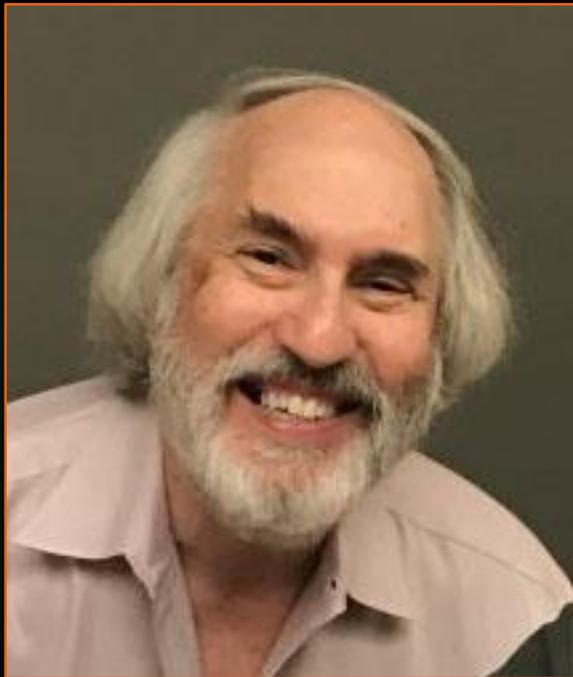


March 9, 2021  
*Transform Healthcare*



# ENGR110/210

## Perspectives in Assistive Technology



David L. Jaffe, MS  
Instructor

15  
Years

# Questions, Comments, Suggestions, or Concerns?



Please notify me of your comments, suggestions, and concerns so I can explain / address / correct them before the end-of-term course evaluation.

# Reminder - Work with Diligence

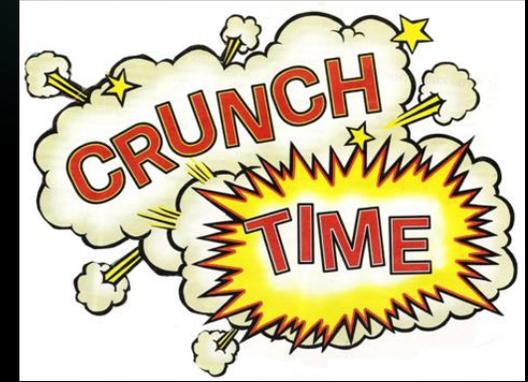


- ▶ Time is your team's most precious resource
- ▶ Project presentations next week



# Week 9

- It's end-of-term crunch time
- Fabricate, Test, Analyze, Repeat
- Inform me of your progress
- Manage your time



# Week 10 Class Sessions

- ▶ Tue, Mar 16<sup>th</sup>  
End-of-Term Student Project Presentations



- ▶ Thu, Mar 18<sup>th</sup>  
End-of-Term Student Project Presentations

- ▶ Presentation order posted on course website



# Apology

- ▶ Magical Bridge Playground video didn't play

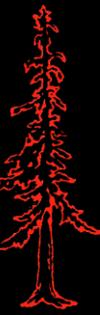


SORRY!



# Students working on fabrication projects

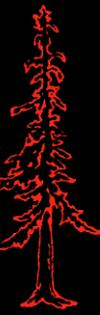
## Activities for the remainder of the quarter



- ▶ Work individually
- ▶ Fabricating low-cost prototypes
- ▶ Discussing and demonstrating the prototypes to the project suggestor
- ▶ Receiving and analyzing their feedback and suggestions
- ▶ Redesigning and fabricating a refined prototype
- ▶ Iterating the process until the end of the quarter
- ▶ Reporting your project progress
- ▶ Planning for end-of-term presentation & report
- ▶ Reports & Individual Reflections due **Mon, March 22<sup>nd</sup>**

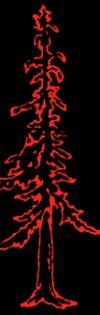
# Students working on non-fabrication projects

## Activities for the remainder of the quarter



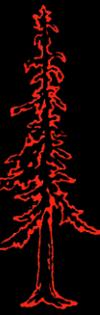
- ▶ Continue research on topic
- ▶ Interview additional people including clients
- ▶ Include your perspectives, draw conclusions
- ▶ Reporting your project progress
- ▶ Planning for end-of-term presentation & report
- ▶ Reports & Individual Reflections due **Mon, March 22<sup>nd</sup>**

# Update on End-of-Term Presentations



- ▶ Students working on the same project will present together
- ▶ Students will collectively and concisely present their efforts from the beginning of the quarter: project description, understanding the problem, brainstorming
- ▶ One student manages the Screen Sharing
- ▶ Students will individually report on their solution
- ▶ **Updated presentation times:**
  - ▶ 1 student = 6 minutes
  - ▶ 2 students = 8 minutes
  - ▶ 3 students = 10 minutes

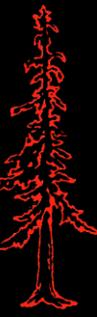
# RESNA Student Design Challenge



The **RESNA Student Design Challenge** (SDC) is an annual competition that showcases creative and innovative assistive technology designs that help people with disabilities function more independently. Student teams represent a wide variety of disciplines including mechanical, electrical, and biomedical engineering; computer information science; architecture; and physical and occupational therapy. Entries are judged on originality, quality of design, and usefulness to persons with disabilities. SDC winners have frequently moved on to become leaders in the field of assistive technology. Only undergraduate and masters level graduate students currently enrolled in a college or university are eligible to apply.

Deadline for submissions = Monday, March 22<sup>nd</sup>

# Which is Most Innovative?



# How much more Innovative?



# Innovation Quotes



“In a book I’m (Lee Vinsel) writing with Andrew Russell, *The Innovation Delusion*, we examine the origins of our culture’s **current obsession with Innovation**. We make a distinction between actual innovation, the introduction of new things and practices into society, and **innovation-speak, the empty-headed and misleading ways people have come to talk about technological and social change in the past few decades.**”

# Innovation Quotes

## INNOVATION QUOTES



Innovation is **overused**, focus on impact

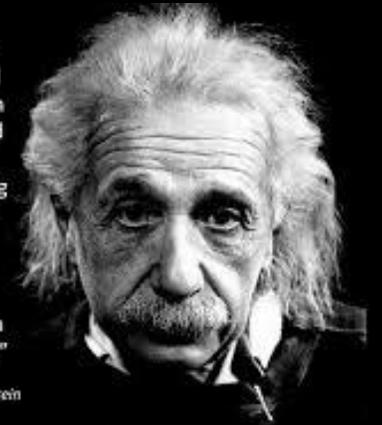
“**Innovation**. It’s kind of an odd word because it has a **very vague definition**. Generally, it means to create something so different from what’s been done before that simply calling it “new” isn’t quite right. The fact that the **definition of innovation seems to evolve** with each new technology breakthrough doesn’t make it any easier.” Kasey Panetta - Editor ECN

“**Innovation** is something that is both familiar and new.”  
Chief Innovation Officer

If Einstein took ENGR110/210, he would have said, “If I had a quarter to design and fabricate a solution, I would have spent significant time **understanding the problem**”.

“If I had an hour to solve a problem and my life depended on the solution, I would spend the first 55 minutes determining the proper question to ask, for once I know the proper question, I could solve the problem in less than 5 minutes.”

- Albert Einstein



# Innovation Links



[Word 'Innovate' Said 650,000 Times at SXSW So Far](#) (satire)

[Employees Most Innovative When Brainstorming Dramatic Quitting Scenarios](#) (satire)

[Innovate the Way You Innovate!](#) (a real conference!)

"Forget everything you've ever learned about innovation and invention."



# Innovation Questions

- ▶ Is **Innovation** a design feature or property of a device?
- ▶ Is **Innovation** a binary feature or one that has a range?
- ▶ Is **Innovation** used because there is an unavailability of other means to measure the qualities of a device or design?
- ▶ Does the use of **Innovation** indicate a desire avoid a measurable engineering term?
- ▶ Does the use of **Innovation** mean that there is a lack of evidence that the device is actually useful?



# Innovation Questions



- ▶ What does it mean if XXX is **Innovative**?
  - ▶ Product
  - ▶ Person
  - ▶ Idea
  - ▶ Company
  - ▶ Process
  - ▶ Course
- ▶ What is the unit measure of **Innovation**?





- ▶ Certainly **Innovation** is generally thought as something **positive and desirable**, but why would someone use a word that is doesn't have a strong meaning or is actually measurable?
- ▶ My conclusion: **“Innovation” is a marketing / advertising term**, not a scientific term
- ▶ Saying something is **Innovative** implies that it a good product, worth purchasing. Of course, in advertising, one doesn't actually have to prove that it is a good product.

# Innovation Caution

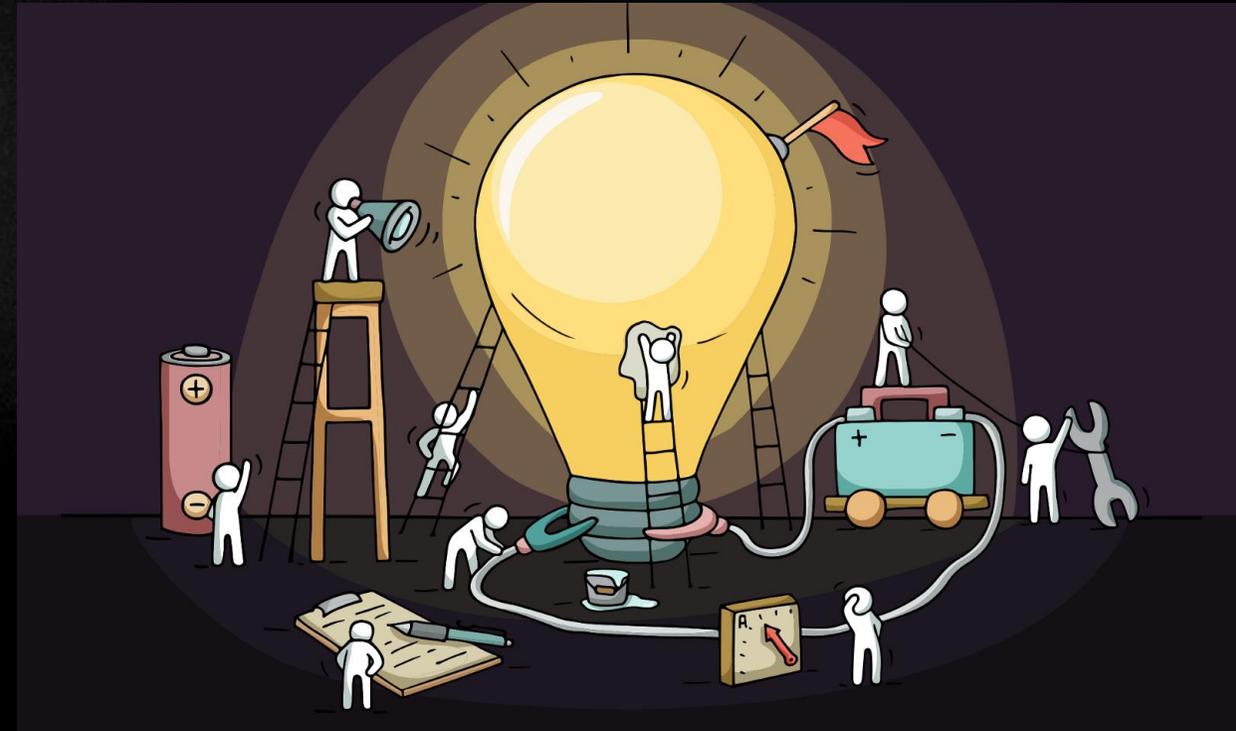


Beware of terms that describe a product, a person, an idea, a company, a process, or a course that do not have an objective measure.

Examples:

Artificial Intelligence,  
Machine Learning

So, engineering students should not to use **innovation** or **innovative** without describing exactly what they mean and their measurement technique.



Thursday, March 11th



*Wheelchair Fabrication in Developing Countries*

Ralf Hotchkiss

# Today



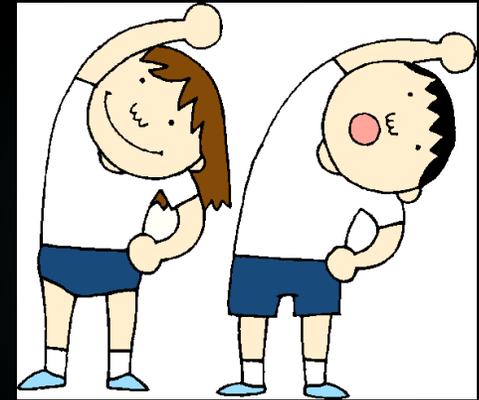
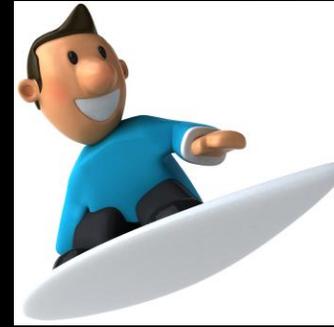
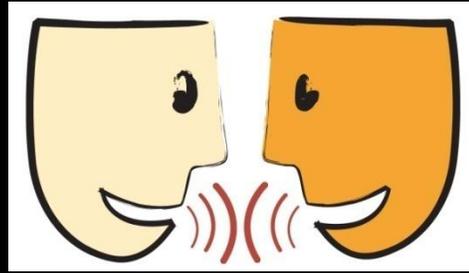
*Machine Learning, Biosensing, Virtual Reality –  
Converging to Transform Healthcare*

Walter Greenleaf, PhD

Stanford University

# Break Activities

- ▶ Breakout rooms
- ▶ Stand up and stretch
- ▶ Take a bio-break
- ▶ Text message
- ▶ Web-surf
- ▶ Respond to email
- ▶ Talk with classmates
- ▶ Reflect on what was presented in class



# Short Break

