

# HAYLIE WU

[hayliewu2024@u.northwestern.edu](mailto:hayliewu2024@u.northwestern.edu) | <https://github.com/wubbalubbadu> | <https://wubbalubbadu.github.io/Portfolio>

## 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

June. 2023 – Sep. 2023

Software Engineer Intern

- Enhanced two full-stack features for the 2024a MATLAB release. One feature allowed the component to retain configurations across different sessions, while another addition enabled frontend keyword filtering for improved filter management. Ensured successful integration through comprehensive unit and integration tests.
- Conceptualized, designed, and developed a user-friendly feature for SIMULINK tests. This feature, designed to import test data from Excel files, employs parsers to identify and underscore structural discrepancies in the Excel format, thereby providing users with clear error descriptions.

NetLogo Web - TypeScript, Svelte, CoffeeScript, Ractive.js, HTML, CSS

Sep. 2022 – June. 2023, part time

Software Engineer Intern

- Designed and developed a new open-source code editor package specifically tailored for the NetLogo language to accommodate the release of CodeMirror 6. Seamlessly integrated functional APIs, parsers, and auto-completion features to enhance coding efficiency and improved user productivity by integrating the code editor 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. This tool provides interactive and responsive guidance to users coding in NetLogo, significantly accelerating the learning process and harnessing AI to help users achieve their goals more efficiently.
- 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 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, enhancing user engagement.
- Authored comprehensive documentation and facilitated efficient onboarding for new team members.
- 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.

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, S3, SQL, lambda, React

- Leveraged Amazon EC2, S3, SQL, and Lambda 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.