

# WILLIAM ALEXANDER DAVID NAYAR

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Software Engineer and Founder, leading student engineering teams at NUS, building at scale and drawn to hard problems

## EDUCATION

### National University of Singapore

Aug 2023 - May 2027

- Bachelor of Computing in Computer Science, Specializing in Software Engineering
- Honours (Distinction)

**Relevant Coursework:** Formal Methods for Software Engineering (A), Communicating in the Information Age (A+), Big Data Systems for Software Engineering, Data Structures & Algorithms, Design & Analysis of Algorithms, Operating Systems, Computer Networks, Database Systems, AI & Machine Learning, Digital Ethics and Data Privacy (A)

## TECHNICAL SKILLS

- **Languages:** Python, C, C++, Java, JavaScript, TypeScript, SQL, Bash
- **Frontend:** React, HTML, CSS, Tailwind CSS
- **Backend & Systems:** Node.js, Fastify, Express, Flask, REST APIs, WebSockets, Distributed Systems, Networking (TCP/IP, HTTP), Unix/Linux
- **Databases:** PostgreSQL, MongoDB, Redis, SQLite, Firebase, Supabase
- **Cloud & Tools:** Google Cloud, AWS, Nginx, Cloudflare, Docker, Git, GitHub Actions, CI/CD, Vitest, Jest, Postman

## WORK EXPERIENCE

### NUS - Teaching Assistant, Software Design & Architecture (CS3219)

Aug 2026 - Present

- Mentor 11 student engineering teams through the full software development lifecycle, guiding the design, build, testing, and deployment of distributed microservices applications with REST APIs, Docker, and CI/CD
- Lead weekly classes of 30 students on large-scale system design, architecture trade-offs, and maintainable engineering practices
- Iterate on course materials weekly with professors, turning student feedback and recurring misconceptions into improved tutorials

### DeepCS ([deepcs.org](https://deepcs.org)) - Founder & Software Engineer

Jul 2026 - Present

- Deployed and maintain a full-stack learning platform on Cloudflare Workers and D1, serving the React app and all content from the edge at \$0 idle cost
- Re-architected a 6-service microservices backend (Docker, Redis, WebSockets, PostgreSQL) into a single edge Worker after user feedback showed no demand for live collaboration
- Secured the API with Firebase JWT verification, a server-side paywall gate, and per-user rate limiting, with no route ever trusting a user id sent by the client
- Built payments on Stripe with signature-verified, idempotent webhooks, keeping Stripe's ledger as the source of truth so user access can be rebuilt after any data loss
- Wrote a test suite containing unit, integration, and end-to-end tests running in CI on every push, to catch regressions and ensure high code quality

### Mongoose & Node-Redis - Software Engineer, Open Source

Jun 2026 - Jul 2026

- Improved official documentation for [Mongoose](https://mongoosejs.com) (27K+ GitHub stars) and [node-redis](https://node-redis.com) (17K+ stars), database libraries used by millions of developers, with 3 pull requests reviewed and merged by maintainers
- Found the gaps while using the libraries in production work: documented an undocumented query option in Mongoose, and traced node-redis source code to correct docs referencing a deprecated API

### Aqua Vitae Parfums ([aquavitaeperfums.com](https://aquavitaeperfums.com)) - Founder & Software Engineer

Dec 2025 - Mar 2026

- Founded and launched a perfume business (brand, product) as the sole engineer, designer, and operator
- Built a custom React + TypeScript storefront with reusable components and centralized state, integrating Shopify for checkout to keep payments and compliance off my plate
- Owned every deadline and deliverable, following through from first commit to a live storefront with paying customers

## AWARDS & CERTIFICATES

- **NUS Certificate of Distinction, Software Engineering:** 4.50 GPA across key Software Engineering modules
- **Hackathon Overall Winner:** 1st Place, AI Builder and Daytona HackSprint 2026