Jaime Romero

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EDUCATION

University of Pennsylvania | Philadelphia, PA **Expected May 2027**

Master of Science in Engineering, Robotics GPA: 4.0

Carnegie Mellon University | Pittsburgh, PA **May 2023**

B.S. Mechanical Engineering & Minor in Robotics GPA: 3.7

WORK EXPERIENCE

Autonomous Vehicles Fleet Systems SWE | GM | Warren, MI ***June 2024 – July 2025***

- Developed an in-house mobile fleet management system that **decreased routing and monitoring task times by ~80%** and **increased data diversity by 13%**.
- Deployed an image classification model achieving 97% sensitivity and 96% specificity for image obstruction detection and **improved fleet collection by ~6800 hours/year**.
- Innovated image labeling methods using segmentation rules, cross-correlation, and ghost labels to accelerate video frame annotation.
- Automated radar, LiDAR, and camera system alignment processes across the AV fleet, **98% task time decrease**.

Hydraulic Controls Group Product Engineer | GM | Warren, MI ***June 2023 – June 2024***

- Led a 20-person cross-functional task force to resolve a critical supplier failure, **mitigating production downtime and saved $32M in costs**.
- Designed a new accumulator using tribological piston and casting interaction tests in conjunction with simulated spring dynamics. Implementation **decreased 8 speed warranty by 87% a year after**.
- Maintained supplier communication to align on timing updates, design feasibility, and cost estimates.

Electric Motors Intern | GM | Warren, MI ***Summer 2022***

- Designed and implemented testing procedures to evaluate the manufacturability and performance of slot insulation materials.
- Conducted discharge, leakage, and breakdown voltage testing for insulation quality assurance.
- Managed supply chain for the team's slot insulation materials.

PROJECTS & RESEARCH

Nystag LLC ***2024–2025***

- **Replicated HINTS Exam (neurological assessment) using Unity-based VR to evaluate eye movement for diagnostic purposes.**
- **Conducted market research and customer discovery via CMU I-Corps program.**

Autonomous Pothole Filling Robot | Senior Capstone ***Spring 2023***

- Trained object recognition model (YOLOv5) for road markings and defects (potholes, manhole covers, cones).
- Developed a self-labeling pipeline with human-in-the-loop supervision to create the largest open-source pothole dataset.
- Designed system architecture integrating mobility, sensors, computation, and filling subsystems.

Social Navigation Test Bench | CMU BIG Robotics Lab ***Summer 2022***

- Designed evolutionary-learning-based agent demographic selection algorithms.
- Modeled pedestrian movement using statistical analysis.

RELEVANT COURSE WORK

- Deep Reinforcement Learning
- Graph Neural Networks
- Linear Controls
- Machine Learning
- Machine Perception

- Physical Intelligence

TECHNICAL SKILLS

- Programming: Python, SQL, MATLAB, Simulink, C++, Linux
- Robotics & Simulation: ROS, YOLOv5, VSLAM/SLAM, Gymnasium and Gazebo
- Engineering Tools: Siemens NX, SolidWorks, AutoCAD
- Manufacturing: Ultrasonic Welding, Laser Welding, Wire Bonding
- Specialized: Tribology Simulations, GD&T