

EDUCATION

Carnegie Mellon University | Pittsburgh, PA | M.S. Robotics

Expected May 2027

- Advisor: Henny Admoni
- Focus: Human Robot Collaborative Learning, Belief Modeling

May 2023

University of Maryland | College Park, MD | B.S. Mechanical Engineering

- Robotics Minor, Computer Engineering Minor, & Mathematics Minor

GPA: 3.75

EXPERIENCE

Graduate Researcher – HARP Lab at CMU

Oct 2025 – Current

- Human Robotic Interaction (**HRI**) Research
- Researching **Human Autonomy Teams** for Informed Human Teaching
- Developing a meta-learning algorithm using ToM-2 for **Household Robotics**

Oct 2023 – Aug 2025

Robotics Specialist – CATT Lab

- Robotics technical expert for a team making a Robotic Technical Dashboard
- Developed a real-time **Self-Supervised Multi-Modal Anomaly Detection Model**
- Worked with the ROS-integrated Phoenix Autonomy Stack from ARL
- Hardware repair and maintenance on the ClearPath Husky robot
- Created ROS-based **MITM Attacks** to alter the perceived point cloud

Sept 2023 – Dec 2024

Independent Researcher – PRG Lab at UMD with Dr. Yiannis Aloimonos

- Added wing proprioception to hummingbird-inspired Nimble+ Flapper Drone
- Created a test deck to incorporate the wing sensors into the CrazyFlie firmware
- Used wing position to model high-frequency movement
- Stabilizing camera frame to enable visual odometry
- Developed Mujoco implementation of Nimble+ Flapper Drone
- Part-time Independent Researcher

Sept 2020 – Sept 2023

Design Engineer – Airgility

- Designed, tested, and assembled the Minotaur drone
- Utilized **PX4** firmware to create a new type of **tilt-rotor drone**
- Updated controller-to-drone pipeline to incorporate ROS2
- **Designed PCB** for power distribution and sensor integration
- Wrote and edited manufacturing SOP's and assembly documentation
- Developed battery system implemented across the company's product suite
- Led a team from ideation to working prototype of a taggant security system
- Streamlined and formalized 3D printing operation
- Supported product demos to customers and investors

Jan 2023 – May 2023

Independent Researcher – MoT Lab at UMD with Dr. Michael Otte

- Designed and tested algorithms to arrange a **robotic swarm** in concentric circles
 - Designed connectors and tested the validity of Duo pairs
 - Presented work at UMD Robotics Research Symposium
 - Worked with a swarm of Kilobot robots
-

Robotics Intern – ArtIAMAS & ARL

- Designed robotic system to survive 30ft drop and survey ground for ArUco markers
- Designed mechanical shell to protect and support robotic dog in landing
- Integrated ROS between the robotic dog and a Raspberry Pi 4
- Presented work at ARL facility in Grace’s Quarters

June 2022 – Aug 2022

Gemstone Honors Program – Team AutoCycle

- Four-Year Undergraduate Team Research Project
- Project goals include designing and building an **autonomous bicycle** that will be summoned to a rider, ridden by said rider, and then drive itself
- Worked with preliminary control system design
- Developed and manufactured power distribution board for the bicycle
- Defended thesis in front of a team of experts

April 2019 – May 2022

Teaching Assistant – University of Maryland

- ENME382: Introduction to Material Science
 - Introductory to Material Science topics including crystal structures, polymers, phases of iron, and material selection
- ENME202: Computing Fundamentals for Engineers
 - Coding class that focused on MATLAB and C++
- GEMS104: Topics in Science, Technology, and Society
 - Mentorship for a group of first-year students in the Gemstone Program
- GEMS102: Research Topic Exploration and Team Formation
 - Guiding new members of the Gemstone Program in research literacy and ideation for their research team

Jan 2020 – May 2020

PUBLISHED WORK

Noorani, N., Puranic, A., **Mirenzi, J.**, Baras, J.S. (2025). Self-Supervised Time-Series Anomaly Detection with Temporal Logic Explanations. Game Theory and AI for Security. GameSec 2025.

Oct 2025

Noorani, M., Puthanveetil, T.V., Zoukarni, A., **Mirenzi, J.**, Grody, C.D., Baras, J.S. (2025). Multimodal Anomaly Detection for Autonomous Cyber-Physical Systems Empowering Real-World Evaluation. In: Sinha, A., Fu, J., Zhu, Q., Zhang, T. (eds) Decision and Game Theory for Security. GameSec 2024. Lecture Notes in Computer Science, vol 14908. Springer, Cham.

Oct 2024

SKILLS

Miscellaneous:	PCB Design, Platformio, ROS1/2, TensorFlow, PyTorch, OpenCV, MuJoCo, FluidCNC
CAD Softwares:	Fusion 360, Autodesk Inventor, Solidworks, Eagle
Languages/Environments	Python, C/C++, Julia, STM32Cube, MATLAB, Verilog

VOLUNTEER WORK

Program Advisor – Capitol City Robotics

- Assist students through the underwater robotic competition Sea Perch
- Run seminars to teach middle-school-aged students Python and engineering design
- Support Vex IQ teams in building and coding competition robots

Nov 2023 – Apr 2025

AWARDS

President of Pi Tau Sigma

May 2022 – May 2023

- Led the Tau Mu Chapter of the Mechanical Engineering Honor Society
- Grew the organization to triple its size

Clark Legacy Scholar

Sept 2018

- Merit-based scholarship for The University of Maryland

August 2018

Eagle Scout

- Final rank from Boy Scouts of America
 - Led a team in the construction of wooden display boxes for a local church
-