

# Lee Milburn

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## EDUCATION

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**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 1<sup>st</sup> Place; Fung Leadership Award; PEAK: Summit Award; Northeastern Achievement Award

## RELEVANT RESEARCH/WORK EXPERIENCE

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**Safe Autonomous Systems 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

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Extended abstract ICRA 40; First Author publication in [RAAI 2023](#); First Author publication in [IEEE-ICARSC 2023](#); First Author extended abstract and presentation in [IRIM 2022](#); Publication in [IEEE-HST 2022](#); Presented in DARS 2022;

## TECHNICAL SKILLS

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**Programming Languages:** Python, C++, ROS, Java, Bash, SQL, LaTeX

**Platforms/Tools:** Docker, Unity, Ubuntu, WSL, SolidWorks, 3D Printing, Auto-Cad, Simulink, Pspice, Git

**Concepts:** Control, Machine Learning, Behavior Trees, Finite State Machines, Robotics Simulation, System Integration