

Mohamed Harmanani

🌐 harmanani.com 🐙 mharmanani 🌐 mharmanani ✉ harmanani.mohamed@gmail.com

EXPERIENCE

Data Scientist | FLINKS

Montréal, QC, Canada · Sep 2021 – Sep 2022

- Accelerated the development of MLOps tools using **DVC** & **Google Dataflow ETL** to build data processing pipelines for NLP
- Optimized Deep Learning models (BERT) for classifying financial transactions using **PyTorch** and **AWS SageMaker**, resulting in a 33% increase in performance metrics
- Bolstered the effectiveness of screen scrapers for automated data collection by conducting **A/B testing** experiments on 2M+ browsers, increasing volume of collected data by 20%
- Developed **XGBoost** models to identify key errors in browsers used for screen scraping, improving accuracy by 40% and reducing failure rates by 48%
- Built enterprise level data visualization tools for data exploration by product teams using **Streamlit**, providing real-time visibility into relevant KPIs
- Utilized explainability frameworks to interpret Machine Learning models, turning predictions into product improvements

Machine Learning Research Intern | UOFT CSED RESEARCH GROUP

Toronto, ON, Canada · Apr 2021 – Sep 2021

- Implemented NLP and deep learning techniques (RNN, BERT) for automated bug detection in student code using **PyTorch**
- Improved data processing tools for extracting 15000+ data points from student submissions to serve as training data
- Trained and fine-tuned RNN, Transformer, and CodeBERT models, leading to a 55% increase in model performance
- Implemented a front-end tool for generating 2500+ test inputs on the fly, decreasing time spent testing models by 300%
- Deployed over 50 machine learning models to a **Flask** web server, allowing to run and compare models 5x faster

Bioinformatics Research Intern | UNIVERSITY OF TORONTO MISSISSAUGA

Toronto, ON, Canada · Sep 2020 – Apr 2021

- Led the development of a data pipeline for biological sequence analysis using **Slurm**, **Bash** and **Python**, reducing task turnaround time from 1 week to 2 days
- Developed tools to clean, assemble, and align RNA transcript data, using **FastQC**, **Trinity**, **Hisat2**, and **BLAST**
- Wrangled over 6TB of data, and extracted insights such as alignment frequency and average transcript length

Software Engineer Intern | VENNGAGE

Toronto, ON, Canada · May 2019 – May 2020

- Implemented probabilistic algorithms for design generation in **TypeScript**, **React** & **Fabric.js**, increasing quality metrics by 13%
- Developed a scalable service for icon searching using **React** & **Algolia**, reducing search times on the icon library by 200%
- Identified pain points and performance issues by logging and analyzing user data using **Mixpanel**, **Python**, **JavaScript**

SKILLS

Programming: Python, SQL, JavaScript (React, Node.js), Java, TypeScript, C, PHP, HTML, CSS

Data Science: GCP (Dataflow ETL, BigQuery), AWS (S3, SageMaker), A/B Testing (t-test, χ^2), Product Analytics

Machine Learning Tools: PyTorch, HuggingFace, scikit-learn, XGBoost, Deep Learning (CNN, RNN, BERT)

PUBLICATIONS

S. Fujimori, **M. Harmanani**, O. Siddiqui, L. Zhang, **Using Deep Learning to Localize Errors in Student Code Submissions**

PROCEEDINGS OF THE 53RD ACM TECHNICAL SYMPOSIUM ON COMPUTER SCIENCE EDUCATION (SIGCSE 2022)

EDUCATION

University of Toronto

Toronto, ON, Canada · Sep 2016 – Dec 2021

HBSc IN COMPUTER SCIENCE & PHILOSOPHY

HONOURS & AWARDS

Dec 2021	Undergraduate Research Grant	\$1000
Jun 2021	Maths. & Computer Science Honour Roll	
May 2021	Excellence 300 Prize in Philosophy	
Sep 2016	UofT Entrance Award	\$3000