

# 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 10+ years applying machine learning, geospatial analytics, and statistical modeling to extract actionable insights from large, complex data.*

## Technical Skills

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

## Professional Experience

<b>Data Scientist (Research Engineer)</b> <b>Georgia Institute of Technology, School of Civil &amp; Environmental Engineering</b> <ul style="list-style-type: none"><li>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.</li><li>Applied deep learning models (RNN/LSTM) to forecast crop yield and irrigation demand, enhancing watershed-scale agricultural decision support.</li><li>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%.</li><li>Oversaw \$400K+ in annual federal and state research projects as Assistant Director, Georgia Water Resources Institute.</li><li>Mentored and supervised student researchers in data science methods, guiding successful publications, conference presentations, and career advancement.</li></ul>	<i>Mar 2021 – Present</i> Atlanta, GA
<b>Engineering Consultant (Part-Time)</b> <b>4Earth, Inc.</b> <ul style="list-style-type: none"><li>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%.</li></ul>	<i>Aug 2022 – Aug 2025</i> Kennesaw, GA
<b>Data Scientist (Postdoctoral Fellow)</b> <b>Georgia Institute of Technology, School of Civil &amp; Environmental Engineering</b> <ul style="list-style-type: none"><li>Applied ML and geospatial analytics to improve predictive flood-risk models, delivering actionable intelligence for government and community resilience planning across East Africa.</li><li>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.</li></ul>	<i>May 2019 – Mar 2021</i> Atlanta, GA
<b>Machine Learning Researcher (Ph.D. Research)</b> <b>Georgia Institute of Technology, School of Civil &amp; Environmental Engineering</b> <ul style="list-style-type: none"><li>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.</li></ul>	<i>Sep 2012 – May 2019</i> Atlanta, GA
<b>Data Scientist (Graduate Research Assistant)</b> <b>Florida Atlantic University, Department of Civil, Environmental, &amp; Geomatics Engineering</b> <ul style="list-style-type: none"><li>Built and validated ML models to reconstruct missing environmental data, improving accuracy and spatial consistency for hydrologic and climate analyses.</li></ul>	<i>May 2010 – Aug 2012</i> Boca Raton, FL

## 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