

# RONAV ROY CHOWDHURY

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## Education

### McMaster University

SEPT. 2022 - APR. 2027

Bachelor of Engineering in Biomedical and Software Engineering

Hamilton, ON

- **1st Place** - McMaster Engineering Hackathon (NOV 2023): Developed an ML-driven solution within 6 hours.

## Work Experience

### FULL STACK DEVELOPER | *MONSTRARTITY*

APR. 2024 - PRESENT

- Designed and optimized various website pages and features using **HTML**, **CSS**, and **JavaScript** to enhance user experience.
- Implemented **Python-based automation workflows** leveraging **GCP** to streamline large-scale data analytics.
- Boosted site SEO and performance by over **200%** leveraging tools like **Google Lighthouse** and **Google Tag Manager**.
- Ensured site reliability through comprehensive QA testing, focusing on **API load balancing** and **scalability**.
- Collaborated in **Agile sprints** and frequent code reviews focusing on secure, maintainable code delivery.

## Projects

### SMART RECIPE | *Django, MongoDB, Python, Voyage AI, Docker, Gunicorn, Anthropic Claude*

MAY 2025

- Developed a scalable **Django** web application for recipe management, integrating **MongoDB** as the primary database backend using **django-mongodb-backend** to support flexible, schema-less data models.
- Implemented vector search and text-based search using **Voyage AI** and **Anthropic's Claude** (LLMs) leveraging **retrieval-augmented generation**, enhancing user experience with context-aware recipe generation and personalized suggestions, improving user engagement by **25%**.
- Containerized the entire application with **Docker** and **Gunicorn**, reducing deployment time by **40%** and enabling consistent production environments.
- Designed and optimized the project following Django's **Model-View-Template (MVT)** architecture, efficiently managing complex **vector embeddings** data flow between models and views to deliver fast and accurate AI-driven search results.

### NOVUS CYBERSECURITY | *AWS RDS, AWS KMS, PostgreSQL, React, TypeScript*

NOVEMBER 2024

- Deployed secure AWS infrastructure using **AWS RDS**, **Secrets Manager**, and **AWS KMS** to manage access control.
- Utilized **AWS Secrets Manager** with **Python** scripts to securely manage and control access to **AWS RDS**, and provide client-side encryption using the Blowfish Encryption Algorithm to protect data in transit.
- Optimized API integrations and load balancing using **Python** for high availability and fault tolerance.
- Utilized **PostgreSQL** for database schema design and query optimization.
- Created a password management system in **C** that enforced strict password creation guidelines and provided real-time feedback on password strength.
- Developed a responsive front-end using **React**, **TypeScript**, and **Tailwind CSS**, integrating **Google OAuth** for secure login and displaying multi-factor authentication (MFA) capabilities to enhance user security.

### SCRIBBL.AI | *HTML/CSS, JavaScript, GCP, React, Firebase*

FEBRUARY 2024

- Developed a canvas in **Vanilla JS** and **HTML/CSS** to allow the user to draw letters and send them to **Cloud Storage**.
- Developed a handwriting recognition app using **GCP Vision API** for real-time inference and **React** for dynamic UI.
- Utilized **Firebase** to keep track of user attempts for **50+ characters** and **4 achievement levels**.

### NBA PLAYER CLASSIFIER | *OpenCV, Python, Keras, Scikit-learn, JavaScript, Flask*

SEPTEMBER 2023

- Developed **ML pipeline** using **Computer Vision** from **OpenCV** and **Python** to classify 600+ images.
- Implemented **Computer Vision** from **OpenCV** and **haar cascade** to isolate specific facial features in a given image of a player.
- Utilized **GridSearchCV** with **Keras** and **Scikit-learn** to test various classification **ML models** (**random forests**, **XGBoost**, **logistic regression**, **SVM**), hypertune their parameters, and find the optimal model.
- Deployed a Flask web app for real-time image processing and classification.
- Designed a UI with **Bootstrap**, and **JavaScript** to communicate with the **Flask** server.

## Technical Skills

**Programming:** Python, C, TypeScript, React, Node, SQL (Postgres), Java, HTML/CSS, Bash

**AI/ML:** TensorFlow, Pandas, NumPy, SciPy, Keras, Scikit-learn, PyTorch, Computer Vision (OpenCV), NLP

**Cloud Services:** AWS, GCP (Cloud Functions, Vision API)

**Tools:** Docker, Git

**Relevant Coursework:** Software Development, Network Basics, Software Architecture, Concurrent System Design, Computer Architecture, Algorithms, Databases, Bash Scripting, Software Testing

## Certifications

- **AWS Solutions Architect - Associate** JANUARY 2025
- **Advanced Learning Algorithms** SEPTEMBER 2023
- **Supervised Machine Learning: Regression & Classification** SEPTEMBER 2023
- **Python for Data Science & Machine Learning Bootcamp** JULY 2023