

Toh Yu Heng

herniet06@gmail.com | linkedin.com/in/toh-yh | github.com/h3rnie

EDUCATION

National University of Singapore

Bachelor of Computing in Computer Science | Artificial Intelligence

Singapore

Incoming, Aug. 2027

Raffles Institution

The Raffles Programme (Integrated Programme) | SG-GCE A-Level: AAB/AA, 86.25/90 RP

Singapore

2019 – 2024

- **Awards:** MOE EAGLES (2022, 2024); Raffles Community Service Award (2023), SSA Chief Commissioner's Award, ORA Community Service Award, Raffles Commendation Awards, Raffles Institution F.I.R.E. Award (2022)
- **Years 1–4:** Chairperson, Raffles Interact; Patrol Leader, Venture EXCO, Test Coord., 01 Raffles Scout Group
- **Years 5–6:** Service In-charge, Raffles Interact; Ultimate Frisbee

EXPERIENCE

Detachment Commander, 10 C4I Battalion

Jan. 2025 – Jan. 2027

Infocomm Specialist, Signals Formation

Singapore

Army Command Systems Group, Singapore Armed Forces

- Led a C4I detachment of a High-Readiness Core unit on live operations for the National Day Parade, National Day Rally and Shangri-La Dialogue, responsible for its training, discipline and readiness.
- Planned HF/VHF radio links and frequencies and sited antennas; configured network and IoT equipment and isolated faults to keep command-and-control links up during operations.
- Held accountability for the company's communications equipment and its serviceability, and trained peers and junior platoons to deploy and operate it.
- Pitched a digital administration platform to company command, won approval and led the company-wide rollout as its sole developer (see Projects).

PROJECTS

Military Integrated Management System | *Next.js, TypeScript, PostgreSQL, Redis, LLMs*

Dec. 2025 – Present

- Replaced attendance, leave and duty-roster spreadsheets with a serverless PWA serving 60+ personnel and up to 40 daily active users, with 4-role access control over 130+ API handlers.
- Automated parade-state reporting with a Telegram bot of 30+ commands and 15+ scheduled jobs, kept exactly-once by Redis locks; it has sent hundreds of reports at 100% uptime, saving 15–30 min of collation a day.
- Wrote an LLM agent that answers plain-English questions on live personnel data across 5 OpenAI-compatible providers; queries are capped at 60K tokens and 90s, cost-logged and stripped of 14 PII fields (median 1.6s).
- Added a Telegram Mini App arcade (40+ players, hundreds of scored runs) whose server replays each driving-game run from an HMAC-signed seed before accepting it, plus a Rapier (WebAssembly) racer in Three.js.

Apollo — Notation-First Arrangement Compiler | *Python, LLMs, FastAPI, React, Astro*

Aug. 2026 – Present

- Built a compiler that turns a brief, score, MIDI file or recording into playable charts: an LLM plans and drafts the melody, then deterministic code writes every transposed part to MusicXML and MIDI under 50+ calibrated rules.
- No chart is exported unless independent checkers agree on it (W3C schema validation, a music21 read-back, a MIDI round-trip), and CI requires every rebuild to be byte-identical.
- Shipped a React 19 dashboard where arrangers draft briefs, answer the planner's questions, and preview, play and export every part, backed by a FastAPI job server that isolates each compile and streams progress over SSE; scores render in a Verovio (WebAssembly) worker, with playback synced within 0.5 ms.
- Built the Astro landing page around a WebGPU hero in an OffscreenCanvas worker (WebGL2 fallback), holding main-thread JS to 1.4 KB and blocking time to 0 ms, tested by 26 Playwright/axe-core checks on 17 viewports.

TECHNICAL SKILLS

Languages: Python, TypeScript, SQL, C/C++, JavaScript, HTML/CSS

AI / LLM: LLM tool calling, agentic workflow automation in Claude Code, Codex, Cursor

Frameworks: Next.js, Remix, Nuxt.js, SvelteKit, Astro, React, Vue.js, Svelte, Preact, Vite

Data & Infra: Docker, Kubernetes, PostgreSQL, Redis, Git, GitHub Actions

Libraries: NumPy, Pandas, Matplotlib, Three.js, Zod, Motion