

# Mauricio Saavedra

*LinkedIn:* [www.linkedin.com/in/mauricio-saavedra/](https://www.linkedin.com/in/mauricio-saavedra/)  
*GitHub:* <https://mauriciosaaavedra952.github.io/portfolio/>

360 Westchester Ave, Apt 602  
Port Chester, NY 10573  
(914) 258-6480  
mauriciosaaavedra952@gmail.com

## EDUCATION

### Carnegie Mellon University — *Mechanical Engineering*

- Master of Science | Aug 2024 - Aug 2025 | GPA: 3.78 / 4.0
- Bachelor of Science with Robotics Minor | Aug 2020 - May 2024 | GPA: 3.45 / 4.0

#### Key courses:

Manual Machining	CNC Machining	Robot Kinematics and Dynamics
Stress Analysis	Feedback Control Systems	Applied Finite Element Analysis

## PUBLICATIONS

- Despradel Rumaldo, D., Saavedra, M., et al. (2025). *Enabling Skilled Human-Computer Interaction After Paralysis via a Wearable sEMG Interface*. Manuscript under evaluation at Science Robotics.

## EXPERIENCE

### Carnegie Mellon University — *Research Assistant* *May 2022 - May 2025*

- Developed electromechanical hardware for VR systems in the Neuromechatronics Lab, and integrating motion capture systems for haptic-feedback experiments.
- Contributed technical visualizations and documented test results for inclusion in a doctoral thesis.
- Performed data processing, filtering, and visualization in Python, converting raw EMG, kinetic, and motion-capture data into analyzed datasets for experimental validation.

## PROJECTS AND ACTIVITIES

### Carnegie Mellon Racing Team — *Steering System Lead* *Sep 2020 - May 2022*

- Developed a steering assembly for a formula-style car by running simulations in OptimumKinematics before using SolidWorks to complete CAD modeling and fabrication with manual/CNC machining.
- Coordinated with the vehicle dynamics team to ensure system integration with the full vehicle assembly.
- Performed structural and load analyses within SolidWorks to ensure steering-column reliability under racing conditions and validate the design prior to fabrication.

### Prosthetic Finger with Thermal Feedback *Jan 2023 - May 2023*

- Led a multi-disciplinary engineering team to design and prototype a robotic prosthetic finger, using patent landscape analyses to inform linkage design and actuation strategies.
- Integrated Myoware EMG sensors with an Arduino microcontroller to command articulation, and Peltier elements with thermal sensors to provide haptic temperature feedback to users.
- Conducted mechanical testing and calibration to improve actuation accuracy and temperature-feedback reliability, and produced documentation covering hardware validation and test results.

## Massage Robot with Humanoid Hands

*Aug 2023 - May 2024*

- Led the mechanical design and fabrication of robotic hands (end-effectors) for a shoulder-massage robot using SolidWorks and 3D-printed components to create physiologically-inspired mechanisms.
- Performed patent analysis and background literature review on robotic hands and mechanisms to guide actuation schemes and avoid infringement.
- Conducted mechanical testing, iteration, and system debugging to improve mechanical tolerance control and structural durability during repetitive physical-contact tasks.
- Created design documentation, CAD models, and literature reviews over the product-development process.

## INTERESTS

- Design and Manufacturing
- Bionic Prosthetics and Bio-Inspired Robots
- Human-Robot Interaction

## SKILLS

- **CAD & FEA Simulation** — SolidWorks, ANSYS, Fusion 360
- **Programming** — Python, Matlab, LaTeX, C++, Arduino IDE
- **Machining & Prototyping** — CNC Machining, Lathe, Manual Mill, 3D Printing, Laser Cutting
- **Robotics & Microcontrollers** — Arduino, Raspberry Pi, Sensor Integration, Calibration, Debugging
- **Hardware & Sensors** — EMG, Thermocouples, Motion Capture Systems, Peltier Coolers, IMUs

## AWARDS

- **Dean's List (2021, 2022, 2023)** — Carnegie Mellon University
- **Summer Undergraduate Research Fellowships (2023)** — Carnegie Mellon University

## LANGUAGES

- English (Native)
- Spanish (Native)