

HANS HUANG

AI & Data Engineer | Machine Learning | Intelligent Automation

Auckland, New Zealand | 022 410 9280 | hanshuang2906@gmail.com | New Zealand citizen | Full driver licence

PROFESSIONAL PROFILE

AI and data practitioner who has completed the requirements for a Master of Artificial Intelligence with First Class Honours, combining hands-on Python, SQL and ELT project work with over four years of professional engineering experience in New Zealand. Built a PostgreSQL and Airflow ELT pipeline, machine-learning models, RAG systems and AI automation tools that translate real-world requirements into working solutions. Brings analytical problem-solving, disciplined testing, traceable documentation and stakeholder communication to data pipelines, applied AI and intelligent automation.

TECHNICAL AND TRANSFERABLE SKILLS

- **Data engineering:** Python, SQL, PostgreSQL, REST API and JSON ingestion, ELT pipelines, staging and core schemas, Apache Airflow, Docker Compose, Soda, pytest and GitHub Actions.
- **Machine learning and analysis:** Pandas, NumPy, scikit-learn, PyTorch, data analysis, preprocessing, model development, MATLAB, R and Microsoft Excel.
- **Generative AI and automation:** Natural language processing, LLMs, RAG, AI agents, chatbots, document-processing workflows and intelligent-automation prototypes.
- **Software delivery and deployment:** Requirements clarification, solution design, automated testing, backend-to-frontend and API workflows, Vercel and AWS deployment, and iterative delivery.
- **Quality and documentation:** Data-quality checks, technical reports, design documentation, testable workflows, traceable decisions and structured problem-solving.
- **Stakeholder communication:** Requirements capture and coordination with clients, councils and contractors; clear explanations for technical and non-technical audiences; fluent English and Mandarin.

PROFESSIONAL EXPERIENCE

AI Developer (Self-employed) | Auckland / Remote

Jun 2025 - Present

- Clarify client and domain requirements and translate them into practical AI and automation prototypes.
- Develop construction-focused checking applications that identify discrepancies between foundation calculations and geotechnical reports and verify bracing consistency across plans and calculations.
- Build applied tools including an image-to-Excel automation workflow, a web-based AI chatbot, an automated motel call receiver and LLM-enabled robotic-arm systems.
- Use Python and AI libraries to integrate model capabilities with web and application workflows; deploy applications using Vercel and AWS, then test and iterate based on user requirements.

Structural Engineer | CCG Engineers

Mar 2022 - Dec 2024

- Designed structural systems for standalone and terraced residential buildings, maintaining accurate calculations, drawings and supporting documentation.
- Captured client requirements, revised designs in response to feedback, and communicated technical decisions clearly.
- Coordinated with local councils on building consents and resolved requests for information through traceable technical responses.
- Completed site inspections and construction monitoring, identifying issues and supporting practical resolution with project teams.

Graduate Structural Engineer | Kirk Roberts Consulting

Mar 2021 - Jan 2022

- Supported residential structural design, including standalone houses, retaining walls and swimming pools.
- Prepared technical documentation and completed site inspections while working within New Zealand engineering standards and project procedures.

Graduate Structural Engineer | DDL Homes

Jun 2020 - Dec 2020

- Produced structural designs and drawings for standalone homes, terraced developments and walk-up apartments.
- Prepared building-consent documentation and carried out inspections of designed structural components.

SELECTED AI AND DATA PROJECTS

- **YouTube Data ELT Pipeline:** Built a ELT pipeline with Python, SQL, PostgreSQL, Airflow and Docker to ingest YouTube Data API data, transform it through staging and core schemas, run data-quality checks and automate tests with GitHub Actions.
- **Structural Checking Applications:** Developed applications to identify discrepancies in foundation designs between structural calculations and geotechnical reports, and to verify bracing consistency between plans and calculations.
- **Image-to-Excel template automation:** Built a tool that converts information from images into structured Excel templates, combining extraction, transformation and output formatting.
- **Pipeline-defect classification:** Completed a Master's research project using underground CCTV inspection data to classify pipe defects through data analysis and machine-learning methods.
- **RAG research-support system:** Built a retrieval-augmented generation system to help accelerate a Marsden Fund application by surfacing relevant information.
- **AI interaction prototypes:** Developed a web chatbot, an automated motel call receiver and LLM-enabled robotic-arm systems; the latter two were developed as MVPs.

EDUCATION

Master of Artificial Intelligence - First Class Honours | University of Auckland **2025 - 2026**

- **Selected coursework:** AI Agency, Ethics and Society (A+); AI Fundamentals (A+); AI Architecture and Design (A+); Managing with Artificial Intelligence (A); Deep Learning (A); Natural Language Processing (A); Research Project (A).

Bachelor of Engineering (Honours) - Civil Engineering | University of Auckland **2016 - 2019**

- Second Class Honours, First Division; degree awarded in 2020.
- **Relevant study:** Mathematical modelling, project and innovation management, engineering design, research and capstone projects.

ADDITIONAL INFORMATION

New Zealand citizen | Full driver licence | English and Mandarin (spoken and written)

Engineering domain tools: AutoCAD, Revit, RISA-3D, SAP2000, Multiframe and Mathcad