Danny Xu

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Education

University of Wisconsin, Madison — Madison, WI

Bachelor of Science in Computer Science, Mathematics — *Graduation: May 2026*

Coursework: Algorithms and Data Structures, Machine Learning for Engineers, Machine Architecture

Technical Skills

Languages & Tools: JavaScript, TypeScript, Java, C#, Python, SQL, HTML/CSS, Swift, Power BI, Unix, Azure
Frameworks: PyTorch, React JS, Next JS, Node JS, ASP.NET MVC, EF Core, SwiftUI
Certificates: Supervised Machine Learning (Stanford), Programming Fundamentals (Duke)

Experience

Integrated Diagnostics and Analytics Laboratory — Madison, WI

Undergraduate Research Assistant — *Oct. 2023 - Present*

- Research under Professor Pallavi Tiwari in the IDiA Lab, developing neuroinformatics techniques using machine learning, statistical modeling, and pattern recognition for brain tumors and neurological disorders.
- Develop deep learning models for brain lesion segmentation leveraging Python, PyTorch, and SciKit-Learn.

CommScope — Shakopee, MN

Software Engineer — *Aug. 2023 - Present*

- Built a full-stack web application for data management, utilizing TypeScript, React.JS, C#, and ASP.NET
- Refine the SQL database design, resulting in system design enhancements and improved scalability.
- Developed and implemented a CI/CD pipeline in Azure DevOps to automate build and deployment processes.
- Proposed and produced a dynamic Power BI dashboard for lab technicians instrumental in deriving data-driven insights and improving lab operations.

Software Engineer Intern — *May 2023 - Aug. 2023*

- Engineered a full-stack React.JS web app for data analysis/visualization using HighChartJS and TanStack Table.
- Restructured the laboratory data storage system, enhancing lab testing efficiency by 80%, saving 600 hours each year using ASP.NET and Microsoft SQL Server.
- Implemented multi-threading and thread synchronization, achieving a 400% increase in website load times

Small Satellite Research Laboratory — Minneapolis, MN

Undergraduate Reseach Assistant — *Nov. 2022 - May 2023*

- Strengthened communications protocols between ground station and cube satellites on the COMMS subteam
- Conducted unit testing in Python and simulations to ensure accurate and efficient data transmission

Projects

Quizzify, Best Use of LLMs @ HackUIowa | *React.js, Python, Flask, HuggingFace, BERT*

- Engineered a full-stack web app that converts lectures into interactive quizzes; employed NLP to denoise text, extract keywords, and generate synonyms, winning 'Best Use of LLMs' out of 68 competitors
- Led frontend development using React, Next.js, ChakraUI, and TypeScript, focusing on UX and interface design.
- Collaborated closely with backend team to integrate, BERT, HuggingFace, spaCy, and NLTK, ensuring seamless frontend compatibility.

Breast Cancer Detector | *Python, TensorFlow, Scikit-Learn*

- Developed a breast cancer detection model using logistic regression, achieving an accuracy of 83%
- Utilized OpenCV for image preprocessing, leveraging resizing, grayscale conversion, and normalization for training
- Performed hyperparameter tuning using GridSearchCV to optimize the logistic regression model parameters
- Leveraged Scikit-Learn for splitting data into training/testing sets and StandardScaler for feature standardization

Cash Register Counter | *Swift, SwiftUI, Testflight*

- Built an iOS application to expedite the counting of cash-registers, leveraging Swift and SwiftUI
- Amassed 30,000+ impressions and 5,000+ active user sessions by publishing the app on the Apple App Store
- Implemented MVVM Architecture to organize code development and improve code maintainability

Mech-Market Scraper | *JavaScript, NodeJS, Cheerio*

- Created a web-scraper which searched for selling listings from reddit.com/r/mechmarket by keyword
- Drastically reduced search times by 80% through headless web scraping by bypassing UI rendering
- Engineered various filters, toggles, and search functionalities based off of user-provided command-line input