

RIDWAN HOSSAIN

3rd YEAR SOFTWARE ENGINEERING STUDENT

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 [GitHub](#)  [LinkedIn](#)

TECHNICAL SKILLS

- Technical experience in Full-stack software development.
- Strong knowledge of sophisticated data structures and algorithms.
- Versed in developing high level software architecture utilizing UML alongside industry proven software development life cycle process models such as Waterfall, Agile, Incremental, Spiral, etc.

Backend

Python Django REST Java JavaScript ES6
TypeScript Node.js PHP C C++ Bash / Shell

Databases

MySQL PostgreSQL
Azure Cosmos DB

Frontend

HTML5 CSS3 Svelte Tailwind CSS React Next.js Bootstrap

Tools

Docker npm Git GitHub Apache Jenkins
Junit Python Unittest Selenium Visual Studio

Operating Systems

Linux Windows
MacOS

EDUCATION

**Bachelors of Engineering and Management
(Honours) - Software Engineering**

**University of Ontario Institute of Technology
(2019 - Present)**

- **Current Cumulative GPA:** 4.18 / 4.30
- **Academic Achievements:** President's Honours List Designation (Year 1, Year 2, Year 3)
- **Key Courses:** Data Structures, Design & Analysis of Algorithms, Web Programming, Object Oriented Programming and Design, Data Management Systems, Software Design & Architecture, Systems Programming, Software Project Management, Introduction to Artificial Intelligence, Computer Networks, Operating Systems, Principles of Software Requirements, Software Quality

PROJECTS

Inventory Management Web Application ([Link](#))

- Used Python, HTML, CSS, Javascript, and PostgreSQL in conjunction with the Svelte and Django REST frameworks to design and implement an inventory management web application.
- Application is used to manage product inventory, store information, and staff data for a retailer.
- Has an aesthetically conscious client-facing front end built using Tailwind CSS which communicates JSON data to a server-facing back end, and was deployed using Docker and Docker-Compose.

Content-based Image Retrieval ([Link](#))

- Leveraged Python and its associated Pandas, OpenCV, Pillow, and Numpy libraries in order to design and implement a comparative analysis algorithm on an image dataset.
- A subset of the MNIST 10,000 handwritten digits database was analyzed and processed.
- Compared and retrieved similar images with the implementation of Radon barcodes.

E-commerce Ticket Booking Website ([Link](#))

- Utilized HTML, CSS, PHP, and MySQL in order to design a small-scale, locally hosted website.
- The platform consisted of an online store for making theatre bookings and ticket purchases.
- User may add and remove profile data using a login system, display various graphical elements employing Bootstrap, and save/update/query session data via PHP and a MySQL database.

Neighborhood Segmentation and Clustering ([Link](#))

- Utilized HTML, Python, and Python's Pandas, Folium, scikit-learn, and Matplotlib libraries to find the best geological location to satisfy a set of constraints.
- Retrieved geospatial data from the Foursquare Places API and obtained population/crime related datasets from the city of Toronto's Open Data Portal.
- Processed, merged, segmented, and analyzed datasets containing over 25,000 entries.
- Surveyed a geological area of 700 km² and constructed a heatmap to visualize the data.
- Plotted results using methods of K-means clustering powered by machine learning classification.

Software Architecture Design Report ([Link](#))

- Designed a high level software architecture for a set of given use cases and requirements.
- Leveraged the ADD design process and key software architecture design principles.
- Has full engineering documentation, domain models, architecture diagrams, & UML schematics.

WORK EXPERIENCE

Research & Development Intern

University of Ontario Institute of Technology (May 2022 - Present)

- Used Python, C++, and Shell scripting to help accelerate the development of autonomous vehicle functions by building a digital twin system of an instrument cluster in an Ubuntu environment.
- Improved the performance of the simulation bench by 60%, expanded the featureset by 30%, and reduced the failure rate by 90%.
- Performed hardware interfacing through Arduino microcontrollers to connect numerous hardware peripherals to the simulated/emulated augmented reality driving system based in UE4.
- Connected the simulation system to an Android-based head unit using Python ADB tools to interface with the Android operating system and perform various commands utilizing peripherals.
- Integrated a CAN bus to the simulation bench to improve communication between hardware and software subsystems as well as to simulate software attacks for integrity testing.
- Currently developing a test suite using Python Unittest which will be used to develop a Jenkins-based CI/CD framework and generate test data to be published in a research paper.

Event Communications Coordinator

Bangladeshi Students' Association (Oct 2018 - Mar 2020)

- Coordinated and successfully organized a variety of events for a large student body, including fundraisers, festivals, and conferences.
- Completed event preparation and proposal of effective layouts for events.
- Managed communication amongst members and event logistics.
- Collaborated with vendors to meet client expectations.