Katherine Ma

+1-(647)628-5169 | zewenkatherinema@gmail.com | Personal Website | LinkedIn Profile
14 York St, Toronto, ON, M5J 0B1

EDUCATION

Honors Bachelor of Science *September 2019- June 2024*

University of Toronto

- *Majors: Computer Science and Statistics*
- *Awards: Dean's list, Louis Savlov (UC'37) Scholarship (In-course Scholarship)*
- *Relevant Courses: Software Design, Software Tools and System programming, Introduction to Software Engineering, Algorithm Design and Analysis, Programming on the Web, Operating Systems*

TECHNICAL SKILLS

Languages: Java, Python, Bash, C/C++, C#, SQL (Postgres, MS-SQL, MySQL), JavaScript, TypeScript, HTML, CSS
Tools: Git, Linux, React, AWS, Azure Cloud, SQL Server, Angular, CI/CD, OpenShift, Kubernetes, IBM Cloud
Data Analysis: R, SAS, Pandas, Numpy, EDA, MySQL, PostgreSQL, Tableau, PowerBI, Machine Learning

PROFESSIONAL EXPERIENCE

Research Assistant *Python, React, PostgreSQL, JavaScript, TypeScript*

CHAI Lab - Hybrid (CHAI web page) *May 2024 - August 2024*

- Engaged in a research team to establish an Android mobile app, served over 1000 customers
- Integrated with **React** to cache frequently accessed data on existing database, **replaced** original manual data entry, and shorten response time by sending **PostgreSQL** query directly to database server
- Collaborated with product team and participated in monthly Scrum meetings to analyze requirements to completion with customers research impact
- Managed customers performance and analyzed customer feedbacks data with **Pandas** on Python notebook

Backend Developer *Python, Java, C, TypeScript, JavaScript, HTML, CSS*

IBM - Hybrid *May 2022 - August 2023*

- Implemented an IDE and CI/CD applications on **OpenShift** for IBM i customers, enabled modern editing experience for IBM i languages and simplify the experience of DevOps for IBM i application development
- Designed and incorporated interfaces to browse remote files, execute builds, view job logs, and debug programs into the IDE, reduced development and debugging inefficiencies **by 50%**
- Created **end-to-end** system tests on Python using Jest and Selenium WebDriver, which stabilized each release
- Participated in weekly Scrum meetings to provide updates on personal progress and collaborate with team members, ensuring alignment with Agile development methodologies

PROJECTS

Context-Aware Interaction Techniques for VR Applications *Unity, WebGL, JavaScript, React.js, C#*

- Developed a VR system using **Unity, WebGL**, and **JavaScript** to design obstacles and objects for users wearing VR glasses to reach targets
- Implemented adaptive interaction techniques based on the user's context to **minimize distractions**, enhancing user experience with intuitive, easily reversible actions
- Integrated adaptive interaction techniques, enabling the seamless coexistence of **Direct Interactor** and **Ray Interactor** modes, which is dynamically adjusted based on user context to enhance engagement and usability

Multi-Master *C++*

- Introduced multiple master nodes to distribute the load and increase efficiency, moving beyond the traditional single-master approach
- Developed solutions for concurrency issues and lock management, ensuring **data consistency** and **minimizing conflicts** across multiple masters
- Enhanced the speed and reliability of SQL queries parsing by optimizing the system architecture for parallel processing and reducing bottlenecks

Simulence *Vue, Java, JavaScript, HTML, MongoDB, RESTful API*

- Developed a comprehensive platform to facilitate game testing for game developers remotely, enabling them to assess and optimize their games.
- Implemented an Observation room utilizing the **Zoom API**, enabling **2** simultaneous video streams. Providing a video chat feature for real-time observation of testers' performance
- Built **REST APIs** for game management and test data collection that can support over **1000** users using **MongoDB** database
- Collaborated with a real game company and presented the final model to **20+** companies