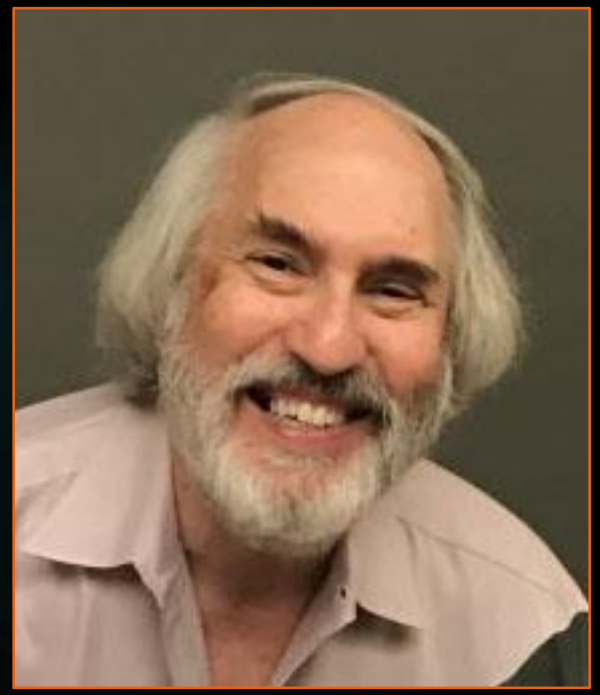
March 7, 2023

Film Screening – Full Picture

ENGR110/210
Perspectives in Assistive Technology



David L. Jaffe, MS

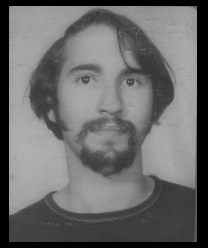
Instructor

17

Years

About Me

- Education:
  - University of Michigan - BS in EE
  - Northwestern University - MS in BME
- Employment:
  - Hines VA Hospital
  - VA Palo Alto Health Care System - RR&D
- Stanford:
  - ME170, ME218, ME294, ME310, BioE141, assistive technology projects



At 22

Hines VA Hospital

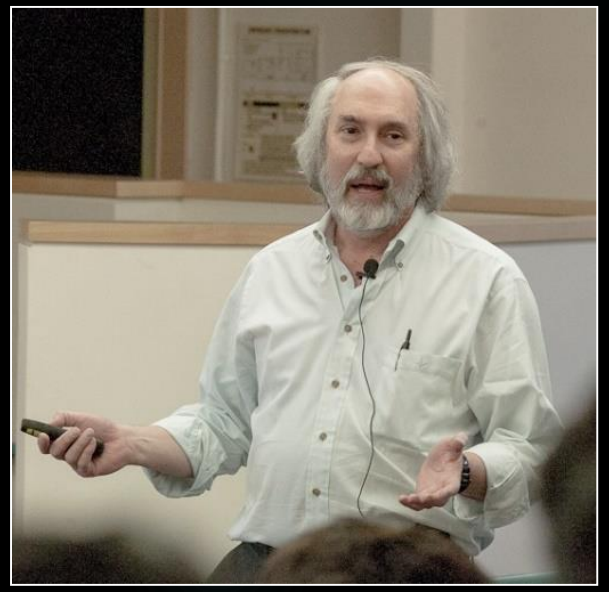
VA Palo Alto RR&D

VA Palo Alto

My Passions

- Inspired by “Watch Mr Wizard”
- Early home computer adopter - 1975
- Forth programming language devotee, embedded systems
- Teaching human aspects of technology and engineering

FORTH
INTEREST
GROUP
fig



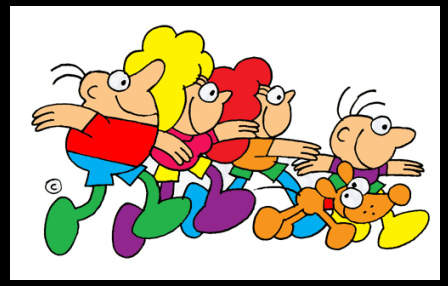
Perspectives in Assistive Technology

- This Stanford course explores the design, development, and use of technology that benefits people with disabilities and older adults.
- Team projects address challenges / problems experienced by people with disabilities and older adults in the local community. (3 credit units)
- Teams consist of 3 or 4 students from various disciplines & years.

Student Activities

- Practice working in a team
- Practice working in the community
- Follow a process to address & solve a problem
- Practice communication skills
  - Reports
  - Oral presentations
  - Individual Reflection

Course Objectives

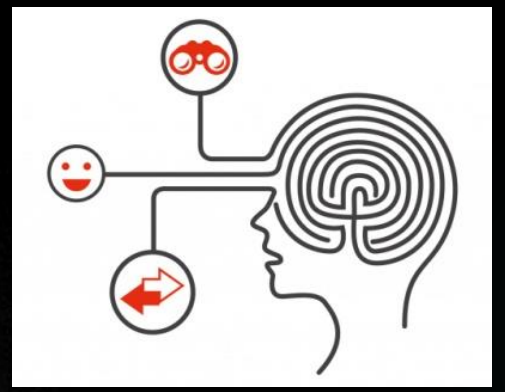


- Gain additional engineering confidence in applying your knowledge and skills to address real problems in the world.
- Focus on critical thinking and communication skills, working as a team, and interacting with individuals in the local community
- Learn about the design, development, and use of technology that benefits people with disabilities and older adults
- Practice leadership & organization

Skills Exercised

- Independent & critical thinking
- Analysis
- Problem-solving
- Working in a team
- Working in the community
- Public service
- Service-learning
- Designing, fabricating, testing, analyzing, iterating
- Communicating: reports, presentations, class participation
- Leadership & Organization

What this Course isn't

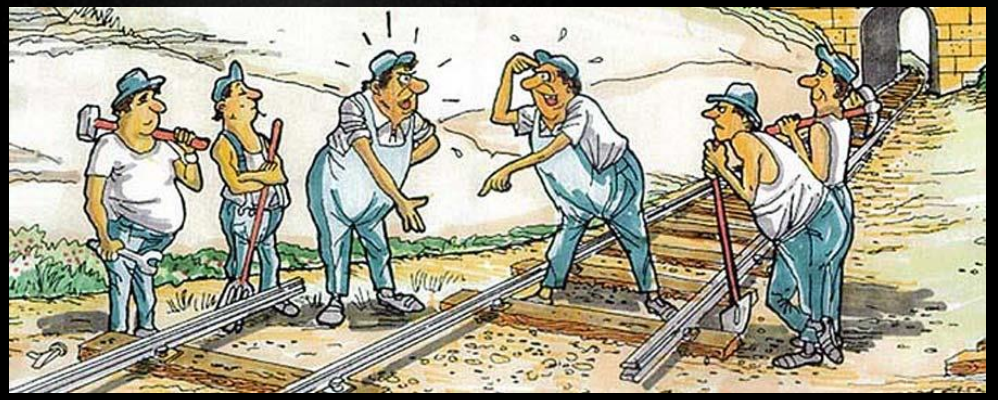


- Not a d.school course
- Not a course in Design Thinking or Product Design
- Not just about good ideas and using Post-it notes
- Not about starting a company
- Not about commercializing a device or product
- Not about business or marketing or manufacturing
- Projects typically not with big companies or in foreign countries
- No finals, exams, problem sets, or quizzes
- No books to buy
- Some weekend reading
- No boring lectures

"Not that there is anything wrong with that"

What this Course is

- Technology and people
- Assistive Technology in its many forms
- Engineering design-development process:
  - Understanding the problem
  - Brainstorming
  - Prototyping, testing
  - Refining, iterating
  - Communicating



- Working on a project
- Partnering with local community
- Previewing students' professional life

Course Structure

- A twice-weekly in-person in-classroom sessions exploring perspectives in the design and use of assistive technology by engineers, designers, entrepreneurs, clinicians, and persons with disabilities - a field trip, a film screening, and an assistive technology faire.

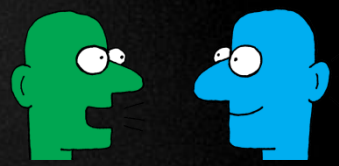
- Opportunities for thought, reflection, and discussion

- A project experience that includes problem identification, understanding, brainstorming, design, fabrication, testing, and reporting - benefitting individuals in the local community

Student Experience

- Gain an appreciation for the social, medical, and technical challenges in developing assistive technologies
- Learn about assistive technology concepts, design strategies, ethical issues, and interaction of people with technology

For students working on a team project:



- Engage in a comprehensive project experience that includes working with real users of assistive technology to identify challenges, prototyping solutions, performing device testing, practicing iterative design, and communicating results
- Employ engineering and design skills to help people with disabilities and older adults increase their independence and improve their quality of life

Thursday, March 9th

Wheelchair Fabrication in Developing Countries

Ralf Hotchkiss - Whirlwind Wheelchairs International

Tuesday, March 14th

End-of-term Student Team Project Presentations

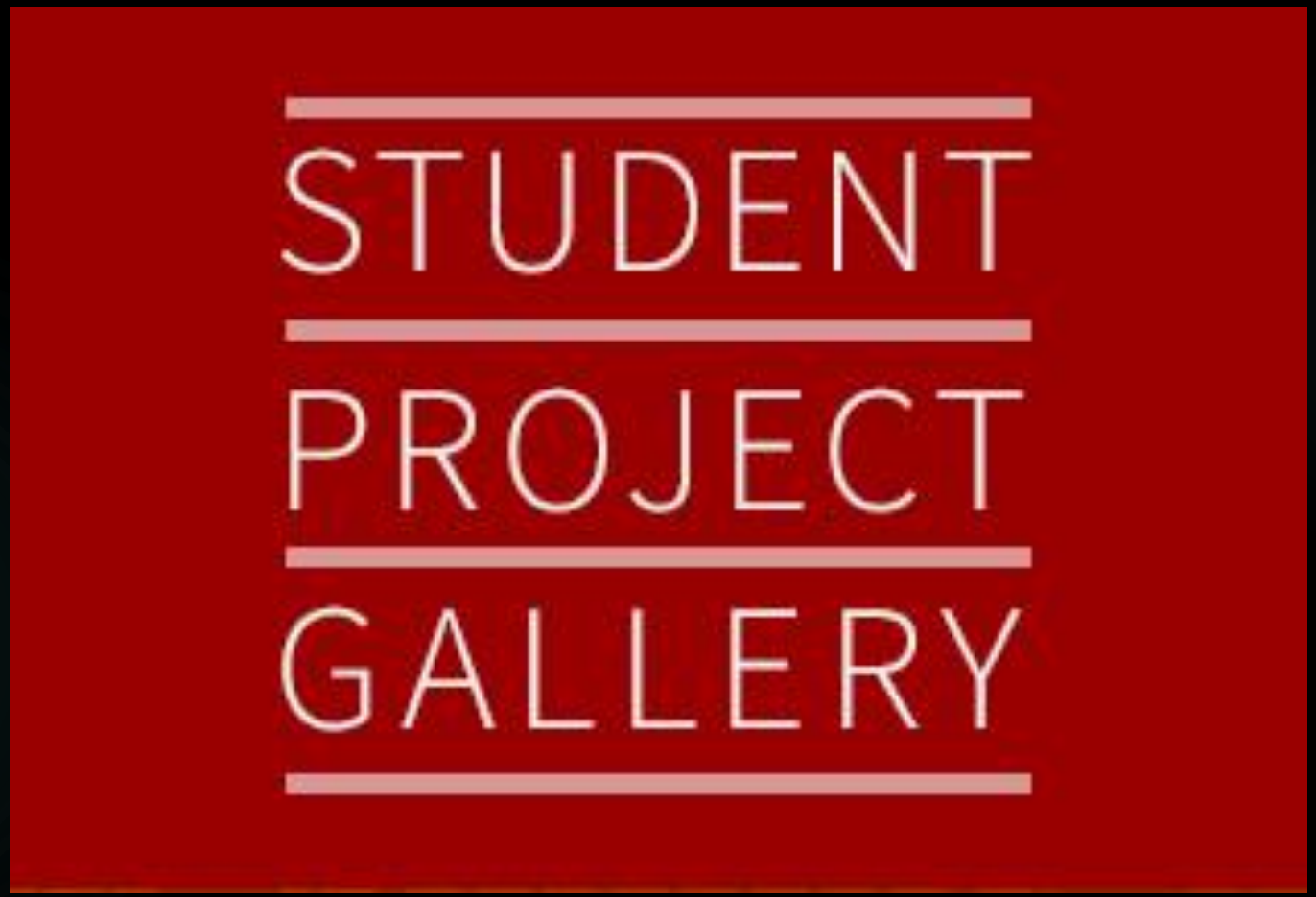
Nine Project Teams

Thursday, March 16th

Student Team Project Demonstrations

Nine Project Teams

Student Projects from 2022



Student Team Projects 2022

- Forty-three students enrolled
- 31 worked on team projects
- 4 worked on individual projects

Accessible and Inclusive Playground Attractions

Explore designs to create new play and educational experiences incorporating multiple senses, actions, and outcomes for all playground users and visitors, especially those with visual impairments and diminished fine motor skills.

Dog Feeding Aid

Explore designs that would enable a wheelchair user with CP to independently feed his service dog..

Ski Pole Project

Explore designs for a new or modified ski pole that would enable a skier with limited forearm range of motion to better participate in skiing.

Accessible and Inclusive Playground Attractions

Explore designs to create new play and educational experiences incorporating multiple senses, actions, and outcomes for all playground users and visitors, especially those with visual impairments and diminished fine motor skills.

Accessible and Inclusive Playground Attractions - Spring Quarter

Explore designs to create new play and educational experiences incorporating multiple senses, actions, and outcomes for all playground users and visitors, especially those with visual impairments and diminished fine motor skills.

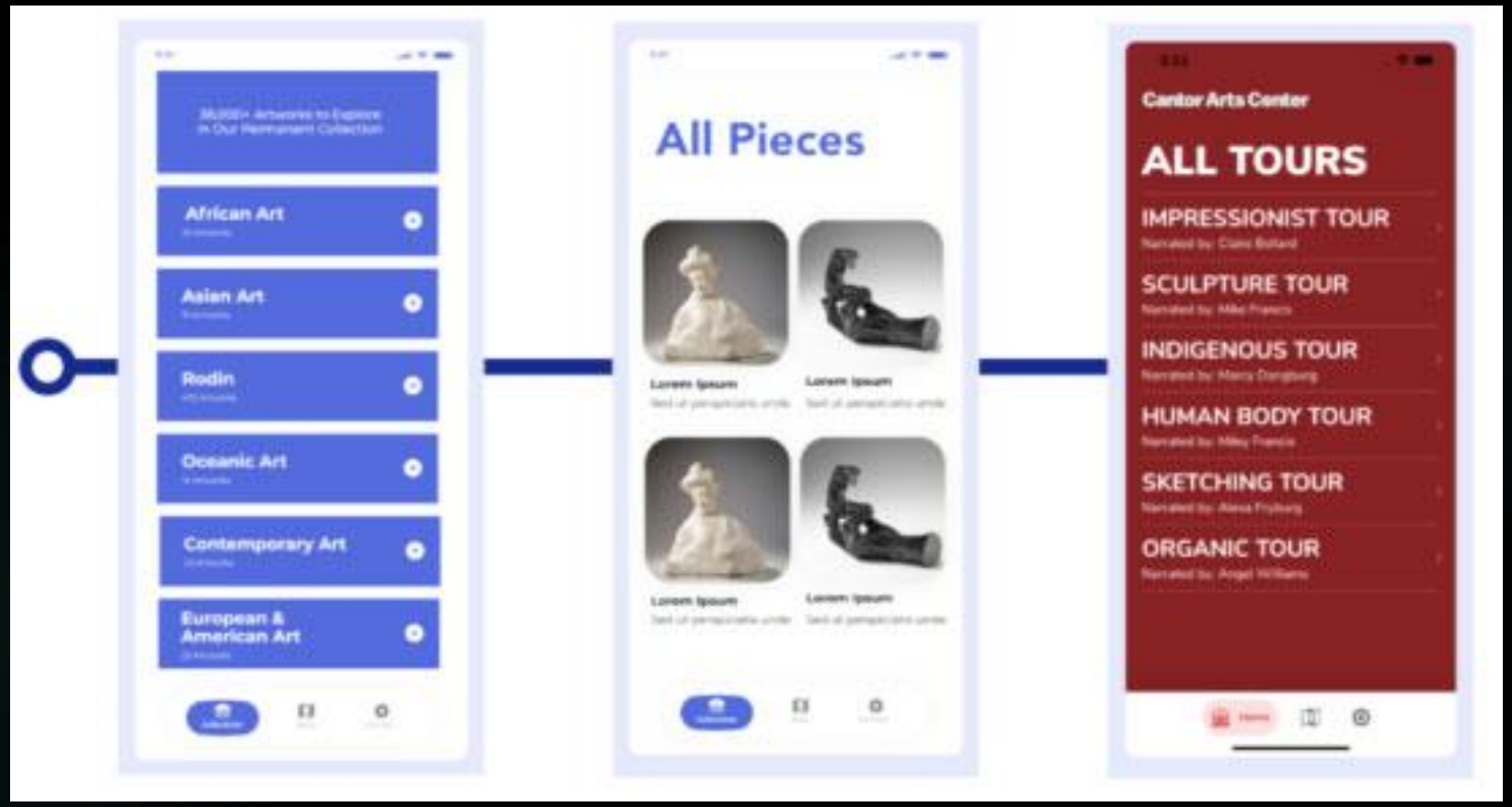
Wearable Storage Pack

Explore designs for a wearable storage pack that would enable a wheelchair user with CP to independently and safely store his phone, wheelchair gloves, and other miscellaneous objects.

Belt Buckle Project

Explore design solutions that would make it easier for a wheelchair user with CP to buckle himself into his wheelchairs independently.

Exhibition Engagement Tool

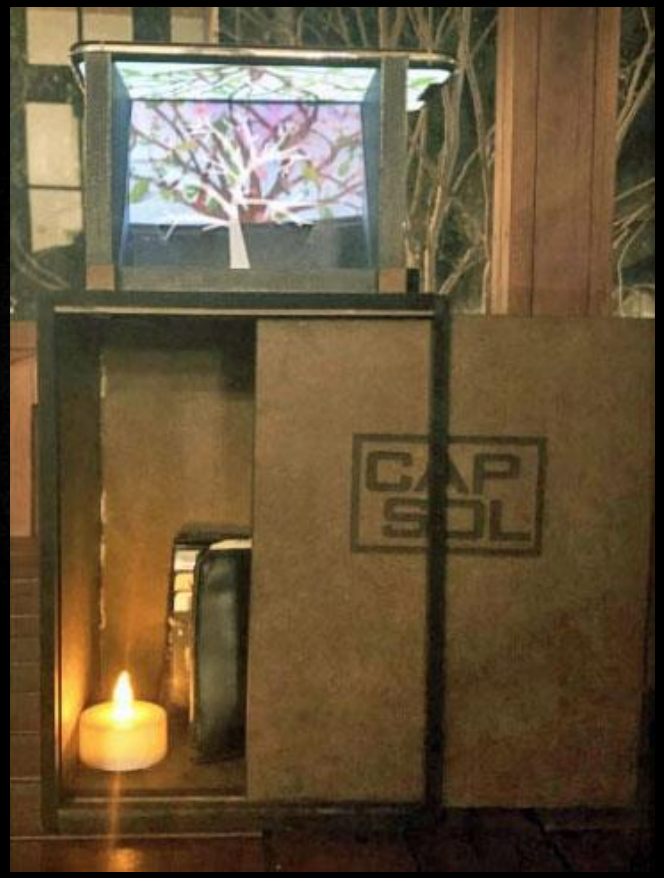


Develop a tool - possibly an app - that will allow blind visitors and visitors with low vision to better engage with artworks on display.

A Day at the Cantor Arts Center

Document the experience of a blind person or person with low vision as they navigate the Cantor Arts Center, including entering and exiting the building, moving through gallery spaces, locating facilities like restrooms and the cafe, and engaging with artworks on display.

Designing Your Afterlife



Explore ways to preserve one's essence after death.

Flip-Flops for Mary

Explore designs that would allow a woman who uses a prosthetic leg to wear flip-flops.

Contact Information

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  - http://engr110.stanford.edu
- Email address:
  - davejaffe@stanford.edu