

# Lakshya Prakash Agarwal

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## EDUCATION

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### McGill University, Desautels Faculty of Management

Master of Data Science & Analytics (MMA) | GPA : 3.87/4.00

Montreal, CA

Jul. 2023 – Aug 2024

**Relevant Coursework:** Enterprise Machine Learning, Text Analytics, Optimization for Data Science

### Delhi University, Hansraj College

Bachelor of Arts (Economics) | GPA : 8.92/10.00

New Delhi, IN

Jul. 2017 – Aug 2020

**Relevant Coursework:** Microeconomics, Econometrics, International Trade, Financial Instruments

## EXPERIENCE

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### Graduate Research Assistant

Sept 2023 – May 2024

McGill University, Desautels Faculty of Management

Montreal, CA

- Leveraged **GPT-4** and function calling to perform sentiment analysis on over 250,000 social media posts, speeding up time to insights by 40% and enhancing the accuracy of a study on how online media shapes public opinion
- Developed and managed a custom data analytics pipeline to analyze over 300,000 Instagram posts, including a bespoke scraper and deep learning techniques like **NLP topic modelling** and **image classification** to provide insights on feature adoption

### Data Engineer - Associate, Private Equity

Sept 2020 – May 2023

Bain & Company

Gurugram, IN

- Led the creation of an **LLM-based** GenAI application deployed on **AWS EC2** using **Docker** for scalable sentiment analysis, boosting operational efficiency by 50% in case team requests.
- Automated a retail analytics platform using **Python** and **Alteryx** on NielsenIQ PoS data, collaborating closely with leadership to save the practice ~150 hours/month and elevated client Net Promoter Score (NPS) to 90%
- Analyzed 50+ surveys through 10+ consumer behavior metrics covering brand awareness, NPS, key purchase criteria across industries, helping PE clients with investment decisions and generating ~2.8X average return
- Coached 100+ new hires in 5 practice-wide trainings on **Excel** and **Tableau**; Nominated “Star Innovator” among 800+ employees at annual awards; Organized a 50+ member community for code challenges

## PROJECTS

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### LaunchLens (LLM-based VC Idea Evaluator) | [Link](#)

- Won “Best Overall Project” among 150+ teams at a hackathon hosted by Harvard & Microsoft
- Engineered a full-stack, **RAG-enabled** idea evaluation tool using **LangChain** for real-time, critical analysis of business ideas aligned with custom investment theses

### HangryBot (LLM-based Restaurant Recommendations)

- Won the Toronto Machine Learning Summit hackathon hosted by Lightning AI for a full-stack AI-based restaurant recommender in a conversational setting
- Fine-tuned Llama-3-8B using **Lightning AI** and **PEFT** techniques on a subset of Yelp Toronto listings with synthetic data enhancement to enable location-based recommendations without external connections

### Deep Learning | [Link](#)

- Added a custom classification head with a self-attention block on a pre-trained GPT-2 model and fine-tuned it using **PyTorch**, **textbfPyTorch Lightning**, and **HuggingFace transformers** achieving near-SOTA accuracy
- Trained a character-level multi-layer Long Short-Term Memory (**LSTM**) model from scratch using minimal dependencies, to understand the inner workings of recurrent neural networks (**RNNs**)
- Built a custom transformer language model (GPT-2 equivalent) from scratch to learn about key concepts such as tokenization, attention, encoder-decoder, and mechanistic interpretability

### Data Science & Optimization

- Achieved 1st place among 8+ teams in the Databricks Analytics Hackathon, predicting score margins for the NBA using machine learning tools such as **pandas**, **scikit-learn**, **MLflow**, and **Unity Catalog** on the Databricks platform
- Engineered a Python-based solution for a Vehicle Routing Problem, optimizing public transit evacuation routes for the Montreal’s public transit authority using Mixed Integer Linear Program (MILP) techniques and **Gurobi** solver

## SKILLS

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**Languages:** Python, SQL, JavaScript, HTML/CSS, R

**Libraries:** Pandas, NumPy, matplotlib, Scikit-learn, NetworkX, MLFlow, PyTorch, PySpark, OpenAI, Huggingface, LangChain, PyTorch Lightning

**Frameworks and Tools:** Flask, Streamlit, FastAPI, Docker, Git, CI/CD, PowerBI, Tableau, Alteryx, Azure, AWS, Databricks, Airflow, Vector Databases, React, Next.js, Node.js

**Certifications:** Generative AI Associate Engineer (Databricks)