Abdulrahman Zrein

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Education

Carleton University Ottawa, ON
Bachelor of Software Engineering (Co-op), cGPA: 3.83/4.0 | Dean's List: 2024–2026 *Sep 2024 – Apr 2029*

Relevant Coursework: Data Structures & Algorithms, Object-Oriented Software Development, Foundations of Imperative Programming, Discrete Math

Experience

AI Automation Developer May 2026 – Present
Mitacs × Canadian Furniture Group | Project-Based *Remote*

- Cut ≈**30 hrs/month** of manual work with a FastAPI + Claude pipeline that reads tender emails, filters bids, and drafts quote requests for CanadaBuys furniture bids
- Caught **real bid-ID typos and shifted deadlines** by extracting fields via Claude/Pydantic and cross-checking against official tender metadata
- Built an automation pipeline using Microsoft Graph delta-sync, PostgreSQL de-duplication, and Playwright-based scraping to eliminate manual retrieval of gated bid PDFs

Backend Developer Jun 2026 – Jul 2026
Kimuntu Power Inc. | Freelance Contract *Remote*

- Engineered a **NestJS REST API** routing 8 AI tools to a Gemini gateway, validating endpoint reliability through manual and scripted testing for an AI-driven real estate platform
- Designed a Supabase JWT auth guard and audit logger persisting every AI Gateway call to PostgreSQL for compliance
- Diagnosed a live **row-level-security gap** blocking listing reads and writes and shipped a verified PostgreSQL migration

Programming and Data Management Teaching Assistant May 2026 – Jun 2026
Carleton University *Ottawa, ON*

- Led weekly tutorials and office hours covering Python and data-management concepts for **100+ students**
- Provided hands-on debugging support during Python labs, helping students resolve syntax and logic errors
- Standardized grading and exam preparation across **7+ course staff**, aligning evaluation criteria across all lab sections

Undergraduate AI/ML Research Assistant Mar 2026 – May 2026
Carleton University | Advisor: Dr. Nafiseh Kahani *Ottawa, ON*

- Built a LangGraph multi-agent system to prioritize regression tests across **25+ Java codebases** and surface high-risk CI failures earlier
- Reduced **LLM workload by up to 96%** on large test suites through candidate filtering and parallel batch ranking
- Engineered GitHub commit/diff embeddings and risk signals, combining them with **150 CI features** in a Random Forest model for change-aware test ranking

Projects

Aphasia Bridge | *React Native, Flask, Whisper, Claude API* | GitHub | **1st Place, MindHacks 2026**

- Built and stress-tested a Python word-prediction model, achieving **99.6% accuracy across 2,150 trials** and 97.9% accuracy with 30% incorrect inputs
- Connected a React Native app to speech-to-text and AI sentence reconstruction, transforming fragmented speech into complete sentences spoken aloud
- Defined the Flask REST API contract, enabling a 5-engineer team to ship a 4-screen application in **48 hours** with no integration conflicts

Multi-Tenant File Sharing App | *Python, FastAPI, PostgreSQL, Docker* | GitHub

- Built a FastAPI + PostgreSQL multi-tenant file API with JWT authentication, RBAC, and **tenant-scoped isolation**
- Implemented quota-checked uploads, tokenized share links, and audit logging behind a swappable storage backend
- Shipped a Docker Compose deployment validated by **27 automated API tests** built with pytest, covering **REST API** authentication, tenancy, uploads, and share downloads to ensure regression-safe releases

Leadership & Activities

Vice President Jun 2026 – Present
Carleton University AI Club *Ottawa, ON*

- Led a content refresh of the club website, coordinating updates to improve access to events and resources for **50+ members**
- Initiated a year-long AI project for **10+ members**, defining its scope, structure, and technical direction

Technical Skills

Languages: Python, TypeScript/JavaScript, SQL, Java, C, HTML/CSS
Frameworks: FastAPI, Flask, NestJS, React Native, Node.js/Express, Pydantic
Testing: Pytest, Playwright, REST API validation, JSON
AI / ML: LangChain, LangGraph, Claude API, Gemini API, Whisper, Random Forest
Databases & Tools: PostgreSQL, Supabase, Docker, Git, Microsoft Graph, Railway, Vercel
OS: Windows, Linux (basic)