Yu Tsung (Eric) Kuo

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EDUCATION

Carnegie Mellon University   Mountain View, CA
Master of Science in Software Engineering   Sep 2023 - Dec 2024
- Relevant coursework: Foundation of Software Engineering, Software Testing and Verification

National Cheng Kung University   Tainan, Taiwan
Bachelor of Science in Computer Science and Information Engineering; GPA 3.83/4.3   Sep 2018 - June 2022

WORK EXPERIENCE

Your Knowledge   Remote
Software Engineer   Dec. 2022 - Present
- Researched on image detection focus on recognizing unique individuals using **ResNet-50**; integrated the model with pre-trained **object-detection model** in **TensorFlow.js** to enable machine learning capabilities and real-time usage
- Utilized **Electron.js** and **WebGazer.js** to create a cross-platform **desktop application** for eye-tracking analysis
- Developed a full-stack online course website with 2k users using **Next.js**, **TailwindCSS**, **MySQL**, **Wordpress**, **PHP** and **Slim Framework**, deployed with the **Apache HTTP Server** on **Microsoft Azure**
- Employed **Docker Azure Kubernetes Services (AKS)** to implement a resilient deployment strategy with **OpenShift**, integrating a streamlined **CI/CD pipeline** powered by **GitHub Actions**

Nightingale AI.   Tainan, Taiwan
Software Engineer   July 2020 - Oct. 2022
- Led the frontend applications development in **React.js** framework to develop the **SPA** with **React Flux architecture**
- Developed a digital verification service using **React.js**, **FastAPI**, and **PostgresSQL** to digitize paper documents and expedite the application process, benefiting more than 100k students across 60+ universities in Taiwan annually
- Enhanced code quality by utilizing **ESLint**, **Prettier**, **Husky** and **migrating the JavaScript codebase to TypeScript**

AInimal   Tainan, Taiwan
Software Engineer   Oct. 2019 - Nov. 2022
- Designed and implemented a **graph convolution network-based recommendation system** with **PyTorch** for a dating app, achieving a significant 70% accuracy in recall score through meticulous cross-validation
- Constructed a data pipeline using **Numpy** and **Pandas**, including text and sentiment analysis to enhance data quality
- Built an analytical dashboard with **Apache ECharts** and **Matplotlib**, enabling the team to make data-driven decisions

PROJECTS

Emergency Social Network - Express based real-time chatting app   July 2023 - present
- Collaborated with a team of 5 using **Scrum** and **Kanban** methodologies to develop a real-time chatting app
- Led the development of **RESTful APIs** using **Express.js**, and implemented real-time connections using **WebSockets**
- Applied ES6 **OOP** features, with the **MVC pattern** and **SOLID principles** to design and build a maintainable system
- Incorporated **TypeORM** with **MongoDB**, ensuring type-safe DB interactions and streamlined data management
- Conducted unit testing with **Jest**, applying dependency injection with **SQLite** to prevent effects on the production database

Arbitrage Gainer - Cryptocurrency Trading Application   Sep. 2023 - present
- Developed a cryptocurrency arbitrage trading application using **F#** with **functional programming** paradigm
- Employed **Microsoft .NET**, and **Azure Functions** to construct a robust, real-time data analysis platform
- Applied **MapReduce paradigm** and **Domain Driven Development** for data processing and code structuring

Super Mutant Test - Structural Testing on Alibaba/Fastjson   Sep. 2023 - Nov. 2023
- Applied mutation testing with **Pitest** on an open-source project, enhancing code robustness and identifying 3 native bugs
- Automated black-box testing with **Fitnesse** and the **Fit framework**, analyzing the input space model and applying diverse **combinational strategies (like All-Pair, Base-Choice)** to enhance testing thoroughness
- Executed unit testing with **JUnit** and **Mockito** with **JaCoCo** analysis, achieving a 30% increase in code coverage
- Implemented model checking with **SpinRPC** and **Promela** to identify concurrency issues like deadlocks and race conditions

SKILLS

Programming Languages: TypeScript, JavaScript, Python, C/C++, Java, PHP, C#, F#, Bash, SQL
Web Development: React.js, Vue.js, Express.js, Flask, Next.js, MongoDB, MySQL, Azure, AWS, Docker