JABEZ THO

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Languages: English (Fluent), Chinese (Fluent)

EDUCATION

National University of Singapore

Bachelor of Computing in Computer Science   *2023 – Present*

- Teaching Assistant: CS2103S Software Engineering, SWS3025 AI of Things (AIoT)
- Singapore Digital (SG Digital) Scholar (IMDA, 2023)

Singapore Polytechnic

Diploma in Computer Engineering; **GPA: 3.97/4.00**   *2018 – 2021*

- Valedictorian, School of EEE Graduating Class of 2021

WORK EXPERIENCE

Chickin, Indonesia

Backend Developer Intern   *May 2024 – Aug 2024*

- Migrated REST services to Kafka-based event-driven architecture, improving scalability and reducing sync issues by 80%.
- Improved unit and integration test coverage by 30% for critical backend services.

Kuhaku LLP

Co-founder   *Dec 2020 – May 2023*

- Led backend and embedded integration for products deployed at Meta Singapore and Air Group.
- Managed agile development workflows as Scrum Master.

GovTech, Sensors and IoT

Embedded Software Intern   *Mar 2020 – Jul 2021*

- Developed Bluetooth Mesh firmware for in-house RTOS to communicate with mesh sensors and actuators
- Engineered robust over-the-air (OTA) solution for embedded systems over LP-WAN, enabling up to 90% cost saving
- Worked on middleware of gateway system to control, monitor clusters of smart lampost from the cloud. Deployed and tested system at Gardens by the Bay.
- Prototyped an automated embedded test rig to integrate existing CI/CD workflow, cutting manual testing time by 2 days and caught 30% more bugs.

AWARDS & ACHIEVEMENTS

NSF of the Year (2023):
Awarded for outstanding performance and digitalization efforts during national service

Humanitarian Assistance & Disaster Relief (HADR) Challenge, 1st Runner up:
Trained generative adversarial network (GAN) to augment typhoon satellite imagery aiding humanitarian and relief efforts

Hack.Asia (Security Go) by Daimler, 1st Runner up:
Applied AWS Sumerian, ARCore and JS for an AR edutainment app on the topic of cyber-security

AWS Build On, Singapore (Institute Category), 1st Runner up
Built a interactive VR simulator for PMD riders using AWS Sumerian and WebGL, raising awareness of bad driving habits

Engineering Innovation Challenge (EIC), 1st Runner up
Developed an end-to-end embedded solution to measure radiation on the edge and send telemetry to the cloud

PROJECTS

Sqlacner-lancer | *Github*

- Benchmarking tool built in Go to evaluate Sqlancer, a automated fuzz-testing tool to uncover DBMSs (e.g., SQLite, DuckDB, H2) bugs
- Automated test execution across different Sqlancer versions, producing self-contained HTML reports to identify bugs and regressions
- Coverage prober to collect coverage data from the DBMS upon Sqlancer execution via Gcovr and Jacoco

AltVisit | *App*

- Interactive SvelteKit app that simulates navigating a webpage as a Person With Visual Impairment (PWVI)
- Developed screen reader simulator that parses DOM in keyboard navigable format and reads out the content using Web Speech API

Mbed Studio Installer (Open Source Contribution) | *mbed-studio-bin*

- An AUR build script that helps to install Mbed Studio, an IDE for Mbed OS application on Arch based distributions

Flask-desktop (Open Source Contribution) | *flask-desktop*

- A python module that converts Flask apps into cross platform desktop apps, basically providing an easy way to develop a GUI for python apps
- Added customization options (icons, name loading) and support/fixes for neglected features

Q-Track

- A React Native project developed for attedance taking via the usage of personalized QR codes
- Utilizes Google Apps Script as a pseudo serverless backend and database to keep with the budget constraints of the organization
- Ensured cross-platform compatibility for both web and android platform using the same codebase
- Supplementary React app was developed to enable quick distribution of the personalized QR codes

Prosperity Toss - Kuhaku | *Front-end Demo*

- An angular app that provides an interactive real-time multiplayer virtual louhei experience
- Worked on the Flask backend that supports the real time interactions via socket.io
- Backend was hosted on AWS Fargate and Redis was used as a shared DB and message queue for scalability considerations

Snaplock - Kuhaku

- A one-stop IoT development platform offers integration and cloud services to a myriad of commercial locks
- Provide solutions to route network traffic from 3rd party locks to secure local servers for security and privacy compliance
- Work on the integration solutions aforementioned via network and firmware analysis, and built them using Go

PPTSynchro | *GitHub*

- A Python script to syncrhonize powerpoint presentation on 2 different machines via either blutooth or a shared network (Wifi/LAN) connection
- Control achieved via Win32 APIs bindings and project provides easy methods to change configs and compile as a standalone application

More at jabeztho.com/projects

SKILLS

Programming: Python, C++, Javascript, Go, Bash

Frameworks: Flask, React, React Native, Next.js, TailwindCSS

Tools & Platforms: Git, Linux, Docker, Node.js, AWS

Databases & Messaging: Redis, PostgreSQL, Kafka, MongoDB

Specialties: Embedded Systems, IoT, Bluetooth Mesh