Gajanan Vigneswaran

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Summary

Second-year Computer Science student at Toronto Metropolitan University with a 4.11/4.33 GPA and expertise in machine learning, data-driven analytics, and full-stack development. Skilled in Python, and SQL, with hands-on experience building solutions to complex problems. Proven ability to translate complex datasets into actionable insights, optimize processes, and collaborate in team environments.

Skills and Interests

- **Programming Languages: Python**, Java, JavaScript, HTML, CSS, C, SQL, Elixir
- **Developmental tools:** Git/GitHub, Unix/Linux environments, Linux shell script, Selenium, Node.js, React.js

Education

Toronto Metropolitan University (formally Ryerson University) Toronto, ON
Bachelor of Science in Computer Science (BS) **GPA 4.11/4.33** Sep 2023 - Apr 2027

Relevant Coursework:

- **Python**, **Object-Oriented Design** (Java), UNIX Environments, C and C++, Probability and Statistics I with R
- **Data Structures and Algorithms,** Calculus I - II, Linear Algebra, Discrete Mathematics,

Work Experience

Toronto Metropolitan University Translational Medicine Laboratory Toronto, ON
Research Assistant May 2024 - Aug 2024

- **Awarded** the Undergraduate Research Opportunities Award from the TMU Faculty of Science.
- Developed a deep learning model to improve **multimodal medical image registration**, a process that aligns medical images from different sources (e.g., MRI and US scans) to reduce costs while improving diagnosis and treatment.
- Conducted a **literature review** on deep learning techniques for image registration, analyzing 25+ research papers.
- **Presented** project proposals to my professor and led knowledge transfer sessions for incoming master's students.
- **Technologies: Python**, **TensorFlow**, **SQL**, NumPy, matplotlib, Jupyter Notebook, pandas.

Projects

Movie Rating and Recommendations Website

- Developed a Flask web app for movie ranking and recommendations, with user authentication, a movie data API, and SQL database management via SQLAlchemy.
- Engineered a content-based machine learning recommender system using Scikit-Learn.
- Designed a user-friendly platform for movie enthusiasts, enabling personalized rankings and recommendations.
- Tech stack: **Python**, **Scikit-Learn**, **SQLite**, **REST API**, HTML, CSS, Bootstrap, Flask (back-end)

Notes App with the PERN stack

- Built a RESTful API with Node.js, Express, and PostgreSQL to enable user-specific CRUD operations for notes.
- Developed a React frontend with secure authentication, allowing users to manage personal notes dynamically.
- Implemented authentication middleware to restrict data access, ensuring security and user isolation.
- Designed an architecture integrating secure session handling and token verification for a seamless user experience.
- Technologies used: **JavaScript**, React.js, Node.js, PostgreSQL, Express.js, bcrypt, JWT, HTML, CSS.

Digit Recognition App

- Trained a convolutional neural network on a dataset of 60,000 hand-written digits using TensorFlow and Keras.
- Implemented a user-friendly GUI using Tkinter, enabling users to draw digits for recognition.
- Technologies used: Python, TensorFlow, NumPy, Tkinter GUI library.

Bookstore Project

- Collaborated in a team environment to develop an online bookstore featuring user profiles and efficient order management, focusing on clear maintainable code.
- Designed **UML** class and use case diagrams to outline system structure and user interactions
- Technologies used: **Java**, JavaFX front-end, NetBeans