



# CSE 165: 3D User Interaction

Lecture #10: Navigation  
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# Today's Research Papers

- Kyler Schwartz
  - An evaluation of two simple methods for representing heaviness in immersive virtual environmentsl input
- Anurag Kalavakunta
  - CaveUDK: A VR Game Engine Middleware

# Thursday's Research Paper

- Connor Brew
  - Comparison of a Two-Handed Interface to a Wand Interface and a Mouse Interface for Fundamental 3D Tasks

# Announcements

- Homework assignment #3
  - Due Friday Feb 21<sup>st</sup> at 1:30pm in CSE lab 260
- Homework assignment #3
  - Leap sign-out starts today after lecture
  - Homework Q&A by Thinh tomorrow, February 12<sup>th</sup> at **2pm** in lab 260

# 3D UI With the Leap

- Selection
  - Hover w/timeout
  - Trigger with non-dominant hand gesture
  - Two finger near-pinch
- Manipulation
  - Hand orientation
  - 3-finger orientation
  - 2-finger orientation (2 DOF)



# Menus

- ◉ Hover over buttons
- ◉ Leap API-Supported gestures:
  - ◉ Rotate
  - ◉ Swipe

# General Tips

- Finger pinches hard to detect
- More than 3 fingers hard to distinguish
- Fingers hard to distinguish when hand not close to horizontal
- Hand detection (left/right): need to bring hands into FOV from back edge
- Options for camera motion: rotate around circle, set with non-dominant hand, map orientation of non-dominant hand