Xavier Koo

xavier.koo.2021@scis.smu.edu.sg | (+65) 96708336

GitHub: https://github.com/xavierkoo | **LinkedIn:** https://linkedin.com/in/xavier-koo | **Portfolio:** https://xavierkoo.github.io

WORK EXPERIENCE

PSA SINGAPORE   **May 2024 – Dec. 2024**
Software Engineer Intern   *Singapore*
- Engineered software features with **Angular**, **Spring Boot**, **SQL** and **Concourse**, employing **Agile** and **Test-Driven Development**.
- Architected an automated testing framework from scratch using **JUnit, Mockito** and **Cypress**, leveraging **OOP** principles and design patterns for reusable test data objects. Boosted test coverage and reduced deployment time from 3 days to 1 day.
- Revamped an inefficient API with **Spring Boot** by optimizing database interactions and pre-processing the data. This improvement reduced page load times from over 60 seconds to 11 seconds when processing 2.7 million records, enhancing user experience.

ASTERISK TECHNOLOGIES   **Aug. 2023 – Jan. 2024**
Software Engineer   *Singapore*
- Revamped a major private hospital's visitor management system that oversees over 15,000 visitors using **Flutter, Riverpod** and **SQLite**.
- Implemented enhancements to the hospital's facilities management system using **React** and **Express + Node**, generating extra revenue.

ASTERISK TECHNOLOGIES   **Feb. 2023 – Aug. 2023**
Software Engineer & Machine Learning Intern   *Singapore*
- Architected single-handedly an organization-wide facilities management system (FMS), enabling a major private hospital client to oversee thousands of bookings, and streamlining admin for 1200+ employees with 0% booking error rate.
- Engineered automated facility access by integrating tablets as interactive facility displays, seamlessly linked to the FMS and facility door relays, allowing automated user access via QR Code/TOTP, achieving a 100% reduction in manual facility access requests by users.
- Spearheaded front-end development with **React**, **Bootstrap**, and **SASS**, creating 12 components and 13 mobile-responsive pages; developed the backend with **Express**, **Node.js**, and **MongoDB**, delivering 50 **RESTful APIs.**
- Enforced code styling and quality via **ESLint**. Wrote unit, integration, end-to-end tests with **Jest**, **react-testing-library**, and **Cypress**.
- Devised a **CI/CD** pipeline and employed **Electron.js** and **PM2** for resilient, continuous facility operations, ensuring 99.9% uptime.
- Developed a license plate detection and character recognition tool using **YOLOv7** integrated with **PaddleOCR**. Trained the model using **R-CNN** on annotated data labelled with **LabelImg,** achieving a mean Average Precision of 90%+.

HACKATHONS & PROJECTS

[HACKATHON] PSA CODE SPRINT 2023 – CHAMPION   **TEAM LEADER**
https://github.com/xavierkoo/psa-codesprint-2023
- Led winning team ByTheSea against 100+ teams by developing an AI-powered next-gen HR platform to enhance PSA's HR strategy in 3 key areas: Talent, Experience & Engagement. Utilized **LangChain**, **ChromaDB**, **Streamlit**, **FastAPI**, **Vue.js**, and **OpenAI API**.

[CLIENT PROJECT] AUTHENTICATION SYSTEM – ASCENDA LOYALTY   **DEVELOPER**
https://github.com/xavierkoo/authentication-system
- Engineered a highly scalable and secure authentication system for the client company with **AWS (Cognito, S3, Lambda, CloudFront, Route 53, WAF, API Gateway)**, and **React TypeScript.**

[CLIENT PROJECT] FORM MANAGEMENT SYSTEM - QUANTUM LEAP INC.   **DEVELOPER**
https://github.com/xavierkoo/leapaheadx
- Developed an FMS for the client company to digitalize form management processes with **Vue.js/Vite, Bootstrap**, **SASS, Java Spring Boot, Docker** & **MySQL,** adhering to **OOP** principles and employing **UML, ERD** & **Use Case Diagrams**.

EDUCATION

SINGAPORE MANAGEMENT UNIVERSITY   **May 2025**
Bachelor of Science (Information Systems), Majors (Information Systems & Computer Science - Artificial Intelligence)
- **Grade**: Cum Laude (Distinction)
- **Professional Certifications:** Oracle Certified Foundations Associate - Java, AWS Certified Solutions Architect – Associate
- **Teaching Assistant:** CS301 – IT Solution Architecture (AWS, Java), IS213 – Enterprise Solution Development (Docker, Flask)

SKILLS

- **Languages:** HTML | CSS | SASS | JavaScript | TypeScript| Python | Java | Dart
- **Frameworks/Libraries:** React.js | Vue.js | Angular | Flutter | Bootstrap | Express.js | Node.js | Electron.js | Spring Boot | Jest | Cypress | JUnit | Riverpod | FastAPI | LangChain | StreamLit
- **Databases/Tools:** MySQL | MongoDB | SQLite | Docker | Amazon Web Services (AWS) | Git | ESLint | AMQP | Vite | Heroku | Netlify | Pm2 | OpenCV | YOLO | PaddleOCR | LabelImg | ChromaDB | Concourse