

CHENKAI YU

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EDUCATION

Carnegie Mellon University

August 2023 – December 2024

Master of Science in Software Engineering

Relevant Coursework: Foundations of Software Engineering, Data Science for Software Engineering, Software Engineering Method

Lehigh University

September 2019 – May 2023

Bachelor of Arts & Bachelor of Science, Dual Degree in Computer Science Engineering & Economics

Relevant Coursework: Discrete Structures & Algorithms, Database Theory and Application, Artificial Intelligence: Theory and Practice.

TECHNICAL SKILLS

Coding Tools: Python, Go, HTML, Tailwind CSS, TypeScript, MySQL, REST API, GraphQL, Socket, React, Node.JS,
Other SDE Tools: Agile, Scrum, Git, CI/CS, Data Mining and Validation, Google Analytics, ESLint, AWS S3

EXPERIENCE

Software Engineering Intern, Influxer

June 2024 – August 2024

Go, React, JavaScript, MySQL, GraphQL

- Developed a key Enterprise System module that enabled large-scale data editing across external and in-house databases, reducing external API calls by 90% and boosting operational efficiency.
- Engineered the backend services using Go, establishing robust and seamless data synchronization with web sockets.
- Leveraged GraphQL with Shopify APIs to optimize payload size, enhancing data retrieval speed and reducing bandwidth usage.
- Employed MySQL for data retrieval and structured data schemas on SQLite to reduce database calls to improve access efficiency.
- Developed the frontend with React and JavaScript, integrating MUI components to deliver a responsive and intuitive UI.
- Collaborated closely with the engineering team on test, design, and code reviews, while adeptly presenting updates to senior management and cross-functional teams to showcase progress, align on objectives, and ensure cohesive execution across all levels.

Graduate Teaching Assistant, Foundations of Software Engineering, Carnegie Mellon University (CMU);

January 2024 – June 2024

JavaScript, MongoDB, MySQL, HTML, Web Socket

- Mentored 20 graduate students developing an Emergency Social Network, a web application aimed at enhancing emergency response, using JavaScript, HTML, CSS, MongoDB, JWT, and CI/CD.
- Incorporated Agile and Scrum methodologies to the SDLC cycle, and implemented CI/CD pipelines to facilitate deployment.
- Guided students in MVC system architecture design, software design patterns, and RESTful API development.
- Oversaw the design of a user-centric web interface and the integration of security features like JWT for authentication.
- Conducted comprehensive code reviews and oversaw implementation of Unit/Integration Test for Quality Assurance.

PROJECTS

Incident Response Product, a Web Application Development Project, CMU

January 2024 – May 2024

TypeScript, Node.js, React, TypeORM with MySQL, Swagger

- Led a sub-team of 5 in engineering a mobile platform to redefine emergency responses with software solution, focusing on streamlining coordination and improving response times for various roles from citizens to emergency personnel.
- Adopted the LeSS(Large Scale Scrum) software engineering method to optimize development workflow.
- Led in transitioning to TSOA with Swagger for API dev and documentation, improving development efficiency and scalability.
- Integrated SonarQube and ESLint into the CI pipeline to automate code quality checks.

Pull Request Approval Classification and Prediction, a Machine Learning Project, CMU

January 2024 – May 2024

Python, Data Validation, Feature Selection, Oversampling Adjustments, Classification Models, Hyperparameter Tuning, GitHub Action

- Developed a GitHub CI service for predicting pull request approvals using a sophisticated ML pipeline.
- Created a Python Flask server for processing requests, handling user type differentiation, and hosting the serialized model.
- Cleaned and validated a dataset of 200k rows, and used SMOTE to address dataset oversampling, reducing an inflated F1 by 5%.
- Trained various ML models and used grid search for hyperparameter tuning, improving performance by 8%.

DDoS Attack Analysis and Detection, a Network Forensics Project, CMU

August 2023 – December 2023

Python, TCP/IP, hping3, Wireshark, SNORT, Raspberry Pi

- Simulated and analyzed a Distributed Denial of Service (DDoS) attack on an Internet of Things (IoT) device using a Raspberry Pi.
- Executed a TCP SYN flood attack with hping3 on a smart light bulb connected to a Raspberry Pi, creating a real-world scenario.
- Utilized SNORT (Network Intrusion Detection System) and implemented measures to detect and alert malicious network activity.