Armaan Nanji

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Education

University of Toronto **September 2022 – Present**

Honours Bachelor of Science in Computer Science and Economics

- **Academics** : Cumulative GPA of 4.0/4.0; Dean's List Scholar; In-Course University of Toronto Scholar

Relevant Coursework

- Machine Learning
- Artificial Intelligence
- Intro. to Databases
- Systems Programming
- Data Structures & Algo.
- Computer Organization
- Stats & Data Analysis
- Software Design

Experience

Research Assistant, Machine Learning **May 2024 – August 2024**

University of Toronto, Department of Economics *Toronto, Ontario*

- Preprocessed 20,000 rows of historical movie data by reformatting strings, applying keyword extraction and embedding
- Applied dimensionality reduction and a cosine similarity model to the emeddings of movie synopses to measure the net political leaning of movies in the mid 1900s
- Created visualizations using matplotlib and write-ups in LaTeX to present findings to research supervisors

Research Assistant, Statistical Analysis **May 2024 – August 2024**

University of Toronto, Faculty of Medicine *Toronto, Ontario*

- Applied statistical techniques using R, such as ANOVA and logistic regression, to draw inferences from experiments
- Consulted researchers on phenomena found in data, statistical methods to use and interpreting the results of analyses
- Read through medical literature to extract experimental data, summarise the results of statistical tests and create visualizations for notable findings, which were subsequently included in the final papers

Administrative Assistant **May 2023 – August 2023**

VIA Rail Canada *Toronto, Ontario*

- Managed an archive of over 1,000 documents within VIA Rail's real estate department
- Organised over 50 outbound work orders issued by VIA Rail Canada through the creation of spreadsheets
- Travelled to over 15 VIA Rail stations and created reports regarding the security features in each establishment

Projects

Traffic Sign Localization and Classification

- Used Keras to implement a neural network to classify street signs and predict their bounding boxes
- Preprocessed over 10,000 images, which included resizing, denoising and randomized cropping
- Was able to reduce the problems associated with exploding/vanishing gradients by using the ELU activation function, He initialization, and batch normalization, which improved IoU by 4.9% on the validation set
- Created an web app using Next.js and Flask that allows users to evaluate their own images using the final model

Exploratory Data Analysis of NBA Statistics

- Wrote a report concerning the evolution of three point shooting over 50 seasons of the NBA using R Markdown
- Preprocessed and cleaned a gigabyte of NBA shot log, game and player data using tibble and dplyr
- Used ggplot2 to create visualizations such as histograms, scatter plots, line graphs and spatial data visualizations
- Performed regressions on the collected data using modelr and proposed explanations for notable patterns

Technical Skills

Languages: Python, Java, C/C++, R, HTML, CSS, JavaScript, Typescript, PostgreSQL
Developer Tools: VS Code, PyCharm, IntelliJ, Visual Studio, RStudio, Git/GitHub
Technologies/Frameworks: Next.js, ggplot2, NumPy, Pandas, MatplotLib, scikit-learn, Keras, TensorFlow, PyTorch