Joseph Lynch

Joseph.lynch@gmail.com | 781-812-8630
Portfolio website: Joseph-Lynch.github.io | Linkedin: linkedin.com/in/JLynchNU

SKILLS:

C/C++, Python – Leadership – Linux, ROS, Simulation (Gazebo), Hardware integration, LiDAR data processing – Solidworks

EDUCATION:

Northeastern University, Boston, MA — Aug 2020
Master of Science in Robotics, Concentration in Electrical and Computer Engineering | GPA: 3.83
Honors: Gordon Institute of Engineering Leadership Fellow

University of Pittsburgh, Pittsburgh, PA — Apr 2018
Bachelor of Science in Computer Engineering, Minor in Mechanical Engineering | GPA: 3.87

WORK EXPERIENCE:

Vecna Robotics, Waltham, MA – *Senior Robotics Software Engineer, Tech Lead* — Oct 2022 – Present

- Responsible for ensuring high quality releases and a solid technical road map to achieve group goals
- Introduced a revised testing strategy through simulation, automated/manual dev testing and regular mock-customer runs
  - Perform daily triage of mock test runs and summarize info to VPs to provide input/direction on the team roadmap
  - Wrote + **maintained a library of testing utility functions** to help team members easily write automated sim tests
- Integrated a new 3D LiDAR from Ouster into our sensing pipeline to improve safety and reduce robot stops
  - **Worked with the hardware team** to design a mount that maximizes the usable sensing FOV
- Scoped + implemented root cause analysis (RCA) software to auto-detect when and why a robot made an unplanned stop
- Worked with the deployment team remotely + on site to improve system performance and achieved several key results:
  - Utilized RCA data to increase the pallet throughput by 39% while on site at a manufacturer of automotive parts
  - Filtered LiDAR data to remove hits from dust to **reduce robot stop time by 52%** and support touches by 82%
  - Addressed safety concerns and completed customer acceptance testing to return our fleet of robots to service
- Served as **interim team lead** during a period of high turnover and ensured all team quarterly deliverables were met

Vecna Robotics, Waltham, MA – *Robotics Software Engineer* — Jul 2020 – Oct 2022

- Wrote + tested software for all aspects of an autonomous robot system including **perception + localization**
- Part of a 5-person **cross-functional tiger team** that increased overall performance of our AMRs by 135% (Press Release)
  - Redesigned obstacle persistence layer to ensure safety when moving at faster speeds and reduce robot stop time
  - Tested SW changes against a comprehensive obstacle course and analyzed impact of iterative software changes

Robotics and Intelligent Vehicles Research Lab, Boston, MA – *Graduate Research Assistant* — Sep 2018 – Jul 2020

Cold Spray Additive Manufacturing

- Utilized 8-DOF Fanuc industrial robotic system in a novel joint effort with the Army Research Lab to use cold spray material deposition techniques with the goal of repairing military components and improving mission readiness
- Leveraged laser profile depth sensor and point cloud library (PCL) to monitor material deposition in real time
- Lead all aspects of robotic software development from requirements elicitation to architecture design and implementation
- Produced a proof-of-concept design using ROS and C++ to reduce planning time by up to 95%

Fostering Innovation in Seafood Handling (FISH)

- Adapted MoveIt and Trajopt libraries to write motion planning software for sorting and processing seafood
- Tested motion planning code in simulation (Gazebo) and on real collaborative robots (Universal Robots UR3e)
- Integrated several commercially available soft grippers into the motion planning algorithm to pick up delicate fish

Hydroid Inc, Pocasset, MA - *Software Engineering Intern* — May 2016 – Aug 2016

- Developed software for the Vehicle Interface Program (VIP) for **Autonomous Underwater Vehicles** (AUVs) using C++

LEADERSHIP + RECOGNITION

Gordon Institute of Engineering Leadership Fellow Candidate, Northeastern University — Sep 2019 – Aug 2020

- Participated in year-long program of hands-on leadership training with a focus on engineering practices
- Lead all aspects of a thesis-level engineering challenge project with the Cold Spray Additive Manufacturing Lab

CES 2020, Las Vegas, Nevada — Jan 2020

- Partnered with Analog Devices + Ascend Robotics to demo novel sensors integrated with Northeastern's robotics research

Future of Innovation in Aeronautics and Aerospace, Paris, France — Nov 2019

- Presented a poster on research investigating robotic cold spray techniques for applications in the Aeronautics Industry