Husayn El Sharif

Senior Data Scientist: Applied Machine Learning, AI Systems, & Data-Driven Decision Support
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Professional Summary

Georgia Tech Ph.D. and Data Scientist with 8+ years applying machine learning, geospatial analytics, and statistical modeling to extract actionable insights from large, complex data.

Technical Skills

Programming & Analytics	Python, SQL, R, MATLAB, Git, JupyterLab
Machine Learning & Data	Numpy, Pandas, Scikit-Learn, TensorFlow, PyTorch, PySpark
AI Techniques	Machine Learning, Deep Learning, Computer Vision, Transfer Learning
GenAI & LLM	NLP, Prompt Engineering & Fine-Tuning, RAG, Vector Embeddings, LangChain, CrewAI
Data Visualization	Matplotlib, Seaborn, Plotly, Tableau
Cloud Platforms & MLOps	AWS, Google Cloud, Databricks, Snowflake, MLflow, Docker, Streamlit, Hugging Face
Geospatial Analysis	ArcGIS, QGIS, GeoPandas, Google Earth Engine

Professional Experience

Data Scientist (Research Engineer)   *Mar 2021 – Present*
Georgia Institute of Technology, School of Civil & Environmental Engineering   Atlanta, GA

- Developed end-to-end ML applications and dashboards for near-real-time water quality monitoring in Georgia's Lake Lanier, enabling proactive, data-driven decisions for the Gwinnett County Dept. of Water Resources.
- Applied deep learning models (RNN/LSTM) to forecast crop yield and irrigation demand, enhancing watershed-scale agricultural decision support.
- Built a multi-agent GenAI system (CrewAI + LangChain + GPT + Gemini LLMs) to automate hydrology literature review workflows, reducing a 7-day manual research process to 1 day and accelerating scientific reporting productivity by ~85%.
- Oversaw $400K+ in annual federal and state research projects as Assistant Director, Georgia Water Resources Institute.
- Mentored and supervised 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 (Postdoctoral Fellow)   *May 2019 – Mar 2021*
Georgia Institute of Technology, School of Civil & Environmental Engineering   Atlanta, GA

- Applied ML and geospatial analytics to improve predictive flood-risk models, delivering actionable intelligence for government and community resilience planning across East Africa.
- Developed ML techniques that improved climate forecast accuracy and spatial coherence by over 50%, strengthening data-driven insights for long-term water resources planning and policy.

Machine Learning Researcher (Ph.D. Research)   *Sep 2012 – May 2019*
Georgia Institute of Technology, School of Civil & Environmental Engineering   Atlanta, GA

- Applied ML to fuse multi-sensor NASA satellite imagery and climate time-series data, boosting accuracy of crop-yield, drought, irrigation, and streamflow forecasts and enabling basin-scale, data-driven water-management decisions across multi-decadal climate scenarios.

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