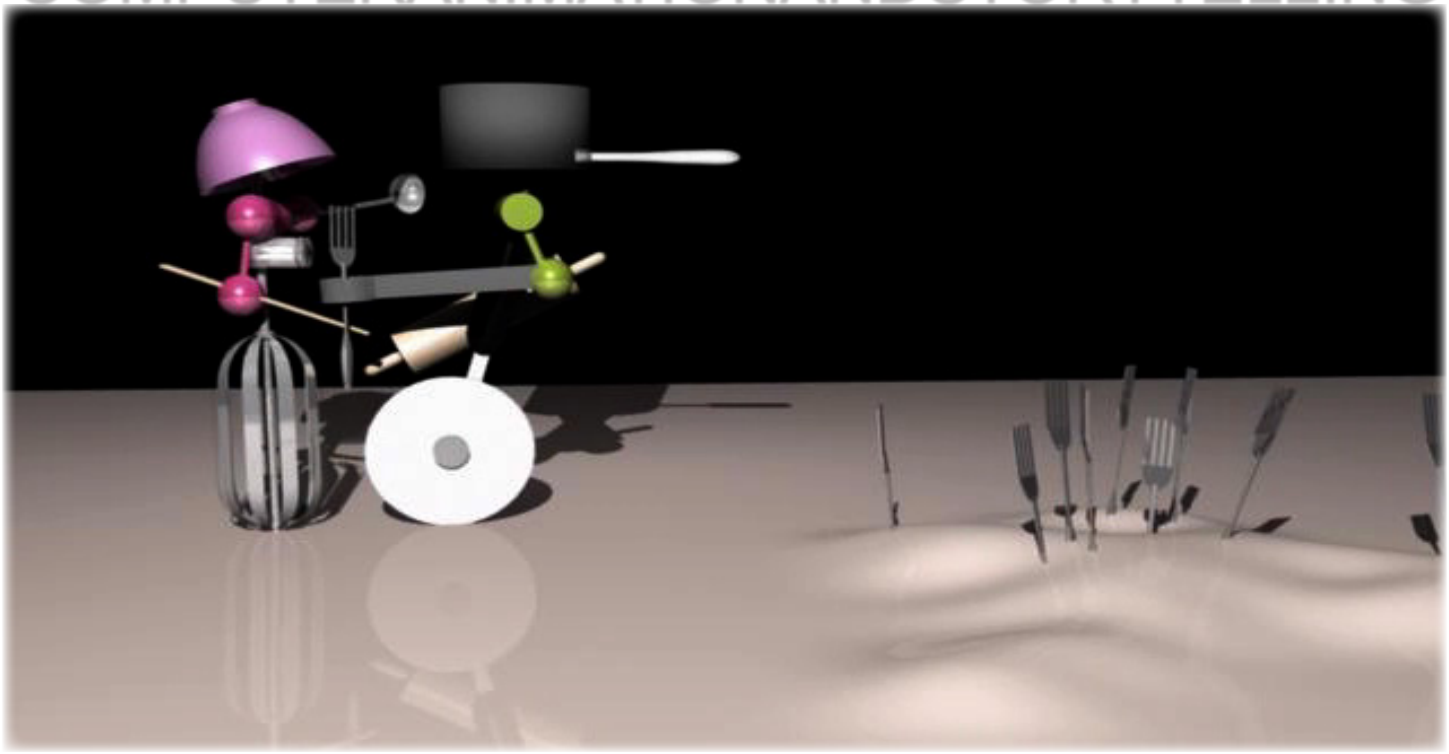
COMPUTERANIMATIONANDSTORYTELLING



ARCH423/523 Media for Design Development https://blogs.uoregon.edu/cast/ Spring 2019

Earl Mark emark@uoregon.edu Tuesday & Thursday 10:00 to 11:50 am Lawrence 383

DESCRIPTION

ARCH 423/523 Media for Design Development: Computer Animation and Storytelling is a 3-credit workshop/seminar that explores moviemaking through computer animation. Approximately five independently developed short animations constitute the work of the term culminating in a one to five minute time-length final project. It is anticipated that an interdisciplinary group of students admitted to the class will bring perspectives from across the university and design. The work of the seminar will be informed by screenings of student work and of other movies. Discussion of perceptual phenomenon will provide a framework for the development and critique of individual work.

ENROLLMENT

Outside majors are invited to enroll. Open to undergraduate and graduate students from any discipiline. No prior technical or moviemaking background is assumed. Students with prior experience will have the option to explore more advanced methods.

STORYTELLING

Movie projects may range according to personal background and interest. Examples include a short narrative with character animation, an interpretative simulation of the built or natural environment or micro-environment, an ergonomic study, or sound generated movement. Designers experiment with forms and space dynamically. Artists experiment with plastic form, spaces, simulated materials, and forces. Scientists simulate movement of people or other things in response to andhow they impact their environments. Built structures and landscapes may be explored according to our own changing eye point of view, the transformation of light, water and other elements. Animated people and objects are subjected to physical force. In addition, objects found in architecture and nature have forms, spatial frequences and geometrical orders that can be understood through animated sequences. Story telling, whether by means of character animation or complex scene description, may be visualized as a story in a real or imagined environment with some sense of a beginning, middle and ending.

* The image above is from a mid-course exercise created by architecture student/musician Tim Ouyang with abstract characters. Similar to those in Oskar Schlemmer's Triadic Ballet within the Bauhaus, they respond to and generate sounds in a way that links cubism, theater and design.

SIMULATION

Real physics simulation is increasingly the basis of animation of places, objects and their environments. This includes wind, air, fluids (e.g., molasses, water, ocean surfaces) particles (e.g., snow, rain, clouds), mechanical objects (e.g., springs, hinges, pin joints), cloth (e.g., clothing, tension membrane fabric), hair, skin, gravity, force, mass). Human movement can be described with techniques in inverse and forward kinematics through the use skeletons, joints. Motion capture data provide ways to study of people movements and interactions in sports medicine, dance and everyday quotidian activity. Additional advances in animaiion now may link recorded or synthesized sounds to algorihmically controlled transormations of form or space. . Highly realistic simulation of artificial and sunlight movement, materials, and real data are now within practical computing limits, such as through academy award winning technology, the V-Ray plugin to Maya, granted for the animation course.

MOTION CAPTURE

Motion capture data (and, if available, human motion capture equipment) will be used to replicate human movement.

SOFTWARE

The principal software is Maya. It is widely used in 3D computer animation and movie production, such as at Pixar, as well as in visualization and design. Other related products will be introduced for modeling human forms, physics and light simulation, composite video editing, sound processing and editing, and image and video processing. All software is availble free to students under educational licensing or open source terms.

MODELING WITHIN A PERCEPTUAL FRAMEWORK

An in-depth exploration of NURBS three-dimensional modeling and rendering will be the basis for representing built and natural environments, sculpting characters and creating complex geometrical forms. The scales for individual projects may range from short narrative movies to the analysis of micro-scale environments or larger scale architectural and landscape architectural settings. The work of the seminar will be informed by screenings of student work and of other movies. Discussion of perceptual phenomenon will provide a framework for the development and critique of individual work.

CORE REQUIREMENTS

Five exercises consist of very short animations of 1 to 5 minutes. The first four animations count as roughly 15% of the course. The final animation counts towards roughly %30 of the course. Class participation / attendance counts towards 10% . The class is completely project based. There are no exams. While the technology explored will be of a significant sophistication, the evaluation of student work will more typically be based on topical rather than technical achievement.

INSTRUCTOR

Visiting associate professor of architecture Earl Mark teaches design as well as computer based media and computational design methods. His projects in animation, moviemaking and computer visualization have been on long term exhibit at Historic Jamestown, Monticello,The Smithsonian and the National Building Museum.

CONTACT

Questions may be sent to emark@uoregon.edu.

FURTHER DETAILS

A detailed syllabus, workshops, exercises and resources is posted at https://blogs.oregon.edu/cast/.