

# **Haptic Systems for Teleoperation and Virtual Reality**

## **530.651**

Prof. Allison Okamura

Lecture 11

10.03.06



# Projects

- Foot haptics (Ani, Netta, Kelvin)
- Haptic rendering of vector fields (Amy, Branon, Tom)
- Soft tissue simulation (Dan, Zach, Sarthak)
- Thimble design (Matt, Mike)
- Others: Brian, Gouthami, Kevin, Roberto, Sungjun, Tomo, Vahid,
- Auditors: Fran, Marcin, Yoonju

# Some project thoughts

- There are plenty of resources for all the proposed projects to date
- Your project can be either **technically advanced** or **very creative**
  - Example from foot haptics project: Can either do a very good characterization of a single factor, or put together a whole system and demonstrate potential of this novel feedback method

## Readings (discussion Wednesday)

- R. D. Howe, W. J. Peine, D. A. Kontarinis, and J. S. Son, “Remote palpation technology”, *IEEE Engineering in Medicine and Biology*, 14(3):318-323, May/June 1995.
- K. J. Kuchenbecker, J. Fiene, and G. Niemeyer, “Improving contact realism through event-based haptic feedback”, *IEEE Transactions on Visualization and Computer Graphics*, 12(2):219-230, March/April 2006.

# Coming up

- Paper discussion on Wednesday
  - Read both papers before class. In class, we will split into two groups, one for each paper. Each group will note:
    - Salient features of the paper
    - Drawbacks/limitations of the paper
    - What is the next step in the research?
  - The group will select a representative to lead a 10-minute, informal presentation of these notes.
- My office hours are Mondays 1-4 pm or by appointment.
- David Grow's office hours (sometimes in Latrobe 200 and sometimes in Wyman 140) on Tuesdays 1-3 pm or by appointment.