

# KANAV SINGLA

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## EDUCATION

### University of Toronto

BASc. in Engineering Science (Robotics & Machine Learning Engineering)

Toronto, ON

Expected Apr 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)  
• Microcontrollers & Embedded Microprocessors • Control Systems • Vision for Robotics

## SKILLS

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

**ML Frameworks:** PyTorch • Lightning • TorchScript • ONNX • 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** | PyTorch • pandas • Docker • 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.

**Dynamic Optimization Lab, UofT** | Python • TensorFlow • Keras • ONNX

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.

**Zzapp Malaria** 🌐 | Python • PyTorch • scikit-learn • Jupyter • matplotlib • seaborn

Remote

Junior Machine Learning Developer

Jul 2020 - Oct 2020

- Worked in a team to build a vision pipeline that integrates with the map-based mobile app, to identify malaria hotspots (water bodies) & convey AI strategies to field workers ensuring thorough implementation.
- Analyzed different models that utilized topography & satellite imagery to identify the transmission hotspots.
- Team won the **IBM Watson's AI XPRIZE** (\$5 million) & the app is deployed across sub-Saharan Africa.

## NOTABLE PROJECTS

**BikeShare Demand Predictor** 📊 | SQL • pandas • TensorFlow • scikit-learn • Docker • AWS

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 deploy the best predictor.

**sMART - Student Mentorship App** 📱 | HTML/CSS • React • Django • SQL

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