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 4.00/4.00; Geoffrey Payzant Award; University of Toronto Scholar; Dean's List Scholar

Relevant Coursework

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

Experience

Research Assistant **May 2025 – Present**

University of Toronto, Department of Computer Science *Toronto, Ontario*

- Engaged in research that explores how preprocessing affects model performance in a federated learning environment
- Conducted literature reviews on ML methods for task aware frame sampling and near duplicate video detection, and adapted them to a federated setting using FlowerML
- Performed experiments using compute clusters such as CloudLab and Compute Canada, e.g. constructed Pareto frontier with respect to the number of frames sampled to explore the trade-off between accuracy and computational cost

Research Assistant **September 2024 – Present**

University of Toronto, Rotman School of Management *Toronto, Ontario*

- Assisted in the development of methodologies to gauge inter-firm similarity, establish links between a firms products and patents, and explore whether these links had statistically significant relationships with M&A or litigation outcomes
- Used traditional methods such as citation count and citation breadth to gauge a patent's originality and impact, but also incorporated textual similarity using SBERT embeddings
- Implemented a pipeline to process datasets of over 250,000 products and 8,000,000 patents

Research Assistant **May 2024 – May 2025**

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

- Worked on projects that utilized ML to explore the how movie and music trends evolved throughout American history
- 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 build a database of concerts

Research Assistant **May 2024 – August 2024**

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

- Analyzed data and performed literature reviews related to various studies in occupational therapy, such as one that analyzed the impact of COVID-19 on employment satisfaction
- Applied statistical techniques using R, such as ANOVA and logistic regression, to draw inferences from experiments
- 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

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