Jacob Kelly

jacobjinkelly.github.io · jacob.kelly@mail.utoronto.ca · github.com/jacobjinkelly

Education

University of Toronto Toronto, ON
Computer Science, Mathematics, Statistics *cGPA:3.84/4 (88%)* Sep 2017 — May 2021
Enriched Theory of Computation (CSC240) · Enriched Data Structures (CSC265)
Machine Learning (CSC411) · Neural Networks (audit) (CSC321) · Mathematical Statistics (STA257)
Advanced Multivariable Calculus (MAT257) · Advanced Linear Algebra (MAT240 & MAT247)
Software Design (CSC207) · Systems Programming (CSC209)

Skills

Familiar: Python · NumPy · PyTorch · TensorFlow · Git
Some Experience: C · Bash · Java · MATLAB · C++ · Android SDK

Experience

Project Director · *Python* · *PyTorch* Toronto, ON
University of Toronto Machine Intelligence Student Team July 2018 — Present

- Leading 3 team members in implementing and reproducing results from submission to International Conference on Learning Representations (ICLR) as part of ICLR Reproducibility Challenge.

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.

Health Lab Intern · *Java* · *Android SDK* · *Estimote API* Toronto, ON
Cossette 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

DeepSort · *Python* · *PyTorch* github.com/jacobjinkelly/deepsort

- Implemented and trained a recurrent neural network (long short-term memory variant) with a modified attention mechanism (Pointer Networks by Vinyals et al.) to sort a sequence of numbers.

Cartpole · *Python* · *NumPy* github.com/jacobjinkelly/cartpole

- Implemented hill climbing and policy gradient reinforcement learning algorithms on linear model for solving OpenAI Gym Cartpole environment as part of OpenAI Requests for Research.

Adversarial Examples for MNIST · *Python* · *TensorFlow* github.com/jacobjinkelly/adversarial-mnist

- Generated adversarial examples via iterated fast gradient sign method to fool a convolutional neural network trained on MNIST handwritten digits to incorrectly classify images of a 2.

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 · Math Union Academic Officer
Miscellaneous 3Blue1Brown · Nerdwriter · Ted Chiang's Short Stories · Westworld