



## CSE 464 - FACIAL EXPRESSION CREATION FOR ANIMATION

Course 10956 – 2018 Summer Term A  
University of Washington, Seattle campus

Instructor: Gary Faigin

Tues + Thurs: June 19 to July 19, 2017 (5 weeks)

Classroom #305 - Computer Science Building

Contact email: [gary@garyfaigin.com](mailto:gary@garyfaigin.com)

Class Time: 10am to 12:50pm

Class Size: 20 students

**Prerequisite: No prior Maya experience is required.**

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This 10-session summer class, taught by Gary Faigin, author of *"The Artist's Complete Guide to Facial Expression,"* trains students in the basics of facial expression, and how to create those expressions on a CG facial model that has been rigged using Faigin's input. Each class includes a lecture on the principles of expression featuring live drawings by Faigin, followed by complementary digital demonstrations by experienced animators using the software program Maya - standard in the animation industry.

Students are introduced to the individual muscles of expression, and shown how to combine those individual muscle movements to create the six cardinal expressions of joy, anger, sadness, fear, surprise, and disgust. Students also pose the various muscle movements reflecting their own faces in a hand mirror, and rendering the poses and expressions in CG. All student renderings are reviewed in class, allowing students to correct their expressions, as necessary.

Weekly time is spent in the computer lab, where students work under the supervision of class TAs who are experienced alumni from UW's own Capstone animation program.

Reference is also made to recent research on facial expression, based on Faigin's participation in the Facial Expression Research Group (FERG) which, together with the Animation Capstone, is housed in the Animation Research Labs (ARL) at UW.

This class is ideal for anyone interested in animation, game design, or mastering the basics of the expressive face, as well as those seeking a hands-on introduction to Maya.

### CLASS READING & MATERIALS LIST

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*"The Artists Complete Guide to Facial Expression"* © 1990, by Gary Faigin, available at the University Bookstore or online at [www.amazon.com](http://www.amazon.com)

FAIGIN FACE BLOG – <http://www.FaiginVFX.com/face-blog> & <http://www.garyfaigin.com/faigin-face-blog> - please review before class begins

A small hand-mirror – see example at <http://tinyurl.com/lh4r8f3>. (Will be provided)

## COURSE SYLLABUS

### **CLASS #1: INTRO TO FACIAL EXPRESSION; MOVEMENTS OF THE UPPER FACE** Tuesday 6/19/17

1. Introduction to facial expression - Why it’s important, how it’s universal, and examples from art and photojournalism.
2. Recent research on human expression and what it tells us.
3. How facial muscles work; active areas of the face.

#### **THE EYES & BROW**

- Neutral eyes and eyebrows
  - Position of the Lids: opening the upper eyelid; raising the lower lid; the squint
  - Rotation of the eye
  - Muscles of the Brow: eyebrow raiser
4. Introduction to Maya

*Assignment #1: Posing the Muscle Movements around the Eye (Part #1). Due 6/20/17*

### **CLASS #2: MOVEMENTS OF THE UPPER FACE (Cont.)** Thursday 6/21/17

*Review of Assignment #1: Posing the Muscle Movements around the Eye (Part #1)*

#### **THE UPPER FACE MUSCLES (Cont):**

- The Scowl
- The Glare
- The Brow of Distress

*Assignment #2: Posing the Muscle Movements around the Eye (Part #2). Due 6/25/17*

### **CLASS #3: MOVEMENTS OF THE MOUTH (Part 1)** Tuesday 6/26/17

*Review of Assignment #2: Posing the Muscle Movements around the Eye (Part #2)*

#### **THE CLOSED MOUTH**

- Sneering Muscle
- Smiling Muscle
- Frowning Muscle
- Pouting Muscle
- Lip Tightener

*Assignment #3: Posing the closed-mouth movements. Due 6/27/17*

## **CLASS #4: MOVEMENTS OF THE MOUTH (Part 2)**

**Thursday 6/28/17**

*Review of Assignment #3: Posing the closed-mouth movements*

### **THE OPEN MOUTH**

- Open Mouth - relaxed
- Lower Lip Stretcher
- Snarl/ Disgust
- Smile

*Assignment #4: Posing open-mouth movements. Due 7/2/17*

## **CLASS #5: THE CARDINAL EXPRESSIONS—SURPRISE and FEAR**

**Tuesday 7/3/17**

*Review of Assignment #4: Posing open-mouth movements*

### **SURPRISE and FEAR**

- Posing expressions – coordinating eyes and mouth; levels of intensity
- The difference between Surprise and Fear
- Posing Surprise
- Posing Fear

*Assignment #5: Posing Surprise and Fear. Due 7/4/17*

## **CLASS #6: THE CARDINAL EXPRESSIONS—SADNESS**

**Thursday 7/5/17**

*Review of Assignment #5: Posing Surprise and Fear*

### **SADNESS**

- The basics of Sadness – Crying vs. merely Sad
- Posing Crying
- Posing Sadness
- Various degrees of Sadness

*Assignment #6: Posing Sadness. Due 7/9/17*

## **CLASS #7: THE CARDINAL EXPRESSIONS—ANGER**

**Tuesday 7/10/17**

*Review of Assignment #6: Posing Sadness*

### **ANGER**

- The basics of Anger – starts with the eye
- Closed-mouth Anger – various levels of intensity
- Open-mouth Anger – variety of mouth positions

*Assignment #7: Posing Anger. Due: 7/11/17*

## **CLASS #8: THE CARDINAL EXPRESSIONS—DISGUST and JOY**

**Thursday 7/12/17**

*Review of Assignment #7: Posing Anger*

### **DISGUST and JOY**

- The basics of Disgust – the 3 active areas
- Posing Disgust – open mouth
- The basics of Joy – eye/mouth agreement
- Posing the closed-mouth Smile

*Assignment #8: Posing Disgust and the Closed-mouth Smile. Due: 7/15/17*

## **CLASS #9: THE CARDINAL EXPRESSIONS—JOY (Cont.)**

**Tuesday 7/17/17**

*Review of Assignment #8: Posing Disgust and the Closed-mouth Smile.*

### **JOY**

- The broad Smile
- The Laugh
- Varieties of the Smile: sly, bittersweet, eager & fake

*Assignment #9: Posing varieties of the smile & laugh; finding expressions on the web. Due 7/18/17*

## **CLASS #10: FINAL REVIEW**

**Thursday 7/19/17**

*Review of Assignment #9: Smile & Laugh and web research*

Final review, critique, and course summary

## LEARNING OUTCOMES

1. Students learn the basics of how to pose various movements of the face in Maya using a pre-rigged model.
2. Students learn the individual components of facial expression and how to pose them on their own face and render them in Maya.
3. Students learn the criteria to create a resting face with no apparent expression in Maya.
4. Students learn to pose convincing and accurate versions of the six cardinal facial expressions in Maya.
5. Students learn to pose certain expressions in varying degrees of intensity in Maya.

## STUDENT ASSESSMENT

1. Student grade will be based on successful completion of weekly class assignments.
2. Maximum points per assignment: 40 points.
3. Any weekly assignment not uploaded by deadline without notice receives 0 points.
4. Attendance is mandatory and does count towards your final grade. Please email staff if you cannot attend a class.

GRADING RUBRIC for "Mastering Facial Expressions in CG"				
Weekly Assignments: Rendering of facial movements and expression	Exemplary 40 points	Accomplished 30 points	Developing 20 points	Beginning 10 points
		Assignment is complete and <b>done extremely well</b> . Required facial movement or expression is clear and accurate. Emotions are recognizable and non-ambiguous.	Assignment is complete. Requested facial movement or expression meets general criteria. Emotions are recognizable but not un-ambiguous.	Assignment is complete. Required facial movement or expression is just adequate. Emotions are barely recognizable and/or face contains unrealistic artifacts.
<b>Notes:</b>				
<ol style="list-style-type: none"> <li>1. Students are required to upload weekly assignments before midnight the day before each class to the designated submission site.</li> <li>2. Students may choose to re-submit any completed assignment on a one-time basis for review and higher grade. All re-dos must be re-submitted no later than the upcoming class. No exceptions.</li> </ol>				

STUDENT ASSIGNMENT GRADES										
Points	Grade	GPA		Points	Grade	GPA		Points	Grade	GPA
360	A+	4.0		280	B	3.0		235	C-	1.7
325	A	4.0		270	B-	2.7		225	D+	1.3
300	A-	3.7		255	C+	2.3		215	D	1.0
290	B+	3.3		245	C	2.0		-200	E/F	0