

MOHAMED AHMED, Ph.D.

Lead Data Scientist | Applied AI / ML

✉ mohamed.geo.ahmed@gmail.com

[in LinkedIn](#) [G Publications](#)

SUMMARY

GeoAI and applied machine learning expert with 10+ years of experience turning advanced AI research into operational solutions for industry, government, and research organizations. Currently leading the GeoAI and research program at Esri Canada, with a focus on enterprise GenAI applications, geospatial deep learning, agentic AI workflows, and production-ready ML pipelines. Brings end-to-end experience across research, prototyping, deployment, MLOps, and business implementation. Recognized for mentoring technical teams, building cross-functional partnerships, and translating complex AI concepts for executive, government, and external audiences. Ph.D. with a focus on geospatial data science and machine learning, with 18+ peer-reviewed publications.

CORE SKILLS

- **AI / ML & GenAI:** Deep learning, computer vision, transformer-based models, LLMs, NLP, RAG, model fine-tuning, agentic AI workflows, multimodal fusion, supervised and unsupervised learning, reinforcement learning, feature engineering, and classical ML methods including regression, random forests, SVM, kNN, Naive Bayes, PCA, and clustering.
- **Frameworks & Libraries:** PyTorch, TensorFlow/Keras, Scikit-learn, Hugging Face, LangChain, Pandas, NumPy, GeoPandas, Rasterio, Xarray, Matplotlib, Plotly, Pillow, HighCharts, and ArcGIS API for Python.
- **AI Agents & Enterprise Automation:** AI assistant design, agentic workflow design, Microsoft Copilot Studio, MCP, A2A, LLM-powered workflow automation, and enterprise system integration.
- **Programming & Data Engineering:** Python, R, SQL, shell scripting, ETL pipeline development, big-data processing, QA/QC, data lifecycle management, and reproducible analytics workflows.
- **Cloud, MLOps & Deployment:** Azure AI, AWS, Google Cloud Platform, FastAPI, REST APIs, Docker, Git/GitHub, CI/CD fundamentals, model packaging, monitoring, and reproducible machine learning workflows.
- **Visualization & Communication:** ArcGIS Dashboards, Experience Builder, geospatial visualization, executive reporting, technical storytelling, and communication of complex AI concepts to technical, executive, and non-technical audiences.
- **Leadership & Delivery:** Cross-functional technical leadership, team mentorship, stakeholder engagement with senior executives and government partners, agile project delivery, proposal development, and public speaking.

PROFESSIONAL EXPERIENCE

Lead Data Scientist & GeoAI Lead

2022 – Present

Esri Canada, Canada

- ▶ Lead Esri Canada's GeoAI and research initiatives, defining technical direction for AI, machine learning, and deep learning integration across geospatial data platforms used by academic, government, and research organizations.
- ▶ Develop scalable geospatial AI workflows for computer vision, object detection, classification, change detection, and large-scale spatial data processing using satellite, aerial, drone, and enterprise geospatial datasets.
- ▶ Collaborate with senior researchers, academic leaders, and government agencies to translate emerging GeoAI capabilities into applied solutions and decision-support workflows.
- ▶ Author technical blogs and learning resources on GeoAI, and emerging spatial data technologies, helping technical and non-technical audiences understand and adopt AI-enabled geospatial workflows.
- ▶ Delivered 50+ invited lectures, technical workshops, and conference presentations across 10+ Canadian universities, government agencies, and national/international events.
- ▶ Developed ArcGIS-compatible DLPKs for geospatial foundation models, including model configuration, metadata preparation, and integration testing for satellite imagery analysis and change detection workflows.

Adjunct Professor

2025 – Present

University of Calgary, Canada

- Teach and mentor undergraduate and graduate students in geography department, focusing on GIS, remote sensing, spatial data science, and applied geospatial technologies.

Senior Researcher & Project Manager Lead

2022 – 2025

eLEAF B.V., Netherlands (Part-Time)

- Led international applied research project in Africa and Europe, coordinating a multidisciplinary team to design and validate a prototype data system for estimating land-based negative carbon emissions.

Postdoctoral Research Scientist

2021 – 2022

University of Victoria, Canada

- Designed and implemented machine learning models to analyze large-scale oceanographic observations from the global Argo float network, supporting new estimates of oxygen variability in the Northwest Pacific.

Postdoctoral Research Scientist

2020 – 2021

University of Calgary, Canada

- Designed and implemented a GIS and machine learning data pipeline integrating time-series satellite imagery, in-situ Arctic field observations, and neural network models to estimate Canada's marine carbon sink in the Arctic.

Lecturer

2013 – 2015

Beni-Suef University, Egypt

- Designed and taught undergraduate and graduate courses in GIS, remote sensing, geology, hydrology, aerial photography, and applied spatial data analysis.

Research Associate

2012 – 2013

Lund University, Sweden

- Developed an automated GIS and remote sensing workflow to process decadal raw satellite imagery into standardized analytical outputs for a government-funded land cover dynamics project across Egypt.

EDUCATION

Ph.D., Geography (GPA: 4.0) | University of Calgary, Canada

2015 – 2020

Thesis: Air-Sea CO₂ Cycling in Arctic Coastal Seas: Case Studies in the Canadian Arctic Archipelago and Hudson Bay

M.Sc. (with Distinction), Geomatics | Lund University, Sweden

2010 – 2012

Thesis: Significance of Soil Moisture on Vegetation Dynamics in the African Sahel, 1982–2008

B.Sc. (Honours, 1st Class), Geology | Beni-Suef University, Egypt

2003 – 2007

Thesis: Environmental pollution of cement industry in urban areas: A case study in Beni-Suef city, Egypt.

SELECTED AWARDS & RECOGNITION

- PRODIGY Fellow | Pacific Rim Ocean Data Mobilization & Technology Program (\$70,000, 2021)
- Geography Department Excellent Research Award | University of Calgary (2020)
- Dean's Doctoral Scholarship | University of Calgary (\$15,000, 2019)
- Best Oral Presentation Award | Annual Geography Department Conference, University of Calgary (2018)
- Eyes High International Doctoral Scholarship | University of Calgary (\$12,000, 2016)
- EU Bridge Building Scholarship | Lund University, Sweden (\$35,000, 2010–2012)
- Top Student Fellowship | Beni-Suef University, Egypt (\$15 000, 2009)
- Faculty Excellence Student Award | Beni-Suef University, Egypt (2008)