

Enrong (Peter) Pan

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Education

Queen's University Sept 2023 – April 2027
Bachelor of Computing (Hons.), Double Major in Computing (AI Sub-plan) and Mathematics Kingston, Ontario, CA
• GPA: 4.29/4.3

- Relevant Coursework: Machine Learning, Artificial Intelligence, Statistical Learning, Data Analytics, Algorithms, Data Structures, Linear Algebra, Systems Programming, Regression Analysis, Computer Architecture, Graph Theory.
- Awards: International Admission Award (\$25,000×4), Dean's Honour List with Distinction (top 3%), Canadian Robert T. Jones Jr. Scholarship (\$8,000 for Leadership), Dora & Beatrice Helmkey Scholarship in Mathematics.

University of Edinburgh Sept 2025 – Dec 2025
Exchange, Informatics and Mathematics (First-Class Distinction) Edinburgh, Scotland, UK

Technical Skills

ML/Data: PyTorch, TensorFlow, JAX, Hugging Face, scikit-learn, NumPy, pandas, SciPy, Matplotlib, Seaborn, Supabase pgvector, ChromaDB, MongoDB
Concepts: Transformer, Natural Language Processing, LLM Integration, RAG, LoRA, Prompt Engineering, Embeddings/Vector Search, Machine Learning, CNN, RNN, LSTM, GAN, Autoencoders, ResNet, Reinforcement Learning, Q-learning, Policy Gradient Methods, t-SNE, UMAP, PaCMAP, DBSCAN, LASSO, Ridge Regression, Feature Engineering, Data Preprocessing, Model Evaluation, MLOps
Languages: Python, SQL, JavaScript/TypeScript, C, C++, Java, C#, MATLAB, Bash, HTML/CSS
Web/Tools: AWS, Azure, Google Cloud, Docker, Kubernetes, PostgreSQL, REST APIs, FastAPI, React, Node.js, WebSocket, Linux, Jupyter, Jira, Claude Code

Relevant Projects

BioMedReAct: Multi-Agent Biomedical Literature Review Pipeline | Python, HuggingFace Transformers, ChromaDB, AWS S3, PubMed API | GitHub

- Built a multi-agent NLP pipeline with a HuggingFace sentence-transformer Retriever and ChromaDB for semantic search over 80+ PubMed Central articles (AWS S3), with structured XML parsing and REST API fallback strategies.
- Designed and trained a T5 transformer-based Summarizer Agent, implementing tokenization, encoding, and decoding pipelines, achieving ROUGE-1 of 0.48 and reducing manual review time by 98% through automated condensation with keyword extraction.

CosmeticLens – AI Skincare Ingredient Analyst | Astro, TypeScript, Supabase pgvector, OpenAI API, Vercel
cosmetic-lens.vercel.app | GitHub

- Built and shipped a bilingual AI application analyzing 400+ cosmetic ingredients, featuring multi-turn conversational NLP with heuristic query routing across a database, external API, and GPT-based reasoning — deployed to production with ~5-second end-to-end latency.
- Implemented a production RAG serving pipeline using Supabase pgvector: embedded a curated knowledge base into vector space and injected top-K chunks into LLM prompts via prompt engineering for query-context alignment, reducing hallucination on safety claims.

A.U.R.A. – Voice-Powered Developer CLI Copilot | TypeScript, Node.js, OpenAI, ElevenLabs, WebSockets
King Hacks Hackathon | GitHub | Demo Video

- Engineered a real-time NLP inference pipeline that maps spoken natural language to developer shell commands via a safety-first intent-classification architecture, achieving sub-1-second voice-to-execution latency end-to-end.
- Architected a real-time speech pipeline using ElevenLabs WebSocket streaming for low-latency STT/TTS and OpenAI for intent classification, supporting single-turn execution and multi-turn sessions with conversational memory.

Experience

Research Fellow | Queen's University | Supervised by Dr. Ting Hu February 2026 – Present

- Designing and implementing novel AI methods for abstract visual reasoning (ARC benchmark) using evolutionary program synthesis, with end-to-end research ownership from design through evaluation — targeting peer-reviewed publication.
- Developing approaches where symbolic programs are evolved, selected, and recombined to discover abstract transformation rules, producing transparent, auditable, and human-verifiable reasoning.

Teaching Assistant | School of Computing | Queen's University Sept 2025 – Apr 2026

- Supported 300+ students across Data Structures (CISC 235) and Linear Methods for AI (CISC 271) through office hours, tutorials, and assignment grading with constructive feedback.

Research Assistant | Queen's University | Supervised by Dr. Yuan Tian May 2025 – Aug 2025

- Engineered a Python data pipeline to scrape, parse, and classify security metadata from 600+ GitHub open-source repositories (commit messages, PR references, Dependabot configs), supporting a large-scale empirical study targeting the EMSE journal.
- Performed multi-round open coding (Cohen's Kappa ≥ 0.92) across 174 repositories, finding 58.5% of fixes violated silent-fix protocols, with a median 33-day notification gap between security releases and NVD disclosure across 581 vulnerability lifecycles.