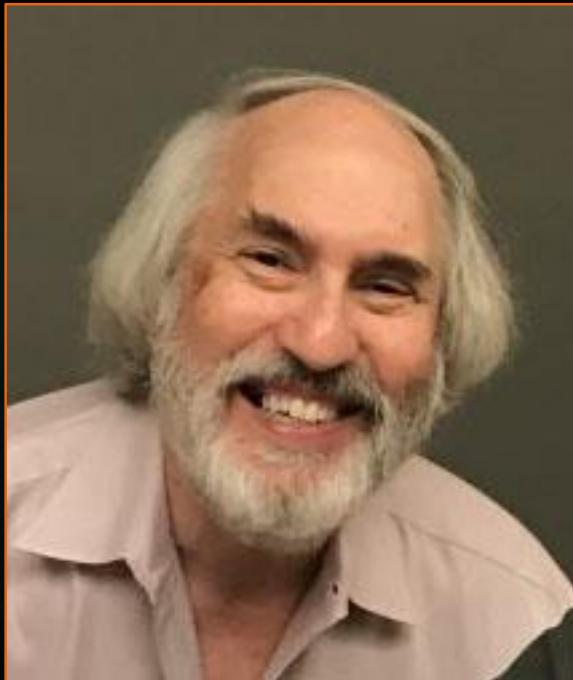


February 2, 2023  
*From DIY to Disability Dongles*



# ENGR110/210

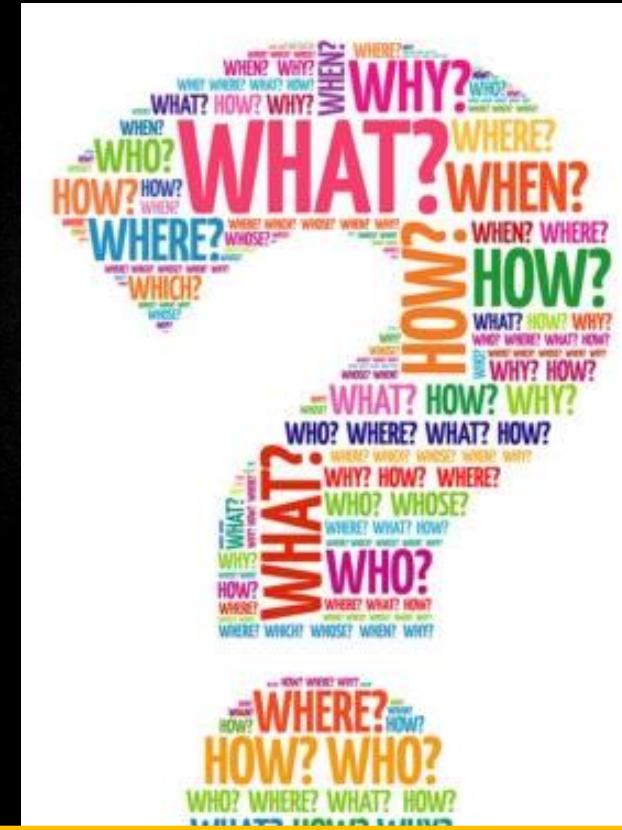
## Perspectives in Assistive Technology



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 7<sup>th</sup>
- ▶ **Assistive Robotics -** Thu, Feb 9<sup>th</sup>  
Monroe Kennedy III, PhD
- ▶ **Mid-term Student Project Presentations -**  
Tue, Feb 14<sup>th</sup>
- ▶ **Field Trip to the Magical Bridge Playground -**  
Thu, Feb 16<sup>th</sup>



# 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

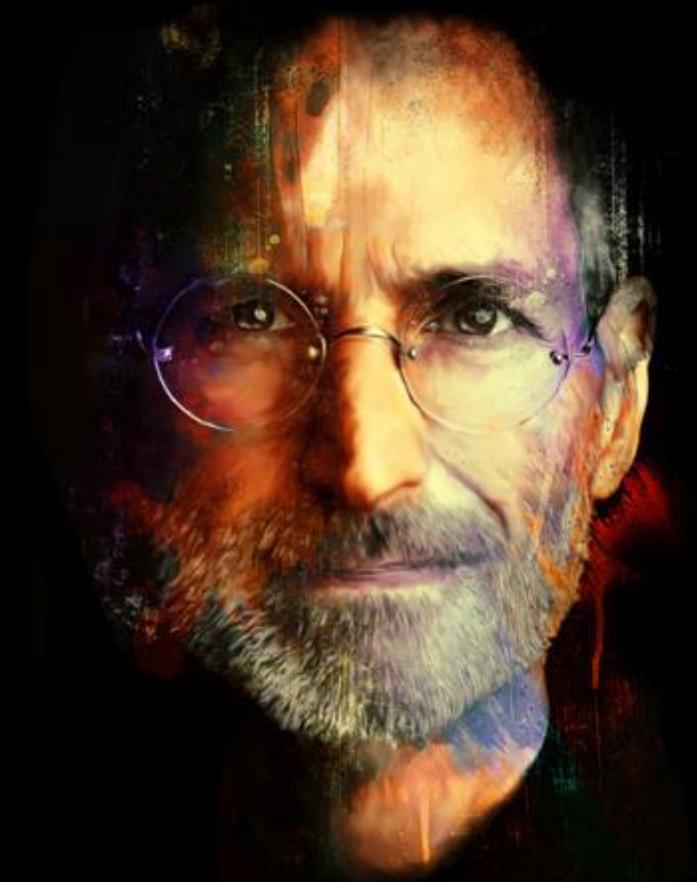


- ▶ Time is your team's most precious resource
- ▶ **12 days** until Mid-term Presentations - Tue, Feb 14<sup>th</sup>
- ▶ It is not too early to outline your presentation & report

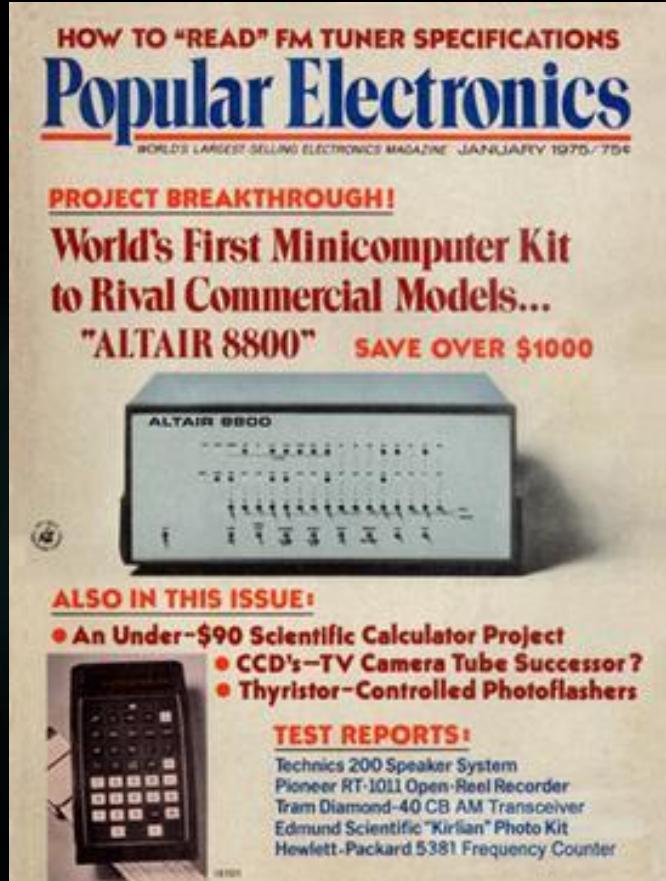


# Steve Jobs' Quote

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



# Vintage Technology



48 years ago!

# Vintage Computer Technology



## What kind of man owns his own computer?

Rather revolutionary, the whole idea of owning your own computer? Not if you're a diplomat, printer, scientist, inventor... or a kite designer, too. Today there's Apple Computer. It's designed to be a *personal* computer. To uncomplicate your life. And make you more effective.

### It's a wise man who owns an Apple.

If your time means money, Apple can help you make more of it. In an age of specialists, the most successful specialists stay away from uncreative drudgery. That's where Apple comes in.

Apple is a real computer, right to the core. So just like big computers, it manages data, crunches numbers, keeps records, processes your information and prints reports. You concentrate on what you do best. And let Apple do the rest. Apple makes that easy with three programming languages—including Pascal—that let you be your own software expert.

### Apple, the computer worth not waiting for.

Time waiting for access to your company's big mainframe is time wasted. What you need in your department—

on your desk—is a computer that answers only to you... Apple Computer. It's less expensive than timesharing.

More dependable than distributed processing.

Far more flexible than centralized EDP. And, at less than \$2500 (as shown), downright affordable.

### Visit your local computer store.

You can join the personal computer revolution by visiting the Apple dealer in your neighborhood. We'll give you his name when you call our toll free number (800) 538-9696. In California, (800) 662-9238.

Apple Computer, 10260 Bandley Drive, Cupertino, CA 95014.

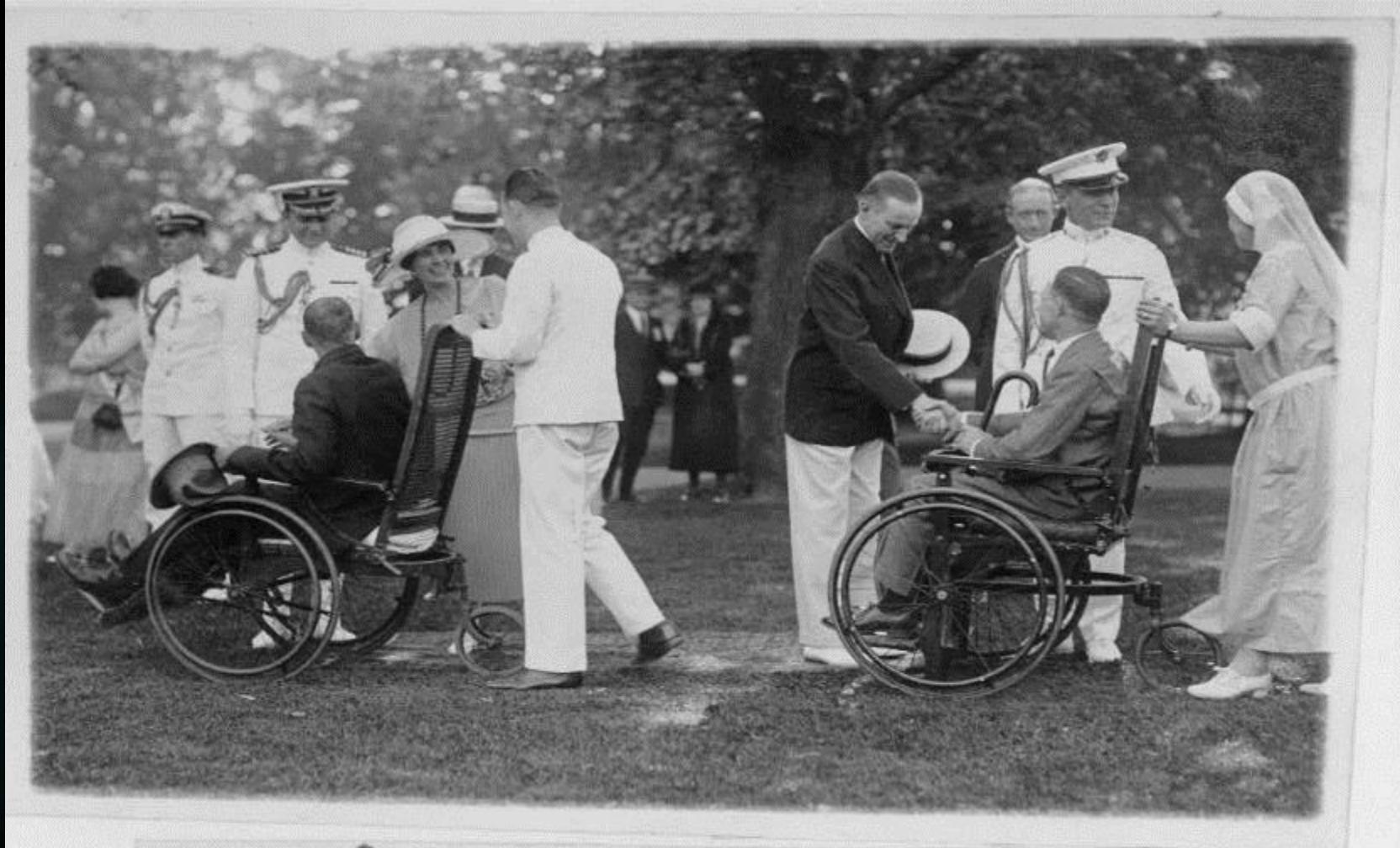


# Vintage Assistive Technology

## Old Wheelchair Designs



# Old Wheelchair Designs



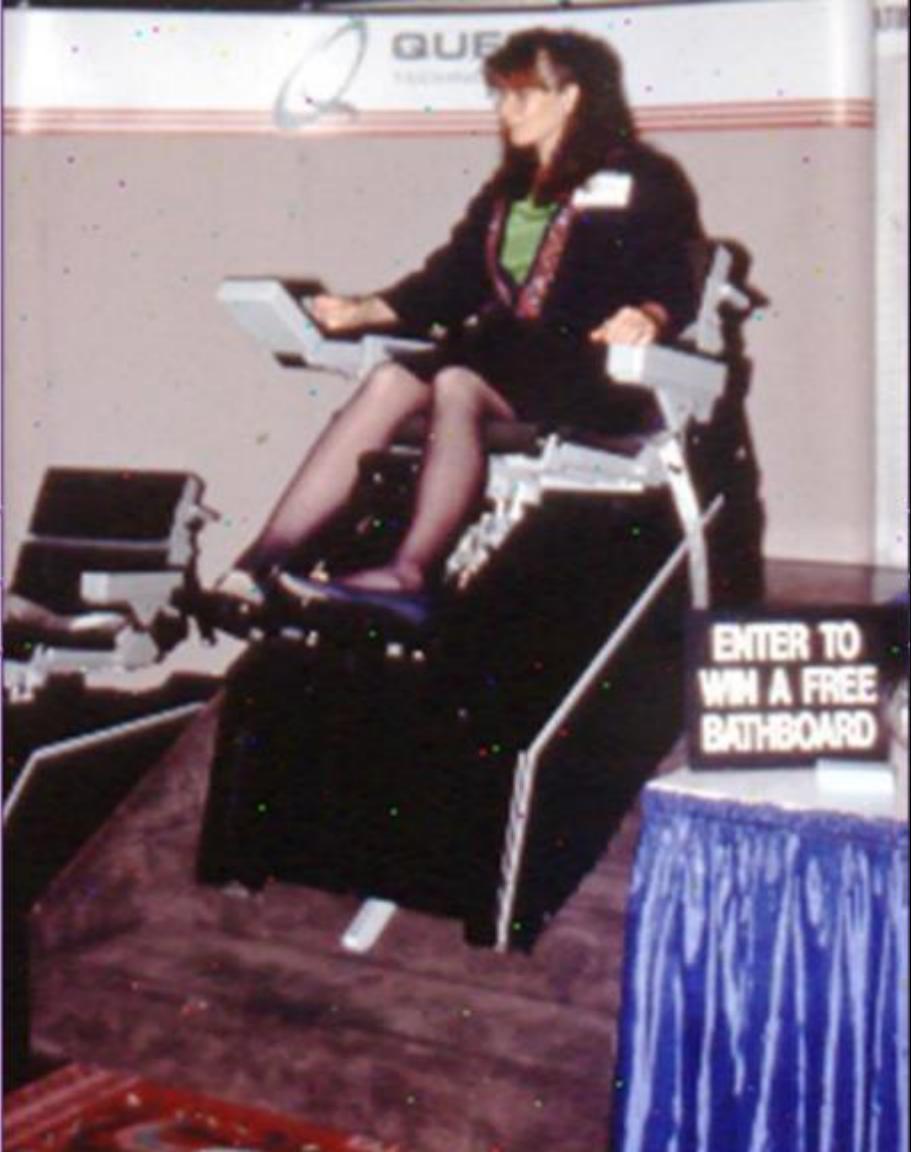
Garden party for Wounded men at the  
White House 6/5/24 30963



# Old Wheelchair Designs



# Old Wheelchair Designs

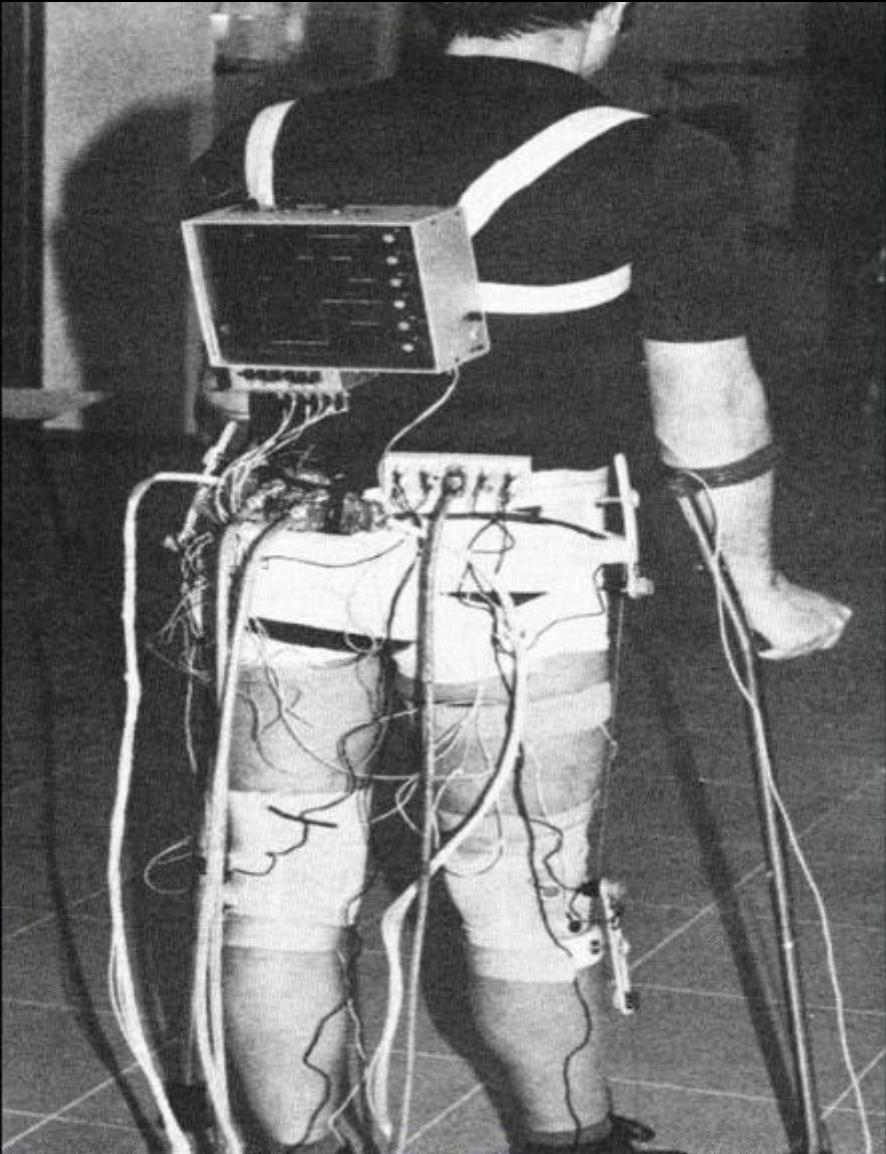


iBOT

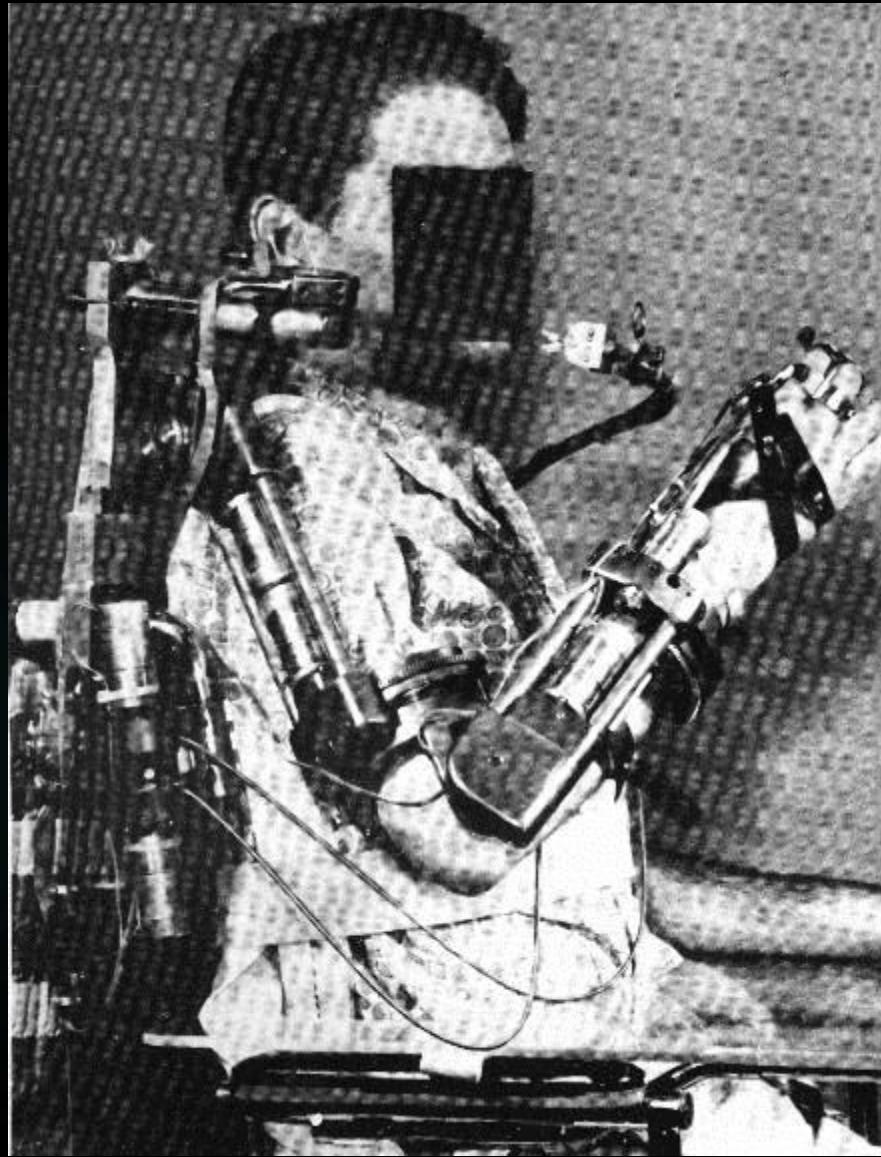
# Omni-directional Wheelchairs



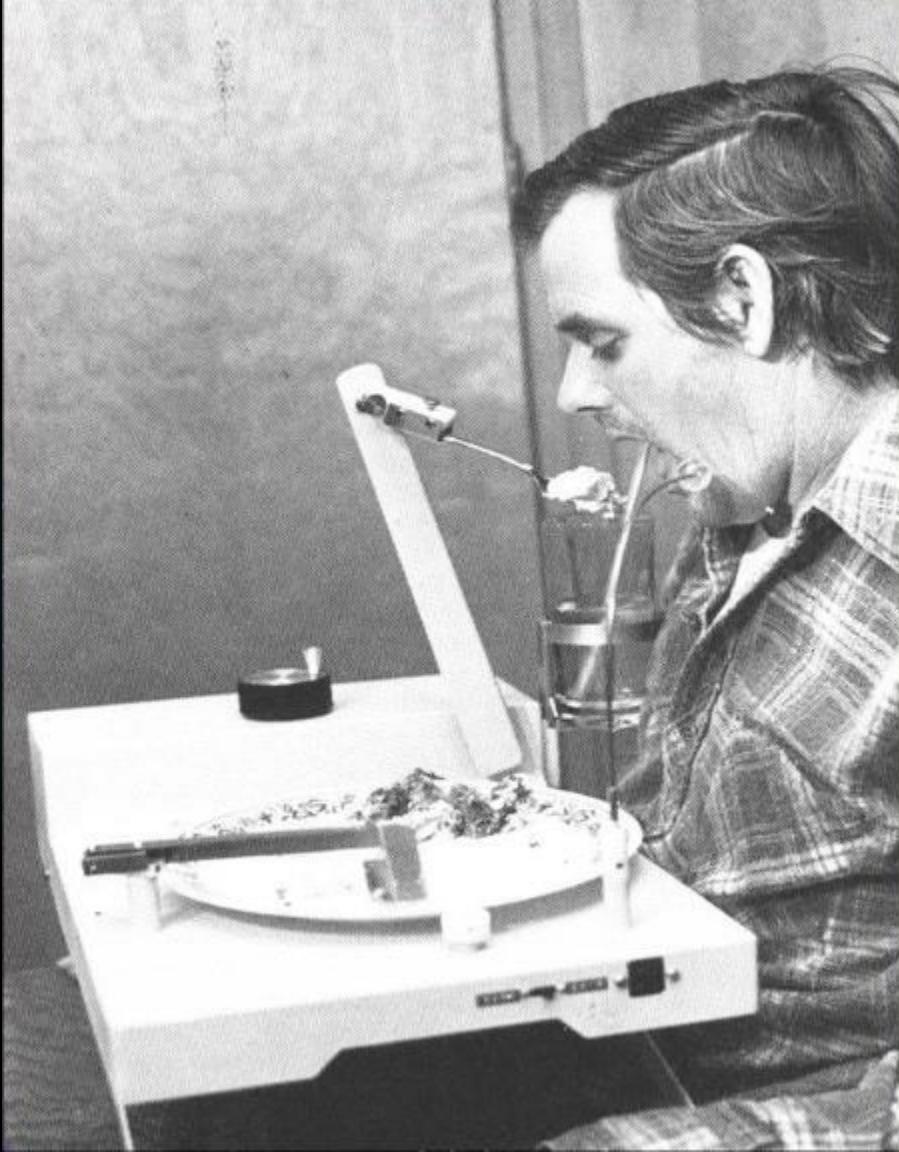
# FES Walking



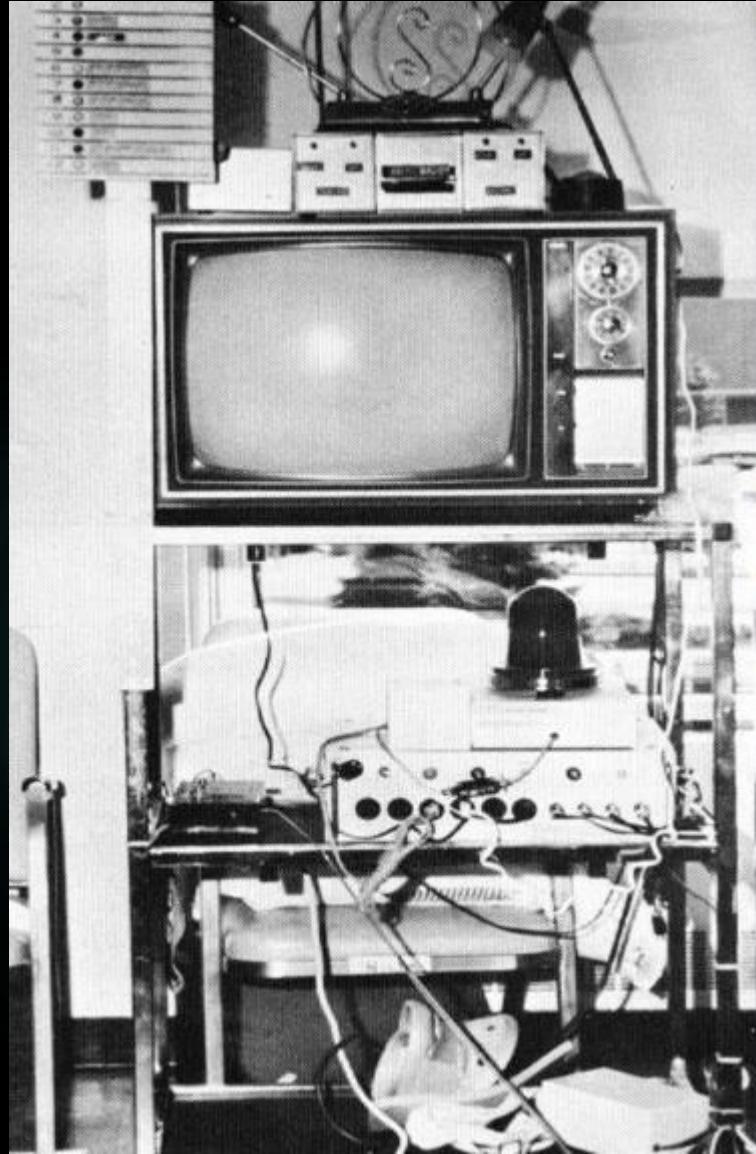
# Chin Controlled Arm Exoskeleton



# Robotic Feeding Aids



# Early Environmental Control Systems



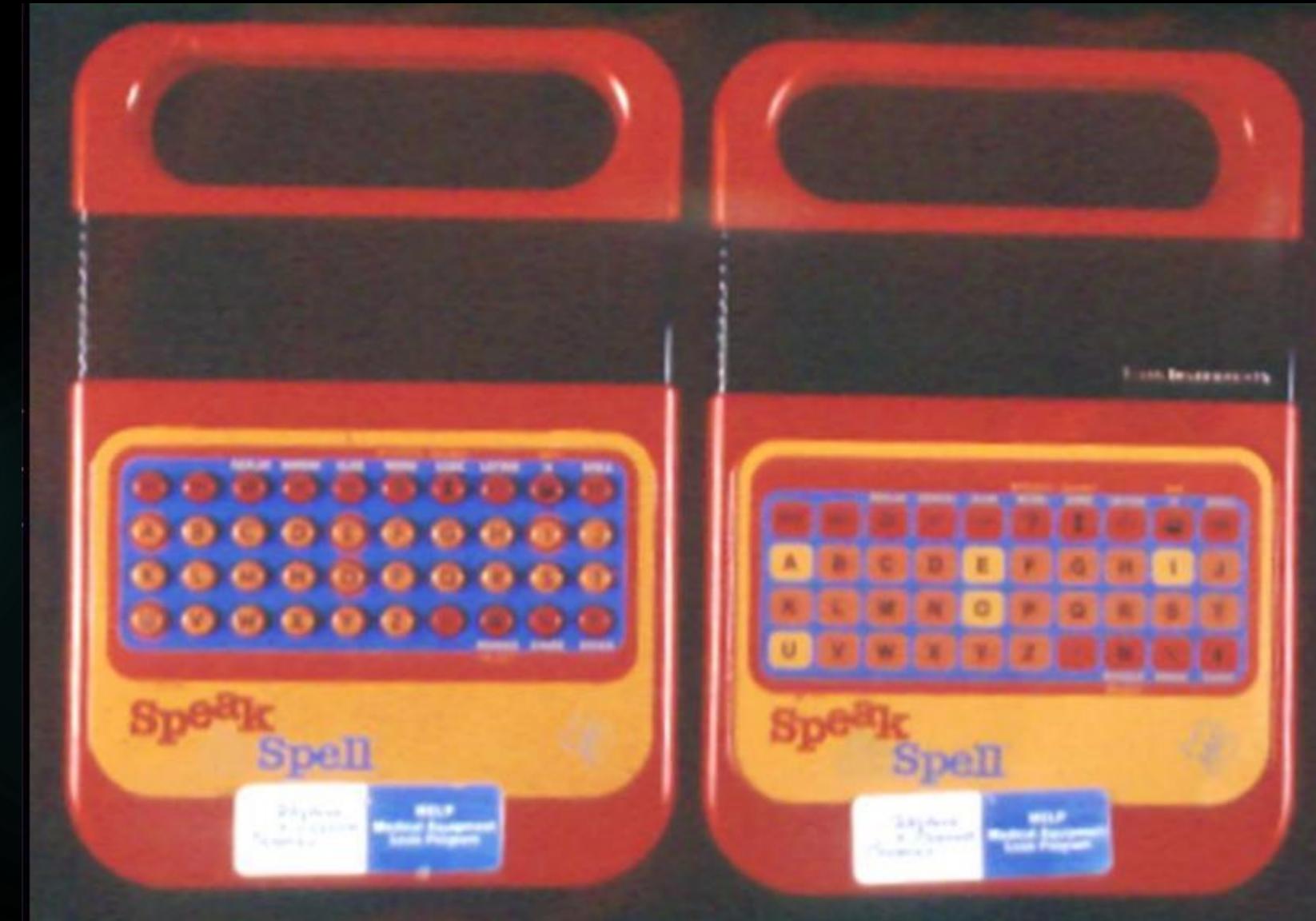
# Eye Gaze Control



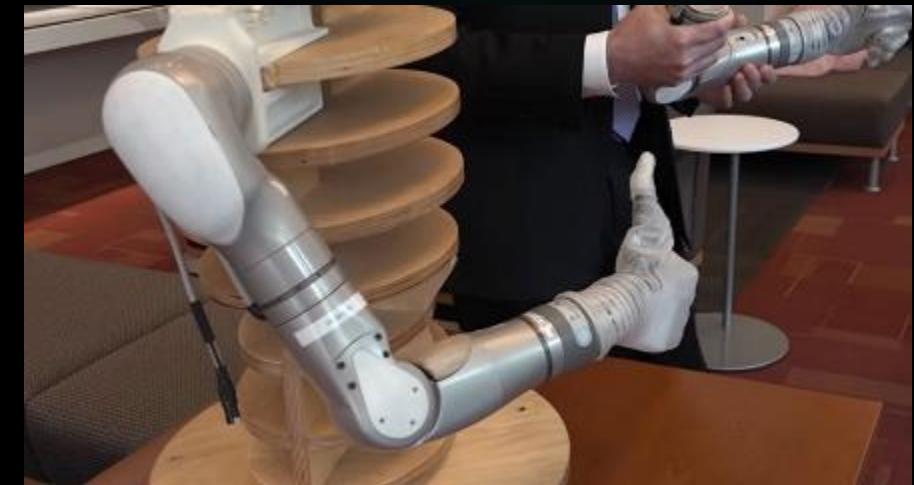
# Augmented Communication System



# Augmented Communication System



# Artificial Arm from 1560 - 1600



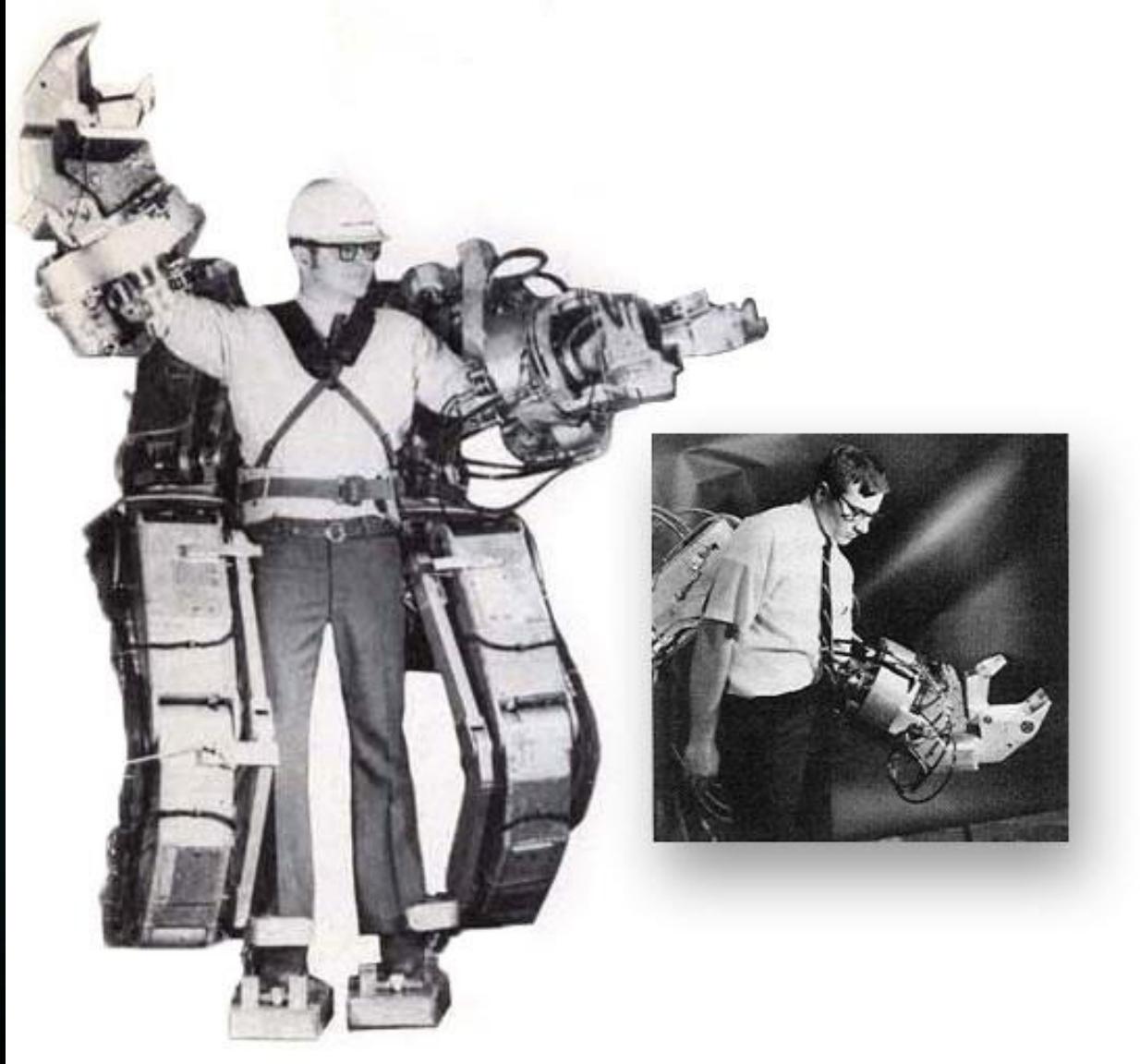
# Peg Leg Bates



# 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](#)

Steam Punk Professor Xavier's Wheelchair  
By: Daniel Valdez  
<http://www.smeeon.com/>

# 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

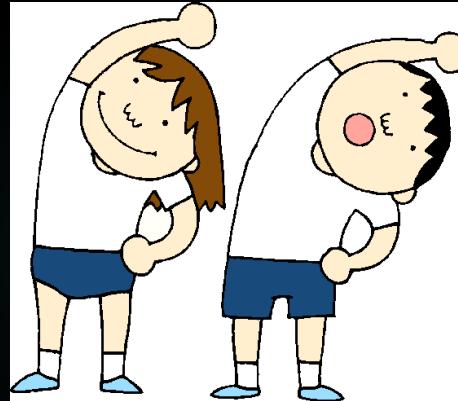
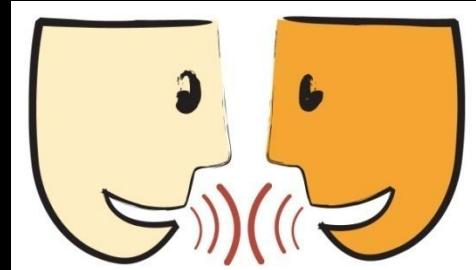


## *From DIY to Disability Dongles: Spanning Accessibility Space from Indispensable to Irrelevant*

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.