

ALEXA AGUILAR IZQUIERDO

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EDUCATION

The University of Texas at Austin **Master of Science in Mechanical Engineering** **May 2026**

Coursework: Medical Device Design & Manufacturing, Data Analytics & Process Control in Semiconductor Manufacturing

The University of Texas at Austin **Bachelor of Science in Mechanical Engineering** **May 2025**

Overall GPA: 3.73/4.0, Minor in Robotics

Coursework: Embedded Systems Design Lab, Robot Mechanism Design, Linear Systems Analysis, Machine Learning

SKILLS

- Computer Aided Design: SolidWorks, Fusion, OnShape
- Manufacturing: Mill, Lathe, Saw, CNC, 3D Printing, Laser Cutting, Soldering
- Software: Python (Pandas, NumPy, Matplotlib, SciPy, openCV), MATLAB, Java, C, C++ , Arduino, LabView, MS Office
- Languages: Fluent in English, Spanish and French

EXPERIENCE

Mechanical Engineering Intern, Applied Materials **May 2024 – August 2024**

Core Research and Development Team

Santa Clara, CA

- Characterized thermal performance of novel semiconductor process hardware in early-stage product concept development
- Developed testing methodology - designed, executed, and troubleshoot experiments to ensure reliability of results
- Set up data collection processes, installed thermocouples and troubleshoot hardware
- Analyzed data using Python and Excel to interpret and present key findings, determining concept feasibility

Machine Shop Staff, The Walker Department of Mechanical Engineering, UT **September 2024 – Present**

- Train and supervise students in the safe operation of lathes, mills, and saws, ensuring adherence to safety protocols
- Maintain a clean and organized workspace, inspect and organize tools and equipment

Research Assistant, Human-Enabled Robotic Technology Lab, UT Texas Robotics **September 2023 – Present**

- Design and prototype a 2 DOF actuated laser tip mechanism for a Twin-Twin Transfusion Surgery Robot

Research Assistant, Precision Mechatronics and Control Lab, UT **May 2023 – July 2023**

- Contributed to the testing and calibration of a steerable robotic catheter for Peripheral Arterial Disease Treatment
- Achieved an 83 percent reduction in data collection time by optimizing the data acquisition process
- Implemented a precise magnet placement setup using string manipulation and SLA-printed custom plates
- Enhanced process efficiency by adjusting LabVIEW code for automated file naming, minimizing manual file management
- Conducted sensor troubleshooting, soldering, and ensured repeatability of data sets in experiments

Director, Cockrell School Cares **May 2022 – May 2023**

- Spearheaded a 30-member organization focused on mental health and student wellness
- Orchestrated regular events and managed partnerships with vendors, stakeholders, donors, and speakers

PROJECTS

Battle Bot **October 2024 – December 2024**

- Designed and built a battle bot with a vertical spinning blade, optimizing for durability and weight
- Applied Design for Manufacturing (DFM) & Design for Assembly (DFA) principles, simplifying fabrication and assembly
- Machined custom aluminum & steel parts using manual mills & lathes
- Conducted Finite Element Analysis (FEA) to assess stress, strain, and failure risks

Robot Mechanism Design Project **February 2024 – May 2024**

- Designed, prototyped and tested a planar mechanism for a mini-golf game, capable of flicking a ball
- Performed the kinematic analysis of a Six-bar triple crank Watt's linkage employing analytical and numerical solutions

Stanford Pupper Robot Leg **September 2023 – December 2023**

- Constructed a robot leg using 3D printed and laser cut parts, implementing forward and inverse kinematics, PID control, and computer vision to command the robot to follow a red dot

PUBLICATIONS

- J. Wu, K. Yu, I. Lopez, A. Aguilar Izquierdo, H. Saber, F. Alambeigi, L. Zhou, "Integrated Magnetic Location Sensing and Actuation of Steerable Robotic Catheters for Peripheral Arterial Disease Treatment," in IEEE Robotics and Automation Letters, vol. 8, no. 9, pp. 5656-5663, Sept. 2023, doi: 10.1109/LRA.2023.3295297