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Muhammad Muzammil

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Fourth-year Computer Science student with experience in software development, process automation, AI-driven tooling, and deep learning. Proven ability to prototype and deliver scalable solutions across energy systems, AI-powered applications, and interactive software. Strong collaborator who thrives translating technical findings into actionable insights for cross-functional teams.

Education

University of Calgary **Expected Graduation: June 2027**
Bachelor of Science in Computer Science *Calgary, AB*
Relevant Coursework: Data Structures & Algorithms, Operating Systems, Database Systems, Networking, Data Science, Natural Language Processing, Software Engineering, Linear Algebra, Calculus, Computational Statistical Modelling

Skills

Languages	Python, C++, JavaScript, TypeScript, C#, Java, SQL, PowerShell, Bash
AI & Data	PyTorch, TensorFlow, RAG/LangChain, Pandas, NumPy, scikit-learn, Power BI
Tools & Frameworks	React, Next.js, FastAPI, Docker, AWS, PostgreSQL, Supabase, Git, Unity3D

Experience

Full-Stack Engineer, Part-Time **July 2025 — Present**
Thinkera.ai (AI Startup) *Germany / Remote*

- Built **RAG-powered search** with **ReAct reasoning loop** and validated SQL queries, **reducing hallucination errors by 85%** across **100+ meetings** in **sub-500ms**.
- Developed **knowledge graph APIs** in **FastAPI/PostgreSQL** surfacing **2K+ entities**; implemented **human-in-the-loop feedback** improving extraction accuracy from **60% to 90–95%**.
- Deployed **Dockerized services** with **CI/CD pipelines**, maintaining **99%+ uptime** and reducing user-facing errors by **90%** through failure recovery and health monitoring.

Software Engineering Intern **May 2025 — Present**
Cenovus Energy *Calgary, AB*

- Automated end-to-end reporting workflows with **Python and PowerShell**, saving **200+ hours quarterly** and **$40K annually** in manual labor costs.
- Built **Power BI dashboards** with **SQL queries** on **500K+ sensor readings**, enabling predictive maintenance and reducing equipment failure response time by **20%**.
- Diagnosed **OPC UA/DA protocol** and **TCP packet** issues via **Wireshark**, resolving PLC session drops and restoring uptime across **50+ field devices**.
- Designed **constraint-based optimization models** for PLC data routing using linear programming, achieving **99%+ uptime** while maximizing throughput.

Software Engineer **Oct 2022 — May 2025**
University of Calgary Solar Car Team *Calgary, AB*

- Led **5-member team** to build real-time telemetry dashboard (**C++/Qt6**) tracking **20+ metrics** at **sub-100ms latency** during a **3,000km race**.
- Implemented **CAN bus parser** processing **1K+ messages/sec** with **MQTT distributed messaging**, powering live race-day analytics and data-driven strategy.
- Migrated builds to **Linux containers**, cutting build times by **50%**; directed **Agile workflows** across 3 divisions, improving delivery velocity by **30%**.

Projects

Last Stop | Published Game **7-Day Game Jam**
C#, GLSL, Unity3D, Blender *muzmil.itch.io/last-stop*

- Shipped **PS2-style horror game** achieving **6K+ downloads**, **15K+ impressions**, and **4.5/5 rating** in a 7-day game jam.
- Implemented custom **GLSL shaders** for retro CRT effects at stable **60 FPS**; designed **15+ low-poly 3D models** with **spatial audio** system.

Note to Self | Published Game **10-Day Game Jam**
C#, Unity3D *muzmil.itch.io/note-to-self*

- Created **PSX-style psychological horror game** achieving **200+ downloads** with narrative-driven puzzle mechanics and branching story paths.
- Implemented **dynamic lighting** and low-poly aesthetic capturing authentic PSX-era visual style with player-choice-driven exploration.

RateXpose | Startup Project **Personal Project**
TypeScript, Next.js, Supabase, Vercel *ratexpose.ca*

- Built **full-stack price transparency platform** acquiring **200+ waitlist signups** in first month with **500+ verified entries** across 10 categories.
- Implemented **OAuth authentication**, **role-based access control**, and anonymous submission system with server-side validation.

Music Genre Classification System **Personal Project**
Python, PyTorch, Docker, FastAPI *github.com/muzman123/music_cluster_visualization*

- Trained **3 model architectures** (KNN, RNN, LSTM) on **10K+ audio samples** using **transformer-based embeddings**, achieving **90%+ accuracy**.
- Deployed **containerized web app** with **Docker/FastAPI** backend and automated build pipeline for production reliability.

Lorax AI — Acoustic Detection System **Calgary Hacks 2025**
Python, TensorFlow, Flask, scikit-learn *github.com/muzman123/Calgary-Hacks-2025*

- Built **CNN classifier** on mel-spectrograms achieving **87% accuracy**; adaptive noise filtering **reduced false positives by 60%**.
- Deployed **Flask API** serving real-time predictions on audio streams with preprocessing and classification in under **2 seconds**.

Automated Stock Signals **Personal Project**
Python, Pandas, NumPy *github.com/muzman123/double_top_scanner*

- Built pattern scanner analyzing **500+ stocks daily** for double-top reversals, achieving **75% accuracy** across **40 backtested patterns**.
- Automated **SMTP email alerts** delivering CSV reports with scored patterns and TradingView URLs to **50+ active users**.

Leadership & Activities

- **Headstarter AI Fellowship** — Built **5 GenAI apps** reaching **1K+ users** using **LLMs, RAG pipelines, and embeddings**; mentored peers on model deployment. Jul – Sep 2024
- **Runner-Up, AWS & Keyera Tech Case Competition** — Led **4-member team** (2nd of 30+) designing cloud automation strategy; presented to executives. Mar 2025
- **Alberta Health Hackathon** — Developed **MyBuddy AI Agent** vetted by AHS professionals; **top 10 out of 84 participants**. Jul 2024
- **Open Source Contributor** — Contributed to **Agenta** (LLM evaluation) and **Toolhive** (AI tool management). 2025 — Present
- **Technical Blog** — Published articles on ML, deep learning, and AI engineering at **muzman123.github.io/blog**. 2025 — Present