

Matthew Saenz, EIT

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EDUCATION

Carnegie Mellon University

Pittsburgh, PA 2020-2025

Master of Science in Electrical and Computer Engineering (May 2025)

Honors: Engineer in Training (EIT) Certification, November 2024

Bachelor of Science in Electrical and Computer Engineering with Minor in Robotics (May 2024)

Honors: Graduated with University Honors, Dean's List (Spring 2021 - Spring 2024)

EXPERIENCE

US Army Corps of Engineers Engineering Research and Development Center

Sept 2025 - Present

Research Electrical Engineer

Duck, NC

- Collaborates with oceanographers and coastal engineers to adapt research-grade oceanography modeling to performant, real-time, code which can be deployed to ROS2 and Goby3 middleware architectures.
- Maintains and integrates new sensors across an aquatic robot fleet of a dozen vehicles to ensure system readiness and improve surfzone surveying capabilities.
- Develops Python scripts to post-process sensor data into polished data products for customers and stakeholders.
- Mentors interns and new hires on the Maritime Uncrewed Research Group, assisting with their project workloads and professional development.

US Army Corps of Engineers Engineering Research and Development Center

May 2023 - Aug 2025

SMART Scholar

Duck, NC

- Designed and executed two experiments comparing SWaP-C (size, weight, power, and cost) of GNSS receivers and antennas to identify optimal devices for aquatic robotics; findings pending publication.
- Redesigned UUV system idler wheels, reducing replacement manufacturing costs by 40%.
- Prototyped sensor integration on COTS aquatic robots, including CAD housing design, Python-based data acquisition, and data quality evaluation.

AIMS International Safety Seminar Ambassador Program

Feb 2024 - Jan 2025

Seminar Ambassador Coordinator

Orlando, FL

- Co-led a team of 10 ambassadors during the 2025 Safety Seminar, overseeing event logistics including classroom AV setup, attendee check-in for 750 participants, hourly attendance tracking across 250+ courses, and sponsor support for 50+ event partners.
- Conducted over 25 applicant interviews to evaluate and select the ambassador team for the 2025 seminar.
- Organized and co-led monthly ambassador meetings in preparation for the conference, ensuring team readiness and effective communication.
- Coordinated collection of course materials from more than 140 speakers to support seminar programming and logistics.

Google

May 2022 - Aug 2022

STEP Intern

Mountain View, CA

- Verified thousands of user content deletion requests for the YouTube Data team, ensuring timely EU GDPR compliance.
- Developed a high-throughput data processing pipeline in C++ using Flume and Borg, handling 100s of gigabytes daily.
- Authored unit tests and conducted peer code reviews to ensure safe and reliable code deployment.

PROJECTS

TPEG & Sustainable Earth Jurassic Park Spring Carnival Booth

Spring 2025

Animatronics Team Lead, Controls Engineer

Pittsburgh, PA

- Directed a team in designing and fabricating an animatronic velociraptor head, featured as a jumpscare element in an escape room-style game at the Spring Carnival Booth.
- Engineered controls hardware and programmed show sequences using Arduino, synchronizing servo-driven eye and jaw movements with lighting effects for immersive guest interaction.
- Managed project timeline, procurement, and team meetings, delivering the animatronic on schedule and within budget.

ASCE&TPEG Roller Coaster Tycoon Spring Carnival Booth

Sept 2023 - April 2024

Motion Platform Development Team Lead

Pittsburgh, PA

- Directed the end-to-end development of a pneumatically actuated motion platform designed to simulate roller coaster dynamics for an interactive booth experience, attracting hundreds of guests during Carnegie Mellon's Spring Carnival.
- Led cross-functional collaboration across design, mechanical fabrication, and controls teams to deliver a safe, immersive, and synchronized ride experience.
- Engineered and programmed a serial relay control system for precise air valve actuation, coordinating motion with video playback to create a convincing simulation of a roller coaster ride.

SKILLS

CAD: SolidWorks, Autodesk Fusion 360 Schematic Design and PCB Layout, AutoCAD

Computer Hardware & Programming: Python, C, C++, MATLAB, ROS, Ubuntu, Arduino, Unity, FPGA, Raspberry Pi

Machining: 3D Printing, Laser Cutting, Hand Tools, Mig Welding, Soldering