ME 327: Design and Control of Haptic Systems
Spring 2020

Interactive Session 19: Haptic Rendering Examples and Teleoperation

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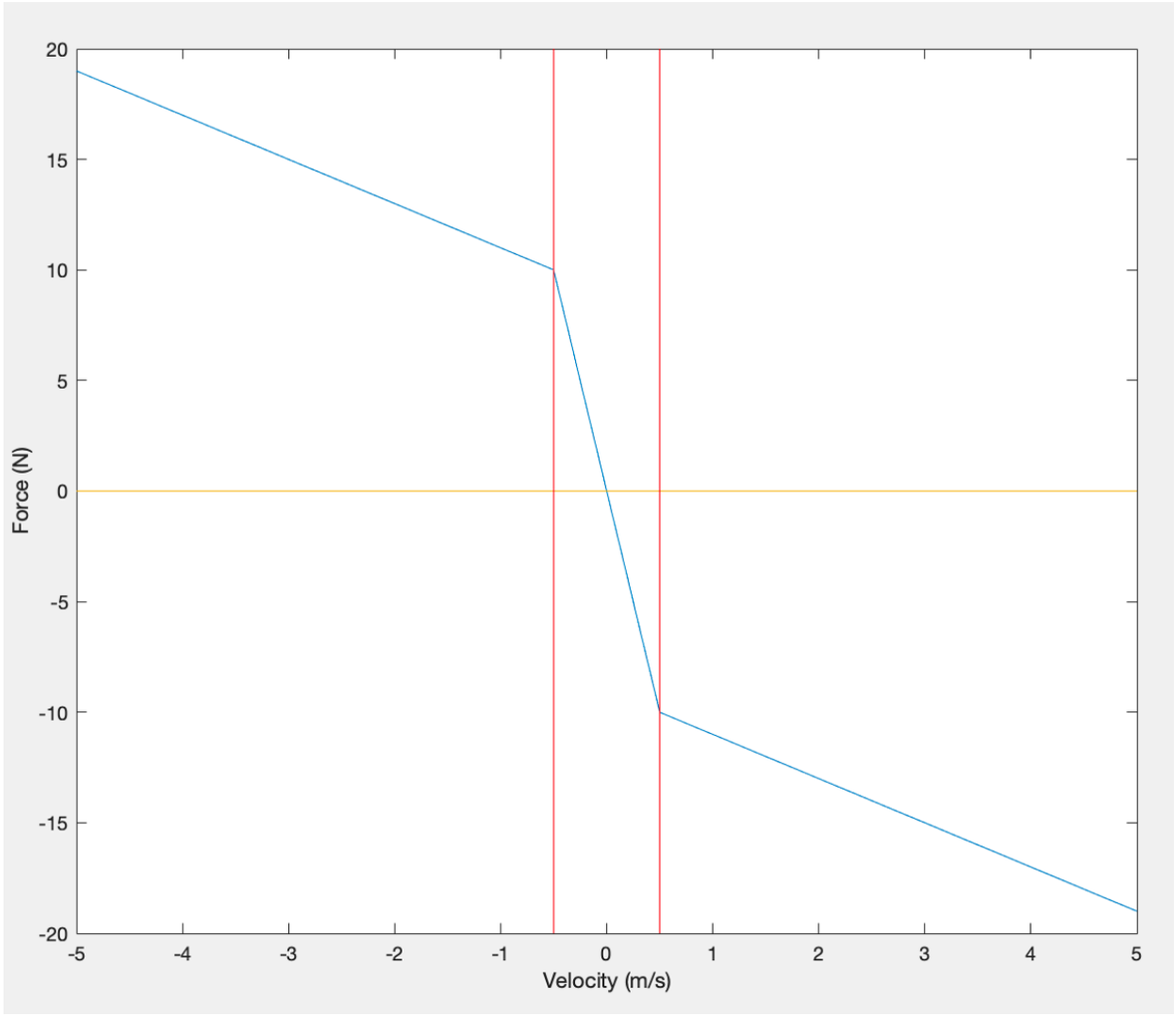
Today

- Haptic Rendering Examples by Brandon
- Teleoperation: Shake Hands with Allison
- Reminders

Non-linear friction

- Combination of Coulomb friction and damping
  - Effectively a larger “b” value for low velocities
  - We notice the change in the force we feel - the increased slope gives a sensation which approximates stiction

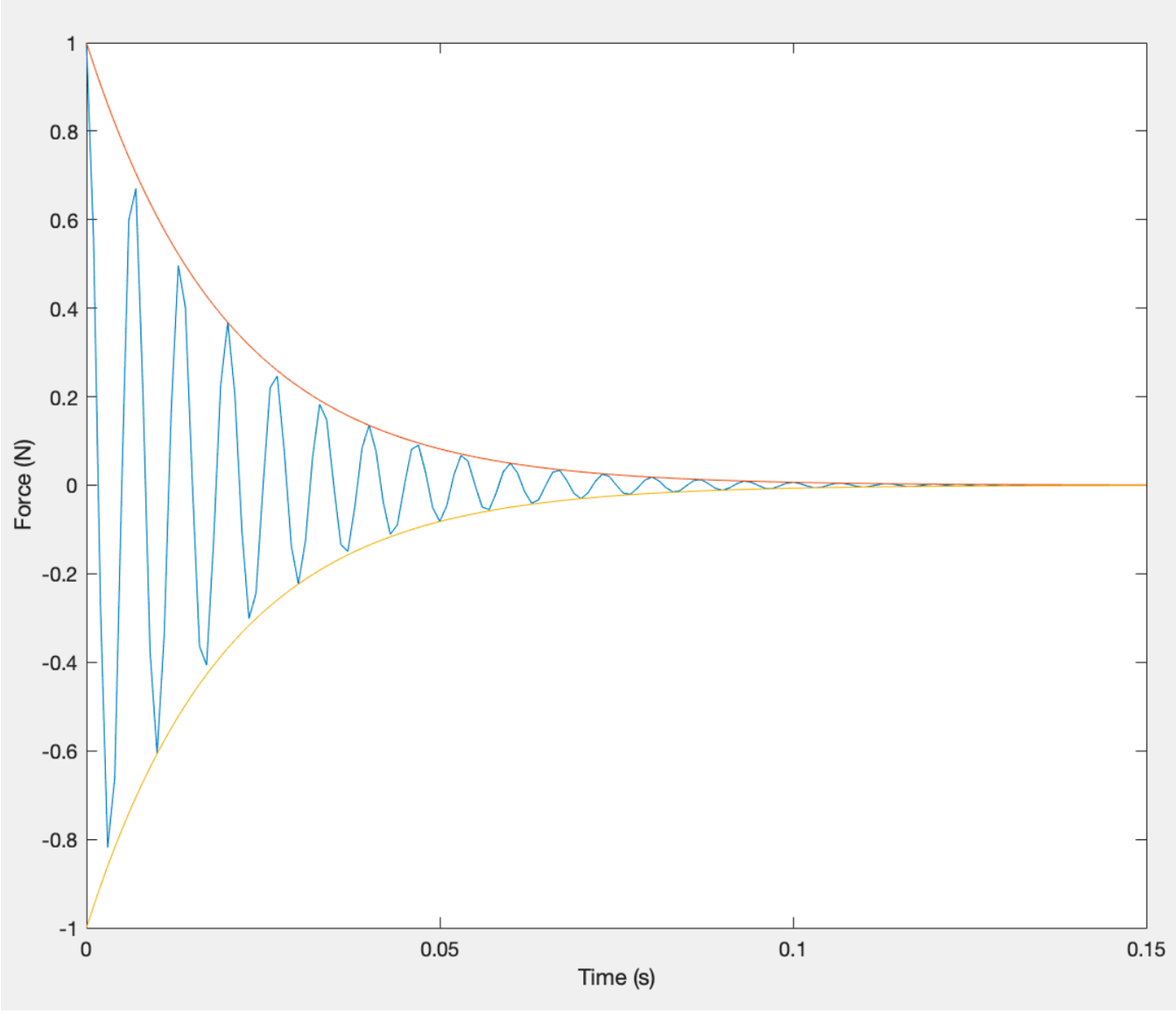
Force vs. Velocity



Hard surface

- Modeled like a normal virtual wall, but with vibration added upon impact
- Vibration modeled as decaying sinusoid as seen below

Force vs. Time



Teleoperation

- Allison will be the "server", you will be the "client"
- You must have already installed `pyserial`
- Download `hapkit_client.py` from Canvas Assignment 8 folder
- In `hapkit_client.py`:
  - Change the HOST string variable to `107.128.214.1` (Allison's public IP address) or `73.241.144.28` (Zong's IP address)
  - Change the `ser_port` string variable to that of your serial port name
- Uplug your motor power
- Run `Assignment8_tele.ino` (from Canvas Assignment 8 folder)
- In your terminal window, type `python hapkit_client.py`

Reminders:

Take Quiz 3 today

(if an accommodation or incomplete is needed, please let me know by tomorrow)

Please fill out the course evaluations!

Office Hours/Q&A with Allison until 10 am
Question queue (see tab with today's date):
https://tinyurl.com/HapticsAllison

Please keep in touch!

