January 24, 2019
Issues of Human Interface Design

ENGR110/210
Perspectives in Assistive Technology

David L. Jaffe, MS
Instructor

13 Years
Questions?
Attendance Sheet, Evaluation Form, and Meet with Dave Signup

For all students:
• Attendance Sheet
• Meet with Dave signup

For everyone:
• Class Session Evaluation Form
Stenography Machine
Team Projects

Activities you should be pursuing:

- Meet with Dave
- Purchase PRL Shop Pass
- Connect with project suggestor
- “Understand the Problem”
  - Internet search
  - Existing products / devices
  - Survey technology
- Brainstorm
- Select Design Concept
- Prototype
Work with Diligence

- Time is your team’s most precious resource
- 6 weeks of class left to work on your projects
- Mid-term team presentations in 3 weeks
Rules of Brainstorming

- Rules: “You can’t brainstorm alone”
  - Start with a full understanding of the problem
  - Defer judgment - do not critique
  - Produce lots of ideas
  - One person talking at a time
  - Be visual - draw something quickly
  - Build upon the ideas of others
  - Stay on topic
  - Explore wild ideas, including suspending reality
  - What would they do on Star Trek?
  - Violate the Laws of Physics
  - Use Harry Potter’s magic wand
  - Use “The Force”

The seven rules of brainstorming - Ideo
Selecting Design Concepts

- Select best design concepts using a Pugh Chart
  - Plot best design concepts vs design criteria
    - Ability to meet requirements & criteria
    - Prototype fabrication cost
    - Complexity (consider skill level of fabricators)
    - Ability to complete within allotted time and budget
  - Caregiver issues

- Weights - which features are most important?

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<th>Criteria for Success</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
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Selecting Design Concepts

Don’t forget aesthetics and coolness factor

- Users won’t buy or use a product that identifies them as disabled
- Users want to look cool
- You want to work on something cool

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<th>Description</th>
<th>Bunny Click Pencil</th>
<th>Side Roll</th>
<th>Paper Quantity Sensor</th>
<th>Clear Windows</th>
<th>Free-Standing or Recycling</th>
<th>Foot Pedal</th>
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Pre-Lecture Discussion Topics

22 - Ethical / Moral Dilemmas Related to Disability
22 - In the News - New Assistive Technology products and research
20 - Assistive Robotics - Robotic technology benefitting people with disabilities and older adults
15 - Overview of Accessibility - How this design feature relates to products, with many examples
15 - Ten Commandments of Making - Adam Savage’s Maker Faire video
15 - Video Theatre - Watch and discuss videos of new products and prototypes
12 - Vintage Assistive Technology - Products and devices from the past
12 - The Upside of Failure - Learning from prototypes that didn't work
12 - Who is Disabled? - Making a determination with limited information
12 - Innovative Marketing Metrics - How we use words to measure and advertise
9 - Famous people with disabilities - Focus on TV characters
Vintage Computer Technology

44 years ago!
Vintage Computer Technology

What kind of man owns his own computer?

Either revolutionary: the whole idea of owning your own computer. You talk to it. You program it. You type on it. You type the words you want. Revolutions aren’t just for politicians anymore.

It’s a wise man who owns an Apple.

If you ever learn money, Apple can only you make sense of it. In an age of specialization, the most important gap is closing. Some computers are so easy to use that they’re almost embarrassing. That’s when Apple enters.

Apple is a word computer, right to the core. So you know, as you own it, you’ll be the one deciding how to make it work for you. Apple’s central processor is the best in the world. Apple can make your files and records, process your information and print reports. You can add new programs. And inside Apple, Apple makes that easy with these programming languages: Fortran, Basic, Pascal. And let you to program on your own. Apple, the computer worth the waiting for.

These waiting for access to your computer’s big data is an endless. What you need in your department—your desk—is a computer that never moves only to you. It’s an Apple Computer. It’s few computers that produce more than Apple Computer. More dependable than distributed processing. So you’re faster than centralized processing. Apple, the computer that never moves only to you.
Old Wheelchair Designs
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Old Wheelchair Designs
Old Wheelchair Designs
Omni-directional Wheelchairs
FES Walking
Chin Controlled Arm Exoskeleton
Robotic Feeding Aids
Early Environmental Control Systems
Eye Gaze Control
Augmented Communication System
Augmented Communication System
Artificial Arm from 1560 - 1600
Peg Leg Bates
Wooden Prosthetic Legs
Hardiman Prototype - 1950s
Student Exoskeleton Arms
Ultimate Exoskeleton
Ultimate Hand Orthotic

Space, Time, Reality, Mind, Soul, and Power.

Thanos’ Infinity Gauntlet
Steampunk Professor Xavier Wheelchair Project

Video
Orange County Chopper

- Christopher & Dana Reeve Foundation

- Video
Tuesday, January 29th

From Idea to Market: Eatwell, Assistive Tableware for Persons with Cognitive Impairments (by video)

Sha Yao
Sha Design
Issues of Human Interface Design

Gary M. Berke, MS, CP, FAAOP
Stanford Medical Center
Short Break

Back in a minute

SOCIAL MEDIA BREAK
Break Activities

- Sign attendance sheet
- Grab a cookie
- Stand up and stretch
- Take a bio-break
- Text message, web-surf, email
- Talk with classmates
- Reflect on what was presented in class
Questions?
Adjourn
Laptops Galore
Time for Questions?
End the class