Lawrence Liu

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EDUCATION

Purdue University — West Lafayette, IN
BS in Computer Science, BS in Data Science, Minor in Economics — *Expected Graduation: May 2027*
Coursework: Object-Oriented Programming, Programming in C, Multivariate Calculus, Linear Algebra, Discrete Math, Statistics, Probability, Computer Architecture, Data Structures & Algorithms, Systems Programming

PROJECTS

Custom Shell | *C++, Bash, C, Lex, Yacc*
- Developed a custom shell in C using Lex/Yacc with command parsing, implementing pipelines, I/O redirections, and subshells
- Engineered signal handling (SIGINT/SIGCHLD) for Ctrl-C interruption while ensuring zero memory leaks
- Built a terminal line editor with history navigation and regex-based wildcard expansion

Custom Malloc | *C*
- Implemented a custom memory allocator in C, supporting malloc, free, and realloc with free lists for $O(1)$ calls
- Reduced external fragmentation by 30% via coalescing, ensuring contiguous free blocks were merged
- Achieved thread-safe operations using pthread mutexes, enabling concurrent allocations without race conditions

EXPERIENCE

Data Scientist Intern — Aug 2023 – May 2024
Bayer, The Data Mine — *West Lafayette, IN*
- Partnered with product stakeholders in Agile sprints to architect and deploy predictive models for optimizing plant yield, ensuring high scalability and reliability
- Engineered data pipelines that cleansed and transformed datasets exceeding 15,000 records using Python and R, streamlining the data preprocessing workflow
- Developed and integrated machine learning models (Random Forest, Neural Networks, kNN, and Linear Regression) that consistently achieved over 70% accuracy

Student Office Staff — September 2024 – May 2025
Purdue University — *West Lafayette, IN*
- Managed daily front desk operations for a residence hall, handling 200+ guest interactions weekly and maintaining a 95% customer satisfaction rate.
- Analyzed and tracked 200+ weekly guest interactions using Excel, identifying trends to improve front desk efficiency by 30%.
- Maintained a database of 500+ resident records, ensuring 100% accuracy and compliance with privacy policies.

ACTIVITIES

Korean American Student Association Vice President — November 2023 – May 2025
- Oversaw executive board of 10+ and managed events for 100+ general members
- Increased engagement leading to an increase of 50% member acquisition over past years
- Organized big-little groups and 20 events per semester for club members, including dance workshops with celebrity guests

TECHNICAL SKILLS

Languages: Java, Python, SQL, C, C++, Javascript, HTML/CSS
Frameworks/Libraries: React, Node.js, Flask, JUnit, Pandas, NumPy
Tools: Git/GitHub, VS Code, Tableau, Jupyter Notebook, Docker, Visual Studio, MS Office, PowerPoint, Teams, Agile
Soft Skills: Communication, Adaptability, Problem Solving, Teamwork, Leadership
Languages: English, Spanish, Japanese, Cantonese