Muhammad Khawaja

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Summary

Full-stack software developer with hands-on experience building production systems across web, mobile, and cloud infrastructure, from requirements through deployment. Strongest at bridging technical builds with non-technical stakeholders and turning business needs into shipped software. Seeking full-time software engineering roles.

Education

University of Alberta — Edmonton, Canada
BSc, Computing Science Specialization — *Graduated April 2026*

Experience

Hitek Analytics — April 2025 – Present
Software Developer (Contract, Part-Time) — *Edmonton, Canada*

- Built and shipped an agronomist web portal in TypeScript, JavaScript, HTML, CSS, React, Next.js, Node.js, REST APIs, and PostgreSQL, consolidating service requests, soil report generation, and client payments into a single system and replacing a fragmented manual workflow that was causing lost and duplicated customer orders.
- Integrated OpenAI APIs with Python and REST APIs to auto-generate report content from lab data, cutting report turnaround time by 50% and increasing agronomist capacity for client-facing fieldwork.
- Engineered a reporting service in TypeScript and Node.js that converts raw lab results into client-ready PDF, Excel, and CSV deliverables with embedded charts, enabling same-day report delivery and removing a manual assembly step from the service pipeline.
- Implemented authentication and role-based access control using OAuth 2.0, JWT, and SQL to scope data access by role across scientists, staff, and clients, safeguarding confidential soil results belonging to competing agricultural clients.
- Shipped a cross-platform mobile app in React Native and TypeScript to 200+ users with offline support, preserving access to agronomic guidance for field staff operating in low-connectivity rural areas.
- Migrated on-premise servers to Docker containers on a Linux cloud host with S3 object storage and established a CI/CD pipeline in GitHub Actions and Git to automate linting and testing, enabling zero-downtime releases during business hours and reducing deployment errors.

City of Edmonton | City Operations — September 2023 – April 2024
Software Automation Developer Intern — *Edmonton, Canada*

- Built a scheduling dashboard in JavaScript, HTML, CSS, Google Apps Script, and REST APIs surfacing overdue safety-training certifications, tripling course throughput for municipal waste employees and maintaining departmental compliance with the provincial OHS Act.
- Migrated 10,000+ training records from legacy spreadsheets into a SQL relational database and defined validation rules to catch duplicate and malformed entries, improving the accuracy of recertification reporting to management and eliminating manual reconciliation.
- Partnered with non-technical training coordinators to gather requirements, incorporate feedback across iterations, and refine the dashboard interface and access permissions to align with operational scheduling workflows and protect sensitive employee records.

Projects

FlowyForm | *TypeScript, Next.js, React, HTML, CSS, Node.js, PostgreSQL, AWS S3*

- Built a form-builder SaaS in TypeScript, Next.js, React, HTML, CSS, and PostgreSQL with a drag-and-drop editor and dynamic schema generation, enabling non-technical users to deploy custom forms and collect submissions without developer involvement.
- Added AI spam filtering using the OpenAI API and anomaly detection logic to screen fraudulent submissions, improving lead quality and reducing manual triage for end users.
- Configured S3 object storage with pre-signed uploads and wrote a Jest and Playwright integration suite covering form creation and submission flows, supporting large file attachments and protecting live forms from regressions on release.

Accessible Reader (Capstone) | *React, JavaScript, HTML, CSS, Python, REST APIs*

- Built a text-to-speech and translation web tool in React, JavaScript, HTML, CSS, and Python, providing immigrants, ESL learners, and students with access to reading material in their preferred language and format.
- Owned the translation pipeline and audio playback interface, integrating open-source TTS and translation models over REST APIs to convert uploaded book text into spoken audio across multiple languages.
- Worked in a team on two-week Agile sprints using Git and code reviews, incorporating reviewer feedback to rework the playback interface, and delivered a working product to the university's linguistics department by end of semester.

Technical Skills

Languages: TypeScript, JavaScript, HTML, CSS, Python, Java, C#, SQL, Bash

Frontend: React, Next.js, React Native, Angular, Tailwind CSS

Backend & APIs: Node.js, Express, REST APIs, GraphQL, OAuth 2.0, JWT

Databases: PostgreSQL, MongoDB, Redis, Firebase Firestore

Cloud & DevOps: AWS, Docker, GitHub Actions, CI/CD, Nginx, Linux, Kubernetes, Terraform

AI: LLM API integration (OpenAI, Gemini, Anthropic), RAG, pgvector

Testing & Methods: Jest, Playwright, pytest, Git, Jira, Agile/Scrum