

SATYA VENKATA SIDDHARTHA BOKKA

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SUMMARY

I am a highly skilled and detail-oriented professional with a strong academic background in Geographic Information Systems (GIS) and Geo-Informatics, currently pursuing a Master of Science in GIS at the State University of New York at Buffalo. Demonstrated expertise in geospatial analysis, data management, and machine learning applications, with hands-on experience in GIS technologies such as ArcGIS, QGIS, and Python. Successfully led projects in urban water management, groundwater potential mapping, crime trend analysis, and vegetation health modeling. Contributed to optimizing urban infrastructure for autonomous vehicle integration and enhancing flood management systems. Proven ability to manage complex datasets, develop predictive models, and deliver actionable insights, making them well-equipped to tackle challenges in geospatial analysis, urban planning, and sustainable resource management.

WORK EXPERIENCE

Student Assistant – Department of Geography (University at Buffalo)

Feb 2024 – Ongoing

- Managed various tasks in a busy academic setting, effectively prioritizing and managing time to meet deadlines.
- Evaluated assignments for nearly 270 students with accuracy and efficiency, coordinating the timely submission of weekly grades.
- Originated comprehensive exam question papers aligned with course objectives and student learning outcomes.
- Compiled concise and informative keynotes from textbook chapters to facilitate student understanding.

GIS Intern - Municipal Corporation Kakinada

Jul 2024 - Aug 2024

- Mapped 22 Elevated Level Storage Reservoirs (ELSRs) and visualized water extraction points from the Godavari River using ArcGIS, streamlining municipal water distribution.
- Examined and oversaw water distribution data in MySQL Server, monitoring accurate tracking of 38,000 households and 239 public taps to minimize losses.
- Enhanced 2 hydraulic networks by integrating GIS-based geospatial analysis with MySQL databases, improving water flow monitoring and treatment efficiency.
- Recorded 2 reservoir capacities and treatment processes, enhancing resource allocation and sustainability in urban water management.
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PROJECTS

1. UGD Design for Kakinada Urban Using GIS, Kakinada, Andhra Pradesh, India Objective:

- Engineered an optimized stormwater drainage system using ArcGIS and field data to enhance flood management and resilience.
- Generated a high-accuracy Digital Elevation Model (DEM) and conducted network analysis using hydrology tools (fill, sink, flow direction, flow accumulation, stream order), improving water flow efficiency by 25%.
- Pinpointed strategic locations for pump installations to mitigate monsoon flood risks and enhance drainage capacity.
- Delivered a sustainable drainage layout that minimized flooding impacts and improved water stream management in vulnerable areas.

2. Identifying Ground Water Potential Map in New York State Objective:

- Led a GIS-based multi-criteria analysis to map groundwater potential zones across New York State, enhancing resource planning and management by assigning weight in fractions to factors like 1/6, 1/5, 6/6 to prioritize the weights.
- Automated the Analytic Hierarchy Process (AHP) using Python to integrate all the 6 critical factors.

- Produced a detailed groundwater potential map, delivering actionable insights for policymakers and water resource managers to support sustainable water development.

3. Crime Trend and Spatial Analysis in Chicago (2010-2023) Objective:

- Built comprehensive forecasting models with key insights into urban crime patterns, empowering law enforcement strategies through precise location-based predictions that directly contributed to a 30% reduction in response times.
- Formulated 3 distinct predictive models utilizing caret and Random Forest methodologies.
- Uncovered critical trends lead to more effective allocation of police resources in identified at-risk neighborhoods.

4. Geospatial Modeling of Vegetation Health in Arizona:

- Developed a co-kriging model in ArcGIS Pro, incorporating elevation and temperature data to predict vegetation health across Arizona.
- Investigated spatial patterns and environmental influences on plant health using semi variograms and geostatistical models.
- Created a high-precision NDVI map, comparing co-kriging(RMSE 0.117) and traditional kriging(RMSE 0.118) methods to evaluate predictive effectiveness.

5. AI-Based Autonomous Vehicle Planning Project Aligned with Streetscape Design and Urban Walkability Objective:

- Assessed Buffalo's Fruit Belt neighborhood area of 52 sq mi for the deployment of autonomous electric buses, prioritizing streetscape design and urban walkability to enhance AV integration and safety.
- Applied 2 machine learning models to analyze image data and perform sentiment analysis on community feedback, assessing streetscape elements for improvement.
- Leveraged Google Street View and social media data to identify infrastructure gaps, recommending actionable improvements to optimize autonomous vehicle routes.

TECHNICAL SKILLS

Programming & Machine Learning Skills: Python (Scikit-learn, TensorFlow, Keras, NumPy, Pandas, Matplotlib), R (caret, Random Forest)

GIS Technologies: ArcMap, ArcGIS Pro, QGIS, AutoCAD, ArcGIS Online, Survey 123, Field Maps, Net Logo

Databases: ArcGIS Enterprise, My SQL

Remote Sensing Technologies: ENVI, ERDAS Imagine Photogrammetry

EDUCATION

State University of New York at Buffalo

Master of Science in Geographic Information Systems, (3.6/4) CGPA

Andhra University

Bachelor of Technology in Geo-Informatics, (3.14/4) CGPA

Buffalo, NY, USA

Aug 2023 - Ongoing

Visakhapatnam, AP, India

Aug 2019 - May 2023