

Sagar Patel

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EDUCATION

University of Toronto

Electrical and Computer Engineering - AGPA: 4.00, CGPA: 3.85

Toronto, ON

Sept. 2016 – April. 2021

SKILLS

Languages: Python, C/C++, Java, PostgreSQL, \LaTeX

Tools and Technologies: PyTorch, TensorFlow, NumPy, Pandas, MATLAB, FPGA, Unix/Linux, iOS, Android

RELEVANT COURSES

A+ Algorithms and Data Structures, Artificial Intelligence

A Machine Learning, Operating Systems, Programming Fundamentals, Control Systems, Design and Communication

PROJECTS

• ExtractNet (Neural Network)

Toronto, ON

[Demo](#) - [GitHub Repository](#) - [Project Report](#)

Winter 2019

- **Description:** ExtractNet **removes backgrounds from images** by **detecting prominent objects** (people and vehicles) using **segmentation**. Worked on several parts of project ranging from baseline model to deployment.
- **Data Preparation:** Used the COCO Train 2014 dataset. Prepared criteria for image selection and used image processing libraries to select and prepare about 5% of images from over 10GB of data.
- **Architecture and Training:** Designed **fully convolutional network similar to U-Net** with autoencoder and interconnects. Tuned various hyperparameters such as pretrained encoder weights using Google Cloud.
- **Deployment:** Deployed a Flask server on FloydHub where users can run inference on arbitrarily sized images.
- **Results:** Achieved test accuracy of **84% IoU** (Intersection over Union).

COMPETITIONS

• Mapping Optimization Competition

- **Description:** Competition for ECE297 (Design and Communication) course. Students had to build mapping applications that can **determine routes, shortest paths and optimize constrained routines**.
- **Result:** Winner – **placed 2nd** out of more than 100 teams.

• Reversi Artificial Intelligence Competition

- **Description:** Competition for APS105 (C Programming) course. Students had to build computer players for Reversi (board game). Players were tested against each other to determine the best implementation.
- **Result:** Winner – **placed 3rd** out of more than 300 students.

EXPERIENCE

• Red Hat

Toronto, ON

Software Engineering Intern

Present

- **Description:** Currently completing my PEY (Professional Experience Year) Co-op. Working with the Performance Tools Team to enhance SystemTap (Dynamic Tracing Tool).

• University of Toronto

Toronto, ON

Undergraduate Research Assistant

Summer 2018

- **Description:** Spiffy is a filesystem annotation language which produces a library to interpret filesystem metadata. Worked on introducing new features to the library and strengthening internal structure.
- **Metadata Diffing:** Designed new feature to diff metadata **reducing over 60% of original diffing code** in test filesystem-specific application. Used to detect changes in filesystem transactions.
- **Internal Structure:** Strengthened internal structure of Spiffy by reworking path resolution and indexing mechanisms. Allows program to have reference to parent structures and continuous indices between blocks.