

# KANAV SINGLA

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## SKILLS

**Languages:** Python · SQL · JavaScript · React · Flask · C++  
**LLM Tools:** HuggingFace · OpenAI · LangChain · LlamaIndex · Pinecone · W&B  
**ML Technologies:** PyTorch · Lightning · TorchScript · scikit-learn · ONNX · OpenCV · NumPy · pandas  
**Developer Tools:** Git · Linux · FastAPI · AWS · Docker · Kubernetes · conda · pip-tools · Jupyter

## EXPERIENCE

**Valsoft** | PyTorch · HuggingFace · LangChain · LlamaIndex · Pinecone · FastAPI · AWS Montreal, QC  
*AI Product Owner* Jun 2023 - Present

- **Pioneered Valsoft's AI Initiatives** as the first employee, leading the integration and fine-tuning of industry-leading foundation models and open-source tools in M&A workflows, enhancing tech-driven acquisitions.
- Developed **RAG Systems** using Pinecone, optimizing data scraping and indexing of prospect datasets, building vector stores for past acquisitions with novel search algorithms to significantly enhance sourcing quality.
- Designed & Engineered the entire AI Pipeline with LangChain and LlamaIndex, enhanced by RAG and integrated model evaluations, significantly outperforming traditional M&A methods.
- **Drove the full lifecycle of AI product development**, from concept to deployment, leveraging multi-tenant AI infrastructure with OpenAI, Azure, Bedrock, & Docker in AWS environments for scalable solutions.

**Toronto Intelligent Systems Lab** | PyTorch Lightning · Hugging Face · Docker · Linux Toronto, ON  
*AI Research Assistant (Supervisor: Igor Gilitschenski)* Aug 2022 - Aug 2023

- Led research on online adaptation of Autonomous Racing cars for unseen environments published in my thesis.
- Engineered an advanced, context-aware dynamics prediction pipeline leveraging SOTA transformers & LLMs in regards to building **foundation models for control**.
- Strategically preparing research findings for potential publication at robotics conferences, CoRL & ICRA.

**Huawei Technologies Canada, Noah's Ark Lab** | PyTorch · pandas · Docker · Linux Toronto, ON  
*AI Engineer, Autonomous Driving* Jun 2021 - Aug 2022

- Contributed to the implementations & patents for the planning stack of Huawei's Autonomous Driving System.
- Implemented state-of-the-art **end-to-end** solutions from literature for prediction & planning in PyTorch.
- Orchestrated distributed training runs on big data-sets & perform tuning to develop **4 different baselines**.
- Developed modular simulation environments for training & offline evaluation of our models, **reducing** team's evaluation & testing times by **50%**.

**UofT, Dynamic Optimization Lab** | Python · TensorFlow · Keras · ONNX Toronto, ON  
*Machine Learning Research Fellow (Supervisor: Dr. Chi-Guhn Lee)* May 2020 - Aug 2020

- Developed a contraband detection pipeline for X-ray baggage scans using transfer learning on a private dataset.
- Led analysis & testing of **object detection & classification models** to increase the pipeline's recall by **10%**.
- Awarded with **UofT Fellowship Award** (valued at \$10,000) for successful implementation of practical research.
- Achieved real-time inference & **94% recall** for our pipeline deployed at the Seoul-Incheon Intl. Airport.

## NOTABLE PROJECTS

**SMART - Student Mentorship App** | HTML/CSS · React · Django · SQL

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

## EDUCATION

**University of Toronto** Toronto, ON  
BASc. in Engineering Science (Robotics & Machine Learning Engineering), with Honors June 2023

**Achievements:** Multiple Dean's Honours List · Euclid International Math Contest Honour Roll (Ranked 13th)  
**Coursework:** Full Stack LLM Bootcamp · CS25: Transformers United · Natural Language Computing · Deep Learning & Neural Networks (Grad) · Probabilistic Machine Learning · Control Systems