

HANS HUANG

Digital Transformation Engineer | AI, Automation & Digital Construction

Portfolio: <https://www.hanscareerbot.com/>

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

PROFESSIONAL PROFILE

AI and digital transformation practitioner with a Master of Artificial Intelligence with First Class Honours, a Civil Engineering degree and over four years of structural engineering experience in New Zealand. Combines Python, data analytics, workflow automation and AI proof-of-concept development with first-hand construction delivery across design, consenting, RFIs, site inspections and project coordination. Experienced with Autodesk Forma, GIS and BIM workflows, and brings analytical problem-solving, clear documentation and cross-disciplinary communication to digital engineering systems that improve information flow, efficiency and decision-making.

TECHNICAL AND TRANSFERABLE SKILLS

- **AI and automation:** Python, machine learning, natural language processing, LLMs, RAG, AI agents, prompt and instruction design, proofs of concept, workflow automation and output evaluation; familiar with ChatGPT, Claude Code and Copilot for AI-assisted development and prototyping.
- **Digital engineering, BIM and GIS:** Experience with Autodesk Forma, BIM and GIS workflows, alongside Revit and AutoCAD in construction and engineering contexts.
- **Data management and reporting:** SQL, PostgreSQL, API and JSON ingestion, ELT pipelines, Power BI, Microsoft Fabric, Azure Data Factory, Dataflows, Synapse Analytics, Databricks, Excel and data-quality checks
- **Software delivery and integration:** Requirements clarification, process mapping, solution design, API and application workflows, automated testing, Docker Compose, GitHub Actions, Vercel, Azure and AWS.
- **Construction delivery and documentation:** Structural design, calculations, drawings, building-consent packages, RFI responses, site inspections, construction monitoring and technical reports.
- **Collaboration and adoption:** Coordination with engineers, clients, councils and contractors; clear documentation and explanations for technical and non-technical users; fluent English and Mandarin.

PROFESSIONAL EXPERIENCE

AI Developer (Self-employed) | Auckland / Remote

Jun 2025 - Present

- Research client and construction-domain workflows, identify improvement opportunities, and translate requirements into practical AI and automation proofs of concept.
- Develop construction-focused checking applications that identify discrepancies between foundation calculations and geotechnical reports and verify bracing consistency across plans and calculations.
- Build data and knowledge tools, including a searchable RAG research-support system and an image-to-Excel workflow that converts unstructured inputs into structured information.
- Integrate Python and AI capabilities with web and application workflows; document, test, deploy and iterate solutions using Vercel and AWS in response to user requirements.

Structural Engineer | CCG Engineers

Mar 2022 - Dec 2024

- Designed structural systems for standalone and terraced residential buildings, maintaining coordinated calculations, drawings and supporting documentation.
- Captured client requirements, revised designs in response to feedback, and communicated technical decisions clearly across project stakeholders.
- Managed building-consent information flows with local councils, resolving requests for information through clear, traceable technical responses.
- Completed site inspections and construction monitoring, identifying issues and supporting practical resolution with contractors and project teams.

Graduate Structural Engineer | Kirk Roberts Consulting

Mar 2021 - Jan 2022

- Supported residential structural design for standalone houses, retaining walls and swimming pools within New Zealand engineering standards and project procedures.
- Prepared technical documentation and completed site inspections, communicating design intent and construction observations clearly.

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 inspected designed structural components during construction.

SELECTED DIGITAL TRANSFORMATION PROJECTS

- **Construction checking applications:** Developed agentic tools that encode domain rules to identify discrepancies between foundation calculations and geotechnical reports and verify bracing consistency across plans and calculations.
- **Searchable RAG knowledge system:** Built a retrieval-augmented generation workflow to surface relevant sources for a Marsden Fund application through structured retrieval and review.
- **Image-to-Excel workflow automation:** Built a tool that converts information from images into structured Excel templates, replacing manual handling with repeatable extraction, transformation and formatting steps.
- **YouTube Data ELT pipeline:** Built an ELT pipeline with Python, SQL, PostgreSQL, Airflow and Docker to ingest API data, transform staging and core schemas, run quality checks and automate tests with GitHub Actions.
- **Pipeline-defect classification:** Completed a Master's research project using underground CCTV data to classify pipe defects through data analysis and machine-learning methods.
- **AI interaction prototypes:** Built a web chatbot, an automated motel call receiver and LLM-enabled robotic-arm systems; refined the latter two as MVPs through model testing and functional validation.

EDUCATION

Master of Artificial Intelligence | School of Computer Science | University of Auckland **2025 - 2026**

- First Class Honours; degree awarded in 2026.
- **Relevant studies:** Applied machine learning and deep learning; natural language processing; AI systems architecture and agentic systems; responsible AI and ethics; AI strategy and management; and applied AI research.

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)

Digital and engineering tools: Autodesk Forma, BIM, GIS, Revit, AutoCAD, Power BI, Microsoft Fabric, RISA-3D, SAP2000, Multiframe and Mathcad