Elizabeth Song

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EDUCATION

Cornell University, College of Engineering   Ithaca, NY
Bachelor of Science in Computer Science & Minor in Operations Research and Information Engineering   December 2025
GPA 3.5/4.0, Dean's List

Relevant Courses: Analysis of Algorithms, Machine Learning, Object-Oriented Programming and Data Structures (Java), Functional Programming (OCamL), Financial and Managerial Accounting, Optimization I, Computer Networks, Computer System Organization

TECHNICAL SKILLS

Back-End Development: Python, Java, C#, C, OCaml, RISC-V
Front-End Development: Xcode, Swift, SwiftUI, JavaScript/TypeScript, HTML, CSS, Bootstrap, Unity, VSCode, Figma
Developer: GitHub, Git, VSCode, Xcode, Atom, IntelliJ, Eclipse, Docker, AWS (Lambda, S3, Cloudfront, Sagemaker)
Data Science: NumPy, Pandas, Matplotlib, Pillow, YOLOX, Jupyter, PyTorch, TensorFlow, SQL, Tableau, Transformers, Hugging Face

EXPERIENCE

Travelers Insurance   June 2024 - August 2024
Business Insights & Analytics Intern, Bonds & Specialty Insurance   Hartford, CT
- Constructed 10+ pricing application traffic data reports with SQL and Python, enhancing information accessibility for underwriters, pioneering the extraction of data obscured by complex delimiters through coding team's first Jupyter .ipynb notebook
- Led department-wide discussion to push towards coding automatized Qlik scripts that streamline the standardization of look and feel for 30+ internal applications, reducing manual UI processing times by 50%; facilitated daily stand-ups for 9-person team
- Redesigned Qlikview dashboards to supply visualized statistics on commercial surety data with improved clarity and accessibility

FunctionBay, Inc.   June 2023 - July 2023
Software Development Intern   Seoul, South Korea
- Implemented object detection model with 85% accuracy trained on a COCO dataset using PyTorch and YOLOX with RecurDyn via C# scripts, enabling real-time detection of typical street objects from a virtual car demoed in a suburban Unity-based backdrop
- Pioneered the company's first CAD-to-ML model integration for autonomous driving, opening new avenues for real-time testing
- Aided the presentation of metaverse discoveries at The 18th International Conference on Intelligent Autonomous Systems

Economics and Diffusion Research   May 2020 - August 2022
Co-Researcher   Los Angeles, CA
- Co-authored an economics research paper alongside Dr. Khalil Iskarous, Univ. of Southern California, Professor of Linguistics
- Spearheaded a comprehensive study on economic disparity in the U.S., employing Python, k-means analysis, and Turing's diffusion concepts; identified key dynamic interactions between capital and labor incomes, leading to paper submissions and review
- Conducted 500+ simulations to analyze the diverging growth between the incomes, pinpointed the origins of the inequalities using eigenvalue calculations, developed a novel analytical framework that identified economic coefficient correlations for further study

PROJECTS

Next Song, Pls!   June 2024 - August 2024
- Designed system architecture and constructed web-based music recommendation application using TypeScript, Javascript, CSS, and HTML, integrating Spotify API to personalize suggestions based on user-selected metrics (e.g., danceability, key, BPM)
- Deployed and scaled the application using AWS cloud services (EC2, CloudFront) for optimal performance, implementing additional search functionalities to provide users with in-depth song details, including audio, and enhanced music discovery

Where's Waldo?   June 2024 - Current
- Fine-tuned a YOLOv5 object detection model to locate "Waldo" in semi-complex "Where's Waldo" images, labelling and augmenting a custom dataset of ~300 images with rotations, noise, and scaling to enhance detection performance
- Reduced box loss by >45% through optimization, achieving 59.5% precision and 66% F1-score at 0.4 confidence, recall reaching 74%, resulted in consistent identification at lower confidence threshold, exploring EfficientDet and DetectoRS as next steps

ACTIVITIES

Cornell Data Science   September 2023 - Current
Student Engineering Project Team Subteam Lead, Full-Stack & Project Management   Ithaca, NY
- CaddieAI: Oversaw agile structural maintenance and multi-step pipeline completion as a project manager, incorporating AWS tools (EC2, Sagemaker) and constructing SwiftUI front-end framework for ML-based golf swing analysis application for 10+ developers
- MacrosAI: Successfully developed an iOS app using Swift, integrating nutritional API and ML models to create functional mobile prototype that facilitates real-time object detection for macronutrient identification in food across 5 macronutrient categories
- Quantitative Finance Subteam: Recruited for quantitative finance sub-team of 20+ members, organizing weekly lecture-style content and delivering team stand-ups whilst achieving aimed deliverables in scrum-style sprint-based project work timeline

Cornell FinTech Club   September 2022 - May 2024
Financial Software Engineer   Ithaca, NY
- Collaborated with finance subteam to implement an asset valuation tool, utilizing variables to obtain accurate stock evaluations
- Led verbal discussions at weekly stand-ups for the engineering subteam as a stock screening lead, automating stock return calculations by analyzing various market aspects and historical performance to streamline and strengthen forecasts

SKILLS & INTERESTS

- Languages: English (Native) Korean (Native), Spanish (Proficient)
- Hobbies: music production/DJ-ing, figure skating (Cornell Figure Skating Competition Team), rowing, fashion, piano, violin