Samuel Khoo

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EDUCATION

IMPERIAL COLLEGE LONDON   **London, UK**
MEng Electronic and Information Engineering (Computer Engineering)   October 2022 – June 2026
- Results: Predicted 1st Class
- Relevant Modules: Software Systems, Discrete Math, Embedded Systems, Computer Architecture, Programming in C++
- Skills: Python, C++, Typescript, JavaScript, Django, React, GraphQL, AWS (Lambdas, DynamoDB, EC2, CloudWatch, API Gateway)

International School Park City Kuala Lumpur   **Kuala Lumpur, MY**
- A Levels: 5A* in Further Mathematics, Mathematics, Chemistry, Physics, EPQ (Top in The World)   Sep 2011 – June 2022

EXPERIENCES

RUNNA   **London, UK**
Software Engineering Intern | React-Native, Typescript, Python, GraphQL   July – September 2024
- Acted as a Full Stack Engineer on both app and engine modelling teams for a mobile application with over 1.5 million active users.
- Led the extensive end to end development of calendar sync, end of workout feedback and advanced run type classification models. Oversaw rollout with feature flags, authored ADRs, integrated Mixpanel and Statsig for analytics and experimentation.
- Developed Maestro testing flows, performed unit tests, created bots for CX and managed JIRA tasks, resolving 70+ key tickets.
- Achieved 65% feature adoption, boosting engagement and driving a 20% increase in Q3 customer acquisition, surpassing targets.

SUNWAY GROUP   **Kuala Lumpur, MY**
Software Engineering Intern |Django, JavaScript, PostgreSQL   July – September 2023
- Spearheaded the development of a shared database and advanced Forge viewer portal for use of over 15000 employees, bridging a Django 3D viewer app with Autodesk Construction Cloud, utilizing data management and model derivative APIs.
- Accelerated model loading times by 40%, introduced an efficient tree file system with an intuitive interface, leading to an enhanced user experience. Deployed the app on Google Cloud Platform (GCP) to ensure increased scalability and reliability.
- Enhanced user interaction and immersion by integrating a QR code sharing feature and gyroscope functionality into the viewer.
- This project was then selected as the title software to be showcased to Microsoft Asia as part of a data centre initiative in Malaysia.

PROJECTS

SmartGrid (Energy Trading Simulation)   *May 2024*
- Piloted a team of 3 in optimizing the buy, sell and storage of energy between an energy grid and off-grid solar system. Collaborated on developing a neural network with custom ML models, tuned using integer linear programming and MPPT techniques.
- Independently developed the React.js web app and constructed entire AWS infrastructure, with end-to-end API endpoints, connecting solar grid hardware via Raspberry Pis to DynamoDB and ensuring seamless integration and efficient data exchange.

FPGA Mario Kart   *April 2024*
- Led a team of 4 using Slack for collaboration, developing a racing network hosted on Pink FPGA boards, with DE10 boards acting as controllers for custom cars with abilities alongside a full game system with user registration with live lap times and positioning.
- Individually designed the software framework for FPGA integration with the race interface, creating over 15 AWS Lambdas.
- Developed a start finish system with computer vision and FPGA acceleration for car tracking, integrated with a cloud database.

C-Compiler   *March 2024*
- Engineered a full featured C-Compiler, achieving 100% pass rate across all standard and over 100 custom written test cases.
- Built the entire compilation pipeline, from lexical analysis to assembly code output, all housed in a Dockerized environment.
- Integrated core C features like pointers, arrays and various data types alongside advanced optimizations such as register allocation and dead code elimination, ensuring efficient memory management and precise type checking.

Journify   *February 2024*
- Developed a journaling app using Next.js and Typescript, integrating OpenAI's LLM for advanced data summarization. Designed a sleek, intuitive UI and scalable backend services to ensure real time processing and smooth interactions with journal entries.
- Engineered features for personalized emotional scores and insights, using algorithms for emotion analysis and trend detection.

ChatForm   *July 2023*
- Independently architected, developed, and successfully deployed a dynamic chat and forum platform using Django and JavaScript, integrated with a PostgreSQL database with live room updates, authentication mechanisms and RESTful APIs.
- Designed an engaging front-end utilizing Figma prototypes, translating them into HTML and CSS implementations.

ADDITIONAL ACTIVITIES AND ACHIEVEMENTS

- OPTIVER Imperial IC-Hack Trading Challenge Winner (2023), Imperial College Algorithmic Trading Certificate (2022)
- JP-Morgan Software Engineering Virtual Program (2023), ACCESSIA Work Shadowing Program (2024)
- Computer Science and Further Math Tutor (2024), Gold in UKMT Senior Challenge (2021, 2020)
- **Valtor-Rover** (web-controlled custom rover), **AlgoVista** (graph theory/pathfinding app), **SignQuest** (sign language learning app)