

February 4, 2025
Thoughts on Assistive Robotics



ENGR110/210

Perspectives in Assistive Technology



Steve B. Cousins, PhD
Stanford Robotics Center



Questions?



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

Hours of Sleep

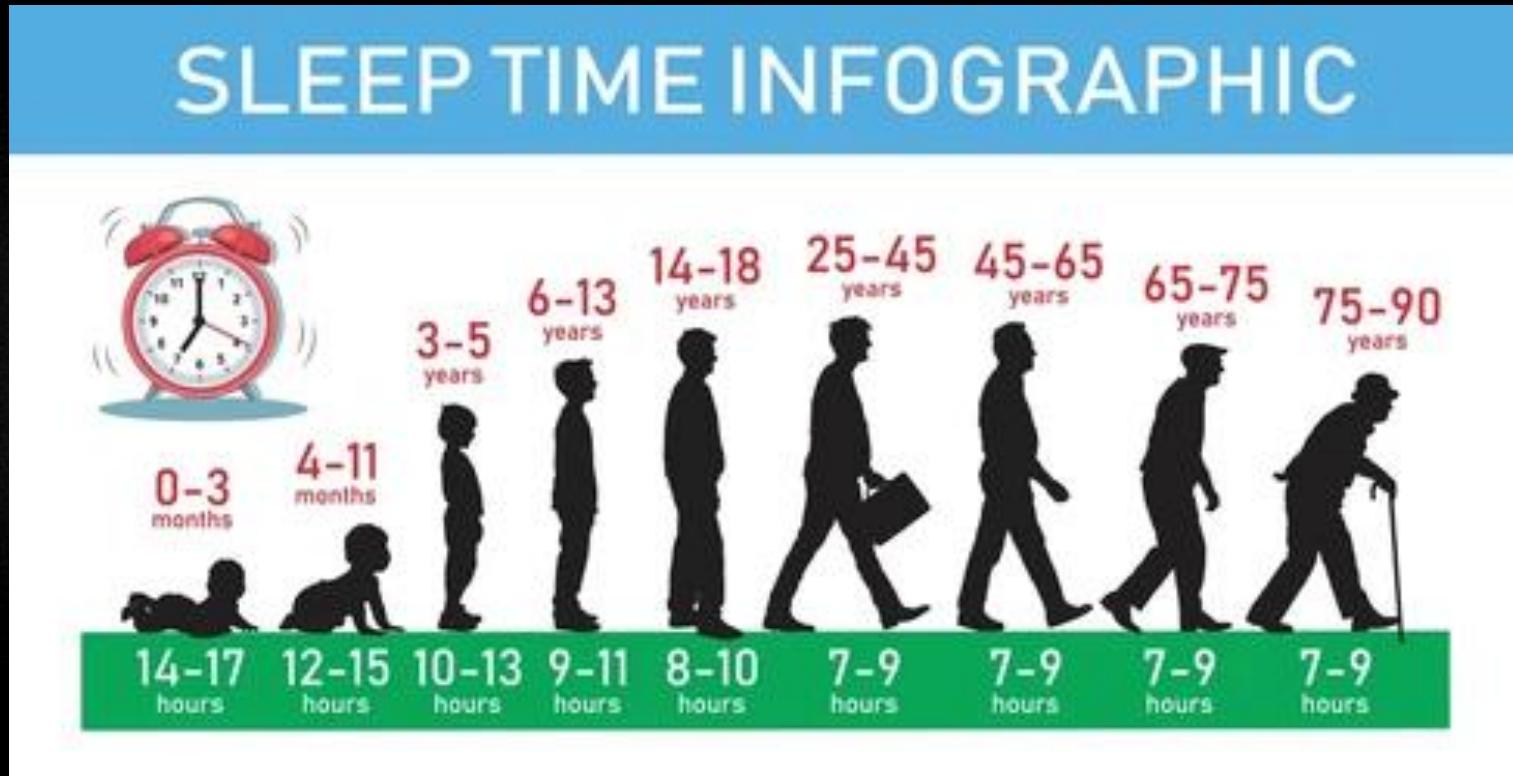


2025

- Average = 6.1 hours
- STD = 2.1
- N = 21

2024

- Average = 7.2 hours
- STD = 1.6
- N = 21



Miscellaneous Stuff



- ▶ Service animals are Assistive Technology
- ▶ People with disabilities and older adults can participate in the design process without a background in design / engineering
- ▶ How many users does an AT company have to interview to ensure that their products benefit their targeted market of consumers?

Many thanks!



Students working on projects:

- Meeting with me
- Providing progress updates

Community members:

- Project partners
- Attending class sessions

Guest speakers:

- Presenting interesting topics



Upcoming class sessions



- ▶ Thoughts on Assistive Robotics –
Steve B. Cousins, PhD - Tue, Feb 4th
- ▶ Assistive Robotics –
Monroe Kennedy III, PhD - Thu, Feb 6th
- ▶ Field Trip to the Magical Bridge Playground –
Olenka S. Villarreal – Tue, Feb 11th
Drivers' Signup
- ▶ Mid-term Student Project Presentations –
9 Teams – Thu, Feb 13th



Teams



- ▶ Hydro Hold - Universal Water Bottle & Phone Holder
- ▶ Radiant Rollers - Enhanced Visibility
- ▶ Paw Patrol - Laptray Artwork Easel
- ▶ IP68 - Rain Shield
- ▶ Simple Stash - Laptop Storage
- ▶ Water Wizards - Water Bottle Opener
- ▶ **Sixth Team with No Name** - Accessible and Inclusive Playground
- ▶ **Seventh Team with No Name** - Accessible and Inclusive Playground
- ▶ Scoop Squad - Poop Management

Students working on Team Projects



- ▶ **Connect with project partner**
- ▶ “Understand the Problem”
- ▶ Brainstorming
- ▶ Select Design Concept(s)
- ▶ Sketches, low resolution prototypes
- ▶ Prepare for **Mid-Term Presentation** and **Report**
- ▶ Contact me if you have questions about your project direction
- ▶ Weekly - Meet with me to report on project progress
- ▶ **Team budget = \$200**
- ▶ Submit progress reports
- ▶ **Mid-Term Reports due Mon, Feb 17th**



Students working on Team Projects

Mid-term Presentations in 9 days!



- ▶ Mid-term presentations will be **7 minutes**
- ▶ Project title, background, problem, aim, design criteria, “understanding the problem” & brainstorming activities, and selected solution, with **low resolution prototypes**
- ▶ **Send Google Docs url to me, slides to be run from my laptop**
- ▶ Strive to be professional
- ▶ Include feeling & emotion & enthusiasm
- ▶ Presentation tips on course website
- ▶ Information sent in Week 4 in Review - example presentation
- ▶ **Signup Sheet for presentation order available on Thursday**
- ▶ **Video presentation by team members not present**

Students working on Team Projects

Mid-term Report



- ▶ Mid-term report - 10 to 15 pages of narrative - text and images
- ▶ Include legible sketches and photos
- ▶ Goal: short, concise, well-written, and highly readable report with few grammatical and spelling errors.
- ▶ Report Writing Tips documents **suggested** report features
- ▶ Information sent in Week 4 in Review - example report
- ▶ **Mid-Term Reports due Mon, Feb 17th**

Reminder - Work with Diligence



- ▶ Time is your most precious resource
- ▶ 9 days until Mid-term Presentations - Thu, Feb 13th
- ▶ Outline your presentation & report



Steve Job's Quotes

- ▶ "You can't just ask customers what they want and then try to give that to them. By the time you get it built, they'll want something new."
- ▶ "Most people don't even know what they want until they see it. So sometimes you must give people what they need, not what they're asking for."





Inclusive Definition of Disability



“Disability is a normal variation of the human condition.” -
Gregor Wolbring



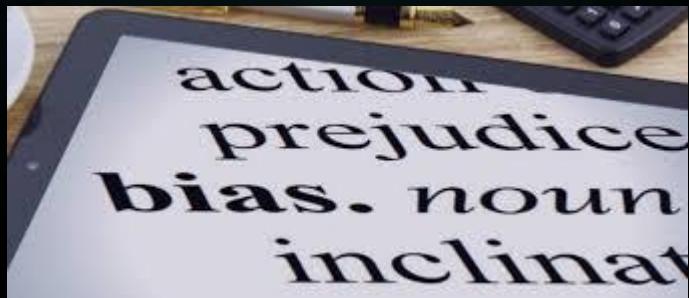
Deep inside we're all
the same - Styx



Ableism - What is Ableism?



- ▶ Ableism is a form of **discrimination** that asserts or suggests that able-bodied people are superior to those with disabilities. [Ageism - older adults]
- ▶ Ableism is a system that places **value** on people's bodies and minds based on artificially constructed ideas of normalcy, intelligence, excellence, and productivity.



Ableism - Ramifications



- ▶ An ableist society treats able-bodied people as the **standard** for 'normal' living. This promotes unfair treatment towards people with disabilities (and older adults).
- ▶ This form of thinking leads to people and society determining who is **valuable and worthy** based on a person's appearance and/or their ability to satisfactorily [re]produce, excel, and "behave", rather than the quality of their character. [MLK]
- ▶ One does not have to be disabled to experience ableism.



Ableism - Solutions



- ▶ **Education** is one keyway to dispel myths and prejudices about the people with disabilities and older adults.
- ▶ **Language and vocabulary changes** are also needed to include everyone in the advancement of the technological world in a genuine, respectful, and humane way.
- ▶ **Positive examples**



Ableism - Language



- ▶ Disability vs Ability
- ▶ “Disability” perceived as a negative term / condition
- ▶ Disability = lack of ability = not worthy



Ableism - Future



- ▶ Although society and the digital world are becoming more **accepting** of diversity, discrimination still exists, especially for people with disabilities (and older adults).
- ▶ A positive virtual future is set to become progressively more **inclusive** of people of all levels of ability.
- ▶ Reducing ableism is essential in improving the accessibility, benefit, and impact of assistive technologies.

**THE ONLY
DISABILITY
IN THIS LIFE
IS ABLEISM**

Thursday, February 6th



Assistive Robotics

Monroe Kennedy III, PhD

Assistant Professor of Mechanical Engineering

and, by courtesy, of Computer Science

Stanford University



Today



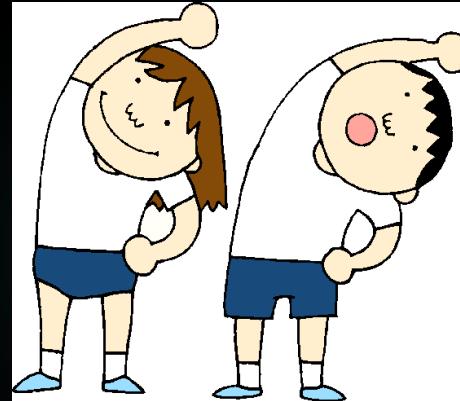
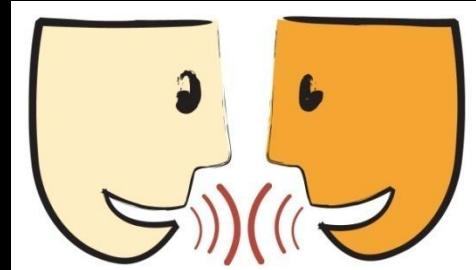
Thoughts on Assistive Robotics

Steve B. Cousins, PhD

Executive Director of the Stanford Robotics Center

Break Activities

- ▶ Attendance sheet
- ▶ **Driver's Signup for MBP**
- ▶ 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

