Osasumwen Raphael Imarhiagbe

DATA SCIENTIST / ML ENGINEER

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SUMMARY

Data Science | Python | Transformers | End-to-End ML Systems
Machine Learning Engineer specializing in end-to-end AI systems, large-scale training pipelines, and high-performance compute optimization. Alberta Innovates Grant recipient and One of 10 Canadian researchers selected by the Digital Research Alliance of Canada for the 2025 International High-Performance Computing Summer School (IHPCSS) with advanced training in parallel computing and optimization.

EDUCATION

Master of Science (Computer Science) 09/2023 – 08/2025
University of Lethbridge Alberta, Canada
Data Mining, Deep Learning, and Artificial intelligence (CGPA 3.93 /4.00)

Bachelor of Science (Computer Science) 09/2018 – 09/2022
Benson Idahosa University
Software Engineering (CGPA 4.84/5.00)

CORE TECHNICAL SKILLS

Python, PyTorch, TensorFlow, Transformers

MLOps & Cloud (Docker, CI/CD, MLflow, GCP, AWS, Azure, Pub/Sub)

Data Engineering (PowerBI, Tableau, Excel, Numpy, Pandas, SQL)

Deep Learning (3D CNNs, RAG, LLM Ops, STT/TTS)

HPC (OpenMP, MPI, parallelization, GPU optimization)

EXPERIENCES

AI Coding Expert 01/2026
Micro1 (Titan Pandora Project)
- Evaluate and benchmark frontier LLMs across real-world software engineering tasks, focusing on code correctness, repo navigation, and production readiness.
- Designed structured evaluation frameworks and rubrics to assess model performance in multi-file refactoring, API design, and agent-based system integration.
- Led comparative analyses on backend refactoring tasks (FastAPI, database integration, real-time systems), identifying strengths in reasoning, execution speed, and developer interaction patterns.
- Validated model outputs against existing codebases, ensuring alignment with architecture constraints rather than isolated or hallucinated implementations.
- Produced detailed technical reports highlighting trade-offs in model behavior (instruction following, efficiency, interactiveness), directly informing model selection and deployment decisions.
- Stress-tested LLMs on complex, stateful systems (event-driven pipelines, streaming agents, WebSocket flows), emphasizing robustness in production-like environments.
- Contributed to improving evaluation standards for agentic coding systems, particularly in scenarios requiring context retention, incremental reasoning, and system-wide consistency.

Machine-Learning Engineer / Technical Lead 09/2025
studyradar.ai Calgary, AB, Canada
- Architected and shipped an AI exam-prep platform for pharmacy candidates taking the Canadian OSCE, EE and MCQ Examination; stack: Python, Django-REST, React, GCP, Docker.

- Built a **retrieval-augmented-generation (RAG)** pipeline with GPT-4, LangChain & FAISS that turns 5k+ legacy question banks into on-the-fly, voice-acted OSCE scenarios reducing content-creation time from days to minutes.
- Implemented **real-time speech-to-text + TTS** (OpenAI Whisper) so users practise oral stations and receive instant rubric-based feedback; average session length
- Engineered event-driven microservices (Pub/Sub, Cloud Functions) that auto-scaled grading workloads, reducing compute costs by 35% while maintaining 99.9% uptime."
- Led a **distributed team** (frontend, backend, design); introduced CI/CD, code-review workflow, and weekly release cadence patterned on trunk-based development.

Researcher 09/2023 – 08/2025
University of Lethbridge (Sponsored by Alberta Innovates) Lethbridge, AB, Canada

- Conducted research in advanced medical image analysis and multimodal deep learning for schizophrenia investigation, culminating in a full thesis titled *"Advanced Boundary-Enhanced Instance Segmentation and Spatial-Temporal Transformer Models for Automated Schizophrenic Investigation."*
- Designed and implemented **BoRefAttnNet**, a boundary-refined 3D U-Net with multi-scale attention for precise brain MRI segmentation.
- Achieved **0.97 Dice (+13% over baseline)** and **52% faster inference** compared to standard 3D U-Net architectures.
- Evaluated on FastSurfer-processed sMRI data from the **COBRE** dataset.
- Accepted for oral presentation at ICICT 2026 (Springer LNNS proceedings).
- Developed a **Dynamic Spatial-Temporal Transformer Model (DySTTM)** integrating structural MRI segmentation outputs with functional MRI time-series for schizophrenia detection.
- Achieved a **+4% ROC-AUC improvement** over 3D ResNet baselines with statistically significant gains *($t = 3.45$, $p < 0.01$)*.
- Built an end-to-end research pipeline: **AFNI skull-stripping → PyTorch model training → MLflow experiment tracking → GPU-based deployment on GCP**.
- Trained and evaluated models on **NVIDIA L4 GPUs** using patch-based 3D training for memory efficiency and scalability.
- Implemented rigorous validation using Dice, Hausdorff Distance (HD), Average Surface Distance (ASD), ROC-AUC, and statistical significance testing.
- Collaborated with faculty and peers in a research-driven environment; maintained **weekly releases via Git, CI/CD**, and reproducible experiment workflows.
- **Selected as one of 10 Canadian researchers and invited by the Digital Research Alliance of Canada** to attend the Lisbon 2025 *International High-Performance Computing Summer School (IHPCSS)*, receiving advanced training in large-scale parallel computing and GPU acceleration.
- Research outcomes contributed to both **peer-reviewed conference publication** and the University of Lethbridge MSc thesis repository.

Graduate Teaching Assistant 09/2023 – 08/2025
University of Lethbridge Lethbridge, Canada

- Led tutorials, labs, and weekly office hours for **four core CS/math courses** across five consecutive terms: Discrete Structures (F 2023, S 2024, F 2024, W 2025), Fundamentals of Programming II, Introduction to Statistics & Probability, and Mathematical Concepts
- Designed problem sets and grading rubrics for 60 -90 undergraduates per term, reducing turnaround time from one week to 48 hours via automated Python/LaTeX workflows.
- Created interactive Jupyter-notebook demos and code-along sessions that lifted average mid-term scores in Discrete Structures.
- Coordinated with faculty members to modernise course materials
- Mentored junior TAs, sharing best practices for equitable grading and student engagement

Data Scientist 04/2018 – 08/2023
ZAIR

- Designed, trained, and evaluated machine learning models to support business decision-making, with a primary focus on customer behavior analysis and retention.
- Built and productionized a customer churn prediction model using XGBoost, achieving an 18 percent reduction in customer attrition after deployment.
- Led end-to-end ML workflows including data cleaning, feature engineering, model training, validation, and inference.
- Deployed models using Docker and Google Cloud Run, enabling scalable, low-latency inference in a production environment.

- Implemented experiment tracking and model versioning practices, improving reproducibility and reducing the model-to-production cycle from approximately three weeks to five days.
- Worked with structured datasets stored in relational databases, performing exploratory data analysis and statistical validation to inform modeling decisions.
- Collaborated with engineering and business stakeholders to translate operational problems into measurable data science objectives.
- Monitored model performance post-deployment and iterated on features and hyperparameters based on real-world feedback and drift indicators.
- Documented modeling assumptions, evaluation metrics, and deployment procedures to support maintainability and knowledge transfer.

Advisory Board Member 08/2025
AIRI Foundation Alberta, Canada
- Artificial Intelligence for Responsible Inclusion (AIRI) is a foundation set up to equip people and organizations with the skills and systems to thrive in the age of AI, ensuring that every community can access, benefit from, co-create, and lead its future.

Software Engineer (Part Time Contract) 01/2020 – 03/2022
Britkay Enterprise
- Worked on the an E-commerce brand of Britkay and saw the expansion of the eCommerce division by developing a responsive website to power the market space

Software Engineer 07/2015 – 03/2018
Gygital
- Designed, developed, and maintained production software solutions for small, medium, and large-scale enterprise clients across networking, IT services, and business automation domains
- Built backend services and data-driven applications using Python and related technologies, supporting internal operations and customer-facing systems.
- Worked on system integration projects involving databases, APIs, and third-party services, ensuring reliability, security, and performance.
- Supported deployment and maintenance of applications in cloud and on-prem environments, contributing to system availability and operational stability.
- Collaborated directly with clients, project managers, and technical teams to gather requirements, translate business needs into technical solutions, and deliver on project timelines.
- Participated in debugging, performance optimization, and production support for deployed systems.
- Gained hands-on experience with version control, structured development workflows, and documentation in a consulting-driven environment.

Specialist Consultant/ Drafting/Review 03/2021 – 12/2023
Nigeria Startup Act Abuja, Nigeria
- Worked on drafting and reviewing the Nigeria Startup Bill with various teams and saw to the passage of the Bill across the Legislative chambers and the subsequent assent by the President of Nigeria.

Startup Mentor (Remote Contract) 05/2022 – 04/2023
NewChip Accelerator Austin, United States
- Advised several startups on growth strategy to quickly gain market traction, and also help bridge the gap between strategy and execution thereby making a big impact for their customers and partners.

Founder / CEO
Xyricon Technologies Inc.
Xyricon Technologies Inc. is a canadian deep-tech company develpping edge-first, human-in-the-loop AI systems for life-critical environments. Our flagship platform, Auron, is a real-time emergency response co-pilot designed to eliminate “dead air” in 911 operations and support dispatch centers during overflow or high-load scenarios.Auron integrates directly with telephony and NG9-1-1 infrastructure, ingesting live audio streams and running real-time intelligence at the edge. The system performs structured triage, distress signal fusion, and policy-governed dialogue management while maintaining strict latency, security, and compliance requirements. If human dispatchers are temporarily unavailable, Auron safely engages callers, gathers critical information, and prepares a structured incident summary for seamless handoff.Unlike cloud-dependent voice assistants, Auron is architected as an edge-first orchestration engine. Core call handling, latency governance, and safety logic operate locally within controlled infrastructure, with optional cloud augmentation for enhanced language processing. The system is designed to meet evolving public safety standards, including NG9-1-1 modernization efforts, privacy safeguards, and audit traceability requirements.Xyricon’s mission is to build trusted AI infrastructure for high-stakes decision environments, one where reliability, transparency, and human oversight are non-negotiable.

PROFESSIONAL DEVELOPMENT / TRAINING

Trainee 07/2025
International High-Performance Computing Summer School (IHPCSS) Lisbon, Portugal
One of 10 researchers representing Canada for a 1-week intensive on large-scale parallel computing

CERTIFICATIONS

Google TensorFlow Certification 05/2024 – 05/2027
Credential ID: 104579946

Convolutional Neural Networks in TensorFlow 12/2022
Issued by Coursera in conjunction with DeepLearning.AI
Credential ID: FAEGNDD9DBLP

Natural Language Processing in TensorFlow 12/2022
Issued by Coursera in conjunction with DeepLearning.AI
Credential ID: YZQXNM2YVHZD

Neural Networks and Deep Learning 07/2022
Issued by DeepLearning.AI/Coursera
Credential ID: SUS3WKMYTCUL