Yuyang Lou

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Education

University of Washington, **Expected Jun 2027**
B.S. Major – Computer Science **GPA: 3.8 / 4.0**

Relevant Coursework: Database Management, Linear Optimization, Data Structures and Parallelism, Foundation of Computing II, Computer Programming III.

Experiences

Software Intern, Fechii Fragrances and Flavors, June 2024 – Sep 2024

- **Designed a high-performance spectrometry data acquisition and processing system equivalent to Agilent's Mass Hunter.**
- Applied signal processing and filtering techniques using Python, NumPy, and Pandas to extract feature from complex and noisy gas chromatography data.
- Linearly combined and leveraged algorithms such as weighted dot product and probability-based matching for efficient and accurate chemical substance identification.
- Developed a secure, scalable SQL database to manage and synchronize sensitive data, ensuring reliability and consistency across systems.
- Utilized vectorized computations and parallel processing to improve system efficiency, reducing computation time by 50%.
- Built an interactive GUI using Qt and Matplotlib, demonstrating experience in user-facing analytical tools.
- New Software increased the chemical analyst's report generation by 50%, from 120 minutes to 60 minutes.

Member, Vision Team, University of Washington Advanced Robotics, Sep 2023 – Present

- **Maintained and contributed to a custom robot vision library for robot trajectory prediction and computer vision-based localization.**
- Contributed to efficient search and data filtering algorithms in a real-time data processing pipeline, ensuring efficient and accurate decision-making in dynamic environments.
- Developed a predictive modeling system for trajectory estimation, optimizing for speed and precision in a decentralized multi-agent setting.
- Refactored and debugged a data pipeline in a high-pressure 24-hour competition environment, ensuring robustness and reliability under real-time constraints.

Recent Projects

3-D Object Localization Using Faster R-CNN Object Detection Network, Sep 2022 – Apr 2023

- Implemented Faster R-CNN in TensorFlow to create a 2D object detection program.
- Built a program that deprojects the 2D location of detected objects into a point in 3D space.

Technical Skills

Programming Languages: Python, C++, Java, JavaScript, SQL, MATLAB
Core Skills: Full-stack Software Development, Signal Processing, Machine Learning, Database Management, Optimization, UI Design, Data Visualization