Karim Rhoualem

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Education

Bachelor of Engineering – Computer Engineering, GPA: 3.95   **2018 – April 2022 (Expected)**
Concordia University, Montreal, QC
Courses: Data Structures & Algorithms, Artificial Intelligence (AI), Information Systems Security, Databases, OOP.

Bachelor of Commerce – Finance (with Distinction)   **2012 – 2016**
Concordia University, Montreal, QC
Passed CFA Level II Exam

Experience

Alstom, Montreal, QC   **April 2021 – Present**
Software Engineer Intern
Full-stack **Universal Windows Platform (UWP)** desktop development and legacy microservice maintenance in **C#/.NET**.

- Designed a train control dashboard using **C#/XAML**, allowing for GUI synchronization between parallel onboard computers.
- Improved and maintained features in legacy UWP pages by refactoring code and implementing design patterns (**MVVM** and **dependency injection**), which led to reductions in **space and time complexity**.
- Led **UI design reviews** across various functional groups and prepared client technical documentation using **LaTeX**.

Bombardier Transportation, Montreal, QC   **May 2020 – April 2021**
Software Engineer Intern
Full-stack .NET development in an **Agile/Scrum** team with **SVN** and **JIRA** for version control, and **Jenkins** CI/CD DevOps.

- Developed onboard train microservices using **multithreading** in **C#/.NET Core** and an integrated **NoSQL** database, which improved the train's data transmission speeds by over 50%.
- Integrated a real-time frontend train monitoring system using **ASP.NET** (**SignalR** & **Razor Pages**)**, JavaScript,** and **HTML/CSS**, reducing field-testing time by 1+ hour per day.
- Increased project code coverage above 85% by implementing **test-driven development** (unit/integration tests in **MSTest** and **Moq**).

Projects

MERN Full-Stack Restaurant Review App - *https://github.com/karimrhoualem/RestaurantReviews*   **Oct. 2021 – Present**
- Built a serverless **REST API** using **MongoDB** Realm/Atlas (also available with a non-serverless backend using **Express/Node.js**) and a frontend **ReactJS** app using React Hooks and React Router.

Exam Invigilation App - *https://github.com/karimrhoualem/ExamApp*   **January 2021 – May 2021**
- Designed a facial recognition app using **Android/Java** for frontend and backend, **Raspberry Pi** + Pi Camera for facial recognition hardware, **Python** (**OpenCV**) for machine learning, and **SQL Lite** for database integration.

Data Augmentation for Convolutional Neural Networks – (*Proprietary Research/Code)*   **August 2021 – Present**
- Developing a live object detection system and writing a research paper on the topic of applying blending methods to image datasets with **OpenCV/Python** to improve object detection convolutional neural networks (CNNs).

Skills

Programming: C#, Java, Python, JavaScript, C++, SQL, HTML/CSS

Other: .NET Core, ASP.NET, UWP, WPF, Django, Flask, ReactJS, Express, NodeJS, Android, Git, Jenkins, Linux

Languages: English | Fluently Spoken & Written, French | Fluently Spoken & Written