Venkanna Babu Guthula

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SUMMARY

I am a Ph.D. student specialising in Computer Vision for Earth observation, with three years of industry and research experience in the fields of geospatial data analysis and machine learning. I am passionate about leveraging artificial intelligence and high-performance computing to extract meaningful insights from remote sensing imagery at scale, driving innovation in environmental monitoring, biodiversity conservation, and beyond.

EDUCATION

Ph.D. in Computer Vision for Earth Observation
02/2023-Present

Department of Computer Science, University of Copenhagen, Denmark

- Conducting research on malaria risk assessment in African cities using remote sensing and machine learning
- Developing computer vision methods to segment buildings and other objects from drone and high-resolution satellite imagery
- Focusing on methods for segmenting individual buildings, classifying their attributes, and aligning different image modalities

M.Sc. in Geo-Information Science & Earth Observation
09/2018-06/2020

Faculty of Geo-Information Science and Earth Observation, University of Twente, the Netherlands

- **Thesis:** Automatic road extraction from high-resolution remote sensing imagery using fully convolutional networks and transfer learning
- Studied basic concepts in machine learning and remote sensing
- Started exploring machine learning frameworks such as Scikit-learn, Pytorch and TensorFlow
- Gained hands-on experience in geospatial data analysis using Python, JavaScript, R, and GIS software (QGIS, ArcGIS, and SNAP)

B.Tech. in Geo-Informatics
09/2014-03/2017

Andhra University, Visakhapatnam, India

- **Thesis:** Web-GIS-based comparative analysis of rainfall in the Thatipudi Reservoir catchment area and its impact on reservoir capacity
- Studied techniques for estimating rainfall and water surface area using remote sensing imagery
- Developed a web-based application for geospatial data visualization

EXPERIENCE

Scientist I - EO
12/2021-01/2023

CropIn Technology Solutions, Bangalore, India.

- Developed a scalable model for cloud and shadow detection in Sentinel-2 imagery using classical machine learning algorithms
- Utilized AWS services for data analysis and machine learning model development
- Applied deep learning techniques for land boundary delineation from high-resolution satellite imagery

GIS-Python Developer
09/2020-12/2021

Wildlife Institute of India, Dehradun, India

- Developed deep learning models for species classification on top of MegaDetector to classify Indian mammals (https://github.com/bhlab/SpSeg)
- Maintained and contributed to *Linkage Mapper*, a tool for mapping wildlife corridors (https://github.com/linkagescape/linkage-mapper)
- Performed remote sensing image classification using machine learning algorithms in Google Earth Engine

Map-Technician
09/2017-09/2018

Mapbox Technologies, Bangalore, India

- Researched and designed workflows to improve transportation assets for enhanced navigation experiences
- Planned and organized field mapping events for large-scale geospatial data collection
- Added, validated, and enhanced base data in OpenStreetMap using GPS, remote sensing imagery, and street-level imagery

ACHIEVEMENTS

2020 Awarded the Golden Jubilee Scholarship at the Indian Institute of Remote Sensing for outstanding performance in M.Sc.

2019 Received a scholarship to attend and present a lightning talk at the *State of the Map Asia 2019* Conference, Dhaka, Bangladesh

LANGUAGES

Telugu, English and Hindi

SELECTED JOURNAL PAPERS

Brandt, M., Gominski, D., Reiner, F., Kariryaa, A., **Guthula**, V. B., Ciais, P., Tong, X., Zhang, W., Govindarajulu, D., Ortiz-Gonzalo, D., et al. (2024). Severe decline in large farmland trees in india over the past decade. *Nature Sustainability*, 1–9.

Guthula, V. B., Oehmcke, S., Chilaule, R., Zhang, H., Lang, N., Kariryaa, A., Mottelson, J., & Igel, C. (2025). Drone imagery for roof detection, classification, and segmentation to support mosquito-borne disease risk assessment: The nacala-roof-material dataset. *Science of Remote Sensing*, *12*, 100306.

Guthula, V. B., Shrotriya, S., Nigam, P., Goyal, S. P., Mohan, D., & Habib, B. (2022). Biodiversity significance of small habitat patches: More than half of indian bird species are in academic campuses. *Landscape and Urban Planning*, *228*, 104552.

SELECTED CONFERENCE PAPERS

Guthula, V. B., Kehlet, J. J. Å., Kariryaa, A., Lang, N., Oehmcke, S., & Igel, C. (2025). Beyond building footprints: Probing dinov3 to map roof material and geometry. *1st Workshop on Advances in Representation Learning for Earth Observation (REO @ EurIPS 2025)*.

Guthula, V. B., Pankajakshan, P., John, E., & Aravind, S. (2023). Cirrus cloud and shadow masking in optical satellite using deep learning for small land holding farmer plots. *IEEE International Geoscience and Remote Sensing Symposium*, 6354–6357.