Bowen Cheng

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EDUCATION

Northwestern University   Evanston, IL
Bachelor of Science in Computer Science and Mathematics, GPA: 3.97/4.0   *Sep. 2023 - June 2026*
Coursework: OS, Machine Learning, Computer Security Systems, Scalable Software Architecture, Network Systems, Database Systems, Probability and Stochastic Processes, Data Structure and Algorithms, System Programming

EXPERIENCE

Software Engineer Intern   July 2024 – Sep. 2024
GHY Impact Capital   *Chicago, IL*
- Spearheaded creation of an AI-powered customer service chatbot using OpenAI API with finetuned GPT models and Retrieval-Augmented Generation, enabling users to receive AI-generated answers based on internal, company-specific information
- Engineered first database backup check system by developing Python scripts with AWS RDS and GitHub Actions, reducing risk of data loss through automated hourly data integrity checks
- Designed frontend data exportation feature using React, TypeScript, and Tailwind CSS, allowing users to download website information

PROJECTS

Pokefantasia | *AWS (Lambda, S3, API Gateway, ECR, RDS), Docker*   December 2024
- Developed Poké Fantasia, a serverless API project enabling users to classify Pokémon types, transform attributes, and apply artistic styles to uploaded images
- Configured AWS, including Lambda, S3, ECR, RDS, and API Gateway, to handle image uploads and processing
- Collaborated with teammates who implemented machine learning models using Vision Transformers, Hugging Face API, and OpenCV to classify, transform, and stylize images

Network Security Audit Tool | *Python*   November 2024
- Designed a tool to streamline network exploration and auditing, integrating IP resolution, TLS analysis, and geolocation to improve security assessments

RustyDB | *Rust*   October 2024
- Built a high-performance database engine in Rust, optimizing in-memory page management with LRU-K and implementing SQL features like joins and aggregations
- Developed SQL execution features including filtering, projection, nested loop joins, and aggregations

SmartBrain | *React, Node.js, PostgreSQL*   June 2024
- Independently developed a full-stack application that performs facial recognition from image URLs
- Implemented secure user authentication, utilizing password hashing with bycrpt and storing user information in a PostgreSQL database

GoodNeighbor | *React, Next.js, SQLite*   April 2024
- Led a 4-member team to create GoodNeighbor, an online marketplace that connects users with skilled freelancers for variety of tasks including home repairs, moving services, and lawn mowing
- Designed and engineered user signup and login page using React and styled application with Tailwind CSS
- Integrated API routes within Next.js framework to handle backend tasks, including user authentication and storing user information

OpenStreetMap Processing | *C++*   December 2023
- Developed a navigation application utilizing OpenStreetMap to deliver real-time bus arrival predictions

nuPython | *C*   November 2023
- Engineered a Python-like language parser in C, building out a Python-like execution environment
- Implemented features of "nuPython" like computation, print statements, relational operators, and while loops

TECHNICAL SKILLS

Languages: Java, Python, C, C++, SQL, JavaScript, HTML/CSS, Racket, TypeScript, Rust
Frameworks: React, Node.js, pandas, NumPy, Matplotlib, OpenCV, Tailwind CSS
Developer Tools: Git, AWS, VS Code, Sublime Text, GitHub Actions, Docker