Muhammad Gill

mhgill@uwaterloo.ca

http://mugill.com
https://github.com/mhgill
https://www.linkedin.com/in/mhgill

EDUCATION

- **University of Waterloo** — Waterloo, ON
  Computer Engineering (Bachelors) — *September 2016 - April 2021*

EXPERIENCE (MOST RECENT 3)

- **Google** — Mountain View, California, USA
  Machine Learning Engineer — *September 2019 - December 2019*
  - Pretrained a BERT encoder (tensorflow) on large volumes of english text using cutting edge parallel TPU technology and kubernetes to achieve over 95% accuracy on dataset sequences.
  - Optimized database queries (SQL) to run on Googles parallel query engine, reducing runtime by over 80%.
  - Modified a BERT transformer architecture (python, tensorflow) to be used with an MLP in order to classify text post-encoding, increasing base classification accuracy by over 6%.
  - Achieved state-of-the-art precision (tensorflow model) classifying wikipedia text, using a modified transformer model.
  - Wrote a parallel data processing pipeline (c++) to generate text datasets to be used for training almost any Ontology classification model.
  - Authored a research paper (publication): Text Object Ontology, in which I present state of the art results in Ontological Text Classfication.

- **Google** — Montreal, Quebec, Canada
  Software Developer — *January 2019 - April 2019*
  - Wrote, and deployed (using kubernetes) a parallel label propagation algorithm (c++) to label unlabelled data samples, increasing algorithm runtime speed by 1800%, over single machine speed.
  - Independently designed and implemented semisupervised learning pipeline (cpp) for very large security datasets. Initial, unoptimized models realized accuracy and F1 scores above 98%.
  - Wrote custom evaluation binary (python, cpp, javascript) to score the semi-supervised and unsupervised models, saving 100s of manual hours.
  - Wrote a custom node transformation binary (c++, python) to generate new datasets capabale of key-shifting to create 30+ unique label datasets.

- **Blackberry LTD** — Waterloo, Ontario, Canada
  Software Developer — *May 2018 - August 2018*
  - Developed deep learning model for relational database syntax conversion from PL/SQL (oracle) to mySQL (100% precision).
  - Developed and optimized dynamic scripts (Java) to efficiently and securely migrate over 20% of company databases (schema, procedures and data) between different, incompatible platforms.
  - Customized, optimized an open source mySQL DB (mariaDB) to increase database insert speed by 12%.
  - Contributed greatly to many other confidential projects (java, javascript, HTML), currently being deployed to millions globally.

- **Personal Projects**
  Software Developer — *Feb 2011 - Present*
  - Wrote a model (python) to accurately predict stock price volatility using financial derivative (options) flow having over 82% 3-day accuracy.
  - Independently developed (c++) 3200+ elo chess engine (neural network). Trained using self generated dataset (90+ million unique chess positions).

SKILLS

- **Operating Systems**: Linux (Debian/Ubuntu), macOS, Windows
- **Languages**: C++, Python, Java, SQL, Bash, Javascript, CSS, HTML
- **Technologies**: Tensorflow, scikit-learn, Pytorch, kubernetes, .NET, Node.js, ASP.NET, MATLAB, Express.js
- **Tools**: Git, XCode, Visual Studio, Eclipse, VS Code, Azure, mySQL, mariaDB, MongoDB, AWS