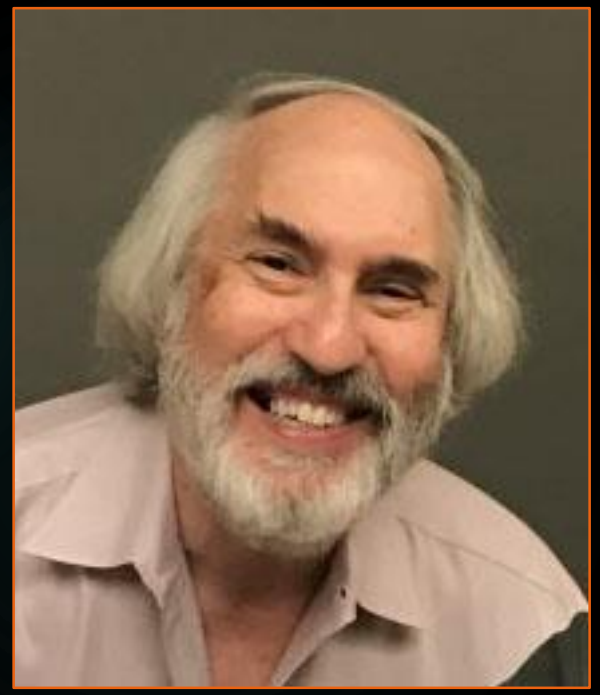
February 2, 2023

From DIY to Disability Dongles

ENGR110/210
Perspectives in Assistive Technology



David L. Jaffe, MS

Instructor

17

Years

Questions, Comments, Suggestions, or Concerns?

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

Missed Lectures – Emailed Instructions

- Make up missed class sessions promptly by reviewing class session webpage (slides and links), viewing camcorder video on YouTube, and meeting with me.

Upcoming class sessions

- Issues of Human Interface Design -
  Gary M. Berke, MS, CP, FAAOP - Tue, Feb 7th
- Assistive Robotics - Thu, Feb 9th
  Monroe Kennedy III, PhD
- Mid-term Student Project Presentations -
  Tue, Feb 14th
- Field Trip to the Magical Bridge Playground -
  Thu, Feb 16th

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

Students working on Team Projects
Mid-term Presentations in 12 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 prototype**
- Send Google Docs link to me, **to be run from my laptop**
- Strive to be professional
- Include feeling & emotion
- Presentation tips on course website
- Signup Sheet for presentation order will be available in class next week

Students working on Team Projects
Mid-term Report

- Mid-term report - 10 to 15 pages of narrative - text and images
- Suggested format different for fabrication vs non-fabrication projects
- Include 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

Students working on Individual Projects

- **Meet with me to approve your project, get information**
- Submit project name
- Contact me if you have questions about your project direction
- Weekly - Meet with me to report on project progress
- Submit progress reports to both Bennett & me

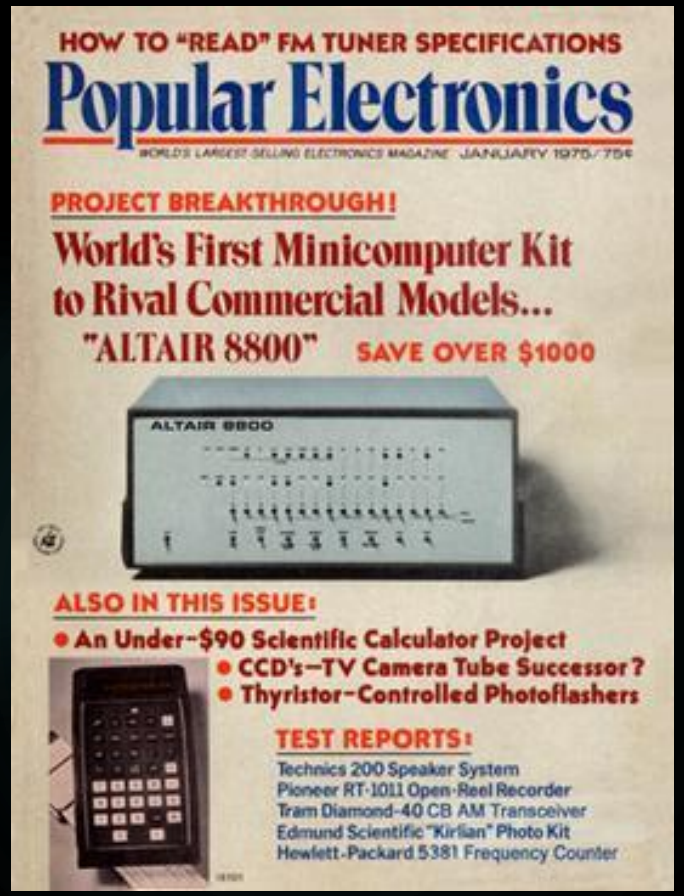
Reminder - Work with Diligence

- Time is your team's most precious resource
- **12 days** until Mid-term Presentations - Tue, Feb 14th
- It is not too early to outline your presentation & report

Steve Jobs' Quote

- "Things don't have to change the world to be important."

Vintage Technology



48 years ago!

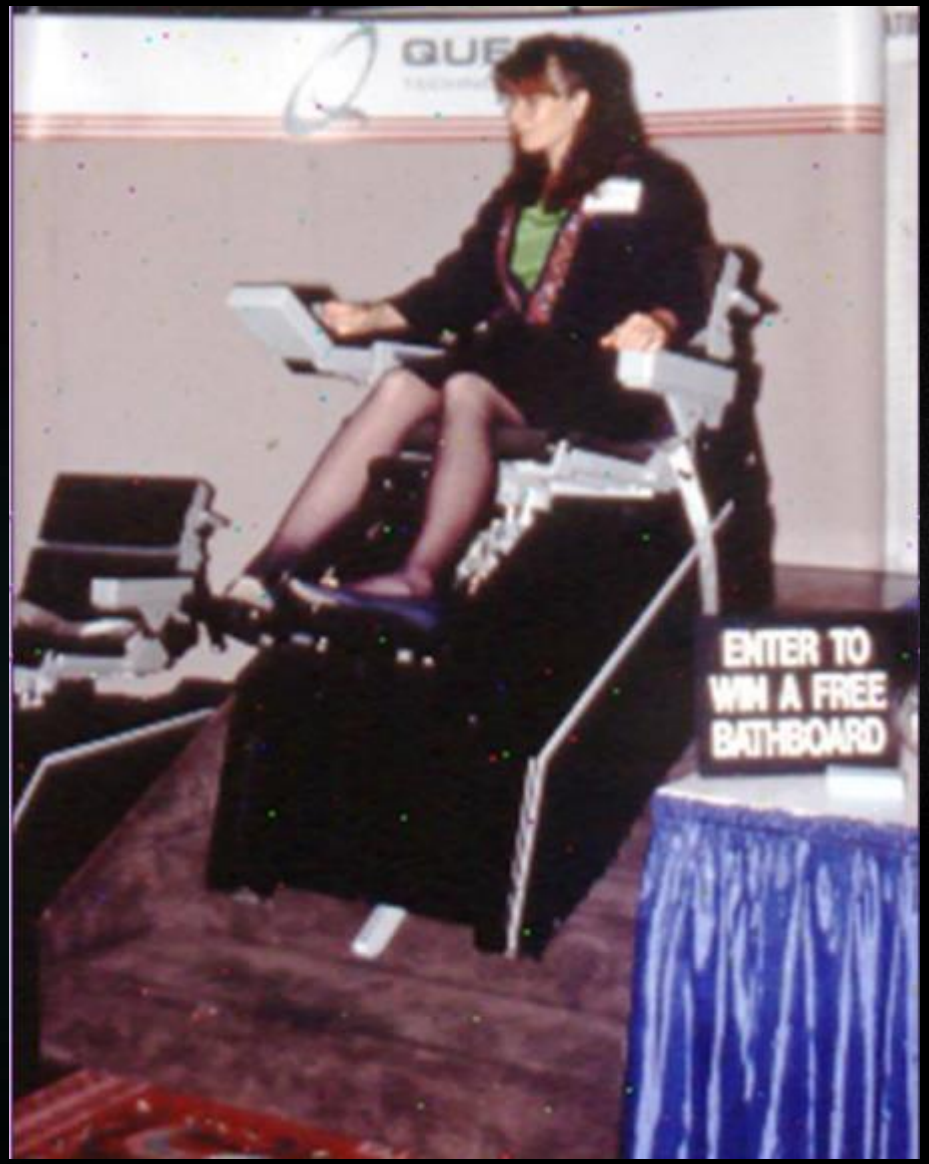
Vintage Computer Technology

Vintage Assistive Technology
Old Wheelchair Designs

Old Wheelchair Designs

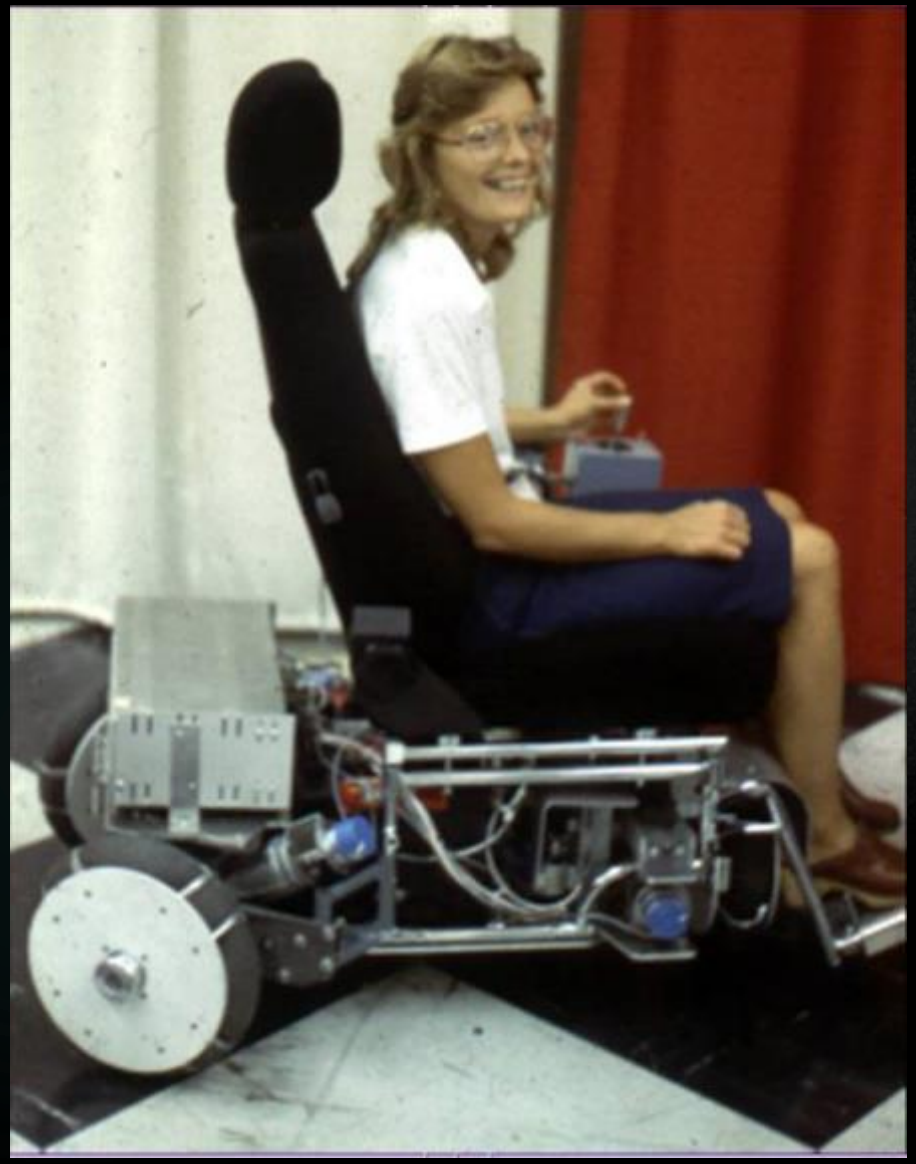
Old Wheelchair Designs

Old Wheelchair Designs

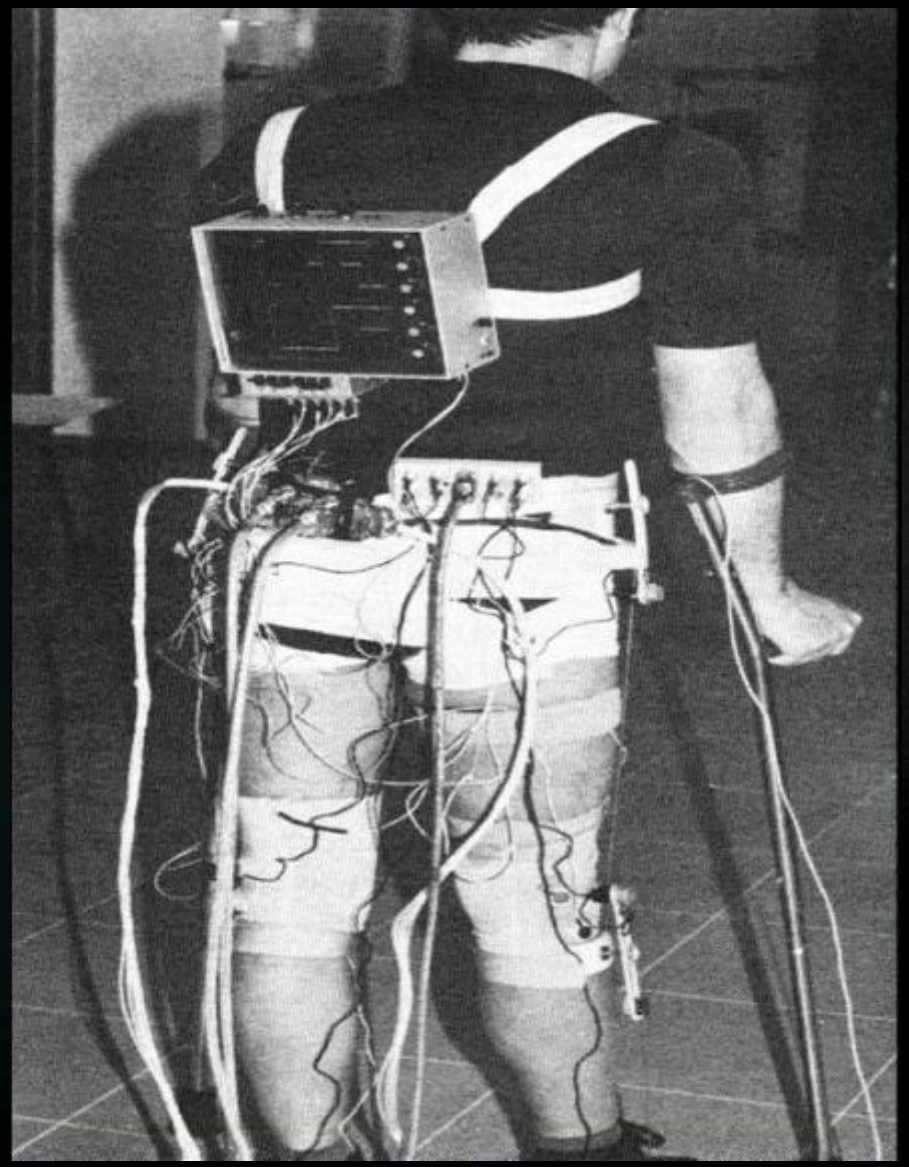


iBOT

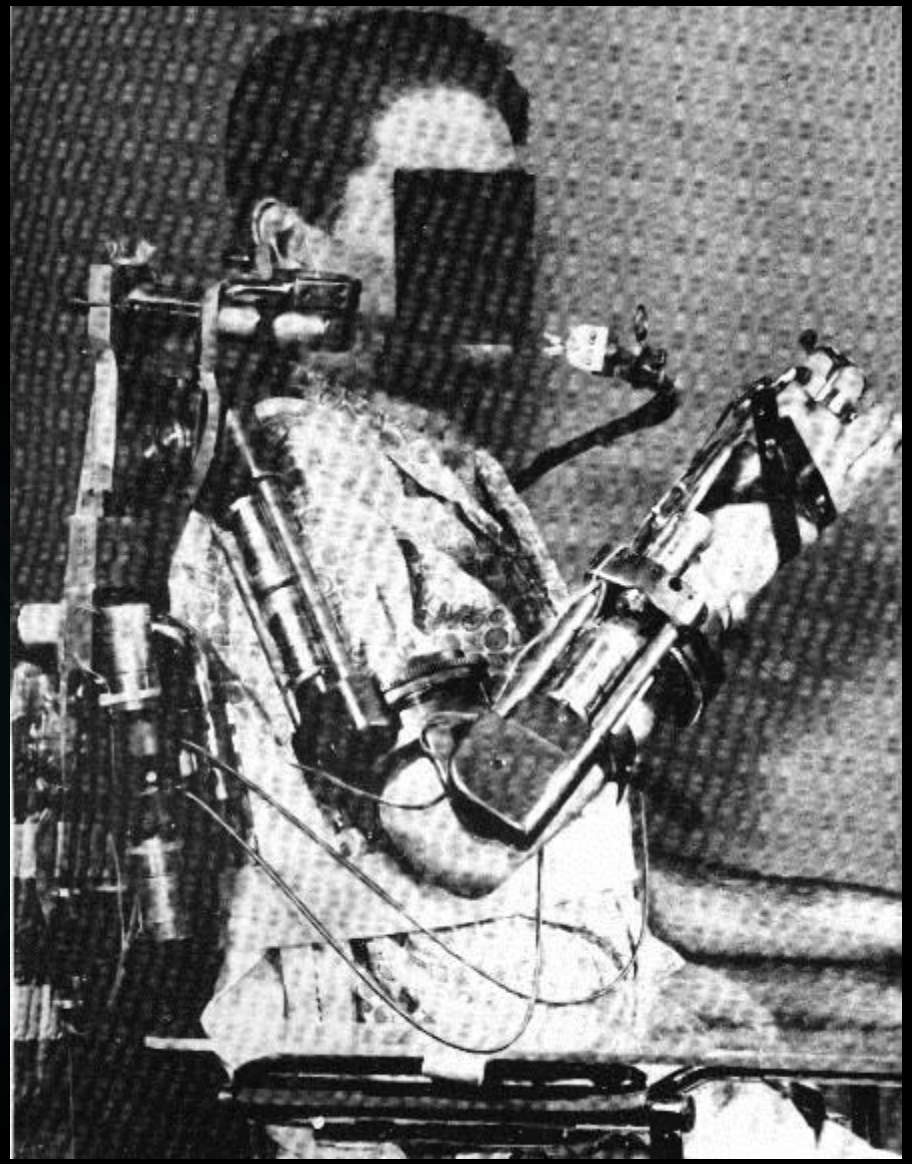
Omni-directional Wheelchairs



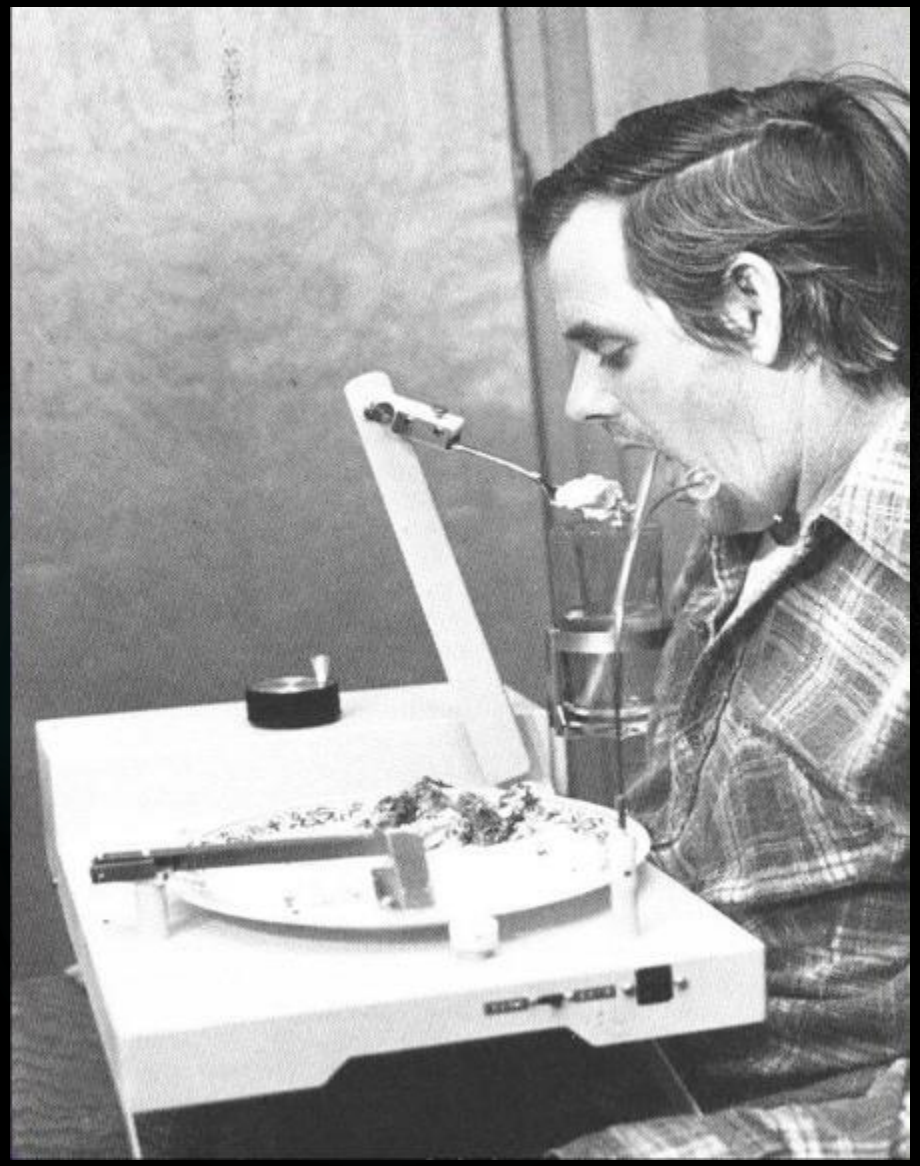
FES Walking

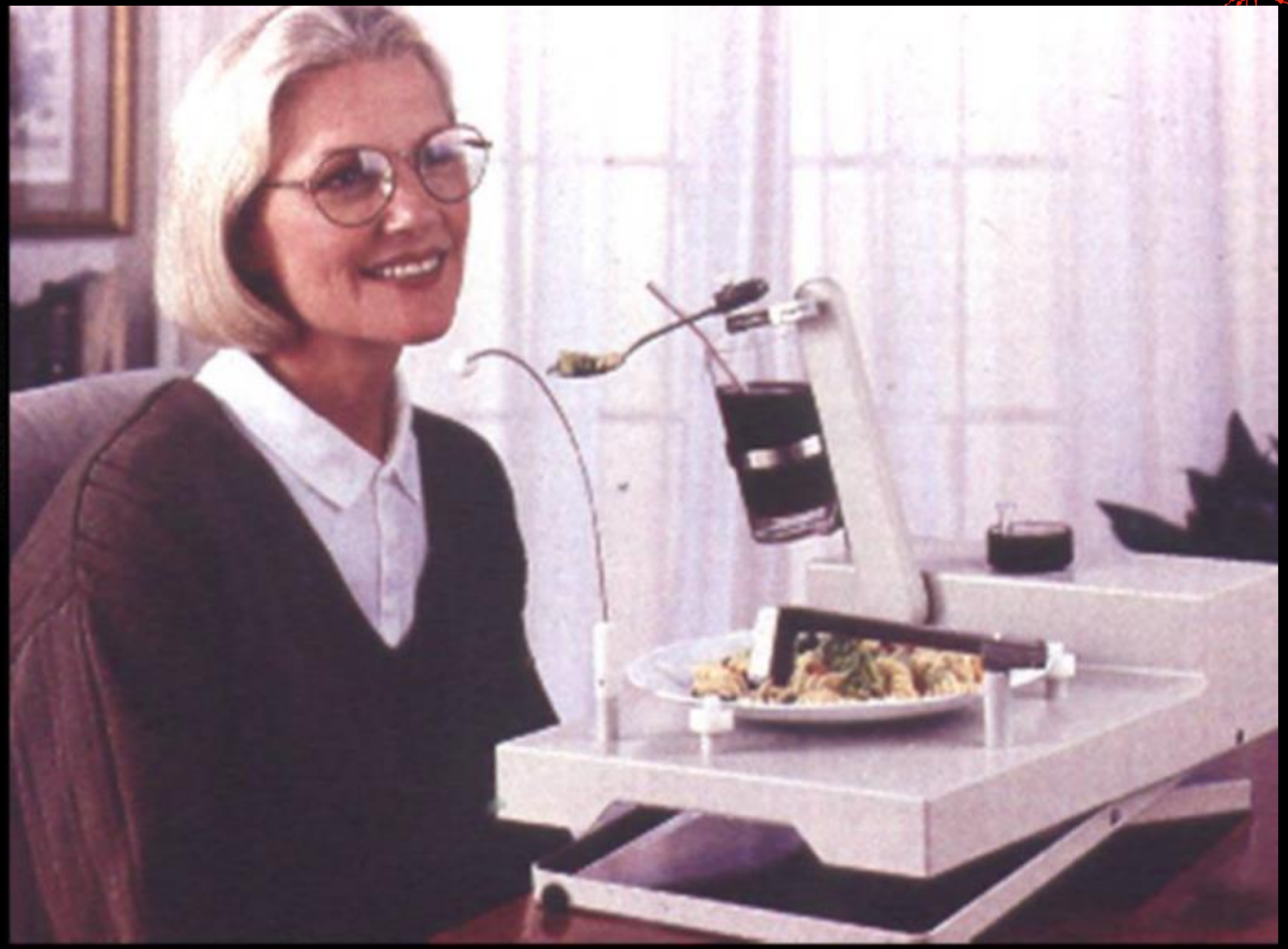


Chin Controlled Arm Exoskeleton

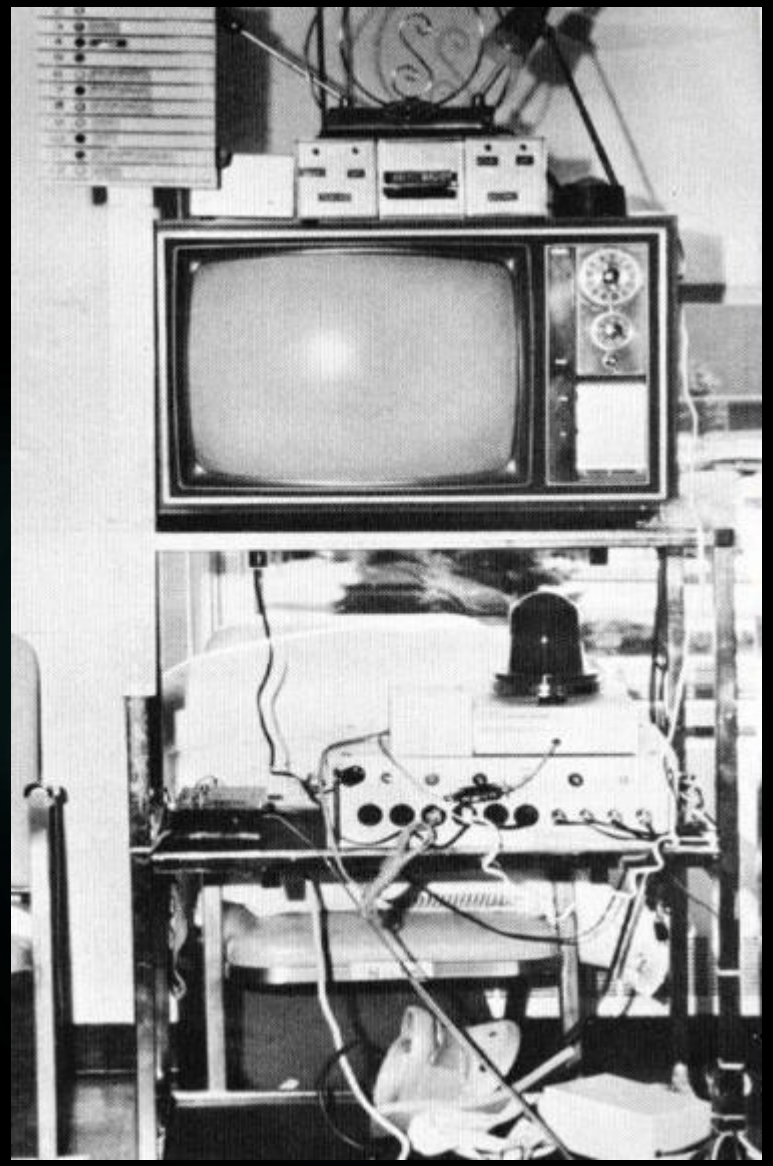


Robotic Feeding Aids





Early Environmental Control Systems

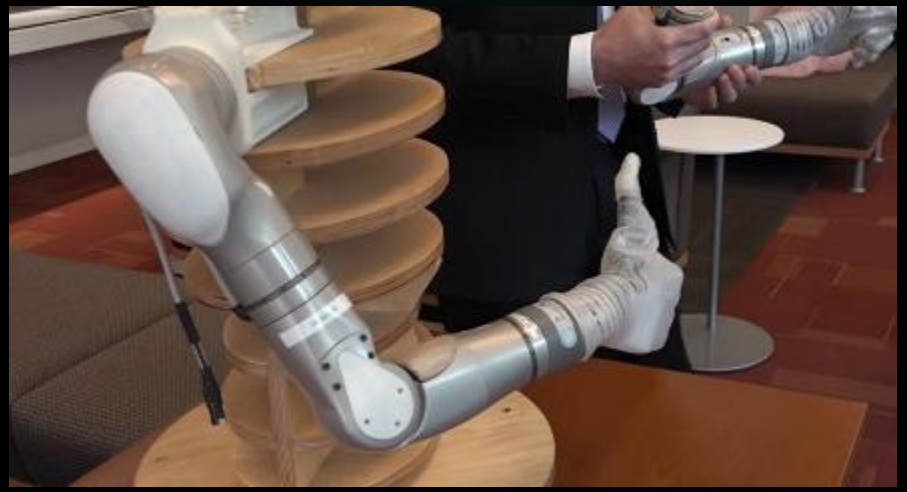


Eye Gaze Control

Augmented Communication System

Augmented Communication System

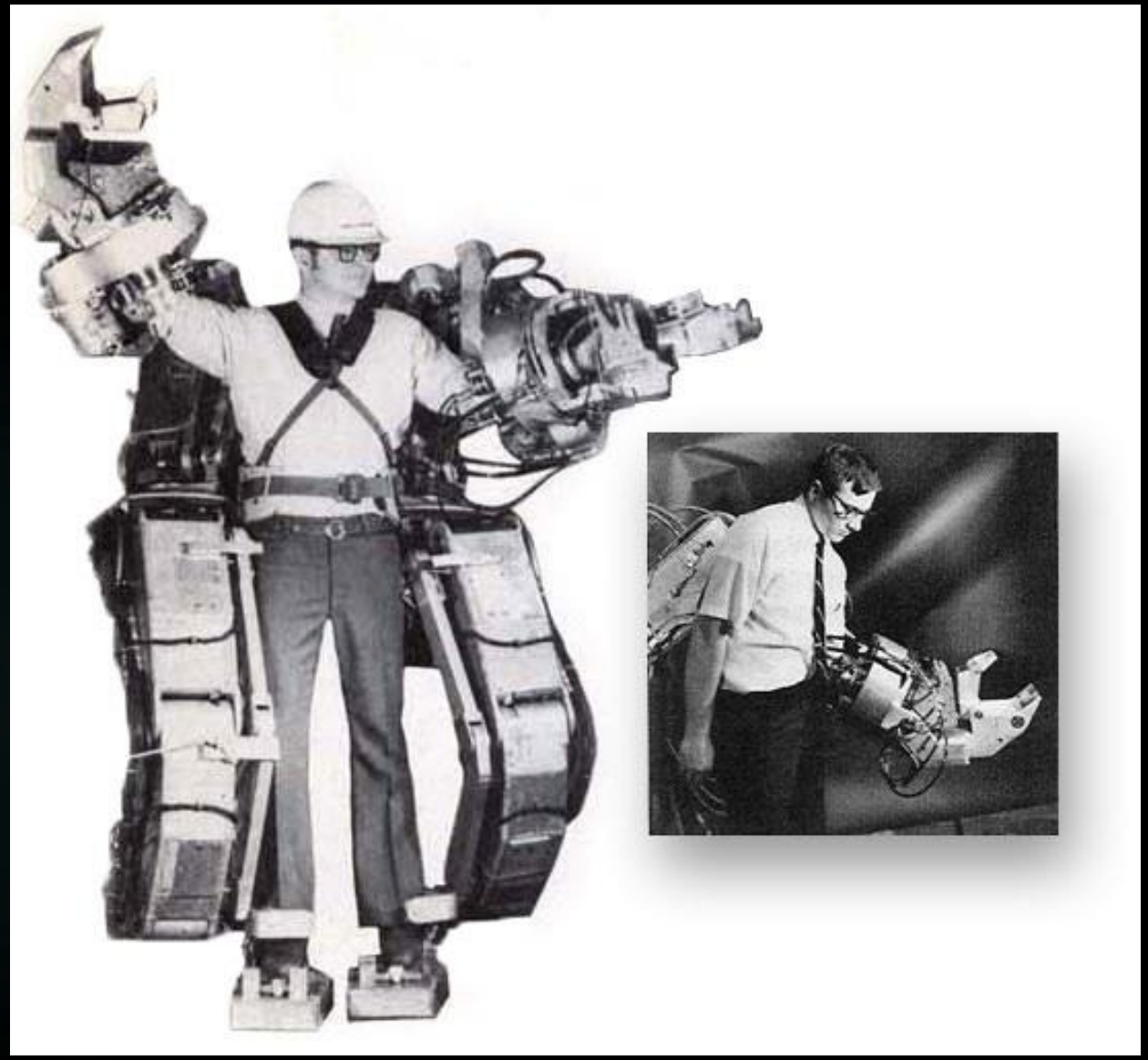
Artificial Arm from 1560 - 1600



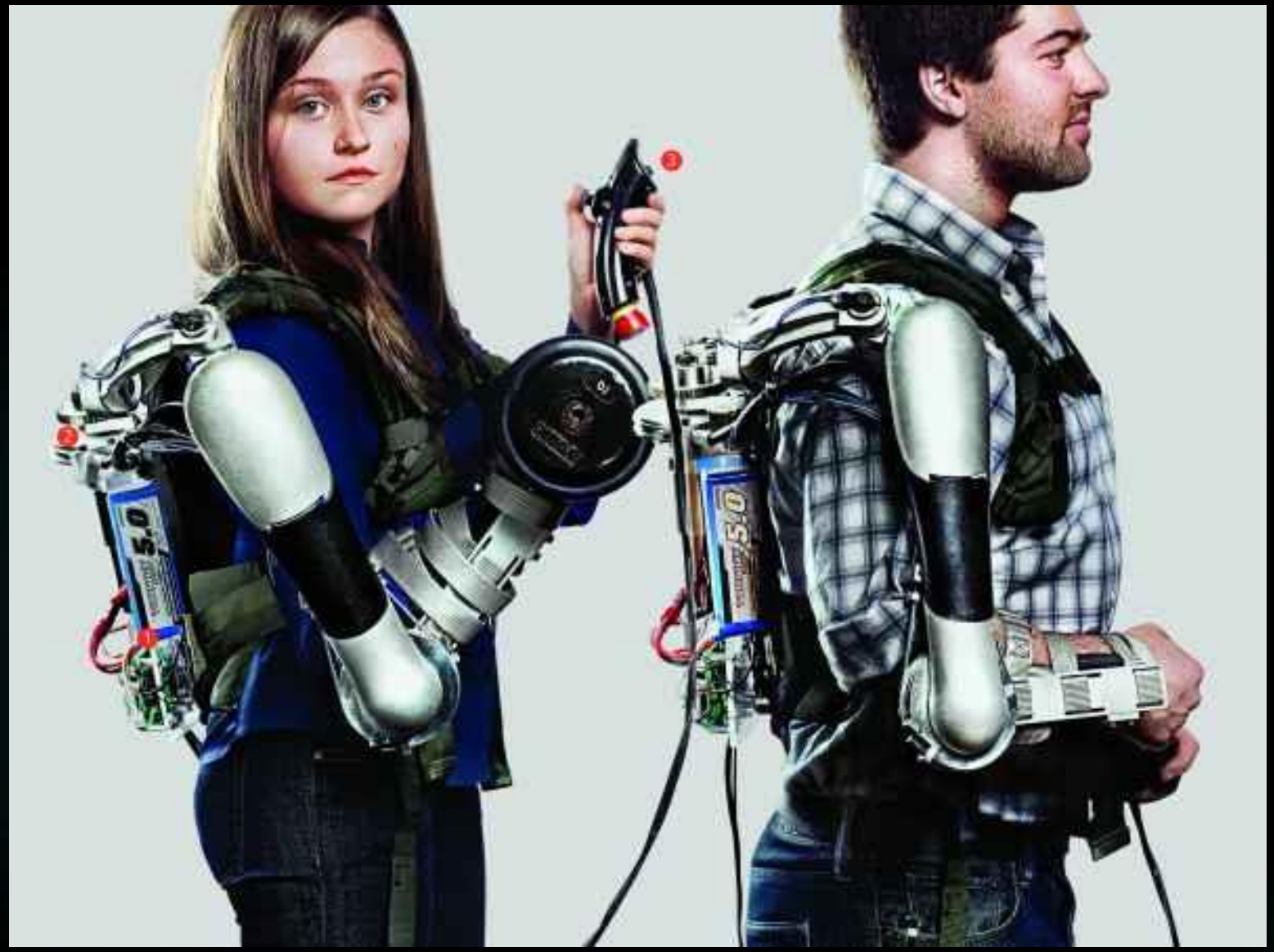
Peg Leg Bates

Wooden Prosthetic Legs

Hardiman Prototype - 1950s



Student Exoskeleton Arms



Ultimate Exoskeleton

Ultimate Hand Orthotic

Space,
Time,
Reality,
Mind,
Soul,
and
Power.

Thanos' Infinity Gauntlet

Steampunk Professor Xavier Wheelchair Project

Video

Orange County Chopper

- Christopher & Dana Reeve Foundation

- Video

Tuesday, February 7th

Issues of Human Interface Design

Gary M. Berke, MS, CP, FAAOP

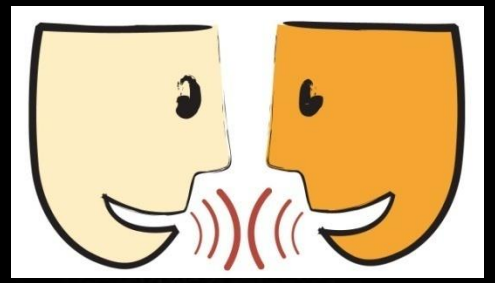
Stanford Medical Center and Berke Prosthetics & Orthotics

Today

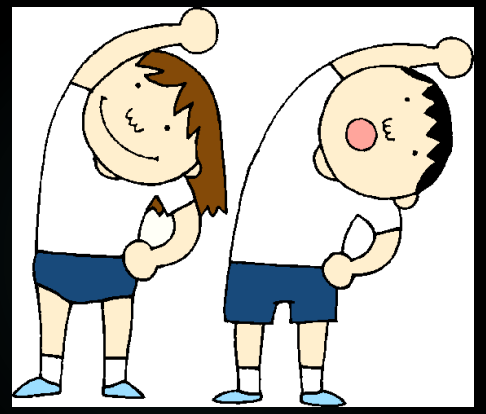
From DIY to Disability Dongles: Spanning Accessibility Space from Indispensable to Irrelevant

Joshua A. Miele, PhD
Amazon Lab 126

Break Activities



- 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

From DIY to Disability Dongles

Joshua A. Miele received BA (1992) and PhD (2003) degrees from the University of California at Berkeley. From 2007 to 2019, he worked at the Smith-Kettlewell Eye Research Institute as a principal investigator and as the associate director of research and development. Josh also served as the president of the board of directors for San Francisco's LightHouse for the Blind and Visually Impaired (2011–2015). Currently, he is an accessibility researcher at Amazon Lab126, where he has contributed to projects such as Braille compatibility with Fire tablets and a "Show and Tell" feature on camera-enabled Echo devices that can identify pantry and food items. Josh's goal is to create effective and affordable solutions to everyday problems blind people face, particularly access to digital information. He received a MacArthur Foundation Fellow Award in 2021.