

ZACHARY DUBÉ-BOULIANE

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Montréal, Qc, Canada | Fully bilingual french/english

EDUCATION

Université de Montréal

Bachelor's degree in Computer Science

Montreal, Qc

Aug. 2022 – Expected Dec. 2025

- Key Courses : Data Structures, Software Engineering, Database, Graphics Programming and Machine Learning

CÉGÉP du Vieux-Montréal

College degree in social science with math

Montreal, Qc

Aug. 2017 – Dec. 2020

PROJECTS

Raytracer | C++

- Designed and implemented a core ray-tracing algorithm in C++ to render 3D scenes in cooperation with a teammate utilizing GitHub for version control.
- Implemented support for geometries such as spheres, cylinder, planes, and triangles (meshes) for realistic lighting and shadows.
- Added support for reflection, refraction, and material properties (e.g., diffuse, specular) to simulate realistic surface interactions.
- Utilized structures like axis-aligned bounding box (AABB) and bounding volume hierarchies (BVH) to accelerate ray-scene intersection tests.
- Simulated point and directional lighting and developed adjustable camera parameters (e.g., field of view, depth of field).

Class Registration App | Java, JavaFX

- Backend development for a Java-based class registration app, collaborating with a teammate on overall design.
- Developed an intuitive UI using JavaFX.
- Implemented client-server communication via Java Sockets, enabling real-time class registration.
- Designed and managed a lightweight CSV-based database for efficient storage and retrieval of class registrations.

Basic Natural Language Processing (NLP) | Java

- Designed a custom data structure for handling and processing large text files.
- Utilized the CoreNLP library to implement efficient text processing, enabling parsing and keyword extraction from large datasets.
- Developed a search system with advanced text retrieval, ranking the relevance of documents, and integrating a word prediction feature.
- Built an automatic word correction system based on Levenshtein distance.

EXPERIENCE

Floor Clerk

Jean-Coutu Pharmacy

Jun. 2021 – Present

Montreal, Qc

- Looking up products in the computer system, and generating labels.
- Place products on the floor.
- Customer service.

Donation Attendant

Renaissance St-Hubert

Feb. 2021 – Jun. 2021

Montreal, Qc

- Receiving and sorting donations.

TECHNICAL SKILLS

Languages: Java, Python, C/C++, SQL (SQLite, SQL Server), HTML/CSS, Haskell, XML, Assembly, Bash, JavaScript

Frameworks: JavaFX, THREE.js

Libraries: NumPy, Matplotlib, scikit-learn

Developer Tools: Git, GitHub, VS Code, IntelliJ, CLion, Azure Data Studio, Visual Paradigm (UML), JUnit, Maven