

# Miguel Talamantez

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## EDUCATION

### Massachusetts Institute of Technology (MIT)

*Bachelor of Science in Mechanical Engineering*

*with a concentration in Hardware, Electronics, and Embedded Systems*

Cambridge, MA

Aug. 2021 – May 2025

## 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)