

Bilal Khan

bilal2vec.github.io/blog

bilal.khan1@uwaterloo.ca

github.com/bilal2vec

SKILLS

- **Languages:** Python, Javascript, Rust, C, C++, SQL, Swift
- **Technologies:** React, React Native, Node.js, Express.js, PyTorch, TensorFlow, JAX, GCP

EXPERIENCE

Manageering Inc — Full-stack and mobile developer Sep 2019—May 2020

- Developed a prototype SAT prep app [↗](#) using **React Native**, **Express.js**, and **MySQL** that personalizes content based on student results to diagnostic tests.
- Created a 3-step workflow in the app to learn, practice, and review new content while analyzing student results to find out which topics they need more practice on.

PROJECTS

NLP research project [↗](#) March—May 2020

- Trained OpenAI's **124M parameter** GPT-2 language model to generate convincing human-like text.
- Used the Google Cloud Platform with **PyTorch** and **TensorFlow** to scale the model to a **128-core** TPU Pod.
- Developed and trained a new, more efficient ALBERT-style language model that uses **4x** less memory and trains **2x** faster than GPT-2.

Machine learning library [↗](#) May—June 2020

- Wrote a machine learning library in Rust that supports numpy-style multidimensional arrays and array operations, **fast BLAS-accelerated matrix multiplication**, and an efficient graph-based automatic differentiation engine.

Implementing machine learning papers 2019—2020

- Implemented several image-to-image translation [↗](#) papers (ACL-GAN, Pix2Pix, Pix2PixHD) in **PyTorch**, **TensorFlow**, and **JAX**.
- Implemented several image-to-LaTeX [↗](#) papers (WAP, Im2Latex) to transcribe handwritten math equations into LaTeX.

PyTorch Zoo [↗](#) June 2019

- Created an open-source Python library with **80+ stars** on Github with a collection of useful reference PyTorch implementations of commonly used machine learning modules and utilities.

Machine learning competitions [↗](#) — Highest Kaggle rank: **798/150,000+** Jan 2018—July 2019

- *Silver Medal:* (41/3611) Google Analytics Customer Revenue Prediction Competition
- *Bronze Medal:* (54/648) CERN TrackML Particle Tracking Challenge
- *Bronze Medal:* (173/3229) TGS Salt Identification Challenge
- *Bronze Medal:* (287/3634) 2018 Data Science Bowl
- *Bronze Medal:* (314/3165) Jigsaw Unintended Bias in Toxicity Classification

EDUCATION

University of Waterloo Bachelor of Software Engineering (BSE) Candidate 2020—2025

Coursera Deep learning specialization [↗](#) Nov 2017—Feb 2018