

# ARJUN SHARMA

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## Experience

### Borealis AI

September 2022 – April 2023

*Machine Learning Software Engineer Intern*

*Toronto, Canada*

- Developed custom docker images for AWS SageMaker training & inference, significantly reducing training and data preparation times by 5x
- Deployed machine learning models and created inference endpoints as part of an end-to-end machine learning pipeline on AWS, ensuring efficient model deployment and serving
- Engineered scalable APIs and services for stock market simulator, [Prism](#), reducing system latency using FastAPI, threading and PostgreSQL multi column indexing

### Royal Bank of Canada

May 2022 – August 2022

*Software Developer Intern - Amplify*

*Toronto, Canada*

- Developed an Angular web application and notification service with a Flask and PostgreSQL backend, deployed to OpenShift
- Collaborated with a cross-functional team on model development to predict data processing times for data feeds in RBC Capital Markets, improving data processing efficiency
- Successfully pitched the developed product to RBC's executives at AmpExpo, a conference with over 200 attendees

### King Mongkut's University of Technology Thonburi

May 2021 – August 2021

*Machine Learning Research Intern*

*Bangkok, Thailand (Remote)*

- Co-authored paper on the performance of various machine learning models in predicting building energy consumption
- Extracted features from PubMed articles on Melioidosis for data analysis and feature engineering through Pandas and Scikit-learn

## Research & Projects

### Undergraduate Thesis: Privacy Preserving Fine Tuning of Large Models

September 2023 – May 2024

- Using split learning architectures (among others) for fine tuning large models in a privacy preserving manner

### Building Energy Consumption Forecasting: A Comparison of Gradient Boosting Models

May 2021

- Research paper reviewing gradient boosting based methods & comparing CatBoost, LightGBM, and XGBoost models to predict building energy consumption. Submitted to [IAIT: International Conference on Advances in Information Technology](#)

### Renshu, Question Generator for Google Assistant | *Transformers, SQL, Node.JS, Python*

January 2021

- Extracted question-answer pairs from text files using a Transformers model to generate interactive Google Assistant quizzes
- PostgreSQL backend with NodeJS front-end, and then outputs to Google Assistant enabled devices

### Shortest Path Between Wikipedia Articles

September 2023

- Extracting features from ~500,000 Wikipedia articles in order to find the shortest path between a start and target page
- Generated embeddings for each article and compared each link as a query, following retrieval and ranking system design
- Used k-means clustering as a heuristic for search

### Lec2Notes, Lecture Summarizer | *Python, Node.JS, Transformers, Google Cloud Platform*

November 2020

- Takes in lecture audio and outputs a summary to a Google Doc
- Integrated Google Cloud Platform's Speech-to-Text and Transformers model to generate the summary
- Won best use of Google Cloud at NewHacks2020

### Course Projects | *Spark, PyTorch, Numpy, Pandas, Scikit-learn*

September 2021 – May 2024

- [CSC413](#): Embeddings, Convolutional Neural Networks, Recurrent Neural Networks, Attention (NLP, NMT), DCGAN, Reinforcement Learning (DQN)
- [ECE324](#): Adversarial Learning Procedure, Tic-Tac-Toe with Policy Gradient

## Education

### University of Toronto

September 2019 – May 2024

*BASc. in Engineering Science: Machine Intelligence*

*Minor in Engineering Business*

Relevant Courses: [Neural Networks & Deep Learning](#), Artificial Intelligence, Operating Systems, Data Structures & Algorithms, Data Mining, Software Engineering

## Technical Skills

Python, PyTorch, TensorFlow, Pandas, Numpy, Scikit-learn, NLTK, Flask, Spark, C, SQL, React, OpenShift, Docker, Amazon Web Services (AWS)

## Certificates & Extracurriculars

### NVIDIA Deep Learning Institute

May 2021

### Goldman Sachs Summer Insight Series

May 2021 – July 2021

### Competitive Badminton

May 2016 – Present