Hy Nguyen

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Education

The University of Adelaide — Adelaide, SA
Bachelor of Computer Science (Advanced) — *Feb 2024*
- **GPA**: 6.25/7.0

Experience

Undergraduate Researcher — Dec 2025 – Present
University of Adelaide — *Adelaide, SA*
- Benchmarked **local search heuristics (LNS, VNS, LKH-3)** for the **Traveling Salesman Problem with Time Windows (TSPTW)** instances enforcing strict computational budgets to ensure algorithmic fairness.
- Implemented a **sequential strategy** to transfer solution states between tasks, statistically validating efficiency gains over isolated execution.
- Optimizing an **Evolutionary Algorithm** to outperform these local search benchmarks, targeting superior solution quality and success ratios in highly constrained search spaces.

Software Engineer Intern — Jul 2025 – Sep 2025
FPT Software — *Ho Chi Minh City, VN*
- Engineered a **full-stack LLM-powered analytics platform** for **NRC Health**, enabling enterprise users to extract custom data insights through **natural language queries**.
- Implemented production-ready **data-to-text pipelines** and prompt engineering strategies, automating report generation to significantly streamline workflows for non-technical stakeholders.

Research Assistant — Jul 2025 – Dec 2025
University of Adelaide — *Adelaide, SA*
- Contributed to fine-tuning **Vision-and-Language foundation models** by refining the synthetic data generation pipeline in **NVIDIA Isaac Sim**.
- Enhanced existing **trajectory algorithms** to eliminate path instability, producing **500 high-fidelity video sequences** used as ground-truth training data.

Projects

CodeRecall | *Next.js, TypeScript, PostgreSQL* — Jan 2026 – Present
- Engineered a full-stack spaced repetition platform, implementing a modified **FSRS algorithm** to mathematically optimize review intervals based on memory stability metrics.
- Designed a confidence-based grading system that drives a custom decay formula, dynamically calibrating **target retention probabilities** to maximize study efficiency.

Cinesphere - Full-Stack Movie Discovery App | *Vue.js, Node.js, Express, REST API* — Mar 2025 – Jun 2025
- Architected a production-ready web application, implementing a modular **MVC architecture** to decouple business logic, API routes, and data access layers.
- Designed a scalable **relational database schema (MySQL)** and a custom **Repository Pattern** abstraction layer, optimizing complex join queries for real-time aggregation.

Awards

Jane Street Electronic Trading Challenge | First Place — Mar 2025 – Mar 2025
- Secured **1st Place** (out of 15 teams) by engineering a **market-making algorithm** that utilized **statistical arbitrage** and real-time order book analysis to maximize PnL.

Technical Skills

Languages & Databases: Python, C/C++, TypeScript, JavaScript, SQL, Java, Next.js, React, Node.js, Vue.js, Express.js.

Developer Tools & Technologies: Docker, PostgreSQL, MySQL, Git.