

January 20, 2026
Perspectives of Stanford Students with a Disability



ENGR110/210

Perspectives in Assistive Technology



Lance A. Keneley



Heloise Hoffman



Sydney Elise Barta



Emily Madison Ocasio

Work with Diligence

- Time is your team's most precious resource
- 6 weeks of class left to work on your projects
- Mid-term presentations in 3 weeks! - **Week 6**



Class Length

- Class ends at 5:50pm
- Instructor & Guest Speakers available after class
- Classroom open after class for team meetings and meetings with Instructor



Students working on a Team Project



- Meet with team members
- Decide on a suitably cool team name
- Connect with your project suggestor
- Understand the problem with your project suggestor
- Search the web for information on the user group, disability condition, existing products / solutions
- Schedule weekly updates alternating between in-person meetings and emailed progress reports with photos
- **Sign up for PRL Safety Orientation**
- Engage in Brainstorming
- Start prototyping with low-cost materials
- Do not hesitate to ask questions



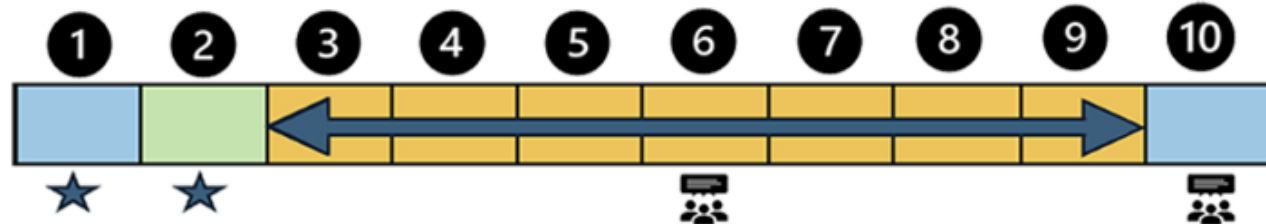
Slide part of presentation at CSUN's 40th Annual Assistive Technology Conference



Timeline of Course

Quarter System Course, 10 Weeks

- Guest lecturers, panel of students with disabilities, film screening, field trip, and Assistive Technology Faire.
- Student projects done outside of classroom time.
- Collaboration with user typically happens weeks 3 through 9.



Week

- 1 – User's "pitch" their disability related challenges to students
- 2 – Formation of student teams, choose user challenge to solve
- 3 – Begin work with user on challenge
- 6 – Midterm presentations & reports
- 10 – Final presentations, product demonstrations

Students working on an Individual Project



- Decide on a topic - to be approved
 - Assume the identity of an Investigative Reporter
- Schedule weekly updates alternating between in-person meetings and emailed progress reports with photos
- Do not hesitate to ask questions



Students not working on a project

- Attend and reflect on class sessions
- Do not hesitate to ask questions



Attendance Sheet, Evaluation Form, and Meet with Dave Signup



For all students:

- Sign Attendance Sheet - important to verify your attendance
- Sign up to meet with Dave (Zoom or in-person) for lecture makeup and project update discussions



For everyone:

- Fill out Class Session Evaluation Form - this provides feedback to guest lecturer



Project Purchases



- **PRL** - Account created for ENGR110/210 students working on Team Projects
- **Online** - Brittany will order for you (Amazon and other online stores), pick up at Front Desk with Loran
- **Personal purchases may not be reimbursable**



Hot Dog (2025)

- Is a hot dog in a bun a sandwich?

Y

N = 90%

- What if the “bun hinge” is broken?

Y = 52%

N = 41%

?

- N = 29



Classic Rock

Aretha Franklin
Pat Benatar
Michael Jackson
Beatles
Metallica
Queen
Black Sabbath
Fleetwood Mac

One Direction
Radiohead
Taylor Swift
Jimi Hendrix
Scorpions



How we judge others

- religion
- gender
- gender identity
- skin color
- appearance: glasses, hair style
- clothing & shoes
- anatomy: height, weight, nose, eye color
- university attended
- year in school
- major
- dorm residence
- political views & affiliation
- sport team fan
- race

- ▶ disability
- ▶ age
- ▶ speech / accent
- ▶ medical status
- ▶ immigration status
- ▶ employment status
- ▶ fame / notoriety / celebrity status
- ▶ criminal record
- ▶ driving record
- ▶ place of residence
- ▶ athleticism
- ▶ record of achievement, intelligence
- ▶ material possessions: car, house, phone
- ▶ vaccination status

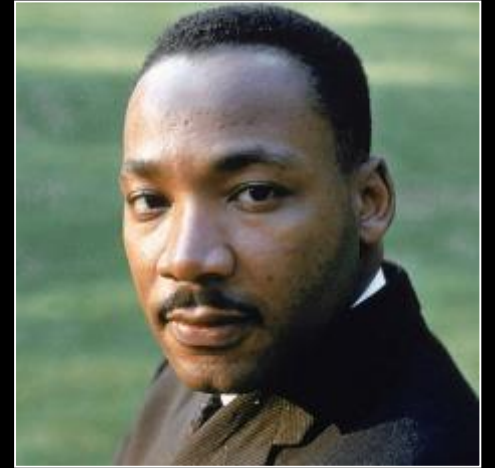


The course instructor judges your project effort including presentations and reports

Martin Luther King Jr.

How might the teachings of Dr Martin Luther King Jr. relate to people with disabilities and older adults and Assistive Technology?

“I have a dream that **my four little** children will one day live in a nation where they will **not be judged by the color of their skin** but by the **content of their character.**”



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Disability and advanced age do not represent weaknesses of character.



Social Model - Help the Able Bodied



Attitudes
Infrastructure
Exclusion



[Play
video](#)

Thursday, January 22nd

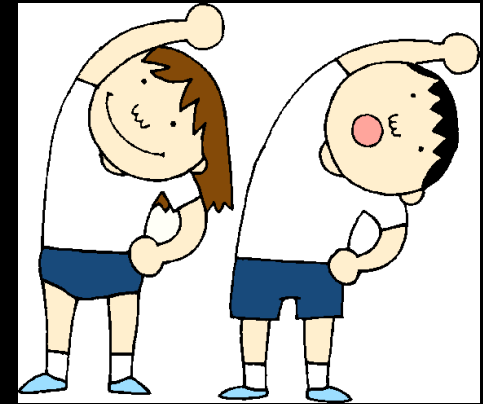
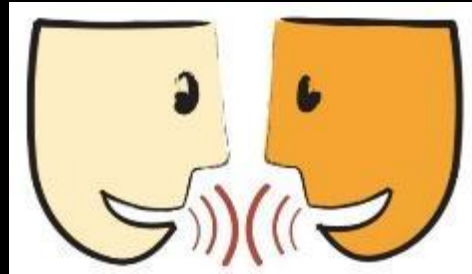


The Billion-User Blind Spot: Who, What, and How of Digital Accessibility

Sean J. Keegan
Office of Digital Accessibility

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





SOCIAL MEDIA BREAK

Today

Perspectives of Stanford Students with a Disability



Lance A. Keneley

Heloise Hoffman

Sydney Elise Barta

Emily Madison Ocasio

Today

Perspectives of Stanford Students with a Disability



- Disability isn't just for older adults
- People may not be open to discussing their disabilities
- Many disabilities are not apparent / visible



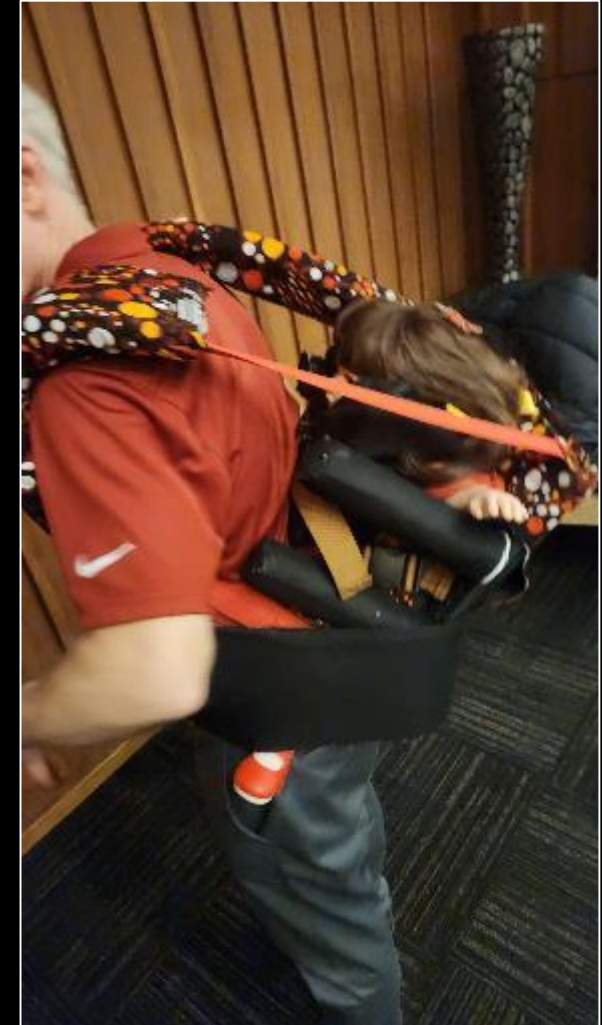
Lance A. Keneley



Lance Keneley is a mechanical engineering coterminial student concentrating in biomechanical engineering. He played on the football team at Stanford for 4 years as well as one additional year at the University of Arizona. For his senior capstone, he worked on a team in partnership with Kyaro Assistive Technologies that designed a postural support seat for children with cerebral palsy and hydrocephalus in Tanzania. Lance is interested in continuing research in assistive technologies particularly for people with fine motor skill impairment. Outside of class, he describes himself as an adventurer. Lance values new and fun experiences that challenge his perceptions about people and the world. He also freedives, skis, and cooks.



My experience with assistive technology



What have I learned as a student with a disability and working with other individuals with disabilities?



Disabilities can be both invisible and visible



ADHD → thrill seeking



Car accident → Physical limitations, pain



Even if you believe you understand a disability,
empathy is no substitute for lived experience



Variance within a disability, hidden drawbacks of ineffective treatment



Friend recently diagnosed with ADHD who for many years self medicated with marijuana and alcohol

Disabilities and their prognosis are not catch alls



Scott was diagnosed with ALS over 10 years ago.

We went fishing in August

How can assistive technology and ENGR 110 students help bridge the gap?

- Spend time to get to know your project suggestor
- Find a way to relate their project suggestion to a personal struggle (empathy)
- Invent and design with passion
- Keep an open mind
- Feedback is key



Heloise Hoffmann



Heloise Hoffmann is a senior in bioengineering on the pre-MD / PhD path. She is passionate about translational research for rare neuromuscular disorders, specifically focusing on FSH muscular dystrophy (FSHD), with which she is personally affected. Her current research in the Stanley Qi Lab focuses on developing a novel therapeutic approach for this condition. Heloise feels inspired by the intersection of patient advocacy and scientific progress, and she strives to use her voice to raise awareness about the experiences of patients living with FSHD and other rare (and often invisible) degenerative conditions. Outside the lab, Heloise plays guitar in the student band Denim in Distress and loves to explore the outdoors!





FSHD

RESILIENCE & ADAPTABILITY – learning to lean into your support network & “rope team”



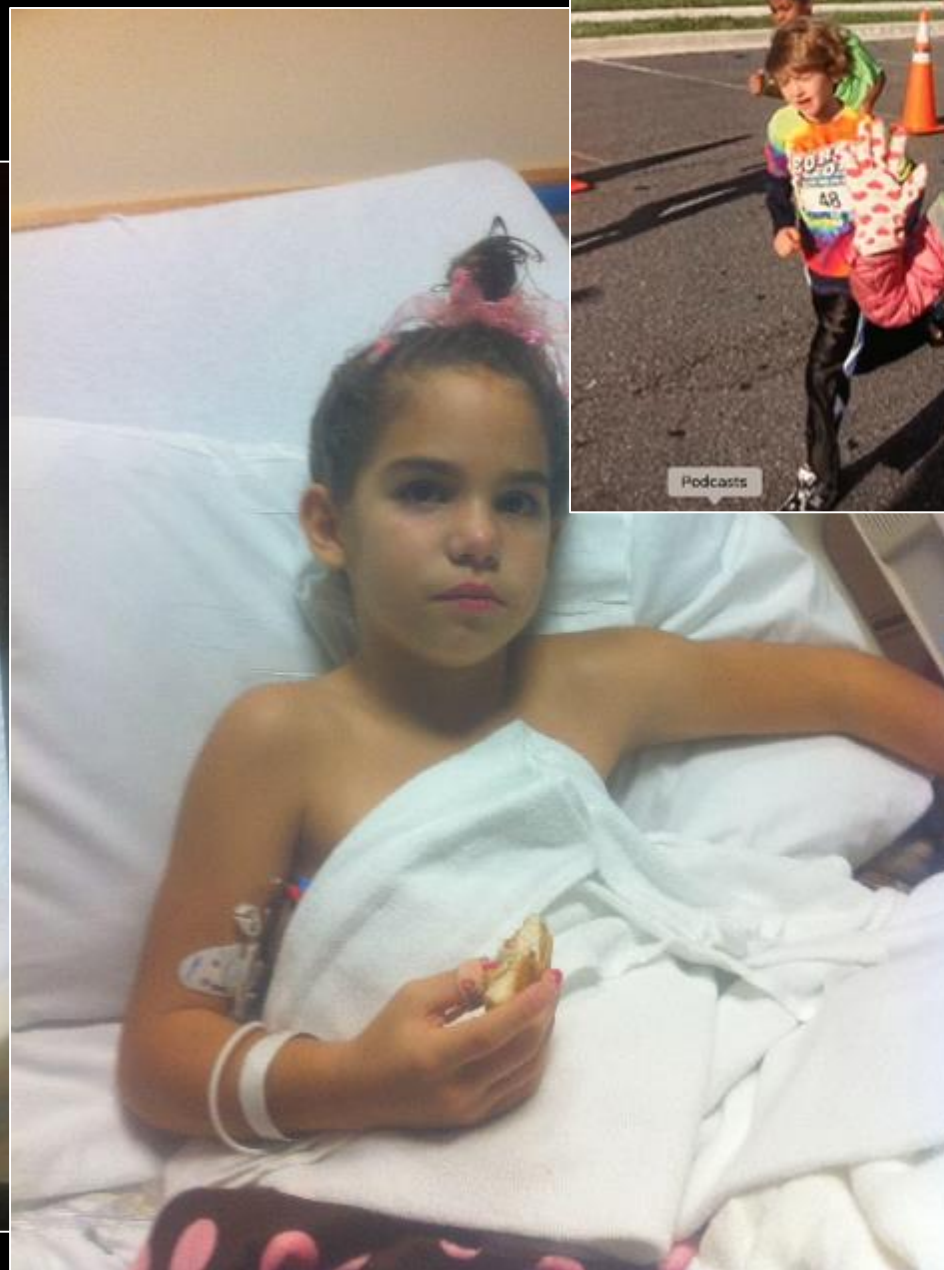
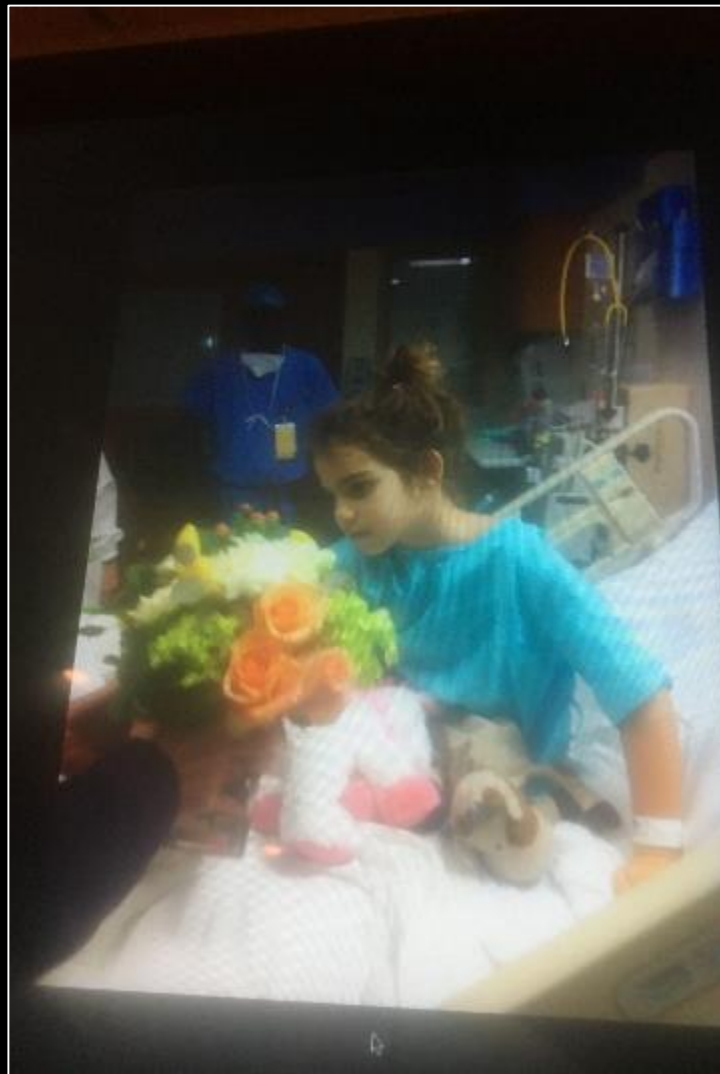


Sydney Elise Barta



Sydney Barta is a Team USA Paralympian specializing in the T64 sprints. She won gold in the 200 m at the 2023 Parapan American Games in Santiago, where she set the Games record. She is the Americas Record holder in the 200 m T64 and one of only four women with a running blade ever to break 27 seconds in the event. She most recently represented the United States at the 2025 World Para Athletics Championships in New Delhi, earning a bronze medal in the 200 m T64. Sydney is currently training toward the next Paralympic cycle while pursuing research in biomechanics and musculoskeletal innovation.

Disability

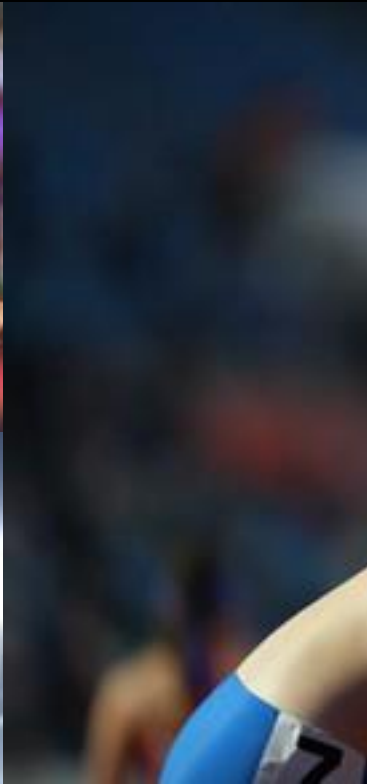


Challenges

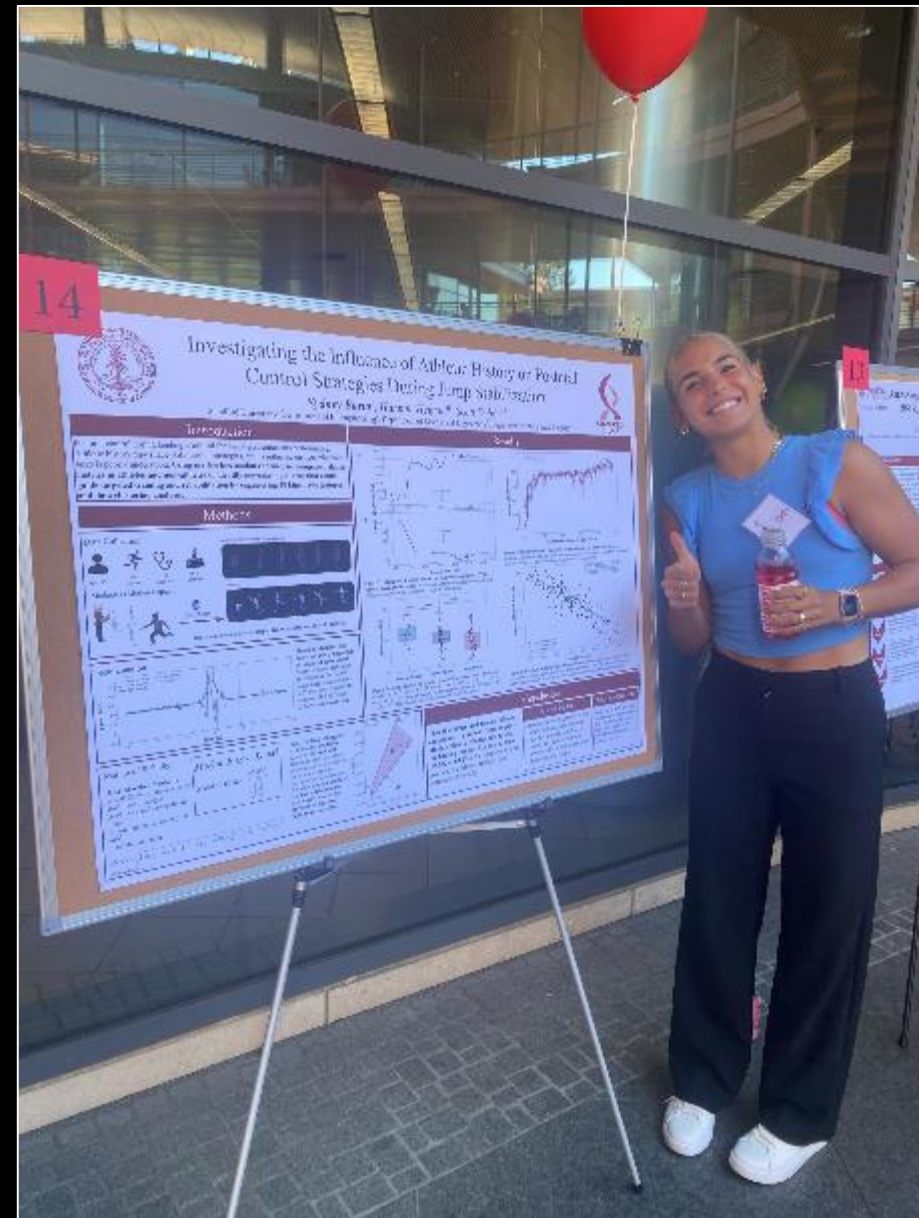




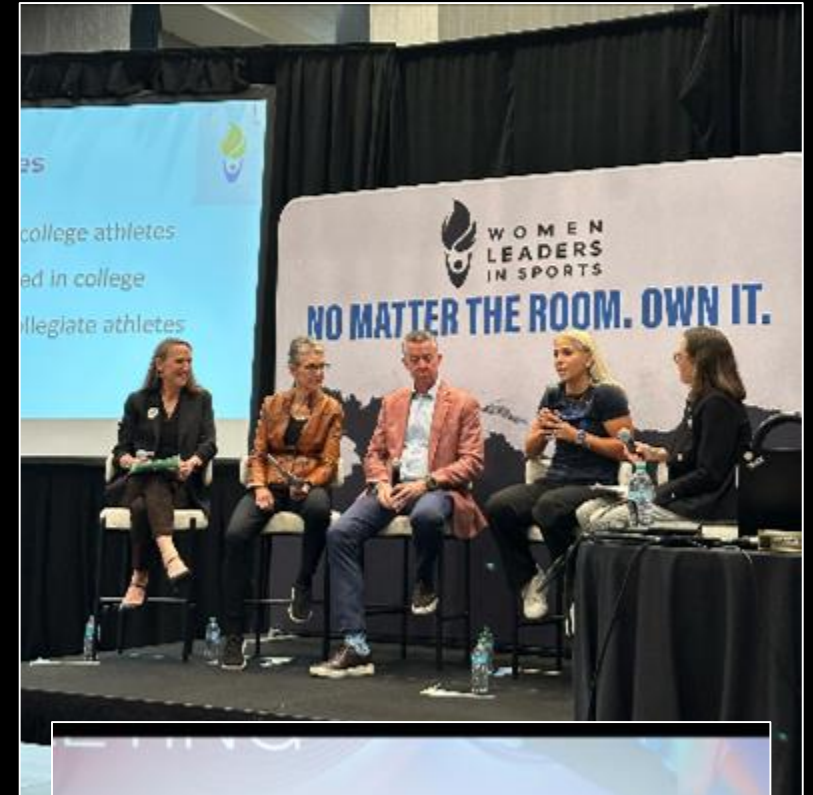
Sydney Barta getting gold!
Wu Tsai Performance Scholar '23



Why Stanford?



Goals (now)





Emily Madison Ocasio



Emily Ocasio is a junior studying data science. On campus, she is the ASSU's director of disability advocacy, the executive representative for the Vaden Student Health Advisory Committee, a co-founder of the DisGo Student Advocacy Group and a consultant for SMG. Outside of school, you can find her playing with her 14 year old rabbit, eating her family's Puerto Rican food, or making handmade merch. Emily has multiple chronic illnesses.

I'M EMILY OCASIO!



- Director of Disability Advocacy (ASSU)
- Vaden Student Health Advisory Committee (VSHAC)
- Stanford Marketing Group (SMG) Consultant
- Co-Founder of DisGo Advocacy Group

My disability story...

- 2019-2020: School entirely online
- 2021 School in person, cannot function well & begin seeing doctors.



My disability story...

Symptoms:

- **Uncontrollable sleep & chronic fatigue**
- Chronic pain (ankles, feet, hips, other joints)
- Fainting
- Light headedness when standing
- Heart racing (tachycardia) with small movements
- GI issues (throwing up daily)
- Migraines & headaches
- Very de-conditioned
- Joint & face swelling
- Very sensitive to any exercise, cold, lack of sleep, etc.

2022 Received diagnosis...

POTS:

Postural orthostatic
tachycardia syndrome

what is it?



POTS is a malfunction of the autonomic nervous system, which controls such as heart rate, blood pressure, digestion, breathing, blinking and urination.



30%

OF PATIENTS HAD TO
CUT BACK OR CEASE
DOING THINGS THEY
ENJOYED

43%

OF PATIENTS
HAVE
TRAVELLED
MORE THAN
100 MILES
FROM HOME
FOR POTS
MEDICAL CARE



FREQUENT SYMPTOMS:

- fast heart rate
- nausea
- blood pressure issues
- profound fatigue
- gastrointestinal issues,
- frequent, almost constant lightheadedness

25%

OF POTS PATIENTS ARE SO **disabled**
THEY **cannot work** OR ATTEND
SCHOOL.

@FINDYOUROWNHOPE

POTS & Hypersomnia

SYMPTOMS	NARCOLEPSY TYPE 1	NARCOLEPSY TYPE 2	IDIOPATHIC HYPERSONMIA
Excessive Daytime Sleepiness (EDS)	✓	✓	✓
Sleep Paralysis and Hallucinations	✓	Sometimes	Occasionally
Cataplexy	✓	✗	✗
Difficulty Staying Asleep During the Night	✓	Sometimes	✗
Refreshing (Restorative) Naps	✓	Sometimes	Occasionally
Sleep Drunkenness	Occasionally	Sometimes	✓

Current accommodations

- Life style changes!!
- Electric bike
- Car
- Ground floor room
- Support from friends

Current accommodations

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- Electric bike
- Car
- Ground floor room
- Support from friends

Frequent struggles:

- Disability parking is blocked
- Campus not car accessible
- Activities having physical component
- "Oh we will just walk the mile"



Stanford Disability Golf Cart Service (DisGo) Recommendations

Current design and issues

- A **door-to-door model** where users preschedule specific rides.
- Requires scheduling 24+ hours in advance.
- Users struggle with committing to prescheduled rides.
- **100% of interviewed users complain** of lateness and/or being left stranded.
- Scheduling app is inaccessible to visually impaired users.
- No data is currently being collected on ride completion.

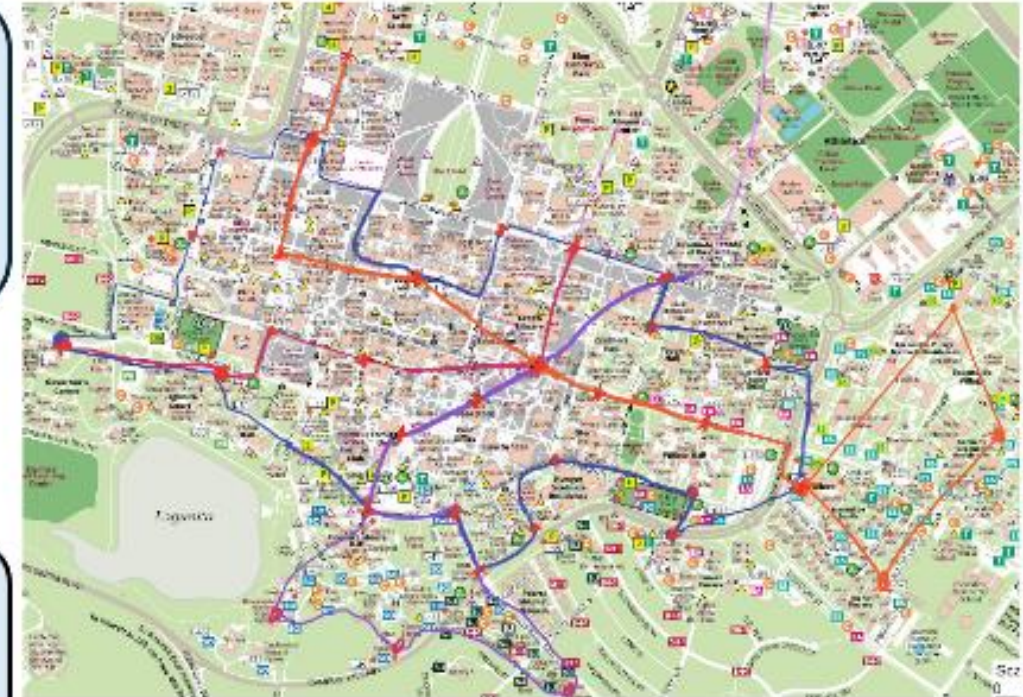
Recommended solution: Transition to **shuttle service model**

Shuttle Design

- **Wheel and spoke model**, with hub for transfers in Meyer Green.
- 18 drivers needed for < **15 minute** wait time.
- # drivers can be reduced by incorporating existing Marguerite routes.
- Maximum of **40 minutes** between any 2 points on campus.

Benefits for users

- Flexibility and independence by not requiring pre-scheduled rides.
- Significantly **reduces the need for resource-intensive door-to-door service model**.
- Transportation in short-notice circumstances (ex. pain flare ups, weather that prevents use of other mobility aids).
- Access to central areas of campus that are not accessible by the Marguerite.
- Stops **within an 1/8 mile** of all important central locations.



Proposed shuttle service map

Looking for support!

- disabled voices, DisGo users, allies!
- data scientists
- coders (website / app design)
- writers, graphic designers, etc.

Quick fixes for you!

- Wear a mask when you are sick & let people know.
- Make sitting down less awkward!
- Combat OAE 'faker' mentality.
- Don't lock your bikes on handrails or non-bike parking spaces.
- Don't **hog** disability services (bathrooms, parking spaces).

Thank you :)

Questions?

QUESTIONS?



BROKEN
CRAYONS
STILL
COLOR

Thank you!



Max Ahlquist (2025)

Questions?



That's all Folks!



