

Rahul Atre

[Website](#) | [Email](#) | [Linkedin](#) | [Github](#)

Education

University of Ottawa

Ottawa, ON

B.S.c in Mathematics & B.S.c in Computer Science (4th Year), GPA: 3.8/4.0

Sept 2021 - Present

- **Dual Degree** with specialization in **Machine Learning**
- **Advanced Coursework:** Machine Learning, Data Science, Regression, Time Series, Multivariate Statistics, Computational Statistics, Optimization
- **Graduation Date:** May 2026

Experience

Undergraduate Research Assistant

Ottawa, ON

University of Ottawa

Jan 2023 - Apr 2023

- Developed a **Separation-Reduction** algorithm to enhance the Probabilistic Transitive Closure (PTC) for Fuzzy Cognitive Maps.
- Implemented using a divide-and-conquer process of reducing one digraph into smaller components (bipolar & weighted) with no two parallel arcs having the same sign.
- Allowed for **enhanced efficiency** at polynomial time $O(n^2)$ in the computation of PTC which can provide deeper insights into Fuzzy Cognitive Maps represented with bipolar weighted digraphs

Projects

Fruit Classification Using A Convolutional Neural Network | Python, Keras, TensorFlow

[\[Link\]](#)

- Implemented **image augmentation** and **dropout** techniques to tackle overfitting, achieving a classification accuracy of **93%**
- Conducted **hyper-parameter** tuning using **Keras Tuner** to improve model performance, achieving an accuracy of **95%**.
- Utilized transfer learning with the pre-trained **VGG16 network**, reaching a final classification accuracy of **98%**.

Grocery Delivery Optimization | Python, Scikit-learn, Matplotlib

[\[Link\]](#)

- Created & applied a **Genetic Algorithm** in Python to search out a near-optimal route across 10 addresses
- Led to an estimated **savings of up to 50%** in both delivery time and fuel consumption over a route based upon transaction order alone. This approach could be utilized across many industries as a way to find more optimal solutions.

Customer Segmentation Using K-Means Clustering | Python, Pandas, Scikit-learn

[\[Link\]](#)

- Used **k-means clustering** on grocery transaction data to split out customers into distinct "shopper types" that could be used to better understand customers over time, and to target customers more accurately with relevant content & promotions.

Mealer App - Food Delivery System | Java, Android Studio, Firebase

[\[Link\]](#)

- Led a team of 5 students in developing a food ordering Android app that provides a complete solution for clients to order favorite meals from chefs nearby.
- Utilized **Chain-of-Responsibility**, **Model-View-Controller**, **Dispatcher-Action-Handler** design patterns.

Technical Skills

Languages: Python (Matplotlib, Scikit-Learn, TensorFlow, Keras), Java, Javascript, Go, C, HTML/CSS, SQL, Bash

Technologies: Unix/Linux, Spring Boot, Spark, React, Node.js, Next.js, Firebase, Android

DevOps: Docker, Kubernetes, Kafka, Git, Github, GitHub Actions, AWS (S3, ECS, Lambda), CI/CD, Terraform

Machine Learning: Linear Regression, Logistic Regression, Decision Trees, Random Forest, KNN, k-means, PCA, Associate Rules Mining, Causal Impact Analysis

Certifications

DSI Data Science Professional Certification

Aug 2023 - Feb 2024

AWS Associate Developer Certification Training

Apr 2024 - Present