CSE 165: 3D User Interaction

Lecture #1: Introduction

Instructor

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Office: Atkinson Hall, Room 2125

Office hours: Tuesdays 3:30-4:30pm

Course Staff

- Tutors:
    - Connor Smith
    - Timothy Wang
    - Wanze Xie
- See Piazza for office hours

Class Goals

- Provide in-depth introduction to spatial 3D user interfaces.
- Strengthen 3D graphics programming skills.
- Practice internet research and presentation skills.

Prerequisites

- CSE167 (Introduction to Computer Graphics) or equivalent
    - Experience programming in C++ and OpenGL, or Unity 3D/Unreal Engine/Lumberyard
- We will generally not provide help with C++ or C# programming.
- You need to know how to debug your code.

Course Web Sites

- Course web site:
  - http://ivl.calit2.net/wiki/index.php/CSE165W2018
- Ted:
  - For grades and code/assignment submission
  - Wiki for video presentation scheduling
- Piazza:
  - For assignment and other discussions

Lectures/Discussion

- Tue/Thu 2:00-3:20pm in CSE B210
- Homework Discussion:
    - Mon 4-4:50PM in CSE B210
- Homework presentations:
    - Select Fridays at 2pm in CSE B210

Assignment Submission on Ted

- Submissions are required for each homework project:
  - all source code and scripts you wrote
  - 3D model assets you use
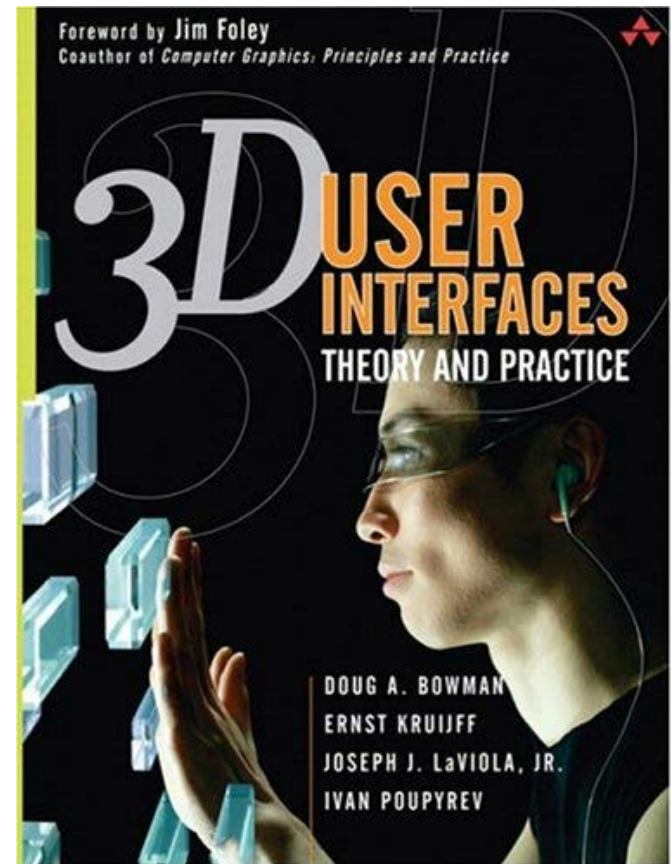 - No need to upload code binaries or project files

Recommended Textbook

Bowman, Kruijff, LaViola, Poupyrev

**3D User Interfaces:
Theory and Practice**

Addison Wesley Longman Publishing Co., Inc. Redwood City, CA, USA 2004

ISBN: 0201758679

Class Structure

- Lectures
  - Fundamentals of 3D user interfaces
- 3 structured homework assignments
  - Teams of two
  - 2 weeks per project
- Midterm
- Final Project
  - Teams of two
  - 3 weeks
- Video presentation
  - 2 minute presentation, followed by short discussion

Grading

Project 1	15%
Project 2	15%
Project 3	15%
Final Project	25%
Midterm	25%
Video Presentation	5%

Cloud Storage

- Unless otherwise explicitly authorized, each student is completely responsible to keep their code, homeworks, design files and other course work off of publicly accessible internet sites.

- Example: it is not allowed to put code in a public Github repository.

- These rules expire after finals week.

Programming Assignments

- All to be done in teams of two
- Two weeks per project, slightly more for final
- All projects involve 3D input devices, specifically Oculus Rift, Oculus Touch and Leap Motion

Programming Assignments

- Operating system: Windows
- Programming language: C++ with OpenGL or OpenSceneGraph
  - Or Unity 3D, Unreal Engine, Lumberyard
- Grading in CSE basement lab 210
- Programming assignments need to be demonstrated to course staff on the due dates after 2pm

Video Presentation

- Each student needs to present one video on an innovative 3D user interface from 2017
- Submit your preferred presentation date, video title and link to TritonEd
- You have 2 minutes for the presentation. If the video is shorter, you can play it multiple times.
- Videos need to be accessible via public URL so they can play off instructor's laptop.

Late Policy

- Late submissions are not accepted - all assignments must be turned in on time.
- Exceptions for extenuating circumstances only.

Permitted Software Tools

- Visual Studio C++, GLFW, OpenGL, OpenSceneGraph
- Physics Engine: Bullet, PhysX
- Oculus SDK
- Leap SDK
- OpenVR
- OSVR
- 3D Modeling Tools (eg, Trimble SketchUp, Blender, Maya, 3ds Max)
- 3D model libraries (eg, Google 3D Warehouse)

Note on Slides

- Some of the lecture slides were originally created by Professor Joe LaViola, co-author of our text book (University of Central Florida)