

HUNG DE SHENG, RYAN

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EDUCATION

Singapore Management University (SMU)

Singapore

Bachelor of Science (Information Systems)

Aug 2023 - Present

- Cumulative GPA: 3.76/4.00
- Dean's List for AY 2023/2024, AY 2024/2025
- Lee Kong Chian Scholars' Programme
- 1st Major in Financial Technology
- 2nd Major in Finance

Università Bocconi

Italy

Exchange Semester

Jan 2026 - May 2026

- Built a strong foundation in big data for business analytics and algorithmic optimization (linear programming, simplex, duality/sensitivity analysis) to support data-driven decisions with Matlab
- Applied supervised/unsupervised ML concepts and regression-based loss minimization (L1/L2, R-squared, RMSE) to model outcomes and interpret performance metrics.
- Strengthened quantitative analysis, reasoning skills, logical problem-solving, fast decision-making, and statistical thinking.

St Joseph's Institution

Singapore

International Baccalaureate (IB)

Jan 2019 - Dec 2020

- Score: 44/45

ACADEMIC INTERNSHIPS

Temasek Holdings

Singapore

Software Engineer, AI Automation Developer

July 2026 – Dec 2026

- Engineered a full-stack application using React/TypeScript and Python, integrating Redis and Snowflake with load balancing, orchestration, and authentication to build a scalable, secure, and reliable application architecture.
- Designed and implemented end-to-end system components spanning frontend, backend services, data infrastructure, and automation scripts, integrating multiple services into a production-ready software platform.
- I automated 90% of daily routine of a Legal & Regulatory department
- Built AI-driven automations and agents to extract regulatory and stock changes from stock exchanges, regulators and law firms, enabling faster and efficient analysis of diverse data types
- Accelerated processing time from 1 hour to 4 minutes
- Scrum master of weekly leadership meetings and daily stand ups.
- Tools: React | Typescript | Snowflake | Redis | Microsoft Copilot Studio | UiPath | Power Automate | Power Apps | Sharepoint | Python | Jira

PwC Singapore

Singapore

Data Scientist

May 2025 – Aug 2025

- I replaced 70% of the work of a MNC Financial Auditor
- Built an AI-driven pipeline (OCR + RAG + LLM) to extract and structure financial data from audit reports, improving data accuracy by 75% and enabling faster analysis of large datasets

- Automated processing of 1,000+ financial reports using asynchronous python workflows, reducing turnaround time from weeks to minutes and supporting scalable data analysis
- Prompt engineered LLM data extraction queries for multilingual, unstructured financial documents, improving consistency across varied reporting formats
- Implemented asynchronous LLM API calls for 25,000 Excel rows, accelerated processing time from 16 hours to 20 minutes.
- Conducted Singapore's 1st IRAS-endorsed Tax Academy AI Workshop.
- Led walkthrough of AI automation workflows to 50 senior stakeholders (Partners/Directors).
- Used AI text-to-speech to create demo videos of n8n and Google AI Studio.
- Tools: Python | asyncio | pandas | poppler | pytesseract | LangChain | GPT-4o | Claude 3.5 Sonnet | RegEx | n8n | Google AI Studio | ElevenLabs | ClipChamp | iMovie

PROJECTS

OMNIS: Interactive Portfolio Website

Software Engineer

Singapore

Oct 2026 - Present

<https://ryanhung.app/>

- Architected a React/TypeScript portfolio with Vite build-time prerendering, client hydration and History API routing across nine public routes; deployed static HTML and assets to Cloudflare Workers with route-local lazy loading for WebGL experiences.
- Built page transitions using native View Transitions snapshots, GSAP and the Web Animations API; prefetched and decoded destination hero stills on hover/focus, kept one live route beneath the outgoing snapshot, and cleaned up media and effects during route swaps.
- Profiled 168 production-build reveals in a controlled A/B study with Chrome DevTools traces; reduced median style recalculation by 86% on desktop and 76.5% under 4x CPU throttling, desktop P95 paint work by 63%, and throttled P95 rAF intervals from 33.3 to 16.8 ms.
- Engineered responsive FFmpeg video delivery from lossless masters using H.264 faststart, VP9 fallbacks and WebP posters; made Grimoire previews 65% smaller than the full hero encode, deferred offscreen downloads and paused playback outside the viewport or in hidden tabs.
- Achieved local simulated-mobile Lighthouse scores of 97 for Home/Work, with Home FCP 1.7 s, LCP 2.12 s, zero TBT/CLS and 100 SEO/accessibility scores; exposed crawlable prerendered content, canonical URLs, route metadata and a sitemap for search and AI discovery.
- Validated navigation, history restoration, reduced-motion fallbacks and media failures through 224 passing Chromium/WebKit desktop/mobile checks; integrated type checking, linting, formatting, unit tests and static-output validation into the production build.
- Tools: TypeScript | React | Vite | GSAP | FFmpeg | Cloudflare Workers | Playwright | Vitest | Chrome DevTools | Lighthouse

VERSO: Interactive 3D Portfolio Experience

Software Engineer, 3D Graphics Developer

Singapore

Oct 2026 – Nov 2026

<https://ryanhung.app/work/verso>

- Built a route-local Three.js/React Three Fiber experience within OMNIS, with GPU-driven page deformation, matching shadow geometry and a reversible GSAP timeline coordinating camera movement, book opening and interactive page turns.
- Optimised rendering through shadow-map reuse and offscreen suspension; lazy-loaded the scene after page transitions and required completed canvas warm-up renders before reveal, with timeout/retry recovery and visibility-gated video textures.
- Benchmarked three 120-frame hero runs on Apple M2 at 1440x900, DPR 1: 2.04 ms median GPU time, 3.54 ms P95, approximately 25 draw calls and a 16.7 ms median frame interval; verified rendering stops when the canvas leaves the viewport.
- Tools: TypeScript | Three.js | React Three Fiber | WebGL | GLSL | GSAP | Playwright | GPU timer queries

UBS x SMU: Trading System Telemetry Platform

Software Engineer, Scrum Master

Singapore

Aug 2026 – Nov 2026

<https://ryanhung.app/work/argus>

- Designed a streaming telemetry architecture for UBS's trading application, with per instance agents processing FIX-based order and execution data through lightweight per-instance agents and a horizontally scalable backend.
- Enabling real-time trading-system diagnostics that can be queried via natural language on Teams
- Built around low-overhead observability and fault-tolerant processing, including log rotation, health monitoring, retry mechanisms and configurable threshold-based alerting.
- Built the rule engine, alerting pipeline, configurable thresholds, evaluation loops, counter producers, session tracker, and snapshot emitter that supply telemetry to the rule engine.
- Tools: Python | FastAPI | Redis | asyncio | Pydantic | pytest

GRIMOIRE

Knowledge Systems Designer

Singapore

Sep 2026 – Present

<https://ryanhung.app/work/grimoire>

- Soloed a personal project to build a portable knowledge system enabling Claude Code and Codex to share persistent engineering context, architectural decisions, and verified debugging insights across sessions.
- Designed hierarchical Markdown indexes and targeted retrieval workflows to surface task-relevant knowledge without loading the entire vault into an agent's context window.
- Developed shared agent instructions, knowledge-grooming workflows, and a Python validation utility to maintain index integrity, prevent duplicate guidance, and preserve traceable engineering decisions.
- Tools: Markdown | Obsidian | Claude Code | Codex | ripgrep

NODAL

Full Stack Developer

Singapore

Aug 2025 - Oct 2025

<https://ryanhung.app/work/nodal>

<https://x-men-rosy.vercel.app/>

- Engineered full-stack project reporting workflows using React, Next.js and TypeScript, integrating interactive task analytics, date-based filtering, backend APIs and PDF/XLSX exports.
- Architected modular backend reporting services, separating HTTP handlers, business logic and Supabase queries while enforcing role-based access and PostgreSQL Row-Level Security (RLS).
- Implemented PostgreSQL aggregations for task completion and time tracking, with Vitest tests covering empty datasets, deadline edge cases and project-level calculations.
- Isolated GitHub Actions integration and end-to-end tests using disposable local Supabase instances, preventing destructive test fixtures from affecting the hosted database.
- Tools: Next.js | React | TypeScript | Supabase | Postgres | Tailwind CSS | Recharts | Vitest | Playwright | GitHub Actions

ThriftThrive

Web Application Developer

Singapore

Aug 2024 - Oct 2024

<https://thriftthrive-a28e7.web.app/>

- Collaborated with project team of 4 to develop a comprehensive web application for thrift fashion enthusiasts, featuring user authentication, product listings, and payment integration using Stripe API.
- Designed front end UI/UX to create dual-tone and clean aesthetic, ensuring 100% design consistency across web and mobile layout.
- Integrated Google Maps API to display an interactive map of thrift stores, enhancing user convenience.
- Developed real-time chat functionality and a fashion bot powered by OpenAI API for tailored user interaction.
- Implemented advanced product filtering, search functionality, and user profile management features to optimise user experience and increase retention time.

- Utilised Bootstrap, Vue.js, Firebase, GSAP, and Vue Router to create a dynamic, responsive interface and ensure efficient app performance.
- Collaborated on version control and deployment using GitHub for 100% seamless team collaboration.

EXPERIENCE

SMU SoundFoundry

Singapore

Events Director

Nov 2023 - Nov 2024

- Planned and executed high-profile music events; collaborating with over 50 performers and secured SGD \$10k in ticket sales.
- Negotiated strategic and recurring partnerships with corporate sponsors and local businesses, securing \$5k SGD in sponsorships and building a cohesive event ecosystem.
- Reduced event setup time by 20% by utilising data-driven insights, introducing detailed floor plans and streamlining crew coordination processes, ensuring smooth and efficient on-site operations for 30+ crew.
- Implemented a robust sales tracking system using Excel and Google Sheets, consolidating transaction data to streamline reporting, conduct business performance analysis and reduce manpower requirements by 10%.
- Utilised Excel to perform safety risk analysis, supporting decision making and ensuring a 100% accident-free event.
- Collaborated with cross-functional teams across marketing and training & development to improve processes and deliver seamless event preparation and execution by utilising Excel to consolidate large datasets.
- Increased user engagement KPI by 20% for Valentine's Day Drive by implementing innovative audience interaction strategies and optimising event workflow.

CO-CURRICULAR ACTIVITIES

Meals-On-Wheels

Singapore

Project Lead

Dec 2024 - Present

- Coordinated volunteer availabilities to ensure smooth scheduling and efficient meal deliveries to homebound seniors.
- Delivered meals to elderly and disabled individuals, fostering better community support and food assistance.

SKILLS & INTERESTS

- Skills: Analytical Thinking, Adaptability, Leadership, Partnership Management, Campaign Planning, Market Research, Risk Analysis, Communication, Problem Solving, Teamwork
- AI-assisted development: Inspect GitHub skills/plugins and customise Codex/Claude Code workflows through project instructions (AGENTS.md/CLAUDE.md), memory (MEMORY.md) and selective context loading.
- Model selection and token efficiency: Match models and reasoning effort to task complexity; utilise architecture in ChatGPT by querying against Chat, distilling decisions into focused coding-agent prompts, then sending it into coding-agents.
- English (Native), Chinese (Native)

TECHNICAL SKILLS

- Languages: Python, TypeScript, JavaScript, SQL, MATLAB, PHP, HTML/CSS
- Frameworks & Libraries: React, Next.js, Vue.js, Three.js, React Three Fiber, GSAP, Pandas, asyncio, LangChain
- Backend, Data & Infrastructure: PostgreSQL, Supabase, Redis, Snowflake, MySQL, Docker, Git, GitHub Actions, Azure DevOps

- AI, Automation & Developer Tools: Claude Code, OpenAI Codex, Microsoft Copilot Studio, Power Automate, UiPath, n8n, OCR (pytesseract), Obsidian, FFmpeg, Figma, Jira