Lee Milburn

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EDUCATION

University of Pennsylvania, School of Engineering and Applied Science, Philadelphia, PA — *Expected, May 2025*
Master of Science in Engineering in Robotics — *GPA*: 3.67

Northeastern University, College of Engineering, Boston, MA — *May 2023*
Bachelor of Science in Computer Engineering and Computer Science — *GPA*: 3.8
Selected Awards: ECE Capstone 1st Place; Fung Leadership Award; PEAK: Summit Award; Northeastern Achievement Award

RELEVANT RESEARCH/WORK EXPERIENCE

Safe Autonomous System Lab, Philadelphia, PA — *Advisor: Dr. Rahul Mangharam*
Research Assistant at University of Pennsylvania — *May 2024 – Present*

- Fused a computer vision and physics informed dynamics pipeline to estimate friction and propagate a vehicle's state
- Researched traversability based terrain exploration in offroad scenarios
- Created a 3D offroad simulation environment in Unity

Scalable Autonomous Robots Lab, Philadelphia, PA — *Advisor: Dr. M. Ani Hsieh*
Research Assistant at University of Pennsylvania — *Sept 2023 – May 2024*

- Implemented a physics-informed Koopman Operator to estimate a non-linear quadrotor system
- Applied a Non-Linear Model Predictive Control (NMPC) based off Koopman Operator's system model

Vinum-EU, Genova, Italy — *Advisor: Dr. Claudio Semini*
Guest Researcher at Italian Institute of Technology — *July - December 2022*

- Developed a navigation stack for a quadruped robot to autonomously navigate a vineyard in an unknown environment
- Tested navigation stack on Dynamic Legged System's HYQReal in vineyard environment and on Aliengo in lab

Scientific Systems, Woburn, MA
Autonomous Systems Co-op — *July 2021 – July 2022*

- Developed algorithms for multi-target pursuit-evasion and implemented AI task-determining structures for SRM project
- Researched modeling search algorithms for optimizing multi-robot task allocation scheduled towards a time horizon

Robotics and Intelligent Vehicles Lab, Boston, MA — *Advisor: Dr. Taskin Padir*
Undergraduate Researcher at Northeastern University — *June 2020 - April 2022*

- Prototyped an autonomous UAV-UGV system to identify and pick up trash in unknown environments
- Won first prize in Northeastern's ECE Capstone Competition
- Designed and fabricated autonomous material PPE tests according to industry standards
- Wrote system's ROS network, decision making, and GUI for Human-Robot Collaboration

PUBLICATIONS & CONFERENCES

First Author publication in RAAI 2023 (Accepted); First Author publication in IEEE-ICARSC 2023; First Author publication and presentation in IRIM 2022; Co-author publication in IEEE-HST 2022; Presented poster in DARS 2022;

TECHNICAL SKILLS

Programming Languages: Python, C++, ROS, Java, Bash, SQL, LaTex
Platforms/Tools: Unity, Ubuntu, Docker, WSL, SolidWorks, 3D Printing, Auto-Cad, Simulink, Pspice, Git
Electrical: Digital Multimeter, Oscilloscope, Arduino, Protoboard Circuit Design, Soldering, Wiring