Bill Qi

Education

- **PhD candidate in Human Genetics** — **Montreal**
  McGill University — *2020 - Ongoing*
- **McGill University** — **Montreal**
  Microbiology & Immunology Major — *2013 - 2017*
- **Dr. Charles Best Secondary School** — **Coquitlam**
  High School Diploma — *2009 - 2011*

Experience

- **Department of Human Genetics** — **McGill, Montreal**
  PhD Candidate (second-year fast-track from MSc.) — *September 2020 - Ongoing*
  Clustering analyses of genomic (whole exome data), transcriptomic (Gene expression array and RNAseq), and metabolomic (NMR) datasets of patients with neuropsychiatric diseases (Depression, Schizophrenia, Autism)
  Developing machine learning based detection and classification algorithms based on genomic, and functional genomic data for understanding psychiatric disorders.
  Utilizing data from bioinformatic databases such as NCBI, KEGG, Gene Ontology, Enrichr, Genemania, Reactome, miRBase, etc.
  Symptom-based statistical analysis of major depressive patients.
  Nanopore ligation and rapid-kit long-read sequencing and bioinformatic analysis.
  10X Genomics single-cell sequencing and analysis.
  Illumina short-read sequencing and analysis.
  Performing LD score regression and genetic correlation analysis.
  Genetic fine-mapping for causal variants detection.
  Polygenic risk-score methods incorporating linkage disequilibrium.
  Variational autoencoder neural network approach for genetic data analysis.
  Topic modelling electronic health record data.

- **Ericsson** — **Montreal**
  Software Developer — *July 2017 - September 2018*
  Developed natural language processing model to suggest the most appropriate engineers out of 6000 to troubleshoot a ticket, with a 70% prediction accuracy.
  Developed a personalized search component of the customer support tool to help engineers find the most relevant technical knowledge.
  Developed a machine learning model to suggest appropriate solutions for new tickets using 500000 previously solved tickets.
  Built a question-answering chatbot using IR and deep learning techniques to extract out concise answers from a knowledge base containing millions of documents.
  Develop and maintained front-end and back-end services for a customer support tool used by engineers and customers.
  Developed and maintained an internal information dashboard tool.
  Developer support for project maintenance (troubleshoot bugs and issues).

- **Behavior Health Research Group** — **Jewish General Hospital, Montreal**
  Volunteer Research Assistant — *Jan 2015 - Sep 2019*
  Maintaining the BHRG team's website, updating team members' biography and managing site content.
  Contributing to literature reviews using DistillerSR.
  Wrote a program for automated searching and downloading of research articles by title or Pubmed ID.
  Proofreading draft manuscripts and managing citations for team members.

- **MUHC** — **McGill, Montreal**
  Volunteer Research Assistant — *Jan 2015 - Sep 2018*
  Extracting patient details from hundreds of clinical case studies.
  Using python to process and transform large quantities of patient genetic data for analysis.
  Wrote a program for automated extraction of information from PDF forms and generate letters

- **McGill Science Computer Taskforce** — **McGill University, Montreal**
  Hardware Team Member — *September 2015 - April 2017*
  Automate scripts to maintain over 70 campus computers.
  Manage FOG server (open source imaging and cloning solution), allowing over 30 members to image computers without technical expertise.

- **McGill Students for FIMRC** — **McGill University, Montreal**
  VP Design/Events Coordinator — *September 2014 - April 2017*
  Design event posters for events and activities.
  Design and build the club website. (http://fimrc-mcgill.wixsite.com/fimrc)
  Work with other VPs in planning activities (i.e panel discussion, speed dating, coffeehouse).
  Raise money for supplies through events and fund-raisers (i.e Project Las Delicias in El Salvador, fetal dopplers for villages in India) as part of the FIMRC Adopt-a-Project program.
  Setup community outreach activities (clothing drive, food donation) to support local nonprofits.

Publications

- Rice, Danielle B., Lorie A. Kloda, Brooke Levis, **Bill Qi**, Emily Kingsland, and Brett D. Thombs. "Are MEDLINE searches sufficient for systematic reviews and meta-analyses of the diagnostic accuracy of depression screening tools? A review of meta-analyses." *Journal of psychosomatic research 87* (2016): 7-13.
- Azar, Marleine, Kira E. Riehm, Nazanin Saadat, Tatiana Sanchez, Matthew Chiovitti, **Lin Qi**, Danielle B. Rice et al. "Evaluation of Journal Registration Policies and Prospective Registration of Randomized Clinical Trials of Nonregulated Health Care Interventions." *JAMA internal medicine* (2019).
- Sardaar, Sameer, **Bill Qi**, Alexandre Dionne-Laporte, Guy A. Rouleau, Reihaneh Rabbany, and Yannis J. Trakadis. "Machine learning analysis of exome trios to contrast the genomic architecture of autism and schizophrenia." *BMC psychiatry* 20, no. 1 (2020): 1-11.
- **Qi, Bill**, Laura M. Fiori, Gustavo Turecki, and Yannis J. Trakadis. "Machine learning analysis of blood microRNA data in major depression: a case-control study for biomarker discovery." *International Journal of Neuropsychopharmacology* (2020).
- MacDonald, Kellie, Yuting Jiang, Ankur Krishnan, Sameer Sardaar, **Bill Qi**, Aristotelis Eleftheriadis, Stephen J. Glatt et al. "Patient stratification using metabolomics to address the heterogeneity of psychosis." *Schizophrenia Bulletin Open* (2020).
- **Qi, Bill**, Kellie MacDonald, Marcelo T. Berlim, Allan Fielding, Eric Lis, Nancy Low, Stéphane Richard-Devantoy et al. "Balance problems, paralysis, and angina as clinical markers for severity in major depression." *Frontiers in Psychiatry* (2020).

Personal projects

- **Github:** *https://github.com/bill-95*
- **Intent-based chatbot (Language: Python, Year: 2017):** Developed a chatbot to help users navigate the Connected Urban Transport tool for Ericsson's IoT team hackathon event, achieving a validation accuracy of 84%. *https://github.com/LamUong/IOT-chatbot*
- **Codepen projects:** *https://codepen.io/bill_95*
- **Kaggle machine learning competitions:** Contribution to COVID-19 Open Research Dataset Challenge; Top 11% out of 3314 teams in SIIM-ISIC Melanoma Classification Challenge; *https://www.kaggle.com/billqi*

Skills

- Python; R; Keras; Tensorflow; Scikit-Learn; Flask REST APIs; Javascript; Angular 2-6; AngularJS; Java; PostgreSQL; SQLite; Elasticsearch; Linux; SLURM Workload Manager; sequencing and bioinformatic analysis (Nanopore, Illumina, 10X Genomics technologies)

Awards

- **Frederick Banting and Charles Best Canada Graduate Scholarship-Master's (CIHR)** - 2020-2021 - $17500
- **BSIA bursary award (BSIA of BC)** - 2018-2019 - $1000
- **Emily Ross Crawford Scholarship (McGill)** - 2015-2016 - $500
- **Faculty of Science Scholarship (McGill)** - 2014-2015 - $150