

WILLIAM ALEXANDER DAVID NAYAR

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Final-year CS student at NUS specializing in backend engineering, distributed systems, and scalable system design

EDUCATION

National University of Singapore

Bachelor of Computing in Computer Science, Specializing in Software Engineering

Aug 2023 - May 2027

Honours (Distinction)

Relevant Coursework: Data Structures & Algorithms, Design & Analysis of Algorithms, Operating Systems, Computer Networks, Database Systems, AI & Machine Learning, Software Design and Architecture

AWARDS & CERTIFICATES

NUS - Certificate of Distinction, Software Engineering: 4.50 GPA across key Software Engineering modules

AI Builders Hackathon - 1st Place, Daytona HackSprint (2026): Built [Airlock](#), a safety gate for AI agents

HackerRank - Software Engineering Certification: Problem Solving, SQL

TECHNICAL SKILLS

Languages: JavaScript, TypeScript, Python, Java, SQL, HTML, CSS, C, C++, Bash

Frameworks & Libraries: React, Node.js, Express, Flask, Tailwind CSS, REST APIs, Mongoose, Supertest, JWT

Databases: MongoDB, PostgreSQL, Supabase, Redis, SQLite, Firebase

Tools: Git, Docker, Postman, Jest, Google Cloud, Cloudflare, GitHub Actions, CI/CD, Linux, Nginx, AWS

WORK EXPERIENCE

National University of Singapore - Teaching Assistant

Aug 2026 - Present

- Teaching Assistant for CS3219 (Software Design and Architecture). Teaching weekly classes of 20 students
- Mentoring student teams in designing and building a production-oriented distributed application using microservices, REST APIs, containerisation, CI/CD, and cloud deployment, with an emphasis on scalability, maintainability, and architectural trade-offs
- Collaborating with professors and fellow teaching staff to develop and refine tutorial materials, incorporating student feedback and recurring misconceptions to improve course delivery

Mongoose and Node-Redis - Open-Source Contributor

Jun 2026 - Jul 2026

- Contributed 3 merged pull requests to Mongoose (27K+ stars) and node-redis (17K+ stars), approved by the projects' lead maintainers, documenting missing `perDocumentLimit` populate option and its per-document semantics ([PR#16371](#), [PR#16369](#))
- Traced node-redis socket internals to fix README docs citing a deprecated `disconnect` API ([PR#3332](#))

PROJECTS

DeepCS (github.com/Wnayar/deepcs) - Backend & Distributed Systems Developer

Jul 2026 – Aug 2026

Solve CS interview questions solo or live with a matched partner

- TypeScript | Fastify | PostgreSQL | Redis | Docker | Kubernetes
- Built a distributed 6-service backend in TypeScript and Fastify, with path-filtered CI building and health-checking each service's image independently
- Developed real-time collaborative editing on WebSockets and Yjs (CRDT), syncing edits across instances via Redis pub/sub, 250 sockets at p95 4 ms on one machine
- Established a custom API gateway with Firebase JWT verification against Google's JWKS, and made rate limiting and partner matching atomic with Redis Lua scripts
- Designed the data layer as one PostgreSQL instance with a schema and role per service, with an integration test asserting the database rejects cross-service queries
- Built a Redis Streams event pipeline with post-commit acks for effectively exactly once delivery

Aqua Vitae Parfums (aquavitaeperfums.com) - Founder & Full-Stack Developer

Dec 2025 – Mar 2026

E-commerce platform for my perfume business

- React | TypeScript | PostgreSQL | Vercel | Cloudflare
- Architected a React + TypeScript frontend with reusable components and state management (React Context)
- Automated CI/CD and production deployment using Vercel, Cloudflare DNS, and GitHub workflows
- Launched to production, shipping changes from commit to live site in minutes