Simardeep Singh

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SUMMARY

Detail-oriented Software Engineer with a strong foundation in full stack development, cloud technologies, and automation. Proven track record of enhancing application performance and operational efficiency through innovative solutions, including the successful implementation of microservices architecture and CI/CD pipelines. Experienced in collaborating within cross-functional teams and mentoring peers, with demonstrated excellence in both academic and professional settings. Passionate about leveraging machine learning techniques and data visualization to drive informed decision-making and improve user experiences.

EDUCATION

Bachelor of Computing, Software Engineering, University of Guelph, Guelph, ON **Sept 2020 – Sept 2024**

- Graduated with Distinction and 3.7 GPA

WORK EXPERIENCE

Backend Developer Co-op, NCR Voyix, Waterloo **January 2024 – August 2024**

- Achieved Outstanding Evaluation for the work term.
- Implemented reusable UI components and state management in **React**, reducing development time by 20% on new feature releases.
- Collaborated with front-end developers using **React**, ensuring seamless backend & frontend integration with effective communication.
- Architected a **Kubernetes**-based sandbox environment with a **vRA** cluster and mentored team members on its setup, reducing errors in feature demo to clients by 100% and ensuring long-term project sustainability.
- Established a **CI/CD** pipeline in **Jenkins** to build & deploy a **Maven**-based microservice via **Helm**, optimizing deployment.
- Utilized **HTTP** to facilitate communication between the client and server, ensuring robust data transfer.
- Debugged complex issues, reducing bugs by 15% through code reviews & executing **BDD** test cases using **Gherkin**, **Junit** & **TestCafe**.
- Developed and containerized micro-services and **RESTful APIs** using **Docker**, **Java Spring Boot** and **PostgreSQL** on **GCP**.
- Designed and containerized microservices using **Docker** in **Spring Boot** on **Google Cloud Platform**, enabling flexible, high-scale operations and enhancing system resilience.

Teaching Assistant, CIS*2520 - Data Structures, University of Guelph **September 2023 – December 2023**

- Led lab sessions for over 250 students, teaching **data structures**, efficient algorithm design in **C**, and **Git** for version control

Bioinformatician Co-op, Norgen Biotek Corp., Thorold, ON **May 2023 – August 2023**

- Led **Docker containerization** of bioinformatics pipelines on **Linux**, enhancing system scalability and reproducibility by 60%.
- Automated multi-step data processing workflows using **Python**, and **Bash**, decreasing processing time by 40%.
- Authored **SOPs** for pipeline workflows, standardizing processes and enhancing troubleshooting efficiency across teams.
- Wrote several Python scripts for automatically generating and analyzing complex and large datasets.
- Learned and worked with unfamiliar bioinformatics tools such as Mothur, cutadapt, bbmerge, samtools, STAR, pysam and bioinformatics pipelines, leading to successful dockerization, which version controlled the pipelines

Software Test Co-op, Intellijoint Surgical, Kitchener, ON **September 2022 – December 2022**

- Developed and executed test cases and automated testing scripts with **Playwright** & **CodeceptJS**, reducing manual testing time by 70%.
- Conducted rigorous **verification and validation (V&V)** testing, identifying and isolating bugs through **exploratory testing** and defect tracking systems.
- Collaborated with team to conduct **regression testing**, ensuring product stability and consistent quality across releases.

Software Developer Co-op, Camis Inc., Guelph, ON **May 2022 – September 2022**

- Built Rental Dashboard feature with agile team using **SQL Server** & **JavaScript**, improving client experience and operational efficiency.
- Designed end-to-end test plans with a primary focus on **black box testing** to validate expected functionalities across the web application
- Collaborated with team to develop user stories, requirements, tasks, and acceptance criteria for various software projects.
- Conducted comprehensive regression testing prior to each release to ensure a bug-free final product.
- Used **Tableau** for data visualization and analysis, enabling data-driven decisions on feature enhancements

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PERSONAL PROJECTS

EduGraph (GitHub) **September 2023 – November 2023**

- Developed a full-stack web application in **Python, PHP** & **MySQL** for course recommendations, implementing **CI/CD** with **Nginx**
- Created and executed detailed test plans using **TDD** principles and **Selenium** for front-end automation.
- Implemented **accessibility features** (keyboard navigation, high-contrast theme) and ensured **WCAG 2.1** compliance.
- Established secure **HTTP** protocols for data exchanges between the client and server, strengthening overall application performance.

Weapon Detection System (GitHub) (Detail Report) **November 2023**

- Led the development of a robust multi-class weapon detection and classification system, using advanced machine learning techniques.
- Integrated dataset of over 7000 diverse weapon images and employed two distinct classifiers: **Feed Forward Neural Network** and **YOLOv8**.
- Utilized **Python** for script development, incorporating **Keras** for neural network training and evaluation, and **OpenCV** for data preprocessing.
- Optimized model using **5-Fold cross-validation** for **neural network training**.
- Trained YOLOv8 on the entire dataset, enabling real-time weapon detection in both images and videos, with organization of training setups and directory structures.
- Detailed comparison for both classifiers was documented.

GryphHub (GitHub) (Demo) **March 2023**

- Developed a **Java**-based university portal using **OOP** & **SOLID** principles & UML diagrams for a scalable, well-structured codebase.
- Coordinated with team members on feature development and code reviews to maintain high code quality and modularity.

Personal Portfolio Website (Portfolio) **August 2023**

- Built a responsive personal portfolio website using **Astro**'s static site generation, optimizing performance and loading times.
- Developed an interactive front-end with **JavaScript**, **HTML**, & **CSS**, featuring seamless navigation to showcase various sections.

SVG Parser (GitHub) **January 2022**

- Developed front-end with **JavaScript**, **HTML**, & **CSS**; implemented server management & API integration.
- Built a robust SVG parsing application using **Node.js,** combining an **Express.js** backend with a custom-built **C** library (via ffi-napi).
- Employed **AJAX** using **jQuery** for real-time updates and utilized **XML DOM** for dynamic data handling, enhancing interactivity.

ePortfolio (GitHub) (Demo) **November 2021**

- Created a user-friendly GUI application for investment portfolio management implementing **OOP** in **Java,** Swing and AWT**.**

COVID-19 Statistical Data Analyzer (GitHub) **March 2021**

- Proficiently processed, analyzed, and visualized COVID-19 data along with related datasets from .csv files.
- Leveraged **Python** libraries (Pandas, Seaborn, matplotlib) to create insightful data representations, facilitating data-driven decision-making.

SKILLS

Programming Languages: Java, Python, JavaScript, CSS, HTML, PHP, SQL, R, Bash, YAML, JSON, XML
Frameworks & Libraries: Spring Boot, React, Node.js, Express.js, Bootstrap, jQuery, AJAX, PyTorch, Keras, YOLOv8, Scikit-learn, Matplotlib, Seaborn, Pandas
DevOps & Tools: Docker, Kubernetes, Jenkins, Nginx, Git, Agile, Maven, Linux, Tableau, Postman, Helm
Testing & Automation: TestCafe, BDD (Gherkin), Playwright, Selenium, JUnit, CodeceptJS
Database Technologies: PostgreSQL, MySQL, Cassandra, Redis
Cloud Platforms: Google Cloud Platform, AWS
Core Web Principles: Responsive Design, REST APIs, HTTP, DOM manipulation, web server management
Additional Skills: Data Visualization, Machine Learning, API Integration, Version Control, Agile Methodologies, Microservices Architecture, Object Oriented Programming (OOP), SOLID principles, Testing