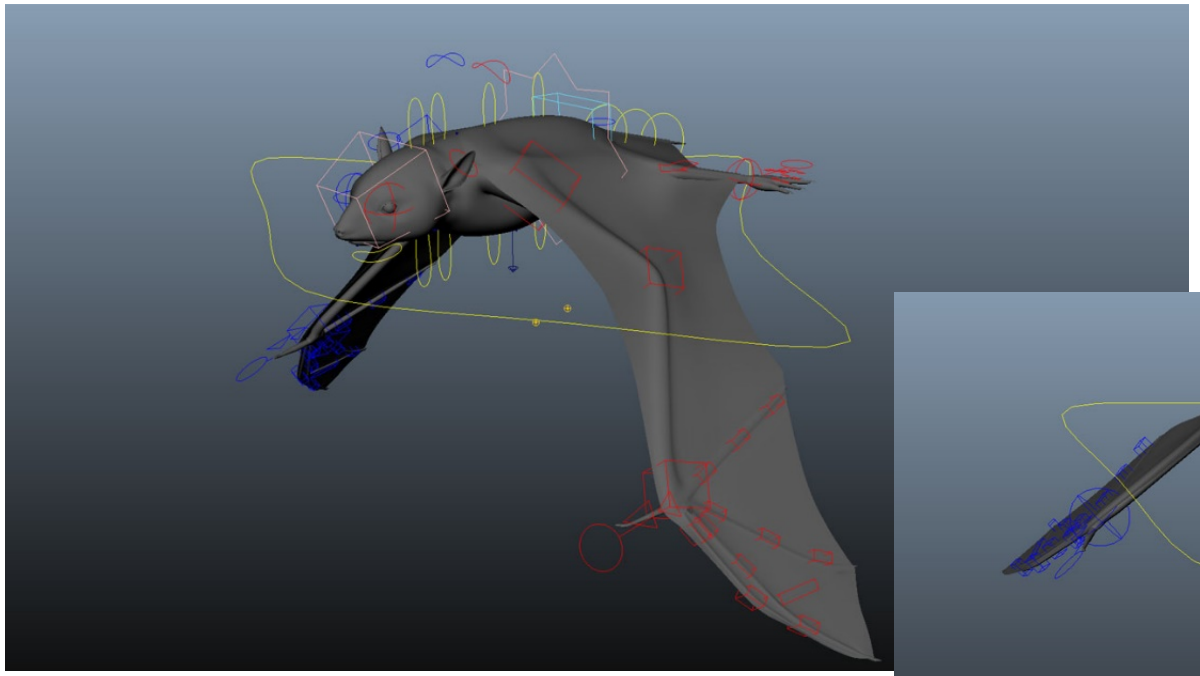
Project C　Bat Rig Functions

features

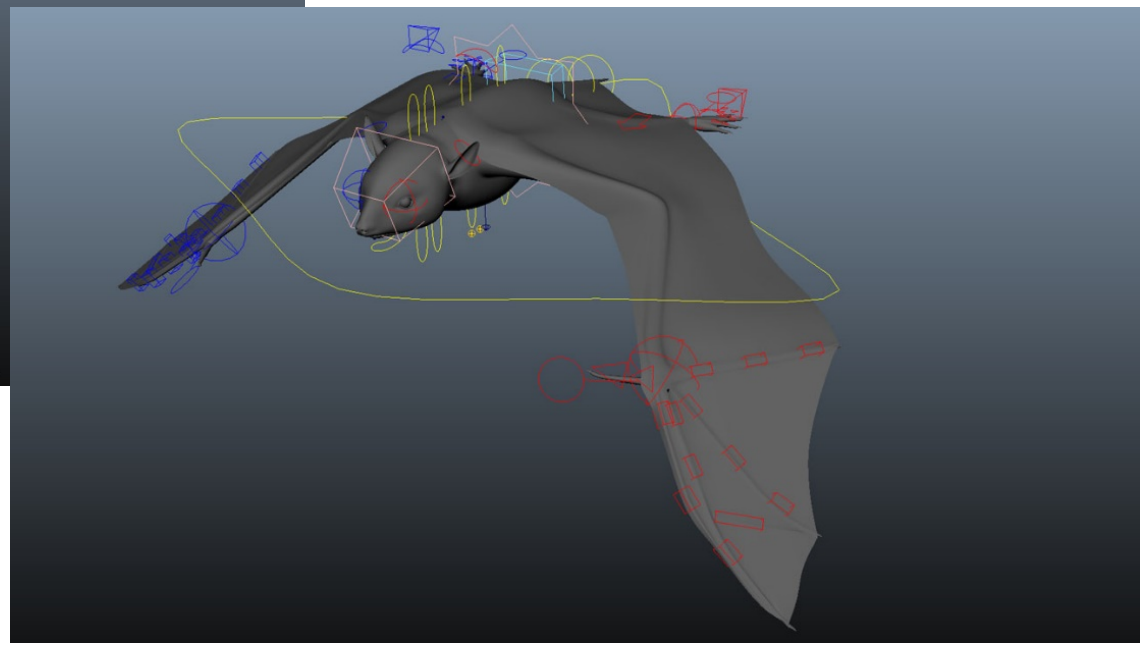
- Joint based facial rig
- FK spine
- IK/FK switch for wings
- Cloth simulation for wings

Texture & Fur by Yayu Chen

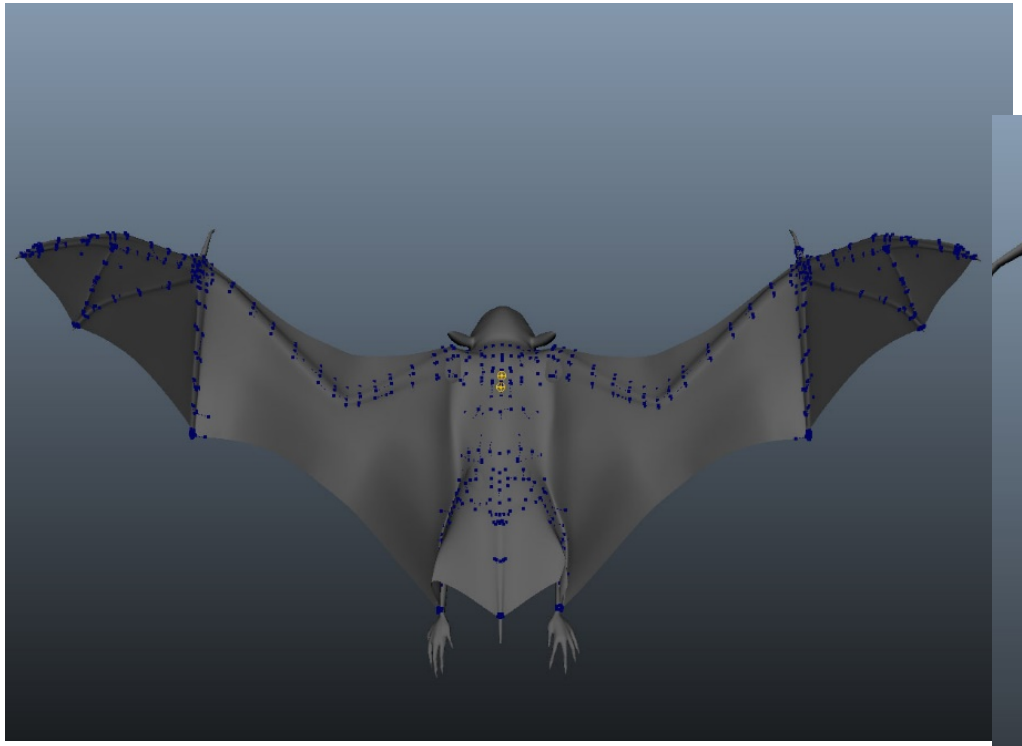
Project C　Bat Rig　Technique

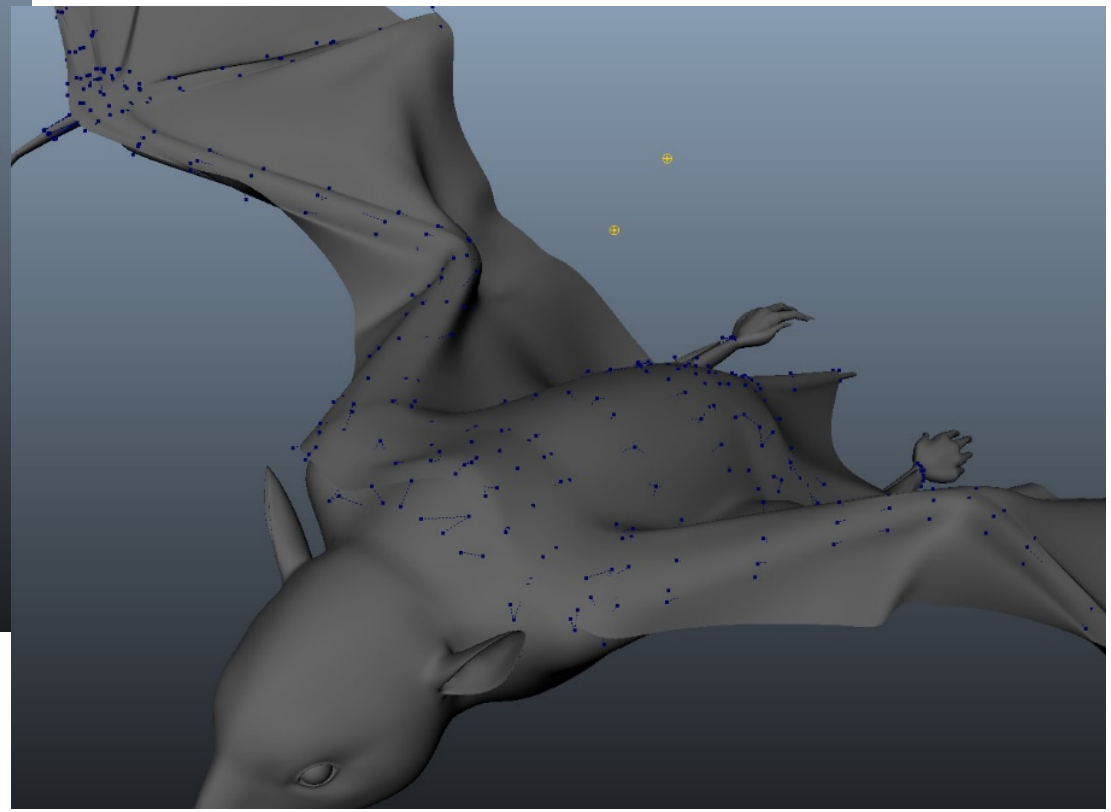


FK/IK Wings



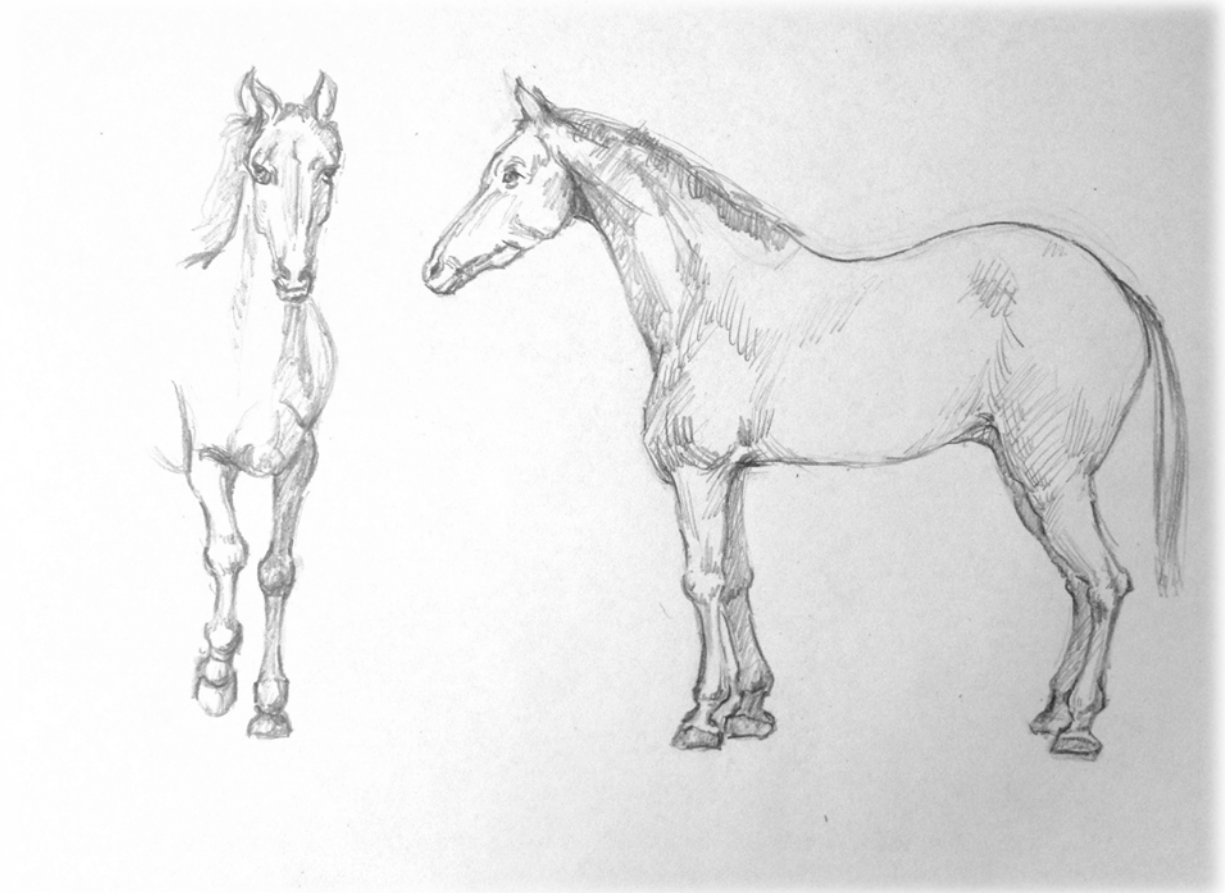
Project C　Bat Rig Technique





Cloth simulation for Wings

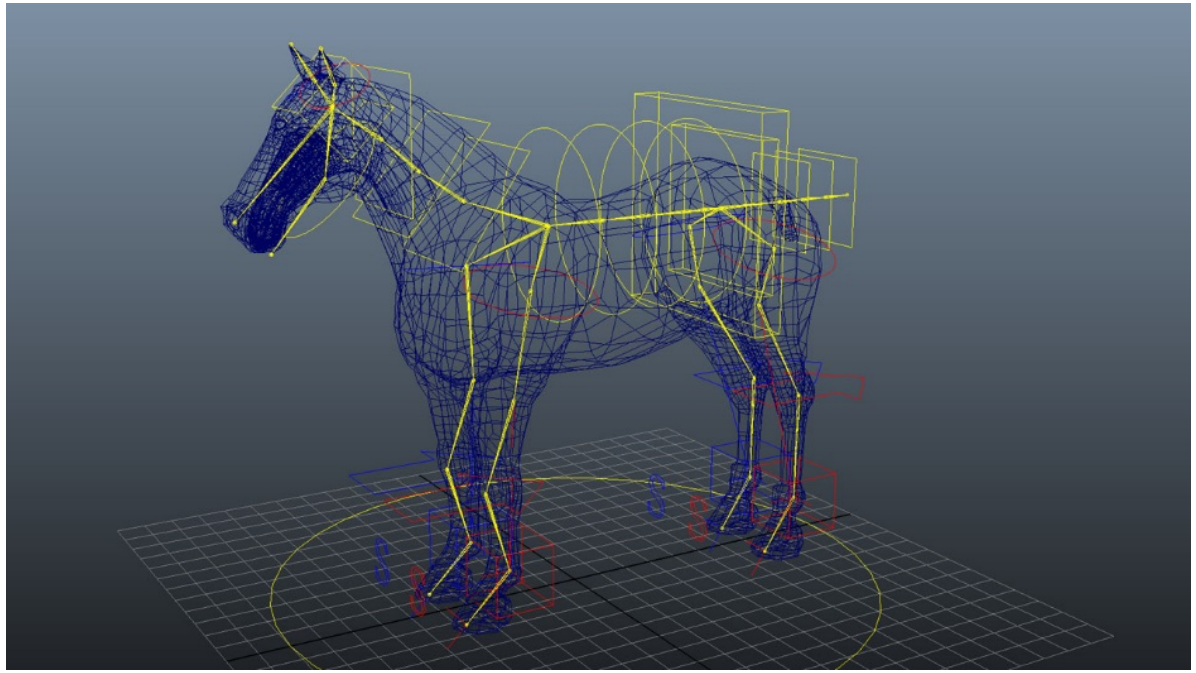
Project D　Auto Rig Script for Quadruped　Character design



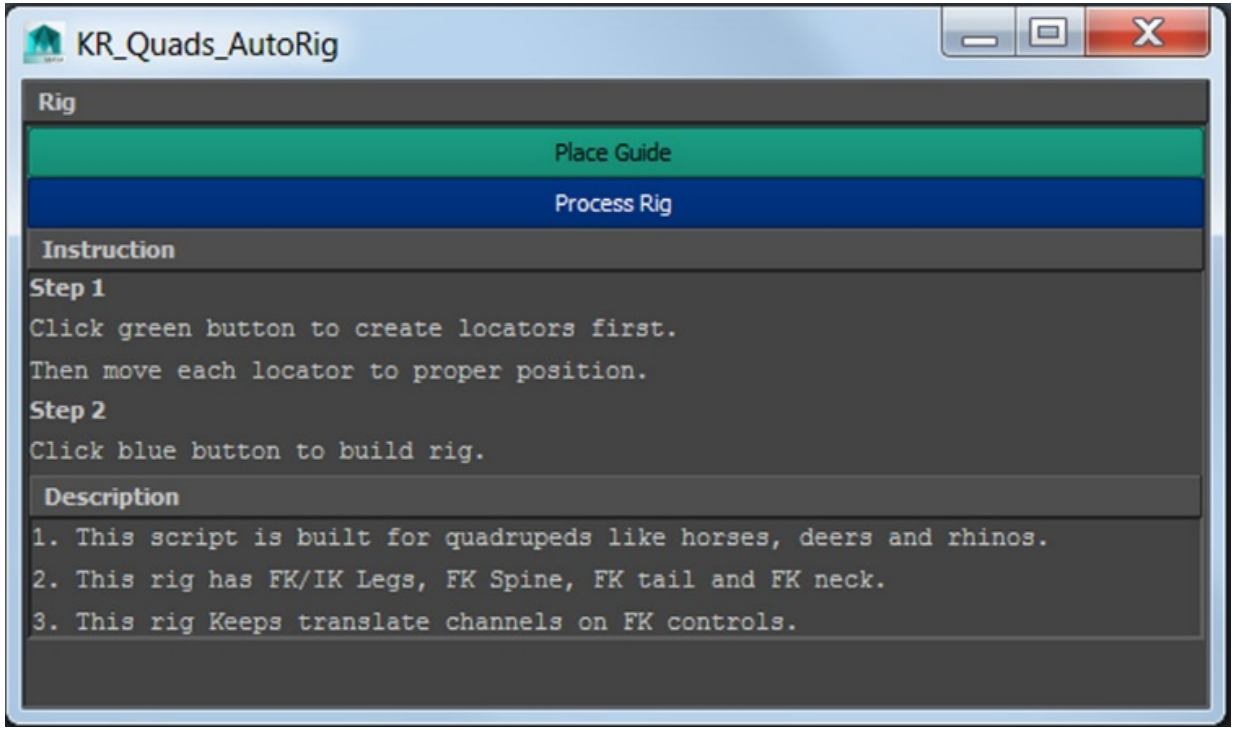
Project D　Auto Rig Script for Quadruped　Functions

features

- Full body joints set up
- Generate effective controllers
- Orienting and attaching units
- Mirror joints and controllers
- Constraint controllers with joints
- FK/IK Switch for legs
- FK Spine, FK neck and FK tail (Keep translate attributes)
- Clean outliner

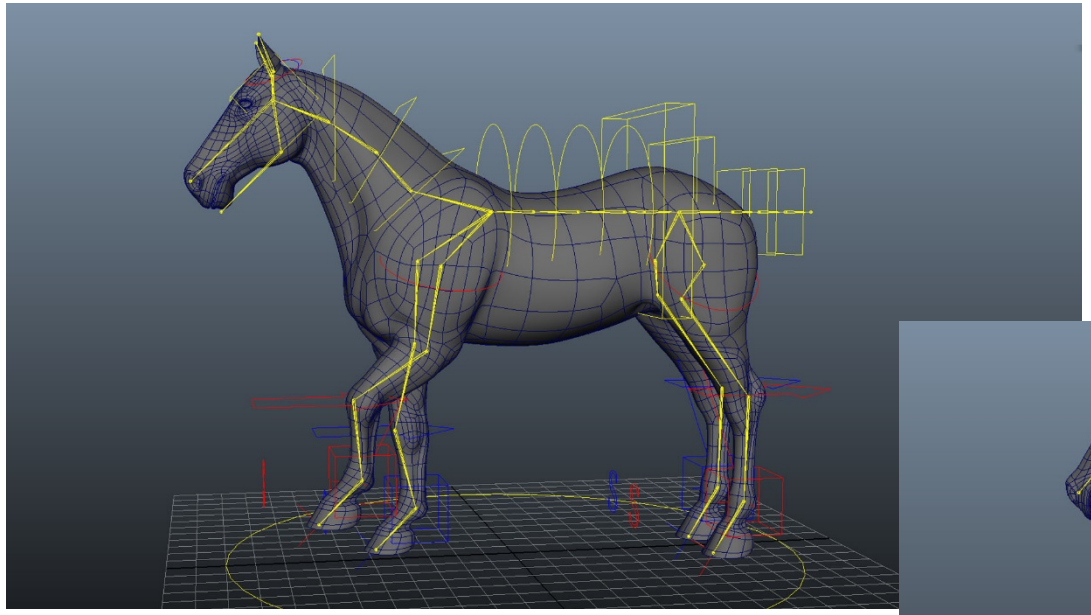


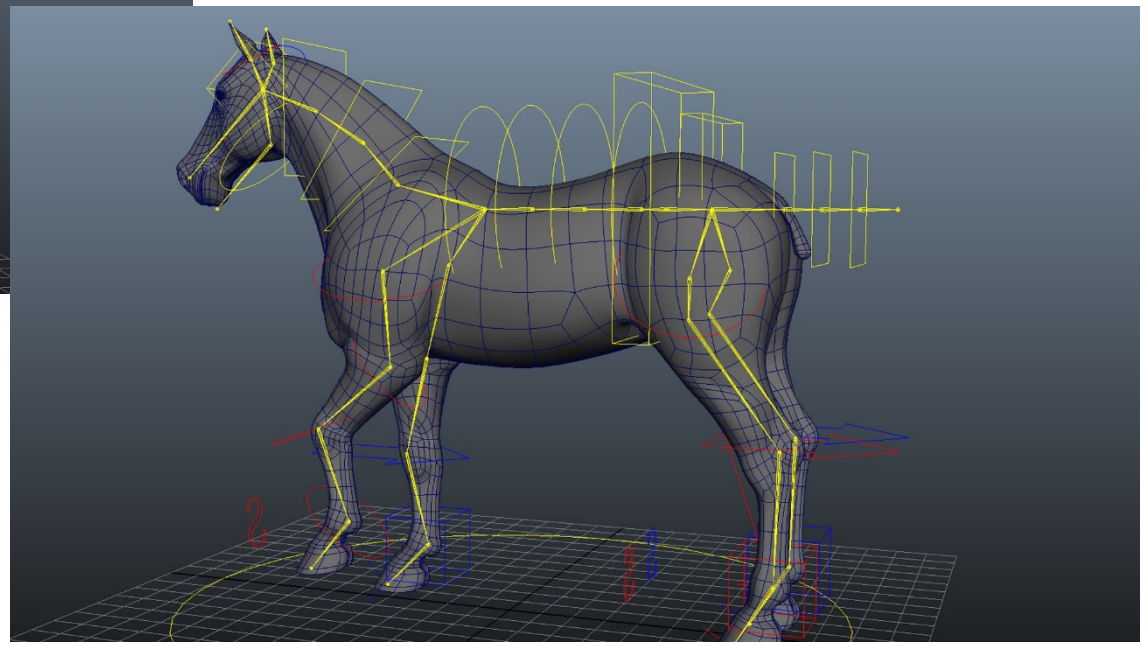
Project D　Auto Rig Script for Quadruped　GUI



- One button for place guide
- One button for processing rig
- Instruction for how to use this tool
- Description for what should be noticed

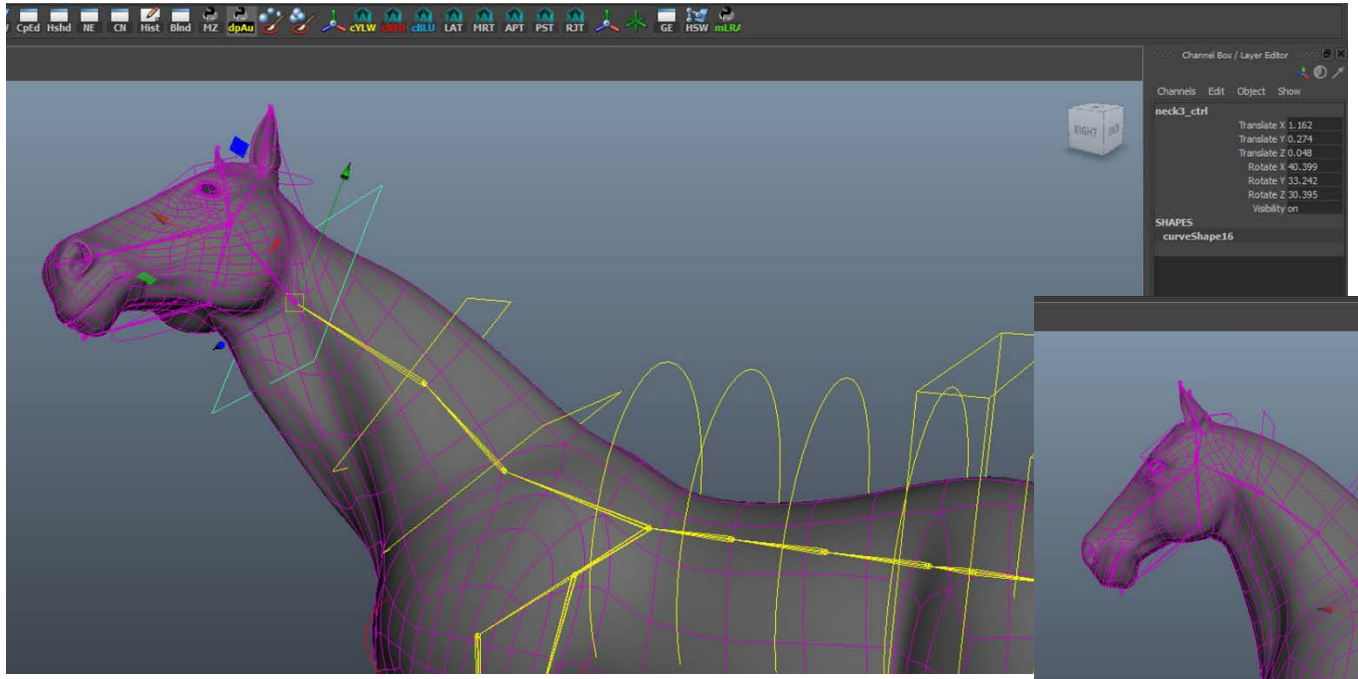
Project D　Auto Rig Script for Quadruped　Technique



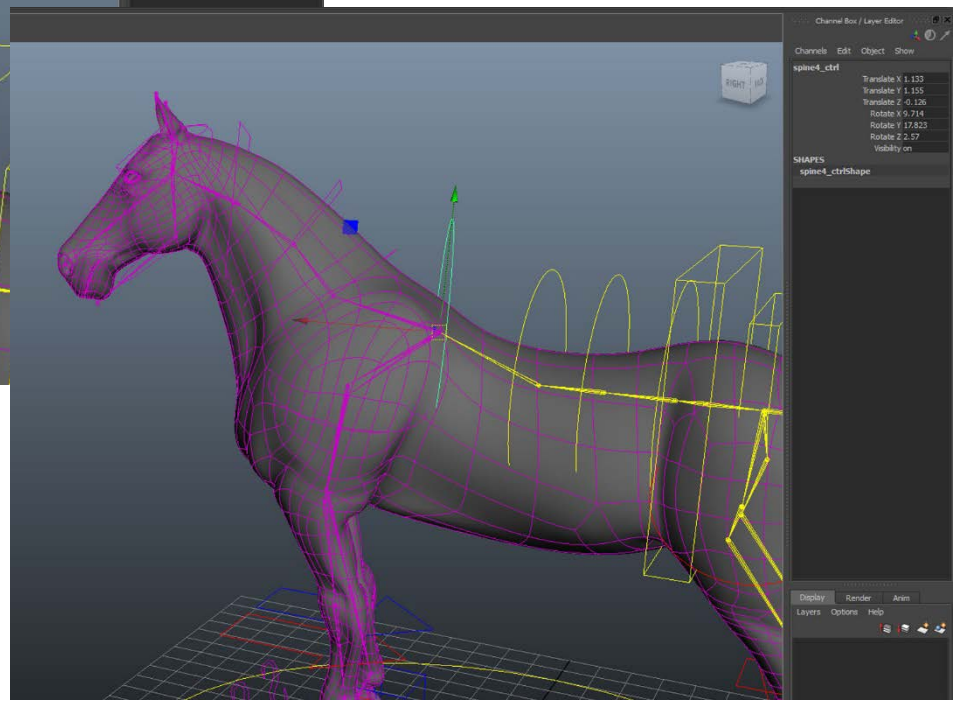


FK/IK Legs

Project D　Auto Rig Script for Quadruped　Technique



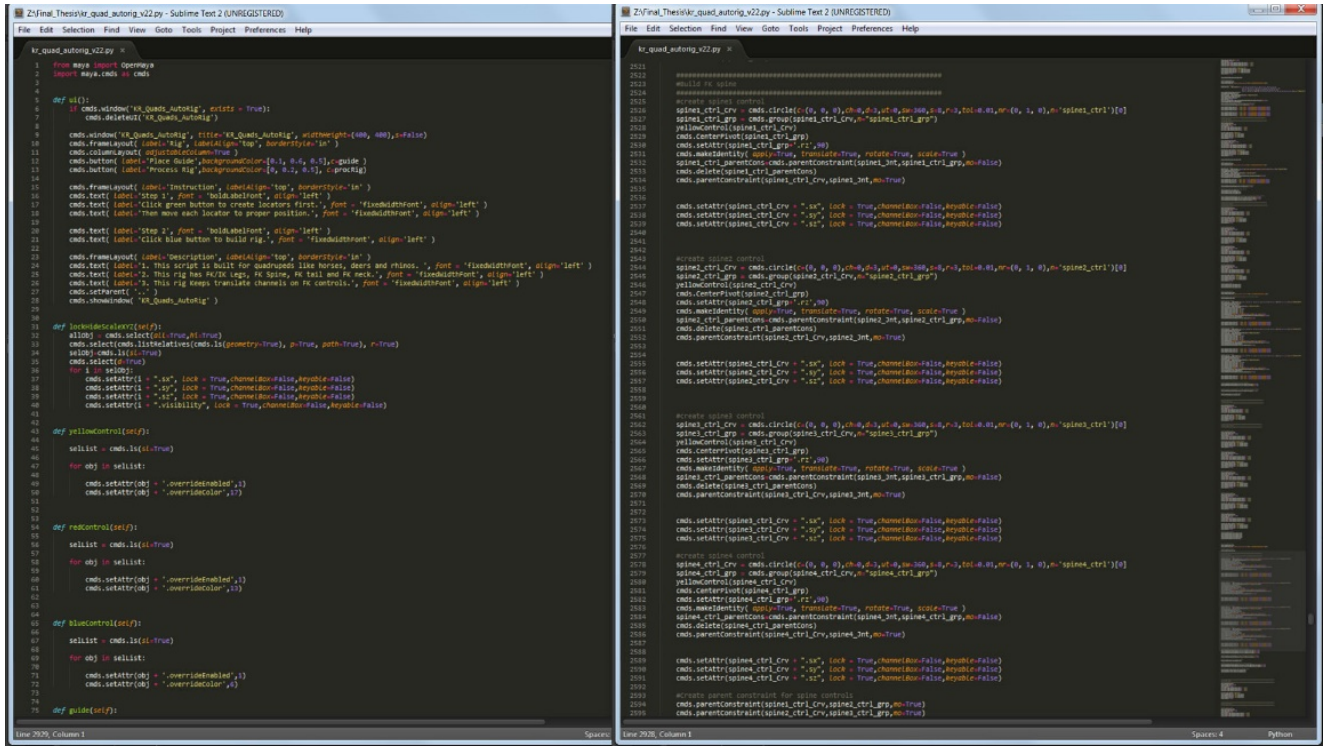
FK neck control (keep translate)



FK spine control (keep translate)

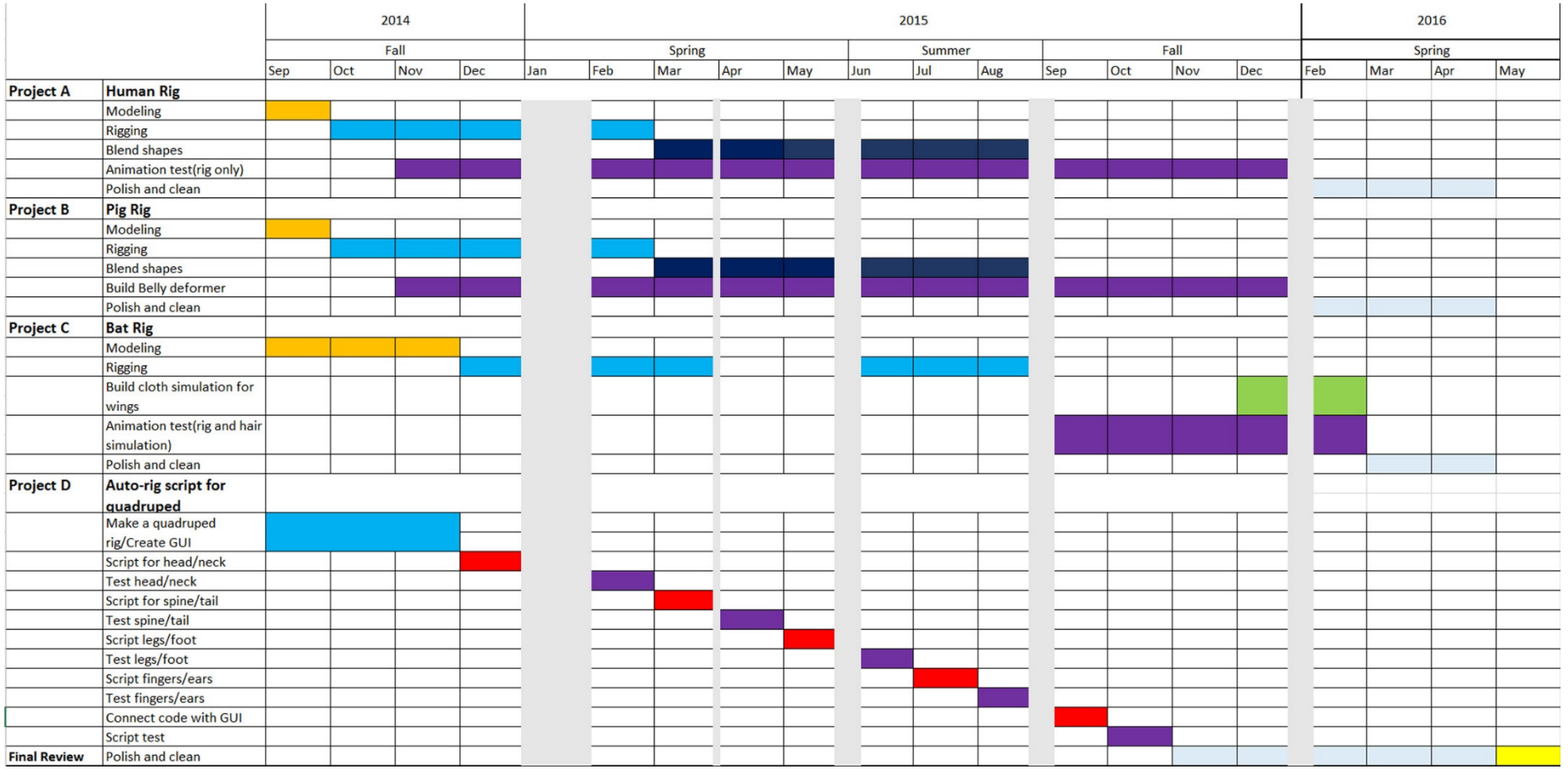
Project D　Auto Rig Script for Quadruped　Reason

- Learn more about Python
- Necessary for working in this industry
- Go over rigging process by coding



Code example

Final Timeline



		2014				2015												2016			
		Fall				Spring					Summer			Fall				Spring			
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Feb	Mar	Apr	May
Project A	**Human Rig**																				
	Modeling																				
	Rigging																				
	Blend shapes																				
	Animation test(rig only)																				
	Polish and clean																				
Project B	**Pig Rig**																				
	Modeling																				
	Rigging																				
	Blend shapes																				
	Build Belly deformer																				
	Polish and clean																				
Project C	**Bat Rig**																				
	Modeling																				
	Rigging																				
	Build cloth simulation for wings																				
	Animation test(rig and hair simulation)																				
	Polish and clean																				
Project D	**Auto-rig script for quadruped**																				
	Make a quadruped rig/Create GUI																				
	Script for head/neck																				
	Test head/neck																				
	Script for spine/tail																				
	Test spine/tail																				
	Script legs/foot																				
	Test legs/foot																				
	Script fingers/ears																				
	Test fingers/ears																				
	Connect code with GUI																				
	Script test																				
Final Review	Polish and clean																				

Modeling
Rigging
Blend shapes
Simulation & Jiggle Deformer
Animation
Scripting
Final review
Break
Polish

Planned Timeline (Midpoint)

		2014				2015											
		Fall				Spring					Summer			Fall			
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Project A	**Human Rig**																
	Modeling																
	Rigging																
	Blend shapes																
	Animation test(rig only)																
	Build cloth simulation																
	Animation test (rig and cloth simulation)																
Project B	**Pig Rig**																
	Modeling																
	Rigging																
	Blend shapes																
	Build Jiggle deformer																
	Build hair simulation																
	Animation test(rig and jiggle deformer)																
Project C	**Bat Rig**																
	Modeling																
	Rigging																
	Build hair simulation for wings																
	Animation test(rig and hair simulation)																
Project D	**Auto-rig script for quadruped**																
	Make a quadruped rig/Create GUI																
	Script for head/neck																
	Test head/neck																
	Script for spine/tail																
	Test spine/tail																
	Script legs/foot																
	Test legs/foot																
	Script fingers/ears																
	Test fingers/ears																
	Connect code with GUI																
	Script test																
Final Review																	

Modeling

Rigging

Blend shapes

Simulation & Jiggle Deformer

Test

Scripting

Final review

Break

Timeline in detail Unit: Day (4 hours per day)

Project A		Target	Padded
Modeling	Modeling	5	8
	Layouting UV	3	6
Rigging	Planning joints	5	7
	Orient joints	4	5
	Reverse foot	4	5
	IK/FK setup	4	6
	Bendy joints	5	10
	Stretch joints	5	10
	Controller setup	3	6
	Facial rig	5	10
	Blendshapes	12	15
	Paint skin weight	6	10
Rig Test	Animation	10	12
	Revise	5	8

Project B		target	Padded
Modeling	Modeling	5	8
	Layouting UV	3	5
Rigging	Planning joints	5	7
	Orient joints	4	5
	Reverse foot	4	5
	IK/FK setup	4	6
	Bendy joints	5	10
	Stretch joints	5	10
	Controller setup	3	6
	Facial rig	5	10
	Blendshapes	12	15
	Paint skin weight	6	10
Test	Animation	10	12
	Revise	5	6

Timeline in detail Unit: Day (4 hours per day)

Project C		Target	Padded
Modeling	Modeling	5	3
	Layouting UV	3	3
Rigging	Planning joints	5	7
	Orient joints	4	5
	IK/FK setup	4	8
	Controller setup	3	6
	Facial rig	5	3
	Paint skin weight	6	10
Simulation	Cloth simulation	4	8
Test	Animation	10	5
	Revise	5	6

Project D		Target	Padded
Build a real Rig & Creat GUI	Quadruped rig	70	70
	GUI	10	10
Scripting	Generating joints for head and neck	11	11
	Generating joints for Spin and tail	10	10
	Generating joints for legs and foot	12	20
	Generating joints for ears	20	10
	Orient Joints	10	20
	Create Controllers	14	15
	Attach controllers and joints	10	20
	Mirror and rename	5	10
	Connect GUI	10	20
Test	Integration	8	10
	Revise	7	10

Complete Class

ANM 636	MS: Organic Modeling 1
ANM 652	MS: Introduction to Rigging
ANM 655	MS: Scripting
ANM 670	MS: Preproduction
ANM 686	MS: 3D Character Animation 1
ANM 687	MS: 3D Character Animation 2
GLA 606	Crossing Borders: Art & Culture
GLA 602	The Art & Ideology of The 20th Century
GLA 621	History & Techniques of Character Animation
ILL 625	MS: Perspective for Illustration
FA 622	MS: Anatomy for Artists
GLA 670	Profession Practice for Animation & VFX
FASCU 632	MS: Ecorche
ANM 694	MS: Head Sculpture & Facial Expressions
ANM 801-17	MS: GROUP DIRECTED STUDY: Rigging
ANM 801-18	MS: GROUP DIRECTED STUDY: Rigging
ANM 656	MS: Organic Modeling 2
GAM 303	Creature Rigging and Animation
GAM 409	Advanced Rigging
ANM 499-71	Advanced Scripting
GAM 494-01	Game Studio Experience (Riot Games sponsored)

Thank You