JACK SUN

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LinkedIn | Personal Website

Education

Carnegie Mellon University *Pittsburgh, PA*

- **Dual Degree**: BS in Information Systems, BA in Linguistics Expected Graduation: May 2025
- **Relevant Coursework**: Imperative Programming, Computer Systems, Database Development, Application Development, Practical Data Science, Mobile App Development IOS, Foundations of Software Engineering, Natural Language Processing

Skills

- **Languages:** Python, Java, JavaScript, TypeScript, SQL, C, Ruby, Swift, R, SML, HTML, CSS
- **Frameworks / Tools:** React, Git, Pandas, NumPy, MapReduce, PostgreSQL, MongoDB

Project Experience

Language Visualization App - Swift, Firebase, Python, REST API, Speech Recognition, Development Life Cycles

- Designed and implemented a full-stack language learning app in Swift, featuring themed modules and delivering real-time pronunciation feedback through pitch contour visualization
- Developed and deployed a RESTful API in Python on PythonAnywhere, enabling processing of user audio input and delivering analytical feedback by comparing user pitch data to native speaker benchmarks
- Prioritized accessibility and user engagement by implementing gamified features, such as progress tracking, themed modules, badge rewards.

Gotham City Police Department Crime Tracking Systems – Ruby on Rails, React

- Engineered a full-stack crime tracking system using Ruby on Rails and React
- Built models for key entities and enabled users to log in with robust authentication and authorization
- Applied Scrum methodologies for development, integrating CI/CD pipelines for continuous testing and development

Collaborative Q&A Forum Feature - Azure, Agile, CI/CD, TypeScript, JavaScript

- Enhanced NodeBB, an online forum platform, by developing an instructor endorsement feature to improve answer validation and user experience
- Designed and implemented backend logic using JavaScript and TypeScript, enabling instructor-student interactions
- Deployed the feature on Azure, incorporating CI/CD pipelines with GitHub Actions for testing and deployment

Coral Fish Detection & Classification – Python, TensorFlow, Squeeze-and-Excitation Blocks

- Authored and published a research paper on a novel method for coral fish detection and classification in underwater footage using convolutional neural networks (CNNs)
- Implemented a model combining TensorFlow Object Detection and Squeeze-and-Excitation (SE) blocks, outperforming existing models including AlexNet and ResNet-50

Work Experience

Carnegie Mellon University: Teaching Assistant May 2024 - Present

- Led office hours, recitations, and review sessions for four classes: Database Design & Development, Mobile Web Design & Development, Application Design & Development, and Practical Data Science

Chalfant Run/Thompson Run Watershed Association: Board Member April 2023 - Present

- Built and launched the website chalfantrun.org to enhance community engagement and recruit new members, resulting in a 2x increase in membership
- Organized and led community events with 100+ participants, including firefly hike, garden workday and full moon hike

Carnegie Mellon University: Resident Assistant May 2023 - Present

- Worked collaboratively with 10 RAs, and a Housefellow to uphold community standards for 400+ residents
- Organized weekly events for 40+ residents; Presented and secured funding to customize 150 sweatshirts for residents