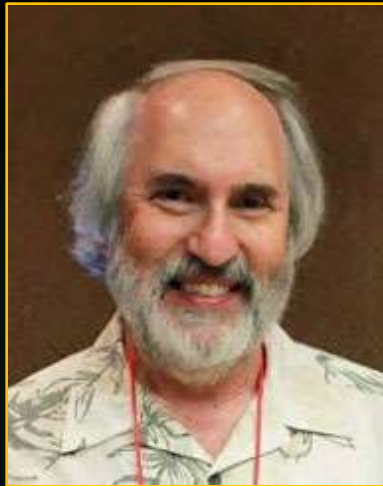


January 25, 2018  
Issues of Human Interface Design



# ENGR110/210

## Perspectives in Assistive Technology



David L. Jaffe, MS  
Instructor



# Questions?



# Attendance Sheet, Evaluation Form, and Meet with Dave Signup



For all students:

- Attendance Sheet
- Meet with Dave signup – Teams or individual students

For everyone:

- Class Session Evaluation Form



ENGR110210 Enrolled Student Attendance List  
January 10, 2017

Enroll Number	Name of Enrolled Student	Enroll Number	Name of Enrolled Student
10001	Adams, John Alexander	10002	Adams, John Alexander
10003	Adams, John Alexander	10004	Adams, John Alexander
10005	Adams, John Alexander	10006	Adams, John Alexander
10007	Adams, John Alexander	10008	Adams, John Alexander
10009	Adams, John Alexander	10010	Adams, John Alexander
10011	Adams, John Alexander	10012	Adams, John Alexander
10013	Adams, John Alexander	10014	Adams, John Alexander
10015	Adams, John Alexander	10016	Adams, John Alexander
10017	Adams, John Alexander	10018	Adams, John Alexander
10019	Adams, John Alexander	10020	Adams, John Alexander
10021	Adams, John Alexander	10022	Adams, John Alexander
10023	Adams, John Alexander	10024	Adams, John Alexander
10025	Adams, John Alexander	10026	Adams, John Alexander
10027	Adams, John Alexander	10028	Adams, John Alexander
10029	Adams, John Alexander	10030	Adams, John Alexander
10031	Adams, John Alexander	10032	Adams, John Alexander
10033	Adams, John Alexander	10034	Adams, John Alexander
10035	Adams, John Alexander	10036	Adams, John Alexander
10037	Adams, John Alexander	10038	Adams, John Alexander
10039	Adams, John Alexander	10040	Adams, John Alexander
10041	Adams, John Alexander	10042	Adams, John Alexander
10043	Adams, John Alexander	10044	Adams, John Alexander
10045	Adams, John Alexander	10046	Adams, John Alexander
10047	Adams, John Alexander	10048	Adams, John Alexander
10049	Adams, John Alexander	10050	Adams, John Alexander
10051	Adams, John Alexander	10052	Adams, John Alexander
10053	Adams, John Alexander	10054	Adams, John Alexander
10055	Adams, John Alexander	10056	Adams, John Alexander
10057	Adams, John Alexander	10058	Adams, John Alexander
10059	Adams, John Alexander	10060	Adams, John Alexander
10061	Adams, John Alexander	10062	Adams, John Alexander
10063	Adams, John Alexander	10064	Adams, John Alexander
10065	Adams, John Alexander	10066	Adams, John Alexander
10067	Adams, John Alexander	10068	Adams, John Alexander
10069	Adams, John Alexander	10070	Adams, John Alexander
10071	Adams, John Alexander	10072	Adams, John Alexander
10073	Adams, John Alexander	10074	Adams, John Alexander
10075	Adams, John Alexander	10076	Adams, John Alexander
10077	Adams, John Alexander	10078	Adams, John Alexander
10079	Adams, John Alexander	10080	Adams, John Alexander
10081	Adams, John Alexander	10082	Adams, John Alexander
10083	Adams, John Alexander	10084	Adams, John Alexander
10085	Adams, John Alexander	10086	Adams, John Alexander
10087	Adams, John Alexander	10088	Adams, John Alexander
10089	Adams, John Alexander	10090	Adams, John Alexander
10091	Adams, John Alexander	10092	Adams, John Alexander
10093	Adams, John Alexander	10094	Adams, John Alexander
10095	Adams, John Alexander	10096	Adams, John Alexander
10097	Adams, John Alexander	10098	Adams, John Alexander
10099	Adams, John Alexander	10100	Adams, John Alexander

Sign Up to Meet with Dave

Before class outside Thornton 110  
After class in Thornton 110  
Other times in Peterson Building, Room 113

Date & Time	Enter Team Name & Specify 15 minute time block
Wednesday - January 18 <sup>th</sup> Morning - 8:30am - 11:30am	
Afternoon - 1:00pm - 4:30pm	
Thursday - January 19 <sup>th</sup> Morning - 8:30am - 11:30am	
Afternoon - 1pm - 3:30pm	
Before class - 5:45pm - outside classroom	
After class - 8pm	
Friday - January 20 <sup>th</sup> Morning - 8:30am - 11:30am	

Perspectives in Assistive Technology - 2017  
Class Session Evaluation Form

Lecture 01a: Course Overview & Introduction to Assistive Technology - David L. Jaffe, MS

Are you an enrolled student?  - Yes  - No

The purpose of the questionnaire is to help the teaching team assess today's class session. Please rate the following issues:

Speaker's overall presentation: speaking volume, understandability, ease of following concepts and arguments, clarity of explanations, quality of PowerPoint slides, use of supporting media (videos) and presentation aids (blackboard/whiteboard), stage presence, knowledge of topic, preparedness, presentation structure, organization, pace and management of allotted time, opportunity for questioning and class engagement, provided good examples, concepts, and demonstrations  
   Presentation content: topic relevant, relevance to the broad scope of assistive technology, presentation of new information, appropriate level of detail and technical content, overall value of presented material

Submit your comments, questions, and suggestions, especially if you found portions of the lecture to be particularly good or bad. Supply your name if you want a response and use the back of this form if you need more room.

What one item did you hear, see, or learn that was new, surprising, interesting, or provided a new perspective?

How much did you learn from today's lecture?  - A great deal  - a bit  - a moderate amount  - a little  - nothing

What is your stress level today?  - low  - medium  - high

How is your stress level trending?  - downward  - steady  - upward

# 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





# Rules of Brainstorming

1. Start with a full understanding of the problem
2. Defer judgment
3. Encourage wild ideas
4. Build on the ideas of others
5. Stay focused on the topic
6. One conversation at a time
7. Be visual
8. Go for quantity



The seven rules of brainstorming - Ideo



# Rules of Brainstorming



- ▶ Rules: *“You can’t brainstorm alone”* - Dave
  - ▶ 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”



# 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



Criteria for Success		Option 1		Option 2		Option 3	
Common Theme	7	7	49	6	42	10	70
Expands Knowledge	5	5	25	3	15	7	35
Accurate Info	9	8	72	8	72	7	63
Appealing	8	6	48	9	72	7	56
Unique	10	9	90	6	60	6	60
3 different forms of media	10	9	90	7	70	8	80
Reflects Rauschenberg	4	7	28	10	40	6	24
	TOTAL		402		371		388

- ▶ Weights - which features are most important?


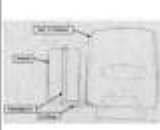




# Selecting Design Concepts

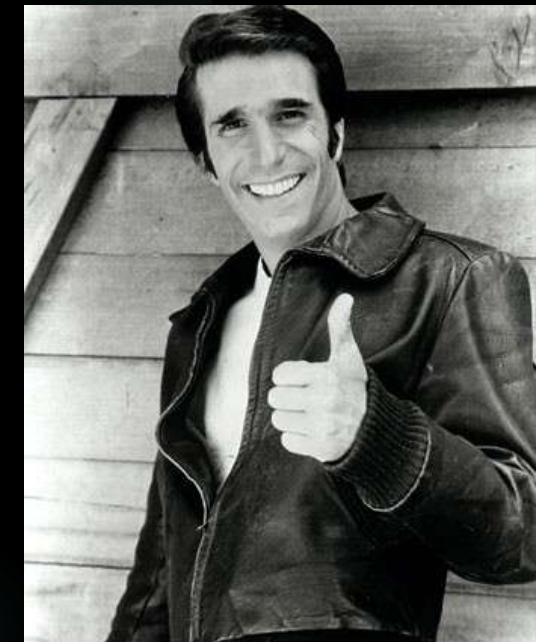


Don't forget **aesthetics** and **coolness factor**

- ▶ 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



Description		Kimberly Clark Paper Towel Dispenser	Side Roll	Paper Quantity Sensor	Clear Windows	Free-Standing w/ Recycling	Foot Pedal
Sketch							
Criteria	Weight	Datum	Design 1	Design 2	Design 3	Design 4	Design 5
Reliability	2	0	+	0	0	0	-
Hygiene	3	0	-	0	0	0	+
Ease of Use	3	0	+	0	0	+	+
Safety	2	0	0	0	0	0	0
Durability	1	0	0	0	0	0	0
Aesthetics	1	0	-	0	-	--	-
Ease of Replacement	1	0	0	+	+	0	0
Environment	2	0	0	0	0	+	--
+		0	5	1	1	2	6
0		15	6	15	13	9	4
-		0	4	0	1	2	7
Net Score		0	1	1	0	0	-1





# Tuesday, January 30th



Exoskeleton Research

Steve H. Collins, PhD

Stanford University - Mechanical Engineering Department



# Today, January 25th



Issues of Human Interface Design

Gary M. Berke, MS, CP, FAAOP

Stanford Medical Center



# Pre-lecture Discussion Topics



- 21 Assistive Robotics
- 18 Ethical / Moral Dilemmas
- 13 In the News
- 12 Ten Commandments of Making
- 12 Video Theatre
- 12 Marketing Terms
- 10 Overview of Accessibility
- 10 Vintage Assistive Technology
- 10 The Upside of Failure
- 8 Who is Disabled?
- 7 Famous people with disabilities



# Ethical / Moral Dilemmas Related to Disability



Formally titled  
“Fun with Ethics”





# Making Decisions



1. Everyone evaluates situations and makes decisions everyday
2. As one gets older, these decisions more frequently involve and affect others
3. Tough decisions are often made using a complex combination of upbringing, economics, religion, law, individual notion of what is right, politics, and personal experience



# Situation 1



Would it be wrong for a “normal” couple to abort a fetus diagnosed with dwarfism or Down Syndrome?



# Situation 2

If two parents with Achondroplasia - an inherited form of dwarfism - wanted a child who looked like them, would it be wrong for them to terminate a normal-sized fetus?

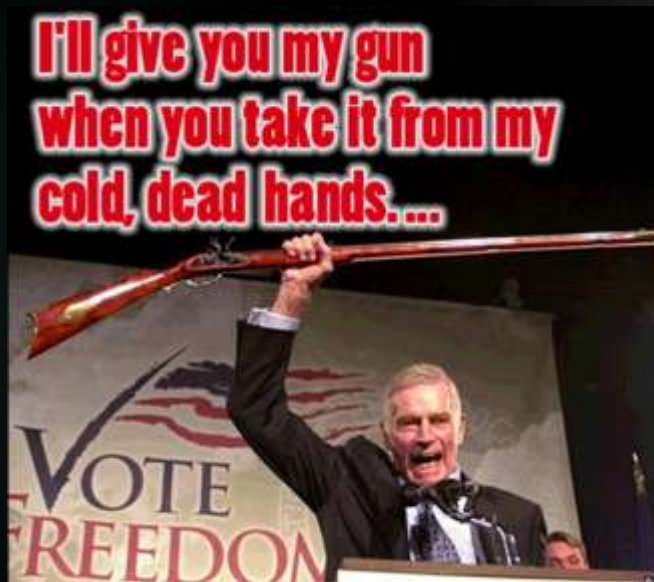




# Situation 3



Should everyone have a right to bear arms?





# Situation 4



Should someone **who is blind** have a right to bear arms?



# Situation 5



You are a biomedical engineer working in a spinal cord injury ward. An occupational therapist approaches you with a patient's request. The patient, an individual with quadriplegia, wants a device that would enable him to independently smoke a cigarette.

What do you do?



# Situation 6



You are a sign language interpreter for a deaf woman. Her communication includes a lot of obscenities which causes you a lot of embarrassment and distress.

What do you do?



# Situation 7



As a surgeon, would you approve a heart transplant for someone with a disability?





# Situation 8



As a concerned citizen, would you condone the marriage and subsequent parenthood of a couple, one or both with developmental disabilities?



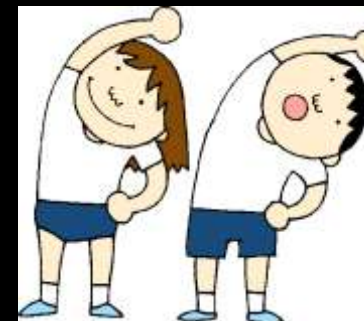
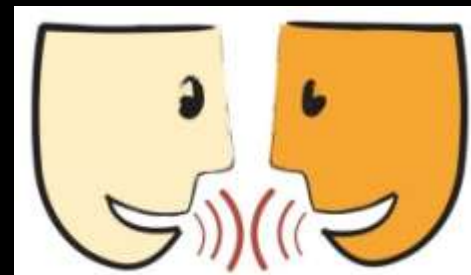
# Short Break



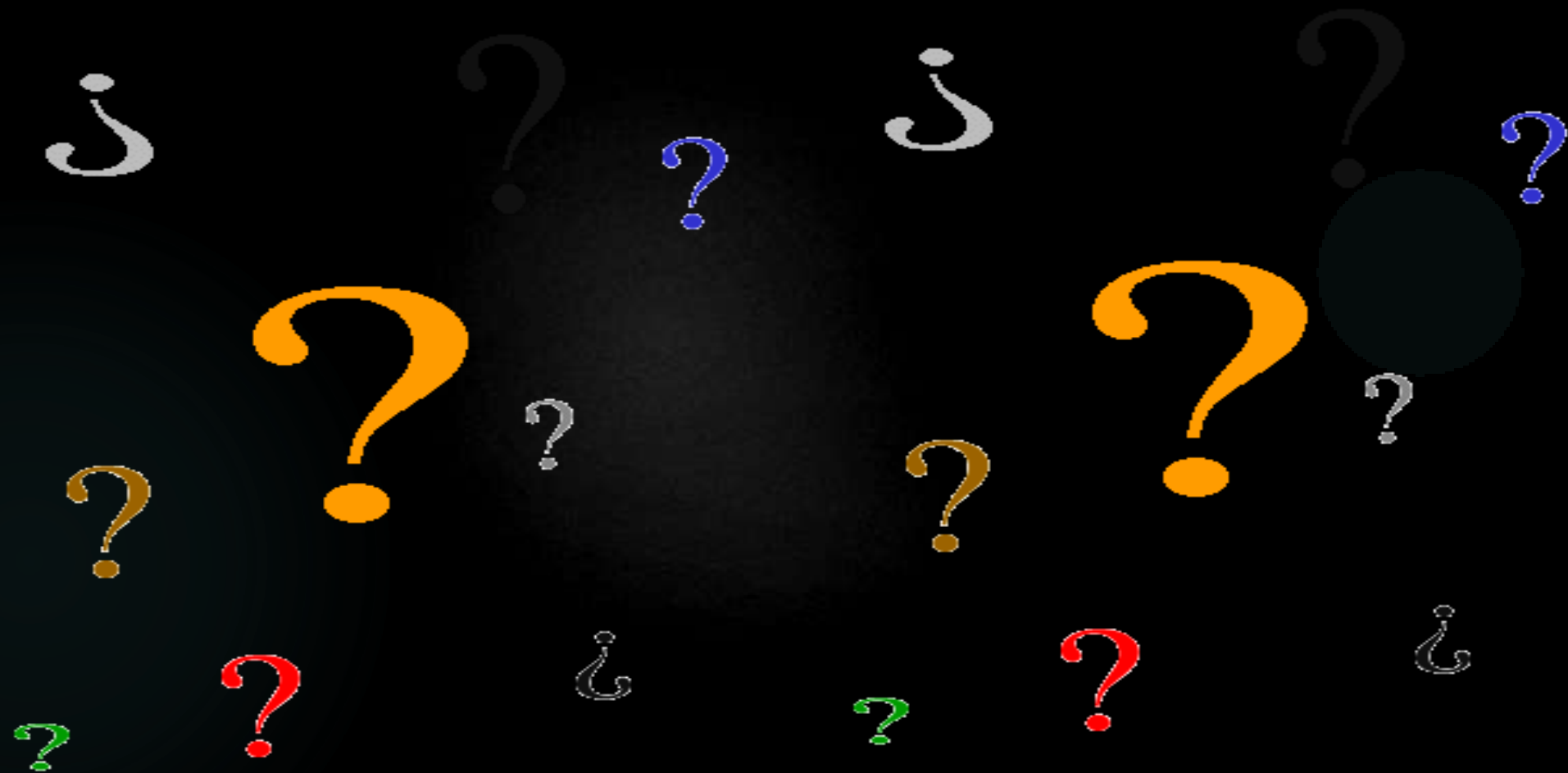
# Break Activities



- ▶ 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



class dismissed



# Laptops Galore



# Time for Questions?



End the class

