KANAV SINGLA

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EDUCATION

University of Toronto — Toronto, ON
BASc in Engineering Science (Robotics & Machine Learning Engineering) — Expected April 2023

Achievements: Multiple Dean's Honours List · Euclid International Math Contest Honour Roll (Ranked 13th)
Coursework: Intro to Machine Learning · Deep Learning & Neural Networks (Grad Level) · Linear Algebra Data Structures & Algorithms · Control Systems · Probability & Statistics

SKILLS

Languages: Python · HTML/CSS/JavaScript · React · Django · SQL · C++
ML Frameworks: PyTorch · Lightning · Pandas · TensorFlow · Keras · sckit-learn · NumPy · Weights & Biases
Developer Tools: Git · Linux · AWS · Docker · Conda

EXPERIENCE

Noah's Ark Lab, Huawei Technologies Canada | Python · PyTorch · pandas · Git · Linux — Toronto, ON
AI Engineer Intern, Autonomous Driving — Jun 2021 - Present

- Reproduced end-to-end planning papers from scratch in **PyTorch**, orchestrated training runs on public datasets using **GPU clusters** & wrote experiment management scripts for hyper parameter tuning.
- Developed modular simulation environments for training & testing of different self-driving stacks, **significantly improving team's development productivity**.
- Effectively contributed to the **research, implementation & patents** for different learning-based solutions developed by the team.

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 scored funding alongside **ESROP- UofT Fellowship Award** for the research conducted.
- Achieved real-time inference & high recall for our model deployed at the Seoul–Incheon Intl. Airport.

Autonomous Rover Team | Python · Pytorch · TorchScript · Git · — Toronto, ON
Computer Vision Lead, Student Team — Oct 2021 - present

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

NOTABLE PROJECTS

Autonomous Electric Vehicle Charging System | Rasberry-Pi · OpenCV · Arduino · Bash — Winter 2020

- Built an **autonomous rover** that locates, navigates & interfaces with the charging port.

sMART - Student Mentorship App | HTML/CSS · React · Django · MySql — Summer 2020

- Worked with a team of 6 developers on a Mentorship Service Algorithm, successfully building a web app.
- Pitched at **DMZ** to qualify amongst the top 10% companies for the Basecamp Lite Incubator Program.

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.
- Employed multiple Machine Learning Deep Learning models and compared them to deploy the best predictor.

PUBLICATIONS

- "*NoFADE: Analyzing Diminishing Returns on CO_2 Investment*", NeurIPS Climate Change 2021