

# ARUL KUMARAN

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## EXPERIENCE

### GovTech Singapore — Software Engineer Intern

Apr 2024 - Aug 2024

Attached to TechPass, an IAM & SSO solution (powered by Microsoft Entra ID) for government services.

Singapore

- Automated test account provisioning, reducing manual support tickets by 75% across 10+ government agencies by developing a full-stack feature integrating Microsoft Graph API with an existing Golang IAM microservice.
- Developed a modular frontend user interface using Angular and TypeScript for listing and creating accounts, incorporating features like dynamic search filters, real-time data updates, and pagination to streamline user interactions.
- Designed and implemented a custom workflow for privileged test account creation, ensuring secure provisioning by leveraging Microsoft Entra ID's administrative units and role assignments, allowing for secure role-based access control.
- Enhanced IAM microservice scalability by integrating AWS SQS for asynchronous job processing and Redis for caching, reducing redundant Microsoft Graph API calls, improving response times, and ensuring reliable handling of high request loads.

### NodeFlair — Software Engineer Intern

Nov 2023 - Apr 2024

NodeFlair is a Series A Startup that offers AI-powered tools for job seekers to streamline the job-seeking process

Singapore

- Enhanced and optimized the existing Ruby on Rails API to support large-scale, high-availability services and boost site performance and scalability for over 400,000 monthly users.
- Enhanced features of a browser extension that autofills job applications using TypeScript, React, and Plasmio, by adding new menus and expanding support for more ATS, like Ashby and Lever.
- Led localization efforts for a multi-language site, expanding international customer base by 20%.
- Implemented analytics tracking and A/B testing to optimise user experience, resulting in a 20% increase in click-through rate.
- Enhanced capabilities of AI-powered resume builder, including adding features to enhance job descriptions using AI.

## PROJECTS

### Learny LMS | Node.js, Next.js, PostgreSQL, Express

- Developed and launched a full-featured Learning Management System (LMS) tailored for freelance tutors, enabling seamless management of course materials, assignments, and student progress, which enhanced overall efficiency.
- Built the backend using Node.js and Express, incorporating key features like a role-based access control system, file permissions for users, assignment submissions tracking, payments processing, and Zoom Cloud Recordings API integration.
- Designed and managed a PostgreSQL database schema using Sequelize ORM, optimizing for scalability and performance, and hosted it on Fly.io for efficient cloud deployment.
- Implemented CI/CD pipelines with GitHub Actions to automate testing and deployment processes. Containerized the application using Docker, enabling consistent environments and reducing deployment complexity.
- Achieved adoption by 50+ users.

### Path Hero | Python, OpenCV, TensorFlow, Hugging Face Transformers, Large Language Models (LLMs)

- Developed an AI-powered fire floor plan system to simulate emergency scenarios, optimizing evacuation routes and training first responders in real-time crisis management.
- Implemented computer vision techniques using OpenCV and TensorFlow to analyze and interpret floor plan images, facilitating the generation of optimal evacuation routes.
- Integrated LLMs via Hugging Face Transformers to simulate adaptive emergency scenarios, enabling AI-generated crisis responses tailored to different building layouts and fire conditions.

### Minutes | FastAPI, Next.js, Large Language Models (LLMs)

- Developed an intelligent note editor for NUS Hack&Roll 2024 and won "Top 8 Hacks" Prize.
- Implemented features: WYSIWYG editor for notes, AI-generated quizzes based on notes' content, AI-based note inquiries.

## EDUCATION

### National University of Singapore

B.Comp Computer Science, Second Major in Statistics

Singapore

Expected Graduation: 2027

### Raffles Institution

GCE 'A' Levels

Singapore

Feb 2020 - Dec 2021

## TECHNICAL SKILLS

**Languages:** JavaScript, Python, Golang, Ruby, HTML/CSS, C

**Technologies/Frameworks:** React.js, React Native, Node.js, GraphQL, Ruby on Rails, Django, Flask, Docker

**Developer Tools:** Git, VS Code, Visual Studio, Firebase, Supabase, AWS DynamoDB, Neo4j

**Libraries:** NumPy, pandas, Matplotlib, TensorFlow, PyTorch, LangChain, ThreeJS

## MISC

**Work Authorisation:** Singapore Citizen; eligible for the **H-1B1** and **J-1** US visas or **HPI** UK visa with no petition required