

# CSE682 - Computer Animation

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**Tentative office hours:**

**T 1:30-2:30; F 1:30-3:30**



# CSE 682 - in the curriculum

## **Capstone Design Course**

Quarter-long, group-based project

Documentation

Presentations

## **Game/Animation Curriculum**

OpenGL programming: 581-781

Animation: 682-683

Game: 786



# Animation Project

## **Rube Goldberg mechanism**

Beginning & end to be constrained

Design – storyboard

Progress reports

Document progress on web site

Physics-based animation

Limits figure animation

Defines problem domain



# Course - general organization

First 1/3 of quarter

## **Learn course software**

Maya, Premier

Form technical groups

## **Organize project groups**

Design animation

Organize tasks

Reference material

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rest of quarter

## **Project**

Lectures on animation

View animations

In-class group work sessions

Fridays 1-3 for group work

Progress reports



# Class: Wi '11

Eng. Majors: 14

MPS majors: 8

ECE: 1

Grads: 2



# Some Alumni

Beth Hofer, M.S. - PDI

Kirk Bowers, B.S. - Disney

Mark Fontana, B.S. - Pixar

Kevin Rogers , M.S. - PDI

Saty Ragavachara, M.S. - Imageworks

Brad Winemiller, B.S. - Pixar

Steve Anderson, M.S. - Electronic Arts

Doug Roble, Ph.D. - Digital Domain

Dave Haumann , Ph.D. - Pixar

Ferdi Scheepers , Ph.D. - Pixar

Rob Rosenblum, M.S. - PDI

Nathan Loofbourrow, M.S. - PDI

Steve May , Ph.D. - Pixar

Brent Watkins, M.S. - Pixar



# Grading

Individual Homeworks

MEL exercises

Technical presentation

Project documentation

Oral presentations

Project

Individual contribution to project



# Technical groups

	Group 1	Group 2	Group 3	Group 4	Group 5
Modeling					
Animation					
Lighting					
Rendering					
Post Processing					





# Animation

**Animating** - Making something appear to move that doesn't move itself

**Procedural Animation** is Required

**Motion Control** Techniques and Algorithms

**Producing animation:**

Aesthetics

Animation Production

Digital Post-Processing



# Animation

## Low-Level Control

Interpolation

Speed control along a path  
path following

Forward/inverse kinematics

## Physics-based

Gravity

Collisions

Springs

Viscosity

Friction

## High-Level Algorithms

Particle Systems

Flocking

Crowds

## Natural Phenomena

Plants

Water

Clouds

Fire

## The Human Form

Reaching, grasping

Walking

Hair, clothes

Facial expressions, gestures



# Project Groups

Groups: 3-4, mix backgrounds

Design and present storyboard

Maintain documentation

Give progress reports

Present final project



# Student Presentations

Rough Storyboard

Storyboard (revised)

Detailed Storyboard and sample stills of objects

Sample stills and low-quality rendering of sequences

Finished sequence (finals week)



# Storyboard



# Hardware Facilities

CL112D

10 Maya licenses

5-6 Premier licenses



# Immediate Tasks

Form into groups

Start thinking of animation project

Consider technical group interest

Learn Maya

