January 25, 2024

Exoskeletons in Rehabilitation and Industry

ENGR110/210
Perspectives in Assistive Technology

Joanna Weakley, MS, PT

Ekso Bionics

CLEARING A PATH
FOR PEOPLE WITH SPECIAL NEEDS
CLEARS THE PATH FOR EVERYONE!

Submitted by
Marlo Kohn

Questions?

Please notify me of your comments, suggestions, and concerns so I can explain / address / correct them.

Classic Rock

- Beatles (2)
- Metallica
- Jimi Hendrix
- Fleetwood Mac (2)
- AC/DC
- Jethro Tull
- Queen

Warden David Jaffe

Stanford Prison Experiment - 1971

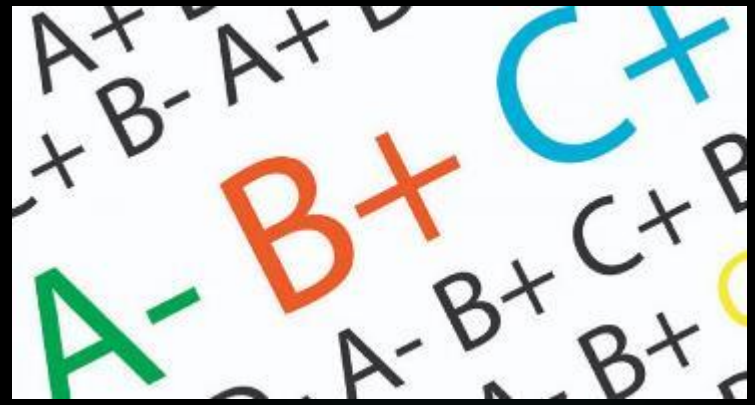
- Simulation of a prison environment - guards & prisoners
- Guards were urged to act aggressively
- Guards became increasing brutal
- Psychological abuse
- One of the most "unethical psychological experiments in history"
- Unscientific and fraudulent

Reminder - Work with Diligence

- Time is your team's most precious resource
- 2.5 weeks of class until Mid-term Presentations - Tue, Feb 13th

Grading - Team Projects

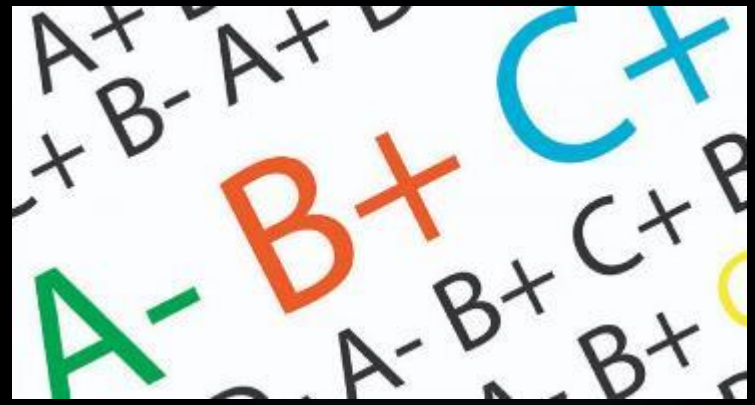
Deliverable	%
Mid-term Presentation	10
Mid-term Report	10
End-of-term Presentation	20
End-of-term Report	20
Prototype Design & Functionality	20
Project Suggestor Feedback	10
Participation *	10
Individual Reflection	0



* Participation includes attending class sessions, meeting with instructor, actively listening, posing questions to the guest speakers and the course instructor, engaging in class discussions, verbalizing thoughts and analyses, and submitting Weekly Project Reports or meeting with the course instructor.

Grading - Individual Projects

Deliverable	%
End-of-term Presentation	45
End-of-term Report	45
Participation *	10
Individual Reflection	0



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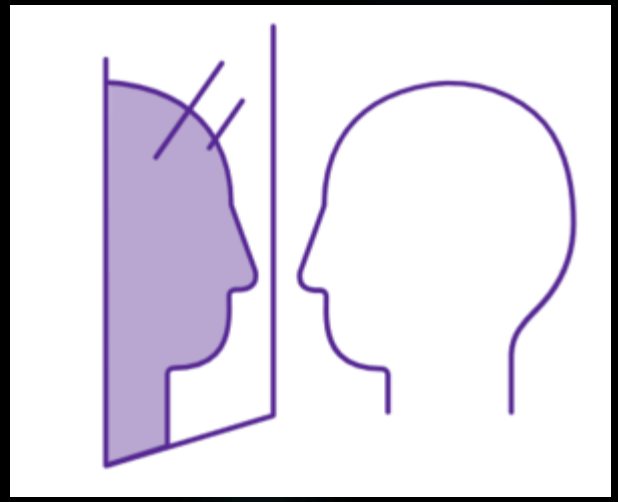
Grading Question

Is there a place we can see our overall grades before the end of the quarter to make sure we have completed everything necessary?

I notify teams of reports and students of Individual Reflections yet to be submitted.



Team Activities

- Understand the Problem / Challenge - search web for products
- Work as a team together on all activities
- **Decide on a cool team name**
- Fabricate low-cost prototypes
- Discuss and demonstrate the prototypes to the project suggestor
- Receive and analyze their feedback and suggestions
- Redesign and fabricate a refined prototype
- Iterate the process until the end of the quarter
- Take photos
- Report your project progress as a team
- **Sign up for PRL Safety Orientation**
- **Do not hesitate to ask questions**

Teams

- Team Re-Creation - Accessible and Inclusive Playground Attractions
- Second Team with No Name - Creative Expression for Danny
- Third Team with No Name - Dog Kennel for Danny & Korey
- Fourth Team with No Name - Storage Solution for Danny
- Fifth Team with No Name - Laptray for Danny
- Dream Catchers - Accessible and Inclusive Playground Attractions
- Secure the Bag - Accessible Storage Solution for Abby
- Eighth Team with No Name - Treats for Nathan

Project Purchases

- PRL - Account created for ENGR110/210 students working on Team Projects
- Online - Brittany will order for you (Amazon), pick up at Front Desk with Loran
- Reimbursement - Save receipts
- Details on webpage & Newsletter

Persona

- The characterization of a typical / average person who represents the consumer group for a prototype being designed or a product being commercialized
- Not be a real person - can't get feedback
- Designing for an **imaginary person** results in an **<u>imaginary solution</u>**
- However, every person with a disability or older adult differs in their challenges, goals, preferences, and prejudices
- Solution - Consider products with versions, adjustability, ability to be customized, accessories, modularity, universally designed

Assistive Technology at CES

- GyroGlove for people with Parkinson's or essential tremors

Assistive Technology at CES

- ViXion – lightweight, self-focusing glasses

Assistive Technology at CES

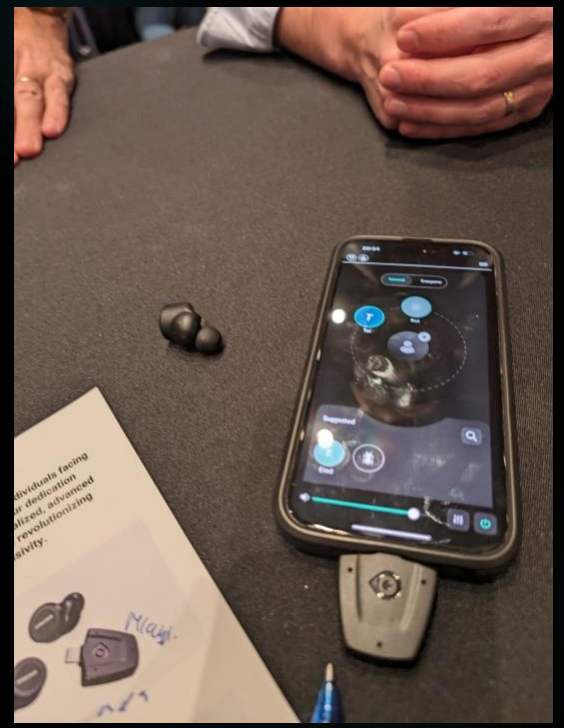
- eSight Go - glasses for those with macular degeneration, employs a camera and OLED displays

Assistive Technology at CES

- MyEye – translates visual information into audio, reads text, and recognizes faces

Assistive Technology at CES

- OrCam Hear - focus on a particular speaker in a noisy environment



Assistive Technology at CES

- TranscribeGlass - Provides real-time text captions for people who are deaf

Tuesday, January 30th

Brain-Computer Interfaces for Communication

Erin Michelle Kunz, PhD Candidate

Stanford University

Neural Prosthetics Translational Laboratory

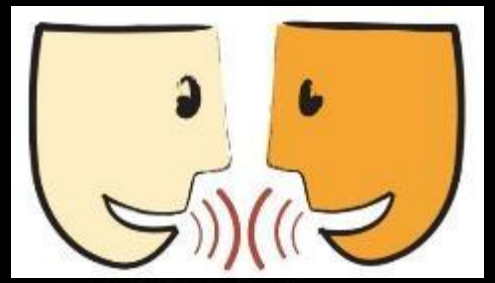
Today - by Zoom

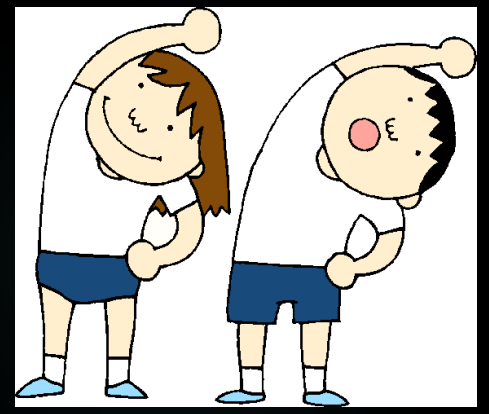
Exoskeletons in Rehabilitation and Industry

Joanna Weakley, MS, PT

Ekso Bionics - Clinical Experience Manager

Break Activities





- Sign Attendance Sheet
- 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