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. 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.

GIS Analyst – MSL RENEWABLE ENERGY POWER PRIVATE LIMITED **Jun 2023 – Aug 2023**

- Led a rooftop solar suitability project across 2 municipalities, digitizing over 400+ rooftops and generating high-resolution solar exposure models.
- Designed interactive web map dashboards that visualized solar potential and subsidy eligibility, accessed by 50+ local planning officials.
- Coordinated with engineers and policy teams to ensure spatial outputs aligned with government solar subsidy criteria.
- Streamlined data pipelines by linking satellite imagery, GPS field data, and geodatabases, reducing processing time by 40%.

GIS Intern – MSL RENEWABLE ENERGY POWER PRIVATE LIMITED **Sep 2022 - May 2023**

- Assessed rooftop solar suitability across 3 urban zones using spatial modeling and digitized 200+ rooftops to support renewable energy planning.
- Utilized ArcGIS and remote sensing tools to produce 18 solar potential maps, enabling precise subsidy targeting and infrastructure planning.
- Prepared 10+ technical reports and visual dashboards to communicate findings to stakeholders and local authorities.

PROJECTS

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

- 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:

- 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):

- 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. Identifying Damaged Buildings in the Palisade Wildfire 2025 Using Machine Learning Integrated with GIS:

- Developed a GIS-integrated machine learning model (XGBoost) that achieved 83.2% accuracy in classifying wildfire-damaged buildings using multispectral satellite imagery and ground truth data (9,543 samples).
- Engineered a robust feature dataset by combining ΔNDVI, ΔNBR, slope, wind, land cover, and structure attributes, enhancing spatial precision in building-level damage detection.
- Deployed results via an interactive Folium web map, enabling real-time visualization of model predictions over building footprints for emergency planning use.

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 — **Buffalo, NY, USA**
Master of Science in ***Geographic Information Systems*****,** *(3.6/4) CGPA* — **Aug 2023 - Ongoing**
Andhra University — **Visakhapatnam, AP, India**
Bachelor of Technology in ***Geo-Informatics****, (3.14/4) CGPA* — **Aug 2019 - May 2023**