Sam Shuster (TS/SCI Clearance)

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PROFESSIONAL SUMMARY

Results-driven Geospatial Data Analyst with a proven track record of engineering enterprise-grade geospatial solutions that strengthen rail safety, asset reliability, and operational intelligence at Norfolk Southern. Adept in designing and automating end-to-end ETL pipelines, optimizing large-scale Oracle geodatabases, and delivering high-value analytical products used across Engineering, Strategic Planning, and executive leadership. Primary point of contact for a company-wide panoramic rail imagery platform—a Google-Street-View-like system that transformed asset management, QA/QC, and strategic planning across 6,000 miles of track.

Specializes in linear asset management, spatial analytics, and predictive insights that support infrastructure investment, regulatory compliance, and safety-critical decision making. Adept at integrating environmental, climatological, and geotechnical datasets to identify operational risks, optimize maintenance programs, and enhance track-level situational awareness. Recognized for driving automation initiatives that reduce project timelines, improve data accuracy, and deliver actionable intelligence at scale.

Combines deep GIS and analytics expertise with advanced data engineering (Python, SQL, API integration, geoprocessing automation) to deliver durable, scalable solutions that streamline workflows and create measurable business value.

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 introduced a new internal visualization too akin 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.
- Created value by delivering systemwide operational intelligence by integrating soil-moisture profiling, weather-driven risk modeling, and curve-tangent geometry analytics to identify rail defect drivers, predict maintenance needs, and materially reduce track-level safety risks and unplanned repair costs.

SKILLS

Programming: Python, SQL, HTML, CSS
Data Visualization: Power BI, Tableau, 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, Google Earth Engine, Google Earth Pro

EDUCATION

University of Georgia – Franklin College of Arts and Sciences *December 2021*

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