MASTERING FACIAL EXPRESSIONS IN CG
University of Washington
Paul G. Allen School of Computer Science

Instructor: Gary Faigin   Contact email: gary@garyfaigin.com
Mons + Weds - June 19, 2017 to July 19, 2017 (5 weeks)   Class Time: 10am-12:50pm
TAs: Kyana Esber(kyana.esber@gmail.com) and Xavier James(alexxjames@msn.com)

Prerequisite: None.

This 10-session summer class trains students in the basics of facial expression.   During the course students will learn how to create expressions using 3D modeled face rigs. Each class includes a lecture on the principles of expression coupled with digital demonstrations and assignments.

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 will also pose the various muscle movements using themselves as reference by observing their own faces in a hand mirror, and rendering the poses and expressions in digital 3D. All student work will be reviewed in class, allowing students to develop a critical eye as to what expressions are more or less successful at conveying the expression the student intended.

Weekly time is spent in the computer lab, where students work under the supervision of class TA's who are experienced alumni from UW CSE's Animation Capstone program and will help each student in the course learn the program interface and to store and retrieve their work.

Reference is also made to recent research on facial expression, based on Faigin's participation in the Facial Expression Research Group (FERG), also part of the Paul G Allen School of Computer Science and Engineering's Animation Capstone program.

This class is tailored to anyone interested in developing their skills in facial animation for game design and mastering the basics of the expressive face.

CLASS READING & MATERIALS LIST

"*The Artists Complete Guide to Facial Expression*" © 1990, by Gary Faigin, available at the University Bookstore or online at www.amazon.com

FAIGIN FACE BLOG - http://www.garyfaigin.com/faigin-face-blog - please read before class begins

A small hand-mirror – see example at http://tinyurl.com/lh4r8f3.

COURSE SYLLABUS

CLASS #1: INTRO TO FACIAL EXPRESSION; MOVEMENTS OF THE UPPER FACE   Monday 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
   - Introduction to Maya

Assignment #1: Posing the Muscle Movements around the Eye (Part #1).

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

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

   THE UPPER FACE MUSCLES (Cont):
   - The Frown
   - The Glare
   - The Brow of Distress

Assignment #2: Posing the Muscle Movements around the Eye (Part #2).

CLASS #3: MOVEMENTS OF THE MOUTH (Part 1)
Monday 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.

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

CLASS #5: THE CARDINAL EXPRESSIONS—SURPRISE and FEAR
Monday 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.

CLASS #6: THE CARDINAL EXPRESSIONS—SADNESS
Wednesday 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
Monday 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.

CLASS #8: THE CARDINAL EXPRESSIONS—DISGUEST and JOY
Wednesday 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.

CLASS #9: THE CARDINAL EXPRESSIONS—JOY (Cont)
Monday 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
Wednesday 7/19/17

Review of Assignment #9: Smile & Laugh, and web research,   Final review, critique, 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.

www.GaryFaigin.com