Aditya Mehrotra

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Education

University of Toronto — Toronto, ON, Canada
Bachelors of Computer Science, Computer Science Specialist — *Sept 2020 – Apr 2024*

Experience

Machine learning Intern at Kinaxis — May 2022 – Aug 2022
Ottawa Team

- Developed internal tools using Argo and Kubernetes to run training, testing and hyperparamter tuning workflows
- Worked on new feature transformations using geographical data to improve internal forecasting algorithms. Used databricks, geopandas/pandas and numpy for this project.

UofT Self-Driving car team (Lane Detection subteam) — Sept 2022 – Present
University of Toronto — *Toronto, ON, Canada*

- Working on lane line and stopline detection methods using both classical computer vision techniques and deep learning
- Working with various segmentation codebases such as YOLOPV2, HybridNet to configure them for training/testing on internal datasets

Undergraduate Research Assistant — Jan 2023 – Present
University of Toronto — *Toronto, ON, Canada*

- Working on depth estimation for laproscopic surgery alongside PhD student Michael Cooper, supervised by professor Rahul Krishnan

Projects

Numpy Neural Network | *Python, Numpy*

- Implemented an end-to-end neural network from scratch using SGD
- Wrote a short document on my understanding of backpropagation in neural networks covering the relevant mathematics

Computer Vision Paper Implementations | *Numpy, Pytorch, Matplotlib*

- Implemented both Vanilla GAN and Conditional GAN on MNIST
- Implemented NeRF in PyTorch and reproduced similar results from the original paper
- Implemented various autoencoders including a vanilla VAE and VAE with CNN decoder/encoder. Emphasized the ability to easily swap out datasets and model hyperparamters

Distillation for zero-shot learning | *Numpy, Pytorch, Matplotlib*

- Implemented knowledge distillation from the original knowledge distillation paper by Hinton et al. for an image classification problem
- The results achieved on MNIST demonstrate that the neural network can learn to classify classes it did not see during training through soft labels.

Technical Skills

Languages: Python
Developer Tools: Git, VS Code, Bash
Libraries: Numpy, Matplotlib, Pytorch, OpenCV, Pandas