Xue Yufeng

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Education

Singapore University of Technology and Design 8 Somapah Rd, Singapore 487372

Bachelor of Computer Science First Class Honours *Sep. 2023 – Present*

4.83/5.00 GPA (Excl. Humanities Modules)

Experience

Intern Sep 2025 – Dec 2025

Panasonic R&D Center *202 Bedok South Ave 1 #02-11, Singapore 469332*

- Will be assisting with R&D of various algorithms and hardware to develop a blood pressure sensor for healthcare applications.

Tutor Mar 2023 – Jan 2024

Envision Learning *35 Circuit Road #01-442, Singapore 370035*

- Developed soft skills through collaboration with colleagues and meaningful interactions with students.

Projects

Ascenda Booking Platform | *NestJS, PostgreSQL, Railway, TypeScript* May 2025 – Aug 2025

- Reduced fuzzy search time from minimum 200ms to maximum 30ms of 69875 records which improved UX for autocomplete search.
- Improved team efficiency by setting up a simple CI/CD pipeline that ensures all test pasts on a staging database before automatically deploying main branch to Railway production.
- Secured our API by storing all session data in an internal Redis server and the session data will only be transmitted if secure protocol is used and authentication details are valid.
- Helped solidify team's vision by playing an Architect role which involved designing the deployment diagram and ERD.
- Ensured Quality Assurance (QA) by implementing mock dependencies, writing test cases, and designing a reporter that summarizes test results.

SimpleDB | *JUnit* May 2025 – Aug 2025

- In this school project, I implemented a Two-phase locking mechanism to allow our database to operate on a concurrent level that came with deadlock detection and avoidance through maintenance of a Wait For Graph.

CSEShell | *C* May 2025 – Jun 2025

- I with my teammates implemented a low level shell in C that could handle customization, disk operations, and process management.

ParcelEye AI Tracker | *Android SDK, AWS, Docker, ExoPlayer, FFmpeg, Flask, Gradle, Java, MongoDB, Nginx, Python, SAM2.1, Spring Boot* Jan 2025 – Apr 2025

- Proposed the project, which was accepted by my team. It consists of an Android app livestreaming to an AI server and playing the AI's output to track parcels, addressing the real-world problem of parcel theft at our school.
- Developed a Flask API to control and feed a livestream into the SAM2.1 AI using Nginx and FFmpeg.
- Created a Spring Boot API integrated with MongoDB for authentication using JWT.
- Implemented ExoPlayer in the Android app to consume HLS streams from the AI and integrated the authentication flow with the API and AI.
- Hosted the AI and API on AWS using EC2 and configured the VPC to secure our servers.
- Containerized the AI server, reducing image size from 32GB to 5GB using multi-stage builds.

FPGA Game | *Alchitry AU, Alchitry Labs, Lucid* Jan 2025 – Apr 2025

- Our FPGA controlled six 7-segment displays. I ensured there was no excessive current flow by writing code that rapidly cycles through all displays, creating the illusion that they are all lit simultaneously.
- The FPGA needed to control the digits on the displays at 6V but could only output 3.3V signals, so I researched and used a PNP BJT transistor to step up the voltage.

Cat Dog Classifier | *Google Colab, Pillow, Pytorch* Dec 2024 – Dec 2024

- Applied concepts (residual connections, hierarchical layers, data normalization, and standardization) from proven models (ResNet, VGG, etc.) to build a model achieving 95% accuracy in training and validation for binary classification of cats and dogs.
- Used GradCAM to highlight the parts of images the AI uses to distinguish cats from dogs.

Resume Website | *CRACO, FFmpeg, Firebase, GitHub Actions, React, Styled-Components, Jotai, Vite* Oct 2024 – Present

- Made a script that utilizes FFmpeg to loop through each image and convert to .webp if the final size is smaller. This reduced the total size of important images from 53.5mB to 41.5mB which would improve UX as less time is wasted on loading images.
- Applied 3D, animation, and transition techniques in CSS to implement the landing page that has an easter egg.
- Used Firebase BaaS to authenticate users but later dropped it in favor of a better UX for recruiters.
- Utilized GitHub Actions to implement Continuous Integration/Continuous Deployment (CI/CD) with Firebase hosting.
- Applied SOLID principles for the first time in a significant project, leveraging states, contexts, and providers to that end.
- Migrated from CRACO to Vite for improved RAM usage during development.

Technical Skills

Languages: C/C++, CSS, HTML, Java, JavaScript, Lucid, Python, SQL (MySQL, Postgres), TypeScript
Frameworks: Flask, JUnit, NestJS, Node.js, Qt, React, Spring Boot
Developer Tools: Android Studio, AWS, CRACO, Docker, Firebase, Git, GitHub Actions, Google Cloud Platform, Google Colab, IntelliJ, PyCharm, Railway, Supabase, VS Code, Visual Studio, Vite
Libraries (Java): Dotenv, ExoPlayer, Firebase Admin, Jakarta Mail, Java Net, Java IO, JUnit, MongoDB Driver, Netty, OkHttp, Retrofit, Spring Boot
Libraries (Python): Flask, Matplotlib, NumPy, OpenCV, Pandas, Pillow, PyTorch, Requests
Libraries (Javascript/TypeScript): Jotai, NestJS, React, Styled-Components, TypeORM