What’s Next in Graphics
Logistics

● Course Reviews
  ○ in Canvas, students will see a pop-up notification on their Canvas dashboard page any time they log into Canvas during the evaluation period.
  ○ in Axess > My Academics > Course and Section Evaluations > Link to the evaluation system near the top of the page

● Final Showcase
  ○ Friday (Aug. 18) from 12-3
  ○ There will be pizza, donuts, and prizes for the winners
  ○ Final grading session - where you will present your 2 minutes on your final project
  ○ Let us know IN ADVANCE if you will not be present

● Final Project Rendering
  ○ Render now
Upcoming Classes
Geometry, Rendering, and Hardware

Animation/Simulation

CS 148

CS 248A

CS 248B

CS 205L

EE 267

CS 348N

CS 348I

CS 348K

CS 348C

CS 348E

CS 123

CS 44B
CS 248A: Computer Graphics: Rendering, Geometry, and Image Manipulation

- What is an image and how does it get shown on the screen?
- GPU pipeline
- Transformations
- A bit of interaction
- Final Project

- Learn more about simulation and motion
- Focus on sound and motion
- Rigid body and soft body interactions
- Particle systems
- IK bones (rigging)

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CS 348E: Character Animation: Modeling, Simulation, and Control of Human Motion

- Simulation and Animation, but focused on the human body
- Forward and Inverse Kinematics
- Study of hands
- Using motion to predict future actions
CS 348C: Computer Graphics: Animation and Simulation

- Simulation and Animation, but focused on particle systems
- Taught in Houdini
- Particle systems, procedural geometry, dynamics, and sound
- Final project
CS 348C: Computer Graphics: Animation and Simulation

- Simulation and Animation, but focused on particle systems
- Taught in Houdini
- Particle systems, procedural geometry, dynamics, and sound
- Final Project
CS 348K: Visual Computing Systems

- Digital camera processing
- Neural network hardware
- Video compression
- NERFS
- GPU accelerated ray tracing
CS 348I: Computer Graphics in the Era of AI

- Paper reading course
- Discusses AI in areas across Computer Graphics
- Applies machine learning to both creating and editing images
CS 348N: Neural Representations and Generative Models for 3D Geometry

- Focuses on recent developments in geometry models
- Auto-encoders and variational auto-encoders
- NeRFs
CS 123: A Hands-On Introduction to Building AI-Enabled Robots

- Build your own quadruped robot
- Program the Robot
- Requires only basic linear algebra and python
- Only 20 slots
CS 205L: Continuous Mathematical Methods with an Emphasis on Machine Learning

- Learn about the mathematical foundation of Machine Learning
- Basis in Linear Algebra
- Programming and paper assignments
CS 44B: Data Visualization

- Think about Computer Graphics from a comprehension perspective
- Learn how to use and optimize visualization tools
- Discuss data visualization theory
EE 267: Virtual Reality

- Hands on electrical engineering class
- Hardware systems used for virtual reality
- Write code and explore software for VR
- Project based class
MI 260: Creative Visualization Studio

ARTSTUDI 167M: Animated By Origins: Africa and The Americas (AFRICAAM 167)

AMSTUD 129: Animation and the Animated Film (FILM MEDIA 129, 329, 429)

BIOE 281: Biomechanics of Movement (ME 281)

BIOE 485: Modeling and Simulation of Human Movement (ME 485)
Questions?
If You’re Interested in Industry

● Make a demo reel

● Meet people in the field
  ○ Volunteer for SIGGRAPH!
  ○ Look for and go to events

● Take project based classes

● Save your work!
Cutting Edge Graphics
SIGGRAPH 2023
LOS ANGELES 6-10 AUG
TECHNICAL PAPERS TRAILER

THE PREMIER CONFERENCE & EXHIBITION ON COMPUTER GRAPHICS & INTERACTIVE TECHNIQUES
Machine Learning and Human Anatomy

GaitNet
Artist Tools and Human Anatomy

input → Contact Edit → final pose

Contact Edit
Specific Use Cases

A Method for Animating Children’s Drawings of the Human Figure
Refining Existing Problems

Fluid-solid Coupling in Kinetic Two-phase Flow Simulation
Refining Existing Problems

Sag-Free Initialization for Strand-based Hybrid Hair Simulation
Diversity in Hair Modeling

Simulation · ML · Geometry


[Diagram of hair types: straight, wavy, curly, and kinky]

[Graph showing hair modeling simulation]

[Image of human hair keratin structure with annotations for atomic elements]

[Diagram illustrating the cross-section of human hair with layers: cuticle, cortex, and keratin strand]
Refining Existing Problems

As-continuous-as-possible Extrusion-based Fabrication of Surface Models
Research in Film and Gaming

Across the Spider-verse
Questions?