

SEIFEDDINE REGUIGE

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TECHNICAL SKILLS

Languages: Python, Java, JavaScript, PHP, SQL, Bash

Backend & Data: REST APIs, Supabase, SQLite, Data Processing, ETL Pipelines, JSON/XML Parsing, Matrix Factorization

Machine Learning: scikit-learn, PyTorch, TensorFlow, Regression, Clustering, Recommender Systems, Model Evaluation

Computer Vision: OpenCV, Optical Flow, RAFT, Endpoint Error (EPE), Feature Engineering

Frontend & Mobile: HTML5, CSS3, React, Android (Java), XML, Responsive Design

Tools: Git, GitHub, Streamlit, Docker, Android Studio, VS Code, Jupyter, Chrome DevTools

EDUCATION

University of Ottawa

Ottawa, ON

Bachelor of Science in Computer Science (Co-op)

Expected Graduation: Summer 2026

– Very good academic standing / Dean's Honour List (2023–2024, 2024–2025)

– Relevant Coursework: Artificial Intelligence, Fundamentals of Data Science, Databases, Operating Systems, Software Engineering, Data Structures and Algorithms, Computer Networks, Secure Systems Design

EXPERIENCE

IT Systems Developer

Oct. 2024 / Apr. 2025

Faculty of Health Sciences, University of Ottawa

Ottawa, ON

– Developed and maintained web-based systems and data-driven interfaces using Java, PHP, JavaScript, HTML, and CSS for faculty platforms serving 10,000+ monthly users.

– Worked with backend logic, API interactions, and structured data processing to support research and operational workflows across academic and healthcare environments.

– Built and refined responsive interfaces for presenting healthcare and research information, improving usability for faculty members, staff, and researchers.

– Optimized front-end performance through JavaScript refactoring and debugging, improving responsiveness and overall user experience.

– Collaborated with stakeholders to gather requirements, troubleshoot technical issues, and deliver maintainable system improvements.

IT Support Specialist

Sept. 2025 / Present

Adapted Exam Centre, University of Ottawa

Ottawa, ON

– Support 100+ workstations running monitoring and assistive technology software for students in a high-availability academic environment.

– Troubleshoot hardware, software, and system configuration issues involving video tools, accessibility platforms, and workstation performance.

– Develop automation scripts and diagnostic workflows to streamline health checks, reduce manual troubleshooting, and improve operational reliability.

– Create and maintain technical documentation, issue-resolution procedures, and support guides for shared systems and exam infrastructure.

PROJECTS

Honours Research: Optical Flow Reliability Prediction

Python, PyTorch, TensorFlow, OpenCV, scikit-learn, Streamlit

– Built an end-to-end machine learning pipeline to predict optical flow reliability from motion metadata using TFRecord-based video datasets.

– Implemented data ingestion and decoding workflows for frame pairs and ground-truth flow, then engineered motion features from camera translation, rotation, and object dynamics.

– Evaluated both classical and deep optical flow estimators, including OpenCV Farneback and RAFT, and computed per-pixel Endpoint Error (EPE) to derive sequence-level reliability targets.

– Trained and compared regression models including Linear Regression, Random Forest, and Gradient Boosting under scenario-holdout validation to measure generalization on unseen motion patterns.

– Achieved strong predictive performance (R^2 up to 0.90) and built a Streamlit demo with flow visualizations, EPE heatmaps, and qualitative analysis tools.

Movie Recommender System

Python, NumPy, scikit-learn, Surprise

– Developed a recommendation pipeline combining content-based filtering, clustering, and collaborative filtering on user-item rating data.

– Engineered a sparse CSR utility matrix for memory-efficient matrix factorization and implemented masked-entry validation by holding out 10% of known interactions.

– Applied KMeans and DBSCAN for user/item segmentation, using Cosine and Jaccard Similarity to capture preference patterns and neutralize popularity bias.

– Evaluated recommendation quality using SVD, MSE, Precision@K, and Mean Reciprocal Rank (MRR), with emphasis on top-ranked recommendation relevance.

PCSurMeasure: Role-Based Mobile Ordering System

Java, Android Studio, Supabase, REST APIs

– Led development of a multi-role Android application for customized PC order management.

– Implemented role-based authentication, order lifecycle, and permission-controlled workflows.

– Replaced SQLite with Supabase and integrated API-driven backend interactions.

– Applied MVC architecture to improve maintainability and scalability.