

# ARUL KUMARAN

+65 9684-0927 | [official@arul.me](mailto:official@arul.me) | [linkedin.com/in/arul-k](https://linkedin.com/in/arul-k) | [github.com/xxdydx](https://github.com/xxdydx)

## WORK AUTHORISATION

**Singapore Citizen**, eligible for **H-1B1** (streamlined H-1B variant, easier to obtain), **J-1** US and **HPI** UK visas with no petition required.

## EXPERIENCE

### Nika — AI Engineer Intern

May 2025 — Aug 2025

*Nika is an early-stage startup that is building an AI-native geospatial software suite.*

Singapore

- Developed a geospatial AI agent inspired by Cursor AI to automate dataset discovery and model selection.
- Developed an end-to-end automated analysis toolkit that, across 50+ benchmark tasks, correctly identified appropriate datasets and machine-learning pipelines 92% of the time, accelerating prototyping cycles by 50%.

### 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 by integrating Microsoft Graph API with a Golang IAM microservice, reducing manual support tickets by 75% across 10+ agencies.
- Implemented a secure test account workflow with custom privilege assignments using Microsoft Entra ID's admin units and role-based access controls.
- Provisioned infrastructure as code with Terraform and deployed microservices on AWS ECS, configuring Redis and SQS for scalable session management and job queues.
- Built Angular components with real-time updates, dynamic search filters, and pagination to streamline account management.

### NodeFlair — Software Engineer Intern

Nov 2023 — Apr 2024

*NodeFlair is a Series A startup that offers an AI-powered job-seeker platform.*

Singapore

- Extended existing API on the Ruby on Rails backend to accommodate new features, enhancing site capabilities.
- 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 such as Ashby and Lever.
- Spearheaded localisation support for a multi-language website, expanding the customer base by 20% in international markets.
- Implemented analytics tracking and A/B testing to optimise user experience, resulting in a 20% increase in click-through rate.
- Enhanced capabilities of the AI-powered resume builder, including new features to improve job descriptions using AI.

### Source Academy (NUS) — AI Engineer (Part-time)

Jan 2025 — May 2025

*Source Academy is an open-source platform for teaching programming with interactive visualisation tools.*

Singapore

- Developed an AI tool to provide automated feedback on students' code submissions in Source, a JavaScript variant.
- Built full-stack functionality, including backend logic for comment generation, database storage, and a frontend interface for teaching assistants to review AI-generated feedback.
- Performed prompt engineering and fine-tuned a LLaMA model to reduce token usage by providing additional Source language context, cutting AI processing costs.

## PROJECTS

### Semantic CineGrade | Python, PyTorch (MPS), DeepLabV3+, NVIDIA FastPhotoStyle

- Developed a semantic-aware segmentation pipeline using PyTorch's DeepLabV3+ on the MPS backend to label each pixel (sky, foliage, skin, etc.) for targeted colour transform application.
- Adapted NVIDIA's FastPhotoStyle algorithm to learn and generate custom per-class 3D LUTs from user-supplied reference frames, enabling photorealistic cinematic looks.
- Implemented temporal consistency using a Kalman-filter-based smoothing module for LUT parameter sequences, eliminating frame-to-frame flicker in styled video outputs.

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

- Developed and launched an LMS for freelance tutors with course management, assignment tracking, payments tracking, and student progress monitoring, achieving adoption by 50+ users.
- Built a full-stack system with a Node.js backend, PostgreSQL database, role-based access control, and Zoom Cloud Recordings integration. Implemented CI/CD pipelines with GitHub Actions for automated deployment and containerised the application.

## EDUCATION

### National University of Singapore

*B.Comp (Hons) Computer Science — GPA: 4.9/5.0*

Singapore

*Expected Graduation: 2027*

### Raffles Institution

*GCE 'A' Levels*

Singapore

*Feb 2020 — Dec 2021*

## TECHNICAL SKILLS

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

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

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

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