HAYLIE WU

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EDUCATION

Northwestern University *Expected, June 2024*
Dual Degree Program - BA in Computer Science & BA in Flute Performance

- Coursework: Algorithm & Data Structure, Networking, Database, Operating Systems, Agile Development, Software Architecture

SKILLS

- **Languages**: Python, JavaScript, TypeScript, C, C++, Java, HTML, CSS, Bash, C#, SQL, MATLAB.
- **Frameworks & Libraries**: React, React Native, Node.js, Express.js, Flask, Svelte, Ractive.js, jQuery.
- **Tools & Platforms**: Git, Heroku, AWS, Azure, Firebase, Unity, MongoDB.

PROFESSIONAL EXPERIENCE

MathWorks - JavaScript, MATLAB, C++, Node.js, Express, MongoDB June. 2023 – Sep. 2023
Software Engineer Intern

- Implemented two full-stack enhancements for MATLAB Test Manager's 2024a release, including persistent session configurations and advanced frontend keyword filtering. Reinforced features with unit and integration tests, achieving 90% code coverage.
- Developed an effective synchronizer for seamless backend-frontend communication, enhancing project metadata management.
- Conceived and implemented an intuitive SIMULINK feature for streamlined import of Excel test data. Incorporated parsers to detect and highlight structural inconsistencies in Excel formats, delivering clear error descriptions to users.
- Implemented a customizable point system for an internal bug tracking tool, migrated the application to Node.js with Express, and integrated it with MongoDB for efficient data management.

NetLogo Web - TypeScript, Svelte, CoffeeScript, Ractive.js, HTML, CSS Sep. 2022 – June. 2023, part time
Software Engineer Intern

- Developed an open-source code editor package tailored for the NetLogo language to accommodate the release of CodeMirror 6. Seamlessly integrated functional APIs, parsers, and auto-completion features and integrated it into NetLogo's web platform.
- Developed responsive frontend components including a shape selector and a shape editor, integrated into NetLogo Web for advanced user interface customization.
- As part of a team, contributed to the design and development of 'ChatLogo', an innovative feature integrating GPT-4, which provides interactive and responsive guidance to users coding in NetLogo.
- Streamlined development processes by establishing an automated workflow, implementing comprehensive automated tests, and building a robust CI/CD pipeline using Github Actions.

SKUY (Mobile App) - React Native, Flask, PostgreSQL, Python, Javascript, Heroku, Firebase May. 2022 – May. 2023, part time
Lead Backend Software Engineer

- Developed a robust backend with Flask, Firebase, and PostgreSQL, and drove the implementation of key frontend features such as user authentication, news aggregation, and discussion forums. Introduced a dynamic news component using web scraping techniques.
- Improved application performance through optimizations like lazy loading, pagination, and backend API redesign.
- Streamlined deployment on Heroku and facilitated a smooth application launch by leading comprehensive deployment sessions.
- Led the transition from Heroku to Firebase, managing backend reconfiguration and complex data migration, ensuring seamless user experience and data integrity.
- Authored comprehensive documentation and facilitated efficient onboarding for new team members.

Algorithm Design Research – Python, Gurobi Jun. 2022 – Sep. 2022
Research Intern

- Developed and implemented algorithms for active-time scheduling on heterogeneous machines, achieving a 76% lower bound via lazy-activation approximation and dynamic programming approaches.

PROJECTS

"Marketplace" - Node.js, React, Redux, Express, Firebase, MongoDB, AWS EC2

- Designed and developed a full stack Marketplace App using Node.js, React, Redux, Express, and MongoDB on AWS EC2, featuring account management, CRUD operations, real-time messaging via Socket.io & Firebase, search/filter functionality, and image management via Cloudinary.

"VisualQuery" - AWS EC2, AWS S3, AWS RDS, SQL, lambda, React

- Leveraged Amazon EC2, RDS (SQL), and Lambda functions to develop an image storage application integrated with a chatbot, enabling user queries, metadata-based search, and image content filtering within the S3 storage environment.