

# Bilal Khan

bkkaggle.github.io/blog

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github.com/bkkaggle

## ABOUT

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- **Interests:** Full-stack and mobile development, NLP, Generative modeling, Systems programming
- **Languages:** Python, Javascript, Rust, C/C++, SQL, Swift
- **Libraries and Frameworks:** ReactJS/React Native, Express.js, PyTorch, Tensorflow, JAX, GCP

## EXPERIENCE

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

- Worked on developing an app to help students preparing for the SAT by creating personalized plans based on student results on diagnostic tests.
- Built with React Native, Express.js, MySQL, and the Google Cloud Platform.

## PROJECTS

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**Replicating machine learning papers** — Image-to-image translation GANs July—Dec 2020

- Replicating the ACL-GAN paper in JAX and the Pix2Pix and Pix2PixHD papers in PyTorch and Tensorflow.

**Machine learning library** — Written in the Rust programming language May—June 2020

- Supports numpy-style multidimensional arrays and array operations, fast BLAS-accelerated matrix multiplication, and an efficient graph-based automatic differentiation engine.

**NLP research Project** — Replicating GPT-2 March—May 2020

- Pretrained 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 pretrained a new, more efficient ALBERT-style language model that uses 4x less memory and trains 2x faster than GPT-2 with only a 10 ppl drop in performance.

**PyTorch Zoo** — PyTorch utility library June 2019

- Created a Python-based library with a collection of useful modules and utilities for working with PyTorch with 80+ stars on Github.

**Machine learning flight rules** — Tips and tricks for machine learning Sep 2019

**Computer vision research project** — Handwritten mathematical expression recognition Feb—May 2019

- Worked on implementing several machine learning papers in the field (WAP, Im2Latex) to transcribe handwritten math equations into LaTeX.

**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

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

**Coursera** — Deep learning specialization Nov 2017—Feb 2018