Alahe Akhavan

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Education

University of California, Berkeley — *Berkeley, CA*
Bachelor of Science in Mechanical Engineering — July 2023 – December 2025

American River College — *Sacramento, CA*
Mechanical Engineering — May 2021 – May 2023

Experience

Assistive Grasping, Dorsal Grasper, Research Assistant — May 2024 – Present
Embodied Dexterity Group (EDG), Advised by Prof. Hannah Stuart — *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, testing this new device with a various participants with different injury levels; currently writing the research paper.

Assistive Glove For Parkinson's, Mechanical Engineer — August 2024 – July 2025
Advised by Prof. Grace O'Connell — *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 — June 2025 – August 2025
Assistive Robotics and Manipulation Lab (ARMLab), Advised by Prof. Monroe Kennedy III — *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 — January 2024 – April 2024
Embodied Dexterity Group (EDG), Advised by Prof. Hannah Stuart — *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.

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
Submitting to IEEE/Robotics, 2025.
Andrew I.W. McPherson, Jungpyo Lee, **Alahe Akhavan**, Hannah S. Stuart.

Assistive Dorsal Grasper Modifications for In-Home Experiments
Poster Presentation, SACNAS National Diversity in STEM Conference, 2024.
Alahe Akhavan, Andrew I.W. McPherson, Jungpyo Lee, Hannah S. Stuart.

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 September 2025 – present

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: 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