Alex Sin

Sr. Software Engineer

Profile Summary

Software engineer with deep expertise in designing microservices architecture and real-time systems. My technical proficiencies span backend development, leveraging **Node.js (Express, Nest.js)** and **Elixir (Phoenix)**, coupled with frontend mastery in **React and Next.js**. I excel in cloud infrastructure management, with extensive experience across **AWS, Oracle (OCI), and Huawei Cloud** platforms. Additionally, I have substantial working knowledge in **IoT technologies**, including **LoRaWAN, BLE,** and **MQTT** protocols and am able to design and implement software-driven solutions with them. Driven by a passion for harnessing cutting-edge technologies, I consistently deliver scalable, fault-tolerant solutions. My approach is rooted in first-principles thinking and a commitment to continuous life-long learning.

Professional Experience

Software Engineer @ Cadmus.io (Melbourne, Australia - *Remote*)
Nov 2024 - present

+ **Cadmus** is a first-in-market online, authentic assessment platform powering the delivery of written, open-book and in-place exams for every academic discipline in the higher education sector.
+ Design and implement backend systems using **Elixir** and the **Phoenix** framework.
+ Build and maintain **GraphQL API** endpoints with **Absinthe** to support seamless and flexible data interactions.
+ Develop frontend features using **React** and **TypeScript**, leveraging the **Turbo** build system and **Apollo Client** for efficient **GraphQL** integration.
+ Collaborate closely with **Product Designers** and **Managers** to gain deeper insights and align on feature development goals.
+ Conduct regular code review sessions to provide constructive feedback, share best practices, and ensure code quality.
+ Take ownership of feature development, leading end-to-end implementation from concept to deployment, ensuring alignment with business goals and technical standards.

Full-Stack Engineer @ Viatick Pte. Ltd (Singapore - *Remote*)
July 2023 - Oct 2024

+ Development of **Node.js** + **Typescript** backend **Oracle Cloud Infrastructure(OCI) serverless microservices** powering the **Jarvis** platform.
+ Contribute to the development of the Jarvis platform's frontend using **React.js** and **Next.js**.
+ Integrate **static code analysis** tools into backend source code, ensuring **type safety** and code quality through comprehensive linting with libraries like **EsLint**.
+ Design and implement features for Jarvis, including repeated tasks/events similar to **Google Calendar**, and **geolocation data extraction from MP4 H.264 file** metadata from **body-worn cameras for security and asset tracking purposes**.
+ **Design database** tables, debug, trace and optimize performance of expensive queries on **MySQL** and **Sequelize ORM**.
+ **Debug and manage OCI services** such as **logging, storage buckets, deployments, and serverless functions** which are based on the **Fn Project**.
+ Perform **ad-hoc development tasks** including backend development for **Spring Boot** contact tracing projects and managing **Kubernetes** clusters.
+ Write **unit tests & API controller tests** using **Jest** for the **OCI serverless functions** to ensure code quality and confidence in new feature releases.

Backend Engineer @ BIT Co. Ltd (**Yangon** - *Hybrid*)

Jan 2023 - July 2023

+ Lead development of **ATalk**, a real-time **websocket-based** online and offline **messaging application** for a leading private bank using **Node.js** with the **Express** framework, collaborating closely with both **iOS and Android** developers.

+ Developed a **signaling server with Socket.io** to facilitate real-time video and audio calls via **WebRTC**.

+ Built **microservices** with **high fault-tolerance** and **self-healing** capabilities, leveraging **PM2** and **Docker**, and ensuring seamless inter-service communication using **RabbitMQ**.

+ Administered **Linux** systems on **AWS EC2** instances, including **Nginx** configurations.

+ Implemented a websocket server with **Socket.io** for real-time client-server communication, incorporating **caching strategies with Redis** and databases like **DynamoDB, DocumentDB** and **MongoDB**.

+ Developed a file management service that leverages **AWS S3** and **Huawei OBS** SDKs while prioritizing performance & security through **parallelized multipart uploads** and **pre-signed URLs**.

+ Designed and developed a notification service from the ground up using the **Firebase SDK** and **Pushy**.

+ Collaborate with the devops engineer for the design and deployment of the backend microservices using **Kubernetes**, **Docker**, **Huawei SWR**, **AWS ECR.**

+ Conducted peer **code review sessions** with the teammates, sharing **best practices** and **feedback**.

+ Implemented **unit tests, integration tests,** & **API tests** using **Jest** testing framework to ensure system stability and preventing feature breaks.

Software Engineer @ Biziolab Pte. Ltd (**Singapore** - *Remote*)

Apr 2021 - Dec 2022

+ Developed microservices in **Elixir/Phoenix** with real-time functionalities for the **Passenger Information Display System (PIDS)**, for the Singapore Land Transport Authority (LTA), now operational on over 200+ bus stops in Singapore.

+ Used **Phoenix Channels** to build the real-time **websocket-based sensor reading service** to communicate sensor data from the microcontroller unit that is installed in the display panel hardware. Enforced fault-tolerance through **GenServers** and **Supervisors**.

+ Optimised concurrency through use of **Async Task and Task Supervisors** while using libraries like **Flow** to process big data in batches.

+ Built the UI of the display panels using **Phoenix Liveview** and component libraries like **surface-ui**.

+ Engineered a stand-alone **Elixir** application to perform **real-time system/network monitoring**, **detecting and restarting failed/stopped Windows background services** through usage of **Elixir Ports**, and enable remote control of the display panel from the LTA's control center through **Phoenix Channel websockets**.

+ Wrote unit tests achieving **>75% coverage** using **ExUnit** for the backend microservices and performed mocking using **Mox** for 3rd party dependencies.

+ Assisted teammates with various ad-hoc tasks, including **automation scripting** using **Python** & **Bash**.

+ Helped set up a **CI/CD pipeline** using **GitHub Actions**, **Docker**, **CodeBuild**, **CodeDeploy**, **ECS**, and **EC2** for Elixir **microservices** on **AWS**.

+ Mentored two on-job trainees, overseeing their development tasks and assignments, conducting code reviews, and providing constructive feedback

Educational Background

M.Sc in Computer Science @ Asian Institute of Technology, Thailand
Aug 2025 - Aug 2027

CGPA: 3.5

Courses:

Sem 1: Theory of Computation, Full-stack Application Development, Computer Networks, Data Modeling and Management.

Sem 2: Algorithms, Programming Language and Compilers, Data Engineering and MLOps, Machine Learning, Business of Frontier Technologies.

B.Sc (Hons) in Computing @ University of Greenwich, UK
Dec 2022 - Dec 2023

Grade: First Class Honors
Courses: Human Computer Interaction and Design, Requirement Management, Enterprise Web Software Development, and Mobile Design and Development.

Advanced Diploma in Computing @ Scottish Qualifications Authority, UK
Oct 2019 - Sep 2022

Grade: SCQF Level 8
Courses: Computer Systems Fundamentals, Client Operating Systems, Convergence Technologies, Digital Forensics, Mathematics for Computing, Routing Technology, Server Administration, Switching Technology, Professionalism & Ethics in Computing.

Malaysian Certificate of Education @ Acmar International School, Malaysia
Jan 2018 - Apr 2019

Grade: Straight A's **[6A+, 2A, 1A-]**
Description: National examination sat for by all fifth-form secondary school students in Malaysia. It is the equivalent of the General Certificate of Secondary Education (GCSE) of England, Wales and Northern Ireland; the Nationals 4/5 of Scotland; and the GCE Ordinary Level (O Level) of the Commonwealth of Nations.

Certifications

AWS Certified Developer - Associate
Nov 2022 (Expire: Nov 2025)

Credential: [Credly Badge](#)