Luke Liu

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Education

University of Washington Seattle, WA
Bachelor of Science - Electrical and Computer Engineering *Sept. 2021 – June 2025*

Experience

Cloud Clusters Inc. June 2024 – Aug. 2024
Software Engineer Intern *Kansas City, MO*

- Performed feature engineering to enhance deep learning models for detecting fraudulent purchases and identifying suspicious customer behavior
- Tested various methods and models, progressing from simple probabilistic models (Naive-Bayes) to more complex language models (BERT)
- Integrated the fraud detection model into the company's website using Django

Information Processing Lab - University of Washington May 2024 – Present
Research Assistant *Seattle, WA*

- Worked on a NOAA-sponsored project using computer vision techniques to detect and segment fish from videos
- Trained and deployed deep learning models (YOLOv8) to segment out different fish species in each video frame
- Developed scripts for model evaluation metrics and implemented midline algorithms to estimate fish lengths using techniques such as principal component analysis and image erosion

UW Paul G. Allen School of Computer Science & Engineering Aug. 2023 – Present
Lead Java Teaching Assistant *Seattle, WA*

- Introduced and taught core programming principles to students, focusing on object-oriented programming, recursion, and various data structures
- Lead weekly meetings with a group of over 20 Teaching Assistants to discuss grading logistics
- Developed programming assignments, technical specifications, and practice problems for a class of 400 students
- Debugged individual student code in office hours to resolve structural, semantic, and conceptual coding issues

University of Texas Medical Branch June 2023 – Oct. 2023
Research Intern *Galveston, TX*

- Developed a cross-platform graphical user interface designed to improve the accessibility of ROBOT, a command-line tool for ontology file manipulation
- Implemented full-stack development using QT and C++
- Conducted usability testing with research professors by implementing iterative design changes for widget placement and user-input optimization based on feedback
- Published and submitted a paper as first author titled "A GUI-based Interface For OBO Foundry's ROBOT Library To Encourage Usability and Adoption" to the IEEE International Conference on Healthcare Informatics (2024)

Extracurricular & Projects

Cornbear - Backend | *Java, Git/GitHub* Jan. 2024 – Present

- Worked with a team of Teaching Assistants to develop an auto-grading tool for the introductory programming classes to reduce grading time by 50%
- Developed style and concept checkers using static analysis tools to manage and lint through student submissions

UW Human Powered Submarine | *C++, Python, Arduino, Git/GitHub, SolidWorks* Aug. 2022 – Sept. 2023

- Created a codebase that uses the I2C communication protocol to interpret sensor data into actionable feedback for the diver that indicates the submarine's alignment
- Developed a driveshaft clamp that stores and utilizes magnets to provide real-time RPM data through the integration of hall-effect sensors
- Analyzed speed data from previous competitions, providing stakeholders with insights into performance trends

Technical Skills

Languages: C++, C, Java, JavaScript, Python, HTML/CSS, SQL
Frameworks/Libraries: PyTorch, TensorFlow, Scikit-learn, OpenCV, NumPy, SciPy, Pandas, Matplotlib, Django, React, JavaParser, CheckStyle
Developer Tools: Arduino, Git/GitHub, QT, Linux, SolidWorks, KiCAD, Hugo