

Alahe Akhavan

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EDUCATION

University of California, Berkeley
Bachelor of Science in Mechanical Engineering

Berkeley, CA
July 2023 – December 2025

American River College
Mechanical Engineering

Sacramento, CA
May 2021 – May 2023

EXPERIENCE

Assistive Grasping, Dorsal Grasper, Research Assistant
Embodied Dexterity Group (EDG), Advised by Prof. Hannah Stuart

May 2024 – Present
Berkeley, CA

- Developed a new version of Dorsal Grasper for C6/C7 SCI, an assistive device to help with object grasping and manipulation.
- Designed both hardware and software via 3D printing, additive manufacturing, PCB design, and sensors.
- Completed human trials, tested the new device with a various participants with different injury levels; we recently submitted the research paper for review.

Assistive Glove For Parkinson's, Mechanical Engineer
Advised by Prof. Grace O'Connell

August 2024 – July 2025
Berkeley, CA

- Creating a new assistive therapeutic glove to reduce hand tremor for people with conditions such as Parkinson's and genetic hand tremor.
- Currently working on the second version to address user feedback on creating a user-friendly glove that can be use for various tasks.
- Collaborating with a team of engineers, gaining co-design, biomedical device participant interviewing and testing, and research communicating.

Prosthetic Hand with Dexterous Articulation for Grasping and Manipulation, Research Fellow
Assistive Robotics and Manipulation Lab (ARMLab), Advised by Prof. Monroe Kennedy III

June 2025 – August 2025
Stanford, CA

- Created a robotic control system for the Inspire Dexterous Robot Hand to perform articulated dexterous manipulation tasks using human feedback via EMG and Gaze.
- Established a communication interference between devices using ROS2 and Python.
- Tested with small objects and grasping types using prerecorded human finger joint motions mapped on the inspire hand from the Rokoko Smartglove, controlled grasp phases using a trained EMG sensor on the forearm.

Tactile Sensing Control Optimization, Research Assistant
Embodied Dexterity Group (EDG), Advised by Prof. Hannah Stuart

January 2024 – April 2024
Berkeley, CA

- Optimized the Universal Robot 10 control system for path planning and to reduce oscillations.
- Implemented and tested control strategies using ROS, C++, and python languages.
- Enhanced robotic control workflows with RViz and Gazebo simulations.

Multi-robot Collaborative Planning for Package Transportation, Research Fellow June 2022 – August 2022

Berkeley Artificial Intelligence Research (BAIR) Lab, Advised by Prof. Claire J. Tomline

Berkeley, CA

- Designed a motion planning control system for a multi-robot research project, using Universal Robot 5 (UR5) and Quadruped Robot to transport packages in a warehouse setting.
- Created over 6 motion stages for multi-robot package delivery tasks with the UR5.
- Worked with Python in ROS, and tested tasks using simulations RViz and Gazebo to see real time motion and map environments.

Extended Opportunity Programs and Services, STEM Tutor

January 2022 – May 2023

American River College

Sacramento, CA

- Helped students in Math, Physics, and Computer Sciences across diverse and different learning styles.
- Gained leadership and communication skills through working with diverse community of students from all backgrounds.

PROJECTS

Flexible Wearable Garment

January 2025 – May 2025

Product Development Research Project

Berkeley, CA

- Worked with a team of Ph.D. engineering students to develop a transformable textile that uses smock patterns to expand over 200% for programmable local and global adaptability to body geometry with tunable structural stability and breathability.
- We presented the design of the dress for pregnant women to potential users who have experienced pregnancy, aiming to collect their feedback on our design.
- Our product shows promise in applications across sportswear, children's clothing, and adjustable fashion accessories, thanks to its versatility and mechanical programmability.

Tea Making Machine, Mechanical Engineering Capstone Project

August 2024 – December 2024

Personal Project

Berkeley, CA

- Worked with a team of engineering students to create a fully functional traditional tea making machine for our capstone project in Mechatronics course.
- Contributed in creating the CAD design for tea dispensing, testing electronics, PCB design, and programming via C++.
- Our team won first place for the electromechanical award.

Maze Navigator Robot

January 2024 – May 2024

Personal Project

Berkeley, CA

- Designed and implemented an IoT-based path navigation system using a rover robot to autonomously follow maze-like environments while monitoring surroundings.
- Optimized ultrasonic sensor response (Adafruit) for accurate boundary detection.
- Developed a wireless communication system (Wi-Fi) to transmit real-time sensor data, distance measurements, and path duration during navigation.

Biomedical Assistive Device for Parkinson's

September 2023 – February 2024

mentored by Prof. Hannah Stuart

Berkeley, CA

- Designing a fully co-designed mechanical spoon to reduce hand tremor for people with Parkinson's.
- Material testing and 3D manufacturing; mechanical testing machines; 3D modeling in SolidWorks and Fusion.

A* Pathfinder Navigation in Different Environments

August 2023 – December 2023

Mentored by Dr. Jason J. Choi

Sacramento, CA

- Developed an A* (Astar) path finding algorithm for a Unitree Go1 robot.
- Designed multiple simulated environments to test the algorithm, tested blocks and different path types.
- Improved skills in robotic programming, algorithm design, testing and simulation skills; learned how to utilize ROS and Gazebo.

PUBLICATIONS

Evaluating Supernumerary Dorsal Grasping in the Home for People with C5–C7 Spinal Cord Injury

Andrew I.W. McPherson, Jungpyo Lee, **Alahe Akhavan**, Hannah S. Stuart.

IEEE Transactions on Neural Systems and Rehabilitation Engineering (TNSRE) (Submitted for review)

Assistive Dorsal Grasper Modifications for In-Home Experiments

Alahe Akhavan, Andrew I.W. McPherson, Jungpyo Lee, Hannah S. Stuart.

Poster Presentation, SACNAS National Diversity in STEM Conference, 2024.

SERVICE/LEADERSHIP

Undergraduate Mentor

January 2024 – present

- Mentored incoming and transfer students to support their transition into UC Berkeley.
- Introduced mentees to university resources and encouraged participation in networking opportunities.
- Provided guidance on academic decisions while fostering confidence, motivation, and personal growth.

STEM Mentor and Volunteer

January 2025 – March 2025

- Mentored a group of diverse middle school students for their first scientific research experiment.
- Advocate for STEM through motivating research projects that are designed and completed by students.
- Helped young students gain communication, research, data collection, and analysis skills.

STEM Outreach

August 2024 – May 2025

- As a member of EDG Lab, partnered with disability organizations and managed information booths in the resource fairs to showcase past projects
- Organized a skill workshop on assistive devices for engineering students to gain manufacturing design, sensor testing, and circuit board design.

STEM Tutor

January 2022 – May 2023

- At my local community college, assisted people across a range of age groups and learning styles, helping them with STEM courses.
- Helped create workshops and regular check-ins to ensure and encourage student progress.

Volunteer Tutor

January 2017 – December 2021

- Thought and tutored low-income students of all ages with math and language at a Sunday school.

MENTORSHIP

Current Students

Jeremiah Avitia, Cristo Alberto Barragan, Gustavo Inga, Enkhjin Erdenee, September 2025 – present
Tessa Carol Brieger

Past Students

Cathy Sheng, Cassie Katherine Ly, Joya Mirabai Stewart, Alicia Wang January 2024 – Dec 2024

CONFERENCES

ASME IMECE2024 Conference Portland, Oregon November 2024

- Poster Presentation: Assistive Dorsal Grasper Modifications for In-Home experiments

SACNAS Conference Arizona State University, Phoenix, Arizona October 2024

- Poster Presentation: Assistive Dorsal Grasper Modifications for In-Home experiments

Undergraduate Women in Physics APS University of California, Santa Cruz December 2022

Silicon Valley Women in Engineering Conference Virtual March 2022

AWARDS

AUTODESK Instructables Award for Best Student Project (TremorEz) September 2025

The Leadership Award TLA May 2025

SACNAS National Diversity in STEM Conference Travel Scholarship June 2024

UC Berkeley Mechanical Engineering Departmental Award August 2023