Lin (Bill) Qi

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PROFILE

PhD-level AI specialist with over 8 years of experience spanning advanced ML research and the development of production-grade AI systems. Expertise in architecting Retrieval-Augmented Generation (RAG), multi-agent systems, and fine-tuning computer vision (CV) and large language models (LLMs). Track record of leading high-impact projects, supported by a strong publication history (contributed to 11 papers, 7 as lead/co-lead author).

EXPERIENCE

CGI | Montreal, QC

Data Scientist, Generative AI June 2024 – Present

Architecting and deploying enterprise-grade generative AI solutions for a major public sector client, demonstrating expertise in tackling advanced RAG, agentic use cases, and model fine-tuning.

- **Enterprise Conversational AI:** Led the architecture and development of an enterprise-scale conversational AI assistant for compensation advisers. Achieved 91% benchmarked response accuracy by fine-tuning **LLaMa 3.1** models with LoRA and serving quantized models using SGLang.
- **Advanced RAG & Search:** Engineered a sophisticated hierarchical vector search system, significantly outperforming traditional methods on complex policy documents. The system featured custom fine-tuned embedding and re-ranking models to enhance retrieval precision.
- **Multi-Agent Systems:** Developed a novel multi-agent OCR pipeline using OpenAI Agents and Prompt Flow, combining Azure Document Intelligence with GPT-4o. Achieved >99% accuracy in extracting structured data from scanned PDF documents.
- **Infrastructure & MLOps:** Automated the provisioning of secure, zero-trust generative AI architectures using **Terraform**. Built robust **CI/CD pipelines** to accelerate the testing and deployment of AI solutions in a cloud-native environment (Azure AI Foundry).

McGill University, Department of Human Genetics | Montreal, QC

PhD Candidate & Researcher September 2018 – February 2024

- Engineered scalable **Python** and **TensorFlow** data pipelines on HPC clusters (**SLURM**) to process terabyte-scale genomic and biological data, **structuring it into graph-based representations for deep learning analysis.**
- Developed a novel Graph Convolutional Neural Network to integrate complex, multi-modal genomic and clinical data for predictive modeling.
- Contributed to **11 peer-reviewed papers (7 as lead/co-lead author)** in top-tier journals, including *Biological Psychiatry*, and introduced novel methods for ML model selection.

Ericsson Canada | Montreal, QC

Machine Learning Developer July 2017 – September 2018

- Developed a classification model for engineer assignment for 1,000+ support engineers. Backend written in Python, deployed as a **Kubernetes** microservice pod.
- Prototyped a question-answering system using the **RoBERTa** model for answer span-classification and information retrieval methods on product documentation.
- Frontend Javascript (AngularJS) development for a ticket management application.

TECHNICAL SKILLS

- **Generative AI & LLMs: RAG (Retrieval-Augmented Generation)**, **Fine-Tuning (LoRA)**, **Agentic Workflows**, LangChain, Prompt Flow, OpenAI Agents, Vector Databases (Pinecone, Azure AI Search, MongoDB vCore), SGLang, vLLM
- **AI & Machine Learning: TensorFlow**, **PyTorch,** Scikit-Learn
- **Cloud & MLOps: Docker**, **Kubernetes**, **Terraform**, **CI/CD**, Azure (AI Foundry, Prompt Flow, AI Search, Document Intelligence), AWS (EC2, Lambda, S3), Databricks, MLflow, Wandb
- **Backend & Databases: Python**, JavaScript, FastAPI, Flask, REST APIs, Azure Cosmos DB, PostgreSQL, Git, Linux/Unix
- **Data Processing:** Pandas, Numpy, Jupyter

EDUCATION

- **PhD in Human Genetics (Statistical & Machine Learning focus)** | *McGill University, Montreal, QC*
- **AI in Healthcare Nanodegree** | *Udacity, Online*
- **Bachelor of Science, Microbiology & Immunology** | *McGill University, Montreal, QC*

AWARDS & PUBLICATIONS

Kaggle Competition Medals:

- **Ubiquant Market Prediction** (Rank 48/2893) [Link]: Implemented an ensemble of neural networks for stock market prediction.
- **RSNA Breast Cancer Detection** (Rank 60/1,687) [Link]: Fine-tuned pretrained computer vision models (**EfficientNet**) and inference using NVIDIA **TensorRT** for medical image analysis.

Selected Publications (A full list of publications is available on my Personal Site)**:**

- **Qi, Bill**, and Yannis J. Trakadis. "Graph Representation Learning for the Prediction of Medication Usage in the UK Biobank Based on Pharmacogenetic Variants." Bioengineering 12.6 (2025): 595. [Link]
- **Qi, Bill**, and Yannis J Trakadis. "Advancing Clinical Psychiatry: Integration of Clinical and Omics Data Using Machine Learning." Biological psychiatry (2023). [Link]
- **Qi, Bill,** Janani Ramamurthy, Imane Bennani, and Yannis J. Trakadis. "Machine learning and bioinformatic analysis of brain and blood mRNA profiles in major depressive disorder: A case-control study." American Journal of Medical Genetics Part B: Neuropsychiatric Genetics (2021). [Link]