Dong Woo Lee

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Education

University of Wisconsin - Madison Aug. 2022 – May 2026
Bachelor of Sciences in Computer Science, Bachelor of Sciences in Biology *Madison, WI*

- GPA: 3.94/4.00
- Relevant Coursework: Data Structures and Algorithms, Artificial Intelligence, Operating Systems, Organic Chemistry Laboratory, User Interfaces, Object-Oriented Programming, Big Data Systems, Information Security

Experience

Undergraduate Research Assistant Jan. 2024 – Current
Laboratory for Optical and Computational Instrumentation *Madison, WI*

- Developed an open-source AI-enabled platform that identifies and quantifies interactions between collagen fibers and tumor cells, streamlining research workflows and enhancing data accuracy for studies involving over 500 samples
- Migrated computational processes from MATLAB to Python using libraries like NumPy and PyLops
- Conducted research on Fast Discrete Curvelet Transform (FDCT) to analyze and enhance 3D medical and scientific imaging data

Lead Software Engineer May 2024 – Sept. 2024
Association for Computing Machinery *Santa Clara, CA*

- Directed a team of 10 developers in creating an e-commerce platform, contributing over 100 Git commits and achieving a faster development cycle through efficient Agile practices
- Detailed and refined UI/UX designs using Figma and utilized Git pull requests to guide implementation process
- Ensured code quality and maintainability using by parsing JSON files with TypeScript, Next.js, and ESLint for industry-standard practices

Projects

Organic Chemistry Reaction Predictor | *FastAPI, PostgreSQL, RDKit, React, Docker, AWS* Jan. 2024

- Developed a RESTful API using FastAPI to predict organic reaction products based on user-defined reactants and conditions inputted through React frontend that is visualized using RDKit
- Designed and implemented a PostgreSQL database to store reaction history that interacts with RESTful API
- Deployed backend containerized under Docker on AWS EC2 for database management, ensuring scalability and reliability

Very Simple Filesystem Implementation | *C, FUSE, Linux* Dec. 2024

- Developed a custom FUSE-based filesystem in C, implementing file operations like reading, writing, and retrieving file attributes (getattr, read, write) with RAID 0 (striping) and RAID 1 (mirroring) storage configurations
- Designed and integrated efficient directory path traversal and inode management, enhancing the filesystem's ability to handle complex directory structures while maintaining data integrity across RAID arrays

Personal Blog | *MongoDB, Express.js, ReactJS, Node.js* Aug. 2024

- Deployed a full-stack personal blog application using the MERN stack with user authentication and registration with encrypted credentials stored in MongoDB
- Integrated QuillJS API for seamless creation and editing of blog posts within the application
- Designed a responsive UI using ReactJS for the frontend and Express.js for the server for a smooth user experience

Technical Skills

Programming Languages: Java, C, JavaScript, TypeScript, Python, HTML/CSS, MATLAB
Libraries: Tailwind CSS, Pandas, NumPy, PyTorch, Matplotlib, React, React Native
Frameworks: Next.js, Express.js, JavaFX
Tools: Git, ESLint, GCC, Figma, JUnit, MongoDB, Github, Xcode, Microsoft Office, VS Code, Linux, Docker, Node.js

Leadership/Activities

Korean American Student Association Jan. 2023 – Current
Finance Chair *University of Wisconsin - Madison*

- Secured over $5,000 in funding by delivering pitches to grant committees, supporting large-scale cultural events
- Negotiated partnerships with local businesses and franchises, netting over $1,500 through fundraising initiatives