Yubo (Veronica) Chen

Brisbane, Australia | Email | My Website | LinkedIn | GitHub

Professional Summary

Graduate Software Engineer at **Rio Tinto**, building optimisation features in C#/.NET for long-horizon mine planning. MPhil researcher at **QUT** on semi-supervised, *uncertainty-aware* 3D point-cloud models for medical imaging. I translate algorithmic ideas (LP, heuristics) into resilient, testable software—bridging research depth with production reality.

Core Skills

Programming: Python, C# (.NET), JavaScript/TypeScript, HTML&CSS, SQL
AI & Data: LLMs (RAG, prompt engineering, guardrails), Arize (evaluation & monitoring), PyTorch, TensorFlow, Hugging Face, Model deployment & MLOps (CI/CD, containers), Data pipelines, Statistical analysis
Optimisation: Linear programming, Heuristic algorithms (e.g., LNS), Operations research, System modelling
Cloud & Tools: Azure, AWS, Docker, Git/GitHub Actions, FastAPI, React, Node.js, Observability (logging/metrics/dashboards)
Languages: English, Mandarin

Professional Experience

Graduate Software Engineer
Rio Tinto — Brisbane, Australia

- **Rotation 1 — Software Engineering:** Delivered features for a long-horizon mine planning & optimisation desktop platform (C#/.NET); implemented statistical & linear optimisation modules; refactored core components; expanded automated unit-test coverage.
- **Rotation 2 — R&D Optimisation:** Researched and prototyped linear & heuristic algorithms to improve scheduling performance (solution quality & runtime); benchmarked alternatives; productionised successful prototypes into maintainable code.
- **Rotation 3 — Data Engineer (Applied ML):** Designed and built web-based LLM applications across Azure & AWS (Python/React/Node.js); implemented retrieval-grounded QA and document summarisation; set up evaluation, prompt/version control, and production monitoring with Arize; shipped containerised services with CI/CD and observability dashboards.

Research Assistant
Queensland University of Technology (QUT) — Brisbane, Australia (Apr 2023 – Jul 2023)

- Collected and consolidated datasets from public repositories and targeted web sources, ensuring ethical acquisition and compliance with usage terms.
- Cleaned, normalised, and pre-processed heterogeneous raw data (format alignment, outlier handling, schema reconciliation) to improve reliability for downstream analysis.
- Implemented reproducible data-preparation scripts and documented end-to-end collection & transformation steps to support transparency and repeatability.

Education

Master of Philosophy (MPhil) — Biomedical Engineering & Computer Science
Queensland University of Technology (QUT), Sep 2023 – Sep 2025

- **Research Topic:** Deep Semi-Supervised Point Cloud-Based Models with Uncertainty Awareness for Efficient Abnormality Detection in 3D Medical Imaging.
- **Scholarship:** Trustworthy Deep Learning for Biomedical Engineering — competitive full MPhil scholarship (Aug 2023).
- Focus areas: Deep Learning, 3D Point Clouds, Semi-Supervised Learning, Uncertainty Estimation, Medical Imaging.

Bachelor of Engineering (Computer and Software System) — First Class Honours
Queensland University of Technology (QUT), Feb 2019 – Jul 2023

- Honours awarded for academic excellence and research achievement.
- **Awards:** Best Poster — Vacation Research Experience Scheme (2022/2023).

Selected Publications & Paper

- **MEFF — A Model Ensemble Feature Fusion Approach for Tackling Adversarial Attacks in Medical Imaging**. *Intelligent Systems with Applications*, Jun 2024. ScienceDirect
- **Reliable Deep Learning Framework for Ground Penetrating Radar Data to Locate Horizontal Variation in Levee Soil Compaction**. *Engineering Applications of Artificial Intelligence*. ScienceDirect
- **Learning Through Guidance: Knowledge Distillation for Endoscopic Image Classification**. arXiv preprint. arXiv

Featured Projects

AI-driven Endoscopic Abnormality Detection
Student Researcher — QUT (Australia)

- Developed an AI pipeline for automated abnormality detection in endoscopic imagery using public medical datasets (e.g., KVASIR, NERTHUS).
- Implemented & iteratively refined deep CNN & transfer-learning models to improve sensitivity to subtle pathological features.
- Conducted rigorous evaluation (accuracy, class-wise performance) and tuning to enhance diagnostic support potential.

Autonomous UAV Target Detection & Air Quality Payload
Student Researcher — QUT (Australia)

- Designed & integrated a UAV payload enabling onboard visual target detection and environmental sensing for field deployments.
- Implemented onboard object detection on a System-on-Chip device for near real-time inference without ground relays.
- Prepared & annotated custom image datasets to improve detector precision under varied illumination and scale.

Wildlife Species Recognition for Ecological Research
Student Researcher — QUT (Australia)

- Applied machine learning and image analysis techniques to support automated recognition of animal species in ecological datasets.
- Explored clustering & representation strategies and documented HCI considerations to streamline annotation workflows.

Awards & Activities

- **MPhil Full Scholarship** — Trustworthy Deep Learning for Biomedical Engineering (QUT), Aug 2023.
- **First Class Honours** — Bachelor of Engineering (Computer and Software System), QUT, Jul 2023.
- **Best Poster Award** — QUT VRES (2022/2023).
- **Sessional tutoring experience** (QUT001, QUT005, QUT006, QUT008, QUT009, CAB202, CAB420).
- Currently exploring: Generative AI, Vision-Language Models, Vector Databases, Approximate Nearest Neighbour, Optimisation model development, IaC, MLOps, DataOps.