

# Husayn El Sharif

## Senior Data Scientist • Machine Learning Engineer

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### Professional Summary

*Senior Data Scientist and Machine Learning Engineer with 10+ years of experience building and deploying production-grade ML systems, analytics pipelines, and AI-powered solutions. Proven ability to translate complex data into actionable insights across geospatial, environmental, and applied ML domains.*

### Technical Skills

<b>Programming</b>	Python, SQL, R, MATLAB
<b>Machine Learning</b>	Scikit-Learn, TensorFlow, PyTorch, XGBoost, Deep Learning, Transfer Learning, Computer Vision
<b>Data &amp; MLOps</b>	Numpy, Pandas, PySpark, MLflow, Docker, Airflow, dbt, Streamlit, Git
<b>GenAI &amp; LLMs</b>	NLP, Prompt Engineering, Fine-Tuning, RAG, LangChain, CrewAI
<b>Data Visualization</b>	Matplotlib, Seaborn, Plotly, Tableau, Power BI
<b>Cloud Platforms</b>	AWS, Google Cloud, Databricks, Snowflake, Hugging Face
<b>Geospatial Analysis</b>	ArcGIS, QGIS, GeoPandas, Google Earth Engine

### Selected Projects

#### Remote Sensing & ML for Water Quality Assessment at Lake Lanier

- Developed a Dockerized ML pipeline for satellite-based water quality monitoring, enabling near-real-time detection of harmful algal blooms to support proactive water quality management for the Gwinnett County Dept. of Water Resources. [View Project](#)

#### Customer Churn Modeling & Retention Optimization with SparkML, MLflow, & Neural Networks

- Built scalable churn prediction models (Logistic Regression, Neural Networks) with SparkML, TensorFlow, and MLflow on telecom data to flag high-risk customers and drive targeted retention strategies. [View Project](#)

#### AI-Powered Retinal Disease Detection with Deep Learning & Computer Vision Pipeline

- Developed a deep learning computer vision pipeline for retinal disease classification, achieving 89% accuracy and 0.88 macro-F1 score across four diagnostic classes, supporting automated screening and clinical decision support. [View Project](#)

#### Multi-Agent GenAI System for Automated Literature Review

- Developed a multi-agent GenAI pipeline (Python, LangChain, LLMs) to automate hydrology literature analysis, reducing manual literature review time by ~70–80%. [View Project](#)

### Professional Experience

#### Senior Data Scientist (Research Engineer)

Aug 2012 – Present

#### Georgia Institute of Technology, School of Civil & Environmental Engineering

Atlanta, GA

- Designed and deployed ML models for environmental and time-series prediction, enabling real-time water quality monitoring, flood risk assessment, and climate impact analysis through automated dashboards used by government partners.
- Applied ML to fuse NASA satellite imagery and climate time-series data, enabling more accurate basin-scale forecasting of crop yield, drought, irrigation, and streamflow.
- Oversaw \$400K+ in annual federal and state research projects as Assistant Director, Georgia Water Resources Institute.
- Mentored student researchers in data science methods, guiding successful publications, conference presentations, and career advancement.

#### Engineering Consultant (Part-Time)

Aug 2022 – Aug 2025

#### 4Earth, Inc.

Kennesaw, GA

- Developed physics and data-driven system models and AI-Ops pipelines for real-time AWS IoT sensor analytics, improving engineering efficiency and reducing time-to-market by 20%.

#### Data Scientist (Graduate Research Assistant)

May 2010 – Aug 2012

#### Florida Atlantic University, Department of Civil, Environmental, & Geomatics Engineering

Boca Raton, FL

- Built and validated ML models to reconstruct missing environmental data, improving accuracy and spatial consistency for hydrologic and climate analyses.

### Education

Ph.D., Civil Engineering	Georgia Institute of Technology	Atlanta, GA	GPA: 3.97	May 2019
Master of Science, Civil Engineering	Georgia Institute of Technology	Atlanta, GA	GPA: 3.97	May 2016
Bachelor of Science, Civil Engineering	Florida Atlantic University	Boca Raton, FL	GPA: 3.81	Aug 2011