AKILA NILUPUL

Software Engineer (AI & Full-Stack)

Galle, Sri Lanka • +94 76 747 9233 • akilanilupul3@gmail.com
akila-portfolio.vercel.app • linkedin.com/in/akilanilupul • github.com/akila-ncmd



PROFILE

Software engineer who takes client products from brief to production, covering frontend, backend and deployment, and who cares about what happens after launch. Built Zonova, a multi-award-winning marketplace (BestWeb.lk 2026 & Global Business Excellence 2026), shipped as web and Android from one React and TypeScript codebase. Half a dozen sites live on commercial domains across education, tourism, photography and corporate clients, on Next.js and Astro/Cloudflare Workers. Picks up whatever a project needs, including Flutter, Laravel and Python on a UN climate-modelling programme spanning Sri Lanka, Costa Rica and Peru. Also, a published first-author researcher of AI-Powered Dental Prosthetic and Recommendation System (EICON 2026 proceedings, DOI: 10.5281/zenodo.23612738), which pairs automated panoramic-radiograph analysis with an explainable engine that ranks patient-specific prosthetic treatments, an integration rarely addressed in the literature.

EXPERIENCE

Software Engineer (AI & Full-Stack) | Zonova Tech, Sri Lanka **Mar 2026 – Present**

- Zonova (zonova.lk), a multi-vendor marketplace across four retail verticals (flowers, cakes, clothing and gifts) unified behind one cart, checkout, search and wishlist.
- Designed and shipped the platform's AI layer, Google Gemini behind a server-side proxy with multi-key failover pooling and request logging, powering image generation, photo-match against live shop inventory, a canvas design studio and virtual try-on, plus vendor and admin dashboards with real-time order feeds, catalogue and inventory management, quotation and bidding inboxes, and analytics with date-range filtering.
- Implemented passkey (WebAuthn) and native biometric authentication, plus a three-tier role and permission system covering platform admins, shop owners and shop staff.
- Shipped the Android app from the same codebase via Capacitor, with push notifications, camera and native share, alongside a PWA with SEO prerendering, localised across English, Sinhala and Tamil with PayHere payments and branch-based delivery.
- Established the testing baseline with Vitest, Testing Library, Supertest, Firestore security-rules tests and Playwright end-to-end coverage, and hardened production with Content Security Policy, HSTS preload and strict frame-ancestor and permissions policies.

Technical Associate, SISEPUEDE | UNEP-CCC (UN Environment Programme Copenhagen Climate Centre) **Feb 2026 – Present**

- Technical contributor to the Integrated Assessment for Article 6 (IAA6) programme, covering emissions and mitigation modelling for Sri Lanka, Costa Rica and Peru under the Paris Agreement.
- Write and maintain Python for the SISEPUEDE integrated assessment framework across nine analysis notebooks and two reusable modules; run emissions and energy transformation scenarios and package the deliverables.
- Prepare and validate underlying datasets, and participate in programme workshops and technical review sessions.

Associate Software Engineer | Zonova Tech, Sri Lanka **Oct 2025 – Feb 2026**

- Built and shipped client web platforms in Next.js and TypeScript, including a study-abroad consultancy platform and a tour operator booking site, both live on commercial domains.
- Engineered the SEO layer on both sites, covering structured data, schema markup, generated sitemaps and semantic metadata, with WhatsApp enquiry routing and transactional email integrated end to end.
- Contributed storefront and vendor dashboard features to the Zonova marketplace.

Software Engineering Intern | Zonova Tech, Sri Lanka **Jul 2025 – Sep 2025**

- Shipped React and TypeScript features into live client projects, including the Edu Gate Consultancy and Gimhani Tours builds.

PROJECTS

Zonova (zonova.lk) **Mar 2026 – Present**
Multi-vendor AI marketplace across four verticals with unified cart, checkout and search, vendor and admin dashboards, passkey authentication and an Android app. React, TypeScript, Firebase, Gemini, Capacitor. BestWeb.lk and Global Business Excellence winner.

Dental AI Pro (aknilupul-dentalai-platform.hf.space) **Jul 2025 – Mar 2026**
Computer-vision platform analysing panoramic dental X-rays to detect ten conditions and rank patient-specific prosthetic treatments, each with an explainable rationale, indicative cost and expected duration, compiled into clinical handover PDF reports. YOLOv8-Nano fine-tuned on 16,995 annotated radiographs, served through a three-tier system with a nine-treatment knowledge base. Python, FastAPI, Flask, Ultralytics YOLO, MongoDB, Next.js. Published at EICON 2026 (DOI: 10.5281/zenodo.23612738).

Gimhani Tours (gimhani-tours.com) **Feb 2026 – Aug 2026**
Tour operator booking site in eight languages, with a WhatsApp enquiry wizard and SEO structured data. Next.js, TypeScript, CSS.

Zonova Group (main.zonova.lk) **May 2026 – Jun 2026**
Corporate site for a six-venture holding group, with board, careers and award verification. Astro, Cloudflare Workers, GSAP.

Zonova Tech (tech.zonova.lk) **May 2026 – Jul 2026**
Software agency site with a work archive, Astro Content Collections blog with RSS, and a careers flow backed by Cloudflare R2 storage.

Zonova Lens (lens.zonova.lk) **Apr 2026 – Jun 2026**
Photography studio site with a custom Node pipeline converting raw HEIC captures to responsive web formats and contact sheets via Sharp.

Edu Gate Consultancy (edugateconsultancy.com) **Feb 2026 – Jul 2026**

Study-abroad consultancy platform serving applicants across the UK, US, Canada and Australia. Next.js, TypeScript, Tailwind CSS, Framer Motion.

EatBest (restaurant-website-nu-nine.vercel.app) **Apr 2026 – Aug 2026**
Neo-brutalist food delivery marketing site across five routes, all driven by a single typed content module, with a React Three Fiber scene on the 404. Next.js 16, React 19, Tailwind CSS v4, Framer Motion.

Diamond Shine (github.com/akila-ncmd/Hotel-System) **2026**
Multi-branch hotel reservation system, designed and built solo, with a six-state reservation lifecycle, date-aware availability that prevents double-booking, four role-scoped surfaces for guests, clerks, managers and admins, and two unattended nightly jobs that cancel unguaranteed bookings and email each branch manager a PDF of occupancy and revenue. Card numbers are Luhn-validated then discarded. Laravel 10, PHP 8.1, MySQL, Blade, PHPUnit; 58 tests across 156 assertions.

Aura Academic Agent (aknilupul-aura-acadamic-agent.hf.space) **Mar 2026**
Academic and career guidance agent taking text and voice input, answering from a retrieved catalogue of universities, courses and scholarships, with context held across follow-ups. Python, FastAPI, Gemini, ChromaDB, SQLite.

Lumina Frame (photographic-website-blond.vercel.app) **Feb 2026 – Apr 2026**
Photography portfolio with GSAP scroll animation, 3D parallax and a 140-image lightbox gallery. Next.js, Framer Motion, TypeScript.

EVC (github.com/akila-ncmd/EVC-Mobile-App) **Jun 2025 – Aug 2026**
Two-sided Flutter streaming app built from my own 39-screen design set, with an own/rent/gift ownership model, audio and video playback, a creator studio with per-title analytics, and 59 tests. Flutter, Dart, Riverpod.

PUBLICATIONS

AI-Powered Dental Prosthetic and Recommendation System. Nilupul H.M., Fonseka N., Akalanka A.U. Proceedings of the ESOFT International Conference (EICON) 2026, ESU, Kandy, Sri Lanka, pp. 36–43. DOI: 10.5281/zenodo.23612738. (Peer-reviewed). **2026**

AWARDS

Best Gifting Website in Sri Lanka. Winner, Global Business Excellence Awards. Awarded to zonova.lk. **2026**

Best Micro Enterprises Website. Gold Winner, BestWeb.lk, LK Domain Registry. Awarded to zonova.lk. **2026**

Most Popular Micro Enterprises Website. Winner, BestWeb.lk, LK Domain Registry. Decided by public vote. **2026**

Presidential Award for Best Dancing Team of the Year. Member of the awarded team. **2025**

Presidential Award for Best Emerging Dancing Team of the Year. Member of the awarded team. **2024**

LEADERSHIP & ACTIVITIES

School Dancing Team Leader **2023 – 2024**

School Eastern Band Leader **2023 – 2024**

Best School Dancer of the Year **2025**

EDUCATION

BEng (Hons) Software Engineering (Top-Up), London Metropolitan University, UK **Feb 2025 – Dec 2025**
Second Class Honours, Upper Division (2:1)

BTEC Level 5 HND in Computing (Software Engineering), Pearson, UK (ESOFT Metro Campus) **Oct 2023 – Nov 2024**
Merit

CERTIFICATIONS

Certificate of Appreciation, BestWeb.lk, LK Domain Registry. For development of zonova.lk. **Aug 2026**

Certificate in Information Technology (CIT), Pearson, UK / ESOFT Metro Campus **Jul 2022 – Nov 2023**

Certificate in English (CIE), Pearson, UK / ESOFT Metro Campus **Jul 2022 – Nov 2023**

Diploma in Information Technology (DITEC), Merit, Pearson, UK / ESOFT Metro Campus **Jul 2022 – Jul 2023**

Diploma in English (DIE), Distinction, Pearson, UK / ESOFT Metro Campus **Jul 2022 – Feb 2023**

TECHNICAL SKILLS

Languages: TypeScript, JavaScript, Python, C#, Dart, PHP, SQL, HTML, CSS

Frontend: React, Next.js, Astro, Tailwind CSS, Framer Motion, GSAP, Vue.js, Three.js

Backend: Node.js, .NET, Express, FastAPI, Flask, Django, Laravel, REST API design

Data: Firestore, MongoDB, MySQL, SQL, SQLite

Cloud & Mobile: Firebase (Auth, Firestore, Storage, Cloud Functions), Cloudflare Workers & R2, Vercel, Azure, Flutter, Capacitor (Android)

AI/ML & DevOps: Google Gemini, Ultralytics YOLO, Docker, AWS, OpenCV, PyTorch, NLP, computer vision

Modelling & Data: Python (pandas, NumPy, Matplotlib, seaborn), Jupyter, Tableau, integrated assessment modelling, emissions and energy scenario analysis

Testing & Quality: Playwright, Vitest, Testing Library, Supertest, PHPUnit, Lighthouse

Practices: Git, code review, WebAuthn/passkeys, web security headers (CSP, HSTS), internationalisation, SEO, PWA

REFERENCES

Mr. Sameera Rukshan, Director & CTO, Zonova (Pvt) Ltd (formerly Tech Lead, Virtusa)
watchsameera@gmail.com • +94 75 152 0161

Mr. Pasan Weththasinghe, Centre Manager, ESOFT Metro Campus, Galle
pasan@esoft.lk • +94 77 183 6135