MARWAN MADKOUR

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EXPERIENCE

ALITHYA Toronto, Canada

Junior Developer June 2022- April 2023

- Improved monitoring accuracy by 15% in an R-based project detecting illegal activities in trading derivatives, integrating the data.table package, incorporating client demands, and utilizing R Studio and Git Extensions.
- Enhanced SQL procedure efficiency by 12% for database and staging tables, optimizing code, improving formatting, and clarifying column-table relationships using SQL Server Management Studio, and deploying to production through Azure Pipelines.
- Revamped ASP .NET web app GUI hosted on Azure Web Apps using object-oriented programming principles, HTML, CSS, and JavaScript. Resulted in a significant increase in positive user feedback, highlighting improved user experience, enhanced responsiveness across multiple window sizes, and heightened data clarity and readability.
- Refactored GUI code with modular design, code reusability, maintainability, and scalability, while conducting comprehensive unit and integration tests for quality assurance.
- Leveraged Azure Boards in Azure DevOps to efficiently plan and manage daily Scrums using Agile methodology, incorporating CI/CD processes.

EDUCATION

BACHELORS OF MECHATRONICS ENGINEERING 2018 - 2022

McMaster University Hamilton, Canada

- Graduated with a 3.8/4 GPA.
- Dean's Honour List recipient throughout all years (2018-2022).

SKILLS & CERTIFICATES

Languages: Python, C, C++, C#, SQL, R, HTML & CSS, TypeScript, GIT

Frameworks: React, Bootstrap, ASP.NET Core, RESTful API, Node JS, Angular, MVC Architecture

Software: Visual Studio, R Studio, SQL Server Management Studio, Eclipse, Git Extensions, WinMerge, Autodesk Inventor, Keil uVision

Certification: AZ-900 Azure Fundamentals

PROJECTS & LEADERSHIP

- **Real-Time Cryptocurrency Price Tracker:** Developed a responsive React website utilizing useState and useEffect hooks to display real-time cryptocurrency prices sourced from the CoinGecko API, with adaptive layout design for varying screen sizes.
- **Dynamic Store with Shopping Cart:** Developed a responsive e-commerce website using **React**, **Bootstrap**, and **TypeScript**, providing users with a seamless shopping experience. Implemented features such as item display, shopping cart functionality, and state management using React hooks.
- **Live Face Tracking:** Developed a face tracking device using Python, **OpenCV**, and Arduino integration to detect and track faces in real-time, incorporating a serial interface and 2 motors for precise camera positioning.
- **Interactive Task Management Website**: Developed a dynamic to-do list website using **HTML**, **CSS**, and **JavaScript**, providing users with a user-friendly interface to manage tasks, prioritize activities, and track progress. Implemented features such as task creation, deletion, and editing, as well as data persistence using local storage.
- **Pacemaker Development:** Integrated software for a programmable pacemaker for the heart using MATLAB & Simulink on a Development Board (FRDM-K64F), while developing its Graphical User Interface using **Python's Tkinter** library and managing version control using GIT.
- **TCP/IP File Sync Application**: Developed a file synchronization application similar to Google Drive, utilizing TCP/IP and socket programming for efficient and secure data transfer between devices simulated on a Linux environment.
- McMaster DeltaHacks**:** Developed an Android application for note-taking, organization, and e-book annotation using Java and Android Studio, maximizing efficient time use by ensuring timely task completion within the team.
- McMaster HyperLoop**:** Collaborated with a multidisciplinary team of engineers and scientists to simulate a prototype Hyperloop, contributing to written research reports, conducting cost-benefit analysis, and playing a key role in identifying and resolving design issues, resulting in improved task allocation and a notable 20% increase in productivity.
- Utilized HAL libraries within **embedded C** to program STM32 ARM processors, implementing various circuits for applications including stepper motors, external memory, and mini games.
- Leveraged Verilog HDL to program **Intel FPGA** for diverse applications, including sound filters, reaction time tests, and custom processor designs. Utilized Quartus Prime, conducted digital signal processing, performed simulation using ModelSim, and applied High-Level Synthesis techniques.
- Demonstrated proficiency in coding and implementing operating system concepts such as processes, threads, scheduling, memory management, file systems, and resource protection using **POSIX** and **UNIX** libraries in the C programming language, within a Linux environment.
- Collaborated with a team of engineers to design a prosthetic hand, incorporating gear mechanisms, software modeling using Autodesk Inventor, and 3D printing technologies.
- Engineered a custom Arduino Uno-controlled motor system, integrated with a handle attachment for wheelchairs, tailored to facilitate simplified password input for door access, catering to the needs of users with physical constraints.