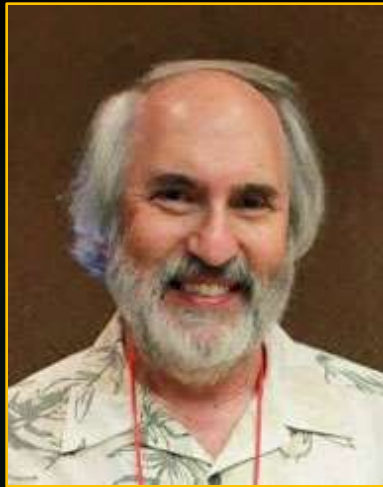


January 30, 2018  
Designing Exoskeletons and Prosthetic Limbs  
that Enhance Human Performance



# 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
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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

# Thursday, February 1st



The Design and Control of Exoskeletons for Rehabilitation

Katherine Strausser, PhD

Ekso Bionics - Senior Controls Engineer

# 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





# In the News

- ▶ Sophia - Hanson Robotics
- ▶ How Design for One Turns into Design for All
- ▶ Liftware Level & Liftware Steady
- ▶ BrainPort featuring Emilie Gossiaux
- ▶ eSight Glasses
- ▶ Whill Model Ci



# In the News

- ▶ Sophia - Hanson Robotics ([video](#))
- ▶ Jimmy Fallon demos an eerily human robot named Sophia that plays rock-paper-scissors.



# In the News



- ▶ How Design for One Turns into Design for All ([link](#))
- ▶ "Too often products made for people with different physical, cognitive and sensory abilities have been ugly, feebly designed, and stigmatizing. They've been developed not by designers but by engineers. And engineers haven't always taken their cues from people who have disabilities, the ones who know best what they need and want. An exhibition at the Cooper Hewitt Museum makes plain why design matters. It points toward a generational change in thinking, not just about designing for difference but about diversity and inclusion. Make a specialty item easier to use - and at the same time, fun, cool, and beautiful - and that item may be embraced and used by all. The real issue isn't disability. It's choice."



# In the News



The Flyease shoes by Nike on display at the Cooper Hewitt, Smithsonian Design Museum.

# In the News



An installation view of "Access+Ability," with the "Superflex Aura Power" suit, from 2016 by Fuseproject.

# In the News



Design transforms a hearing aid into jewelry.



# In the News



Mix and match canes on display.

# In the News



“Superflex Aura Power,” made by Fuseproject, adds muscle to the body, helping the user get up, sit down or stay upright.

# In the News



“Soundshirt,” by CuteCircuit, translates the experience of listening to music for the deaf and hard of hearing into a sensory experience on the skin.



# In the News



Intricate prosthetic leg covers by Alleles Design Studio.

# In the News



“Lower Limb Prosthesis Prototype,” from Simple Limb Initiative.

# In the News



Hands of X envisions prosthetic hands made from ordinary, tasteful, mix-and-match materials.

# In the News



- ▶ Liftware Level is a new robotic device designed to help people with limited hand and arm mobility hold a utensil at the angle needed to enjoy any meal. ([video](#) 1:03)
- ▶ Liftware Steady is a stabilizing handle and a selection of attachments that include a soup spoon, everyday spoon, and fork. Steady is designed to help people with hand tremor eat more easily. Visit [www.liftware.com](http://www.liftware.com) to learn more. ([video](#) 1:34)

# In the News



- ▶ BrainPort featuring Emilie Gossiaux ([video 2:33](#))
- ▶ BrainPort is based on the proposition that one sees with the brain, not with the eyes. Embedded in the headset is a camera, a surrogate “eye,” that translates the shapes of things in the physical world into vibrations that can be felt through a device placed on the user’s tongue. With practice, one can learn to interpret the vibrating patterns and actually start to see.

# In the News



- ▶ eSight Glasses ([video 3:22](#))
- ▶ Toronto-based eSight has developed a device that restores vision for the legally blind, without the need for surgery. The electronic glasses feature a high-speed, high resolution camera to capture what a user is looking at in real time, according to the company website. The computer then instantly processes the video and displays it on two organic LED screens in front of the user's eyes in full color with no delay.



# In the News

- ▶ Whill Model Ci (videos [1:13](#), [1:27](#))
- ▶ The Whill Model Ci is a personal electronic vehicle (PEV) designed for maneuverability. With a top speed of 5 mph, the Model Ci has the ability to both climb hills and travel over rugged terrain, and to maneuver indoors through tight doorways and confined areas. It also can be disassembled into three components for easy transportation.

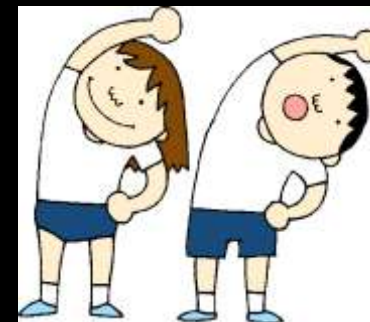
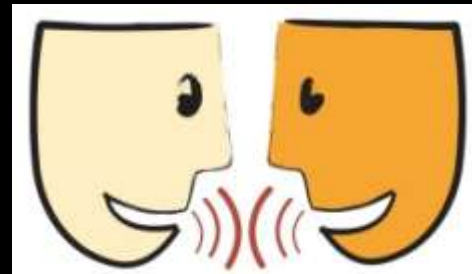


# Questions?



# End-of-class 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



Adjourn



class dismissed





# Laptops Galore



# Time for Questions?





End the class

