Sam Shuster (Active TS/SCI Clearance)

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EDUCATION

University of Georgia – Franklin College of Arts and Sciences
Bachelor of Science in Geography, Certificate in GIS (UGA)

- Major GPA: 3.95
- Data Science in Geography, Programming for GIS, Advanced Geospatial Statistics, Probability & Statistics, Digital Image Analysis, Geovisualization and Data Visualization, Aerial Image Interpretation/Photogrammetry, Calculus II

SKILLS

Programming: Python, SQL, HTML, CSS
Data Visualization: Tableau, Power BI, Streamlit, Matplotlib, Seaborn, GG plot, Plotly
Data Processing Tools: Pandas, NumPy, SciPy, Scrapy, BeautifulSoup, Selenium, Excel
Data Science & Misc. Technologies: Hypothesis Testing, ETL, Data pipeline (Collect, Clean, Visualize, Model, Interpretation), Process automation, Statistics, Time-series Analysis, APIs, Git
GIS: ArcGIS Pro and ESRI tool suite, QGIS, Google Earth Engine, GeoDa, Google Earth Pro, QCAD

PROFESSIONAL EXPERIENCE

Geospatial Data Analyst – Norfolk Southern *February 2022- Present*

- Designed, maintained, and optimized critical geospatial datasets used in autonomous Positive Train Control systems, enhancing rail safety across thousands of miles of track.
- Queried large-scale Oracle geodatabases and built Python-based ETL pipelines for enterprise-wide use in infrastructure mapping and executive reporting.
- Automated the processing of panoramic imagery covering 3,000+ miles of track using Python, streamlining QA workflows, and improving visualization tools akin to internal "Google Street View."
- Spearheaded automation initiatives that increased processing efficiency, improved data accuracy, and enabled real-time QA/QC, cutting down project completion times.
- Contributed to the implementation of a Linear Asset Management framework to drive spatially informed business decisions and identify cost-saving opportunities using geospatial analytics.

Paid Undergraduate Research Assistant – DAYMET Precipitation Analysis *September 2021 - Dec 2021*

- Wrangled 20 years of precipitation data from NASA's DAYMET dataset, utilizing NASA's CMR API, OPeNDAP, Geopandas, rasterio, shapely, Xarray, and the Google Earth Engine API, inside a Jupyter notebooks environment.
- Extracted county-level geostatistics to better understand how climatological drivers influence various community dynamics.

Paid Undergraduate Research Assistant – Community Mapping Lab & BikeAthens *August 2021 - Dec 2021*

- Worked in tandem with the BikeAthens nonprofit group to collect and vet city data and community- sourced input.
- Developed an interactive webmap detailing the most suitable cycling routes through Athens, GA utilizing QGIS, ArcGIS online, and Mapbox's API.

Paid Undergraduate Research Assistant – Indus Valley Paleoclimate and Monsoon *October 2020 - Dec 2021*

- Constructed biological profiles from lake sediment extracted from the Indus Valley region. Sediments used to model the paleoclimate of the region approximately 5500 years ago in an effort to better understand how an advanced civilization called the Harappa suddenly went extinct.
- Findings will go towards better understanding the Indian Monsoon season and contribute to forecasting future food insecurity and agricultural productivity for the region as well as informing current understanding of ENSO.
- Performed geochemical analysis on lake sediment core samples in order to create biological profiles of each sample site.

PROJECTS

Used Car Price Prediction App *Jan 2025*

- Built and deployed a machine learning model to estimate used car prices based on make, model, year, mileage, and other features.
- Designed a web app interface using Streamlit, and containerized the application with Docker for portable deployment.
- Implemented preprocessing pipelines, feature engineering, and regression modeling using scikit-learn, pandas, and NumPy.

Food Expenditure OCR Analysis *Sept 2024*

- Developed an OCR pipeline to digitize and analyze over 2.5 years of receipt data, identifying monthly and seasonal trends in food spending.
- Applied pytesseract, pandas, and time series analysis to extract insights and create visualizations of spending behavior over time.

Time-Series Analysis on the Urban Growth of Denver, CO *May 2021*

- Utilized Google Earth Engine and Landsat imagery to conduct a time-series analysis on the Landuse/Landcover change of Denver, CO from 1986 - 2021.
- Conducted machine learning supervised classification and change detection to explain growth of the urban center and corroborated findings with Census data.

Geostatistical Analysis of Violent Crime in Atlanta, GA *May 2021*

- Conducted geostatistical analysis of Atlanta crime data, utilizing cluster identification and multiple spatial regression techniques.
- Identified problem areas and significant risk factors contributing to increased criminal activity with block-level resolution.

CAMPUS INVOLVEMENT & LEADERSHIP

Community Mapping Lab – Athens, GA *August 2021 – Dec 2021*

Environmental Change Lab – Athens, GA *October 2020 – Dec 2021*

***Scrumhalf*, UGA Club Rugby** – Athens, GA *January 2019 – Dec 2021*