

# KANAV SINGLA

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## EDUCATION

### University of Toronto

BASc in Engineering Science (Robotics & Machine Learning Engineering)

Toronto, ON

Expected April 2023

**Achievements:** Multiple Dean's Honours List • Euclid International Math Contest Honour Roll (Ranked 13th)

**Coursework:** Deep Learning & Neural Networks (Grad Course) • Probabilistic Machine Learning (Grad Course)  
• Data Structures & Algorithms • Control Systems • Linear Algebra

## SKILLS

**Languages:** Python • JavaScript • React • Django • SQL • C++

**ML Frameworks:** PyTorch • Lightning • TorchScript • TensorFlow • Keras • scikit-learn • NumPy • SciPy  
• pandas • seaborn • matplotlib • Weights & Biases • Horovod

**Developer Tools:** Git • Linux • AWS • Docker • conda • pip-tools • Jupyter

## EXPERIENCE

### Noah's Ark Lab, Huawei Technologies Canada | Python • PyTorch • pandas • Linux

Toronto, ON

AI Engineer Intern, Autonomous Driving

Jun 2021 - Aug 2022

- Implemented state-of-the-art end-to-end solutions from literature for prediction & planning in PyTorch, orchestrated training runs on big data-sets & performed hyperparameter tuning to develop **4 different baselines**.
- Developed modular simulation environments for training & offline evaluation of our models, improving team's development productivity in terms of **turnaround times by two folds**.
- Effectively contributed to the implementations & patents for the planning stack of Huawei's ADS.

### University of Toronto, Dynamic Optimization Lab | Python • TensorFlow • Keras

Toronto, ON

Machine Learning Research Fellow (Supervisor: Dr. Chi-Guhn Lee)

May 2020 - Aug 2020

- Led analysis & testing of **25+ object detection & classification models** in TensorFlow & Keras to increase the recall of the model by **10%** for detecting contraband in X-ray baggage scans.
- Developed a detection pipeline transfer learned on a customized private dataset & successfully secured funding alongside the **UofT fellowship award** for the research conducted.
- Achieved real-time inference & **94% recall** for our model deployed at the Seoul-Incheon Intl. Airport.

### Autonomous Rover Team | Python • Pytorch • TorchScript • Linux

Toronto, ON

Computer Vision Lead

Oct 2021 - present

- Led the design, development & deployment of the CV pipelines for two rovers to compete & win at the international robotics competition (IGVC) under multiple categories.
- Deployed the pipeline with different **detection & classification modules** in production using TorchScript.
- Managed the vision team of **15 senior engineering students** in an Agile development cycle.

## NOTABLE PROJECTS

### BikeShare Demand Predictor 📊 | Python • Pandas • TensorFlow • scikit-learn

Summer 2022

- Performed Exploratory Data Analysis adding new features to the complex dataset forecasting city's bike system.
- Implemented **6 different learning algorithms** & performed comparative analysis to select the best predictor.

### sSMART - Student Mentorship App 📱 | HTML/CSS • React • Django • MySQL

Summer 2020

- Worked in a team on a mentorship service algorithm for university students, building a web app to reach over **1100+ views & 200 subscribers** in the first month of deployment.
- Pitched at the **DMZ** to qualify amongst the top 10% companies for the Basecamp Lite Incubator Program.

## PUBLICATIONS

- “NoFADE: Analyzing Diminishing Returns on CO<sub>2</sub> Investment”, NeurIPS Climate Change 2021