KANAV SINGLA

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EDUCATION

University of Toronto — Toronto, ON
BASc. in Engineering Science (Robotics & Machine Learning Engineering) — 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

SKILLS

Languages: Python · JavaScript · React · C++ · Django · Flask · SQL · MATLAB
ML Frameworks: PyTorch · Lightning · TorchScript · ONNX · TensorFlow · Keras · sckit-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.

Autonomous Rover Student Team | Python · Pytorch · TorchScript · C++ · Linux — Toronto, ON
Computer Vision Lead — Oct 2021 - Jun 2022

- 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 | 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_2 Investment*", NeurIPS Climate Change 2021