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## WORK HISTORY

### Intermediate Software Developer

Nov 2021– Apr 2023

*University of Ottawa, Department of Family Medicine, Ottawa ON*

- Led the development of 6 Node-based web applications that provided learning modules, seamlessly integrating them with a centralized platform.
- Managed the development of 3 VR applications, delivering immersive training experience for residents.
- Utilized Docker to create optimized images for application deployment, ensuring efficient packaging and deployment.
- Implemented CI/CD using GitLab and GitHub Actions to automate the build, test, and deployment processes for multiple projects.
- Collaborated with development teams to define CI/CD best practices, ensuring code quality through automated testing.
- Integrated CI/CD workflows with AWS and Azure cloud platforms, leveraging serverless services.
- Provisioned virtual servers to run the applications with EC2 Linux, while leveraging IAM for access management.
- Implemented CloudWatch for monitoring the applications' performance, ensuring optimal and timely issue detection.
- Introduced and implemented agile processes to bring structure to the development of the Innovation Portal apps.
- Designed the schema for the Innovation Portal's Microsoft SQL Server database, ensuring efficient data storage and retrieval.
- Implemented the database using Amazon RDS, optimizing performance, scalability, and data security.
- Developed and maintained a RESTful API that seamlessly communicates with an MSSQL database, ensuring efficient data management and retrieval.
- Successfully integrated Auth0 services into the microservices architecture, ensuring secure user authentication and authorization.
- Implemented Google Sign-On with Auth0, allowing users to sign in using their Google credentials.
- Integrated Azure Active Directory (Azure AD) with Auth0, enabling seamless authentication and single sign-on (SSO) for users.
- Mentored and oversaw a team of 15-20 interns, ensuring effective coordination and successful project execution.

**Tools used:** AWS, Azure, Docker, Node.js, Express.js, Cypress, Bootstrap, Postman, Selenium, MUI, SASS, SQL Server 2019, Auth0, React.js, React Native, Next.js, .NET Core 2.1, .NET 6.0, GitLab, GitHub, Artifacts, Confluence, Jira, Firebase, Unity VR, Meta Quest 2.

### IT assistant and Webmaster

May 2019 – Nov 2021

*University of Ottawa, Faculty of Law, Common Law section, Ottawa ON*

- Managed and facilitated the update and maintenance of the faculty's IT system, ensuring smooth operation.
- Provided comprehensive IT support to faculty personnel and professors, troubleshooting hardware and software issues, and resolving technical problems promptly.
- Employed tools listed below to enhance the functionality and design of the faculty website.
- Utilized Kace to efficiently manage and maintain all faculty devices, ensuring they were up to date and functioning properly.
- Employed tools such as Drupal, SQL, HTML, CSS, and JavaScript to enhance the functionality and design of the faculty website.
- Assisted in coordinating and executing faculty events, contributing to successful event planning and seamless technical support.
- Worked closely with faculty members to understand their IT needs and provided customized solutions to enhance their productivity.
- Updated and maintained the faculty website, ensuring accurate and timely information was reflected across all pages.

**Tools used:** Drupal, SQL, Kace, HTML, CSS, Javascript, Campaigner, Adobe Lightroom, Sony Vegas Pro, Office 365.

### Product Development, Frontend Developer

May 2021 – Aug 2021

*Mitel Networks, Ottawa ON*

- Collaborated with development teams, working with both Angular and React apps to create new components.
- Successfully migrated the testing framework from Protractor to Cypress testing efficiency and reliability.
- Designed end-to-end (E2E) and unit tests for Angular components, ensuring code integrity and preventing regressions.
- Utilized JavaScript, TypeScript, HTML, and SCSS to develop high-quality front-end solutions that met project requirements.
- Actively participated in code reviews, providing feedback to ensure code quality and maintain best coding practices.

**Tools used:** Ionic, JavaScript, TypeScript, HTML, SASS, Postman, Selenium, Jest, StencilJS, Storybook, React, Angular, Cypress, GitHub.

### Software Tester

Sep 2020 – Dec 2020

*BlackBerry, Ottawa ON*

- Actively participated in all aspects of software testing, collaborating with testers, developers, and project stakeholders.
- Designed and implemented manual test cases for BlackBerry Security Applications, ensuring comprehensive coverage and adherence to project specifications.
- Responsible for performing hands-on testing of new features to ensure product functionality is working according to specifications.
- Analyzed and reproduced complex problems within test environments based on test results and customer-reported inquiries.
- Utilized tools such as IIS (Internet Information Services) and Windows Server 2012 to create and manage testing dashboards, facilitating efficient testing processes.

**Tools used:** IIS, Windows Server 2012, Jira, Confluence, TestRail.

### Localization QA Specialist

Jan 2020 – Apr 2020

*OpenText, Ottawa ON*

- Conducted Quality Assurance (QA) activities, including testing and verification of localized products to ensure accuracy and adherence to localization standards.
- Maintained documentation and generated reports for various aspects of project.
- Worked on scripting and parsing using Regex and Java, automating processes, and facilitating data manipulation.
- Utilized programming languages (Java, Python) to develop software solutions to improve productivity and enhance project outcomes.

**Tools used:** Java, Python, Secure Shell, Ruby, SDL Passolo

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## PROJECTS

### Real-time systems project

- Led a team in the development of a real-time energy management system for solar panels using an Arduino-based platform.
- Utilized C++ within a Real-Time Operating System (RTOS) environment to ensure precise control and real-time responsiveness.
- Designed and implemented a comprehensive subsystem that monitored and controlled energy levels, activated or deactivated solar panels, and efficiently routed energy to designated destinations.
- Leveraged the Arduino Terminal for real-time monitoring of energy storage levels and usage statistics.
- Created extensive project documentation exceeding 200 pages, employing Doxygen to generate in-depth technical documentation.
- Successfully navigated through complex documentation and registers of the AM335x processor from Texas Instruments (TI) to configure header files and manage memory efficiently.
- Collaborated on the development of five crucial project modules, including the acquisition, ADC (Analog to Digital Converter), GPIO (General Purpose Input Output), and Cyclic Scheduler modules.
- Orchestrated the synchronization of all project modules by leading the development of the Cyclic Scheduler module.
- Demonstrated skills in low-level embedded system development within the challenging constraints of a real-time context.

**Tools:** C++, Arduino, AM335x processor (TI), CodeComposer Studio, Doxygen, BitBucket, Trello

### **CyberGlove**

- Led a 12-month capstone project that culminated in the development of the CyberGlove, an innovative device designed to facilitate communication for individuals using ASL.
- Conceptualized and designed the CyberGlove to seamlessly translate ASL hand movements into spoken English, enabling ASL users to communicate effortlessly with those unfamiliar with sign language.
- Utilized an array of cutting-edge technologies and tools to bring the CyberGlove to life, demonstrating a multidisciplinary approach to engineering and problem-solving.
- Integrated ten flex sensors into the glove, employing Arduino microcontrollers to acquire precise data on hand gestures and movements. Designed and soldered a custom PCB to facilitate data transmission between the sensors and the Arduino.
- Incorporated an MPU 6050, a 3-axis gyroscope and accelerometer, to capture and analyze the hand's position and orientation, enhancing the accuracy of ASL translation.
- Established a seamless data communication pipeline using MQTT (Message Queuing Telemetry Transport) to transmit real-time sensor data from the glove to a central processing unit.
- The central processing unit, a Raspberry Pi, was equipped with a 5-inch LCD screen, speakers, and a microphone, forming the core of the translation system. Collaborated on Python-based software to interpret and translate incoming sensor data into coherent text.
- Integrated a text-to-speech API to enable the CyberGlove to audibly recite the translated messages, fostering effective communication between ASL users and non-signers.
- Implemented a microphone and leveraged a speech-to-text API to allow non-signing users to respond vocally, with their speech instantly converted to text on the same LCD screen.

**Tools:** Arduino, Raspberry Pi, MPU 6050, MQTT, Python, PCB Wiring, GCP Speech-to-Text API, GCP Text-to-Speech, GitHub.

### **CLI Banking System Project**

- Designed and implemented a command-line interface (CLI) banking system using C++ to manage financial transactions for multiple accounts.
- Developed a robust application that allowed users to perform a variety of banking operations, including account creation, deposits, withdrawals, and balance inquiries.
- Utilized C++ features such as classes, pointers, and dynamic memory allocation to efficiently manage account data and transactions.
- Implemented a secure and error-handling mechanism to validate user inputs, ensuring data integrity and the prevention of unauthorized actions.
- Employed pointers to navigate and manipulate account data, facilitating the creation, updating, and retrieval of account information.
- Demonstrated strong problem-solving skills by addressing complex transaction scenarios and edge cases, ensuring the reliability of the banking system.

**Tools:** C++, Command-Line Interface (CLI), Pointers, Dynamic Memory Allocation

### **ServiceProvo – Client-Service Provider Android App**

- Designed and developed a feature-rich Android application using Java to bridge the gap between clients and service providers, facilitating seamless connections for services like plumbing and gardening.
- Leveraged Android Studio, Java, and XML to create an intuitive and visually appealing user interface, enhancing the overall user experience.
- Integrated Firebase for real-time data synchronization and user authentication, ensuring secure and efficient data management.
- Employed NoSQL databases to efficiently store and retrieve user and service-related information, contributing to the app's scalability.
- Utilized GitHub for version control and collaborative development, promoting effective teamwork and project management.
- ServiceProvo represents a successful application of mobile app development, showcasing skills in Java, Android development, and database integration.

**Tools:** Android Studio, Java, XML, Firebase, NoSQL, GitHub

### **MeFIT Leaderboard – Dynamic Athlete Leaderboard App**

- Developed a dynamic leaderboard application that efficiently manages athlete rankings in various competitions, offering customizable ranking methods and enhanced competition monitoring.
- Utilized PostgreSQL for robust and efficient data storage, ensuring accurate tracking of athlete performance and competition results.
- Employed a combination of JavaScript, XML, HTML, and CSS to create an interactive and visually engaging web-based leaderboard platform.
- Demonstrated proficiency in front-end and back-end development by creating a user-friendly interface while efficiently processing and presenting data.
- Utilized Heroku for seamless deployment, making the application accessible to users online and ensuring scalability.
- The MeFIT Leaderboard project showcases skills in web development, database management, and the creation of dynamic and engaging user interfaces.
- Collaborated with team members using GitHub for version control, ensuring smooth development workflows and effective project management.

**Tools:** PostgreSQL, Javascript, XML, HTML, CSS, GitHub, Heroku

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## **EDUCATION**

2017 –2021

### **University of Ottawa**

*Ottawa, School of Electrical Engineering and Computer Science*

- Bachelor of Applied Science in Computer Engineering, Cum Laude