

Miguel Talamantez

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EDUCATION

Massachusetts Institute of Technology (MIT)

Bachelor of Science in Mechanical Engineering

Cambridge, MA

Aug. 2021 – May 2025

with a concentration in Hardware, Electronics, and Embedded Systems

EXPERIENCE

Electromechanical Engineer

Capybara Energy [Full-time]

September 2025 – Present

Woburn, MA

- Performing a large variety of fast-paced work varying from mechanical product design, FEA and failure analysis, and evaluating uncharted territory in electrochemistry within the battery industry

Complex Battery Analysis Consultant

Capybara Energy

April 2025 – May 2025

Seabrook, NH

- Performed EIS (Electrochemical Impedance Spectroscopy) and results analysis for innovative aqueous battery

Cybertruck Battery Cell Process/Controls Engineering Intern

Tesla Cell Manufacturing

May 2024 – August 2024

Austin, TX

- Developed, tested, and implemented manufacturing controls logic on production machines for manufacturing 4680 battery cells
- Led high-priority projects to improve cell production yield through mechanical redesigns

Biomimetics Lab Researcher

Massachusetts Institute of Technology

May 2023 – May 2024

Cambridge, MA

- Contributed to the development of MIT's Humanoid Robot by conducting Electrochemical Impedance Spectroscopy (EIS) testing to optimize energy utilization and enhance overall robot performance

Battery Subteam Lead

MIT Electric Vehicle Team (EVT) (evt.mit.edu)

Feb 2023 – August 2024

Cambridge, MA

- Designed, fabricated, and integrated a custom battery used for a Hydrogen Fuel Cell Electric Vehicle (FCEV) motorcycle
- Responsible for design documentation, battery integrity during crashes, safety, and optimizing energy utilization
- Primary team TIG/MIG welder and welding instructor

Bionic Leg Battery Undergraduate Researcher

MIT Media Lab Biomechatronics Lab

Oct 2022 – May 2025

Cambridge, MA

- Investigated methods of redesigning a custom in-house BMS system for research prosthetic leg

MIT Motorsports Team Member

MIT Formula SAE (Society of Automotive Engineers)

Aug 2021 – Jan 2023

Cambridge, MA

- Contributed in design of high voltage and low voltage (HVLV) PCB using Altium
- Contributed to designing, assembling, and implementing 300V racecar accumulator

NOTABLE PROJECTS

Analog Theremin Final Project | *Circuit Analysis, Power electronics*

May 2018 – May 2020

- For a final project in 6.131 (Power Electronics), I built a theremin with an emphasis on highlighting key class concepts such as H-bridges, boost converters, electromagnetics, and frequency modulation.

TECHNICAL SKILLS

Programming Languages: Python, C/C++, MATLAB

Mechanical: SolidWorks/CAD, Welding and Steel-work, General Machining and Fabrication, Iterative product design, Rapid prototyping

Electrical: PCB Design, Power Electronics, Embedded Systems

Spoken Languages: English (Native), Spanish (Native), Portuguese (Beginner), Japanese (~N3)