

Lux Zhang

410-858-0662 | yz862@cornell.edu | <https://lux.codes> | linkedin.com/in/lux-zhang-0 | github.com/yzhzhang2907

EXPERIENCE

Software Engineer <i>BlackSea Technologies</i>	Jan 2025 – Current <i>Baltimore, MD</i>
<ul style="list-style-type: none">Architected and implemented multithreaded integration gateway connecting autonomous vessel control systems to third-party AI navigation platforms, enabling long-range autonomous operations through concurrent message translation across multiple protocols (DDS, NNG, Protobuf).Migrated critical real-time communications layer from legacy protocol to Protobuf, improving maintainability and extensibility across production fleet of 300+ vessels.Integrated a line-of-sight multi-vessel control system and developed accompanying safety-critical logic including E-Stop handling and control authority arbitration, enabling single operators to manage multiple autonomous vessels.	
Junior Software Engineer <i>BlackSea Technologies</i>	Jan 2023 – Jan 2025 <i>Baltimore, MD</i>
<ul style="list-style-type: none">Performed high-risk migration of a 50,000-line C embedded software codebase between proprietary real-time operating system (RTOS) electronic control units, maintaining continuous operation and full functionality of vessel control systems.Spearheaded migration of Data Distribution Service (DDS) frameworks for internal communications, introducing modern, memory-safe programming practices and updating build environments from GNU Automake to CMake to align with industry standards.Designed and implemented mission-critical features while meeting evolving specifications and customer demands.	
Full Stack Web Dev Intern <i>Farpoint Learning</i>	June 2022 – Aug. 2022 <i>Columbia, MD</i>
<ul style="list-style-type: none">Developed a full-stack web application using MUI (Material UI), Next.js, React, MongoDB and Docker Compose for customer retention and user portal.Deployed backend on AWS EC2, configured DNS and domain name, and performed SEO to optimize core web vitals.	
Data Analyst Intern <i>Federal Motor Carrier Safety Administration</i>	May 2020 – Aug. 2020 <i>Baltimore, MD</i>
<ul style="list-style-type: none">Identified and analyzed highest-risk road segments for large vehicle traffic in 23 Maryland counties and Baltimore City using ArcGIS, Python, ArcPy, and R.Developed and automated detailed visual reports to guide state-wide allocation of safety resources for the chief safety officer, regional field administrator, and data analyst team.Extracted and processed data (ETL) from state crash datasets in CSV and Excel (.xls) format using pandas and NumPy.	
Data Science Intern <i>Laureate Education</i>	May 2019 – Aug. 2019 <i>Baltimore, MD</i>
<ul style="list-style-type: none">Modernized a legacy dataset of 8 years of customer enrollment information in Oracle Database into Microsoft SQL Server by aggregating, transforming, and cleaning data with SQL, Python, pandas, NumPy, Anaconda, and Jupyter Notebook.Delivered seminar on introductory Python data analysis and machine learning (ML) techniques to a team of 20+ predominantly R and SAS professionals.	

EDUCATION

Cornell University <i>Bachelor of Science in Computer Science, Minor in English; GPA: 3.5</i>	Ithaca, NY Aug. 2018 – May 2022
---	------------------------------------

TECHNICAL SKILLS

Programming Languages: C++, C, Python, TypeScript, JavaScript, HTML, CSS, SQL
Tools & Platforms: Git, Docker, Docker Compose, VS Code, CMake, Jupyter Notebook, Linux, GitLab, SharePoint
Embedded Systems & Protocols: CAN bus, RTOS, J1939, NMEA 2000, Protobuf, DDS
Web Development: React, Node.js, Next.js, MUI v5, TailwindCSS, MongoDB, PostgreSQL, Vite