Simardeep Singh

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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.
- Utilized **Kubernetes** with **Helm** on **GCP** to manage and deploy microservices, optimizing application scaling, reducing deployment complexity, and enabling seamless rollbacks.
- Implemented a **CI/CD** pipeline with **Jenkins** & **GitHub Actions**, streamlining deployment processes for Maven-based microservices.
- 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.
- Collaborate with cross-functional teams, both onshore and offshore, to deliver feature in the most efficient manner.
- Participate in Agile ceremonies such as sprint planning, stand-ups, and retrospectives to drive continuous improvement and delivery efficiency.
- Employed Docker to push images to the Kubernetes cluster, facilitating seamless deployment of microservices.

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

PERSONAL PROJECTS

EduGraph (GitHub) (Demo Videos) (Website) **September 2023 – November 2023**

- Created a full stack web application.
- Parsed the data into csv using python, developed a Python-based CLI and Excel UI using VBA scripts.
- Designed and stored the data in a MySQL database.
- Architect the PHP REST APIs, establishing secure HTTP protocols for data exchanges between the client and server, featuring PHP full stack web applications for course recommendations, Vis.js is used to generate graphs and trees.

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- Application is hosted using Nginx in AWS EC2 Instance as well as on local environment.
- CI/CD pipeline is also set up using GitHub Action for GitHub and Gitlab CI/CD for Gitlab, with proper testing.
- 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.
- Later on, the whole application was configured to work AWS EC2 Instance. Details to setup on both, local and AWS.

Weapon Detection System (GitHub) (Detail Report) (Graphs) **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, React**, **HTML**, & **CSS**, featuring seamless navigation to show 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) (Graphs) **March 2021**

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

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, Terraform
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, Infrastructure as a Code

EDUCATION

Bachelor of Computing, Software Engineering (with Distinction), University of Guelph, Guelph, ON | GPA: 3.7 **Sept 2020 – Sept 2024**

Intro to Database Management, Athabasca University, Athabasca, AB | GPA: 4 **June 2024 – August 2024**