

AZMAL AWASAF

✉ awasaf@ualberta.ca | ☎ +1 825-888-8767 | 📍 Edmonton, Alberta | [in azmal-awasaf](#) | [Azmal16](#)

Research Interests

Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Autoregressive Models, Generative Models, Large Language Models, Pose Estimation, Object Detection

Education

University of Alberta

Master of Science (MSc) in Computing Science (Course-based), Multimedia

Edmonton, Alberta

Sep 2025 – Present

Rajshahi University of Engineering & Technology (RUET)

Bachelor of Science (BSc) in Computer Science & Engineering (CSE)

Rajshahi, Bangladesh

2017 – 2022

Professional Experience

Intern Software Engineer (AI)

Ameya Health

May 2026 – Present

Edmonton, Alberta

- Built an LLM-powered pathway automation system that generates patient notification pathways (push, email, SMS) from program content using Gemini, GPT, and Claude
- Ported the Streamlit prototype to a production TypeScript stack (Fastify, React) with live database integration, few-shot prompting, and video-transcript-augmented generation
- Shipped an AI exercise routine agent that generates and conversationally edits clinician-reviewed programs; deterministic risk scoring pre-filters the exercise catalog and re-validates every model selection so unsafe exercises cannot reach a patient
- Developed a Gemini TTS voiceover studio (CLI and web app) for converting health-program scripts into production audio with style-controlled synthesis

Data Science Intern

Ameya Health

Nov 2025 – Dec 2025

Edmonton, Alberta

- Built a machine learning pipeline for personalized exercise routine generation, training models on clinical datasets to produce age-appropriate patient programs
- Engineered domain-specific features and risk-stratification thresholds for exercise selection with monotonic progression constraints
- Evaluated model outputs through statistical analysis of risk distributions, physician-routine overlap, and program-level performance metrics

Software Engineer (AI & iOS)

MyMedicalHUB International Ltd.

Nov 2022 – Aug 2025

Dhaka, Bangladesh

- Deployed on-device Pose Estimation models (MoveNet, YOLO) using CoreML and TFLite for real-time human pose inference in production iOS applications
- Developed an end-to-end NLP chatbot using spaCy and Hugging Face Transformers for intent classification and entity extraction, serving real-time user interactions
- Optimized ML model inference pipelines and collaborated with cross-functional teams to improve latency, accuracy, and user experience across multiple product modules

Technical Skills

Programming Languages: Python, C/C++, Swift, SQL

Machine Learning & Deep Learning: PyTorch, TensorFlow, Scikit-learn, Model Training, Hyperparameter Tuning, Evaluation

Computer Vision: OpenCV, YOLO, CoreML, TFLite, Pose Estimation, Object Detection

NLP & LLMs: Hugging Face Transformers, spaCy, NLTK, LLM Fine-tuning, Text Classification

Data Analysis & Visualization: NumPy, Pandas, Matplotlib, Seaborn, Jupyter, Statistical Analysis

Software & Tools: Git, GitHub, Docker, Linux, REST APIs, Agile/Scrum, Xcode

Graduate Research Projects

Local Autoregressive Models for Retinal Vessel Segmentation | *Python, PyTorch*

- Designed a patch-based Local Autoregressive (LAR) framework for image segmentation using a Vector Quantized Autoencoder (VQ-AE) and causal convolutional sequence-to-sequence model
- Achieved 99.88% memorization rate on DRIVE retinal dataset in controlled settings; analyzed generalization limits of LAR architectures under limited data conditions

Local Autoregressive Model for Symbolic Music Generation | *Python, PyTorch*

- Proposed a local autoregressive latent transition framework with residual modeling and a gated drift mechanism for generating symbolic polyphonic music on JSB Chorales
- Demonstrated low memorization, high diversity, and stable generation across seeds via self-similarity analysis and ablation studies against no-drift and no-gate variants

Undergraduate Thesis

Traffic Light Detection using YOLOv3, YOLOv5 and YOLOv7 Algorithms

- Implemented real-time traffic light detection using YOLOv3, YOLOv5, and YOLOv7 and benchmarked their performance on detection accuracy and inference speed
- Trained models on augmented Bosch Traffic Light Dataset to simulate diverse weather conditions; YOLOv7 achieved highest mAP of 98.3% with superior detection speed

Published Apps

EMMA Health – *Musculoskeletal Health Assistant*

- Health assistant app integrating on-device ML models for real-time pose estimation, NLP-driven chatbot for symptom triage, and musculoskeletal movement assessment algorithms

Atlas Athlete – *AI-Powered Fitness Assistant*

- Fitness app leveraging NLP models for injury risk classification and on-device pose estimation for personalized exercise recommendation and real-time movement feedback

Certifications

Structuring Machine Learning Projects – *Coursera* Apr 2021

Improving Deep Neural Networks: Mar 2021

Hyperparameter Tuning, Regularization and Optimization – *Coursera*

Neural Networks and Deep Learning – *Coursera* Feb 2021

Digital Skills: Artificial Intelligence – *Accenture* May 2020

Competitions & Awards

HackerEarth Machine Learning Challenge – *Top 8% (172/2124)* May 2021

- A machine learning challenge arranged by HackerEarth. A dataset consisting of different wind turbine parameters was given. The challenge was to predict the Generated Power by applying proper Data Analysis, Visualization, and Machine Learning techniques.

Telenor Youth Forum – *Semi-Finalist (Top 20)* Oct 2017

- Pitched an app-based platform concept for counseling depressed youth to prevent suicide

Startup Istanbul – *Global Top 200* Oct 2017

- Pitched an IoT-based smart costume concept for activity tracking to improve health and safety

Extra-Curricular Activities

HULT Prize at RUET – *Coordinator of Participants* Aug 2018 – Dec 2018

- Coordinated and managed the teams and participants. Answered their queries and elaborated on the goals of the program.

Glocal Teen Hero – *Country Representative for Bangladesh* Feb 2018 – Dec 2018

- Introduced the event to the teenagers of Bangladesh by conducting sessions on different university campuses. Managed social media coverage.

Global Entrepreneurship Bootcamp – *Participant, 20 countries* Jan 2018

- Participated in the Bootcamp with participants from 20 countries and pitched the idea of an “AI-Based Solution to Interpret Sign Language”.