


# ARMAAN NANJI

Toronto, Ontario

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## Education

### University of Toronto

September 2022 – Present

*Honours Bachelor of Science in Computer Science and Economics*

- **Academics** : Cumulative GPA of 4.00/4.00; Geoffrey Payzant Award; University of Toronto Scholar; Dean's List Scholar

### Relevant Coursework

- |                           |                         |                       |                           |
|---------------------------|-------------------------|-----------------------|---------------------------|
| • Machine Learning        | • Operating Systems     | • Databases           | • Data Structures & Algo. |
| • Artificial Intelligence | • Computer Organization | • Systems Programming | • Stats & Data Analysis   |

## Experience

### Research Assistant

September 2024 – Present

*University of Toronto, Rotman School of Management*

*Toronto, Ontario*

- Performed literature reviews and assisted in the development and validation of methodologies to gauge patent similarity, measure inter-firm competition and detect product obsolescence
- Used these measurements to develop models that could predict the outcome of patent litigation and M&A cases
- Implemented a pipeline to clean, merge and process datasets of over 250,000 products and 8,000,000 patents, using Compute Canada to distribute the computation across multiple GPUs with tools such as PyTorch and cuML

### Research Assistant

May 2024 – Present

*University of Toronto, Department of Economics*

*Toronto, Ontario*

- Preprocessed historical movie data by wrangling data, using keyword extraction and utilizing OpenAI to embed text
- Applied dimensionality reduction, cosine similarity models and clustering to the embeddings of movie synopses using Pandas, NumPy and scikit-learn, which helped researchers measure the political bias contained within movies
- Used Selenium to perform web-scraping on “Concert Archive” to explore changing music preferences over time

### Research Assistant

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
- Was able to reduce the problems associated with exploding/vanishing gradients by using skip connections, He initialization and batch normalization, which improved IoU by 4.9% on the validation set
- Created a web app using Next.js and Flask that allows users to evaluate their own images using the final model

## Technical Skills

**Languages:** Python, Java, C/C++, R, HTML, CSS, JavaScript, Typescript, PostgreSQL

**Developer Tools:** VS Code, PyCharm, IntelliJ, Visual Studio, RStudio, Git/GitHub, Slurm

**Technologies/Frameworks:** Next.js, ggplot2, NumPy, Pandas, Matplotlib, scikit-learn, Keras, TensorFlow, PyTorch