

JACOB KELLY

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EDUCATION

University of Toronto

Toronto, ON

Computer Science, Mathematics, Statistics *cGPA:3.91/4 (89%)*

Sep 2017 — May 2021

Graduate: Machine Learning Methods for Healthcare

Cross-Listed: Machine Learning · Neural Networks · Probabilistic Models

Math (Enriched): Differential Equations · Vector Calculus & Differential Geometry · Linear Algebra

Computer Science: Algorithms · Data Structures (Enriched) · C & Systems Programming

SKILLS

Languages: Python · R · C/C++ · Bash · Java · MATLAB · \LaTeX

Full Stack: Git · Unix · PostgreSQL · HTML · CSS · JavaScript · jQuery · Android SDK

Machine Learning: NumPy · scikit-learn · pandas · PyTorch · TensorFlow · Keras · NLTK · gensim

EXPERIENCE

Machine Learning Researcher · R

Toronto, ON

Princess Margaret Cancer Research & Vector Institute

April 2019 — Present

- Implemented and benchmarked machine learning methods for inferring sample-specific gene regulatory networks from single-cell RNA sequencing (scRNA-Seq) data.
- Evaluated methods for automatically discovering gene signatures for acute myeloid leukemia (AML) using Cox model and survival analysis.

Computer Vision Software Developer · SPEL+ (internal C++ wrapper)

Markham, ON

Epson Research and Development Lab

May 2018 — Aug 2018

- Optimized motored stage movements and performed image capture and evaluation asynchronously, supporting researchers by improving speed of data collection by 58%.
- Designed and implemented motor-camera calibration method using anchor points, creating a common baseline allowing for consistent comparison of 2D object detection and pose estimation algorithm performance on different objects.

Android Developer · Java · Android SDK · Estimote API

Toronto, ON

Cossette Health Lab

Jul 2016 — Aug 2016

- Developed indoor wayfinding Android application, Pocket Guide, designed to guide visitors through SickKids Hospital using Estimote Beacons.
- Led two team members in design and development of UI/UX, improvement of localization via bluetooth signal noise reduction, and pathfinding algorithms.

PROJECTS

ClinicalML · PostgreSQL · Python · pandas · scikit-learn · Keras · NLTK · gensim

- Wrote SQL queries for calculating patient statistics from PostgreSQL database of Medical Information Mart for Intensive Care (MIMIC) dataset from Beth Israel Deaconess Medical Center.
- Trained and tuned performance of machine learning models for topic modelling (latent dirichlet allocation), predicting mortality (logistic regression and bag-of-words) and hypertension (long short-term memory recurrent network) from clinical notes and vital signs data.

AWARDS

Certificate of Distinction, Euclid Mathematics Contest, University of Waterloo

Apr 2017

Finished in top 15% of 17,000 participants in national math competition.

1st Place, ECOO Programming Contest

Mar 2017

Achieved highest score among over 60 teams from across Peel Region, completing 5 algorithmic problems in 3 hours. Went on to place Top 10 in Central Ontario.

INTERESTS

Extracurricular

Computer Science First-Year Learning Community Mentor

Miscellaneous

3Blue1Brown · Nerdwriter · Ted Chiang · Westworld · Rock Climbing · Running