Samvedya Surampudi

Research Fellow . PhD. Student

Division of Photonics and Microwave

Room 145, Technology Tower, VIT University, Vellore-632014, Tamil Nadu, India

| +[redacted] |

| samvedya11@gmail.com |

| https://samvedya.github.io/ | Google Scholar |

Summary

I am a researcher working in the field of Remote Sensing with 7 years of experience in Radar Remote Sensing and GIS with emphasis on hydrological applications. As a passionate individual who loves to conduct research that contributes to real-time problem solving, I am eager to bring my skills and expertise to a new challenge. I am confident in my ability to contribute in any team and excited to bring solutions.

Education

PhD. [Radar Remote Sensing] 2018-Present

Vellore Institute of Technology, Vellore, Tamil Nadu

Title: Hybrid approaches for flood mapping and forecasting using L&C band Synthetic Aperture Radar images: A Case study on Assam floods

Supervisor: Dr. Vijay Kumar [IITB], Associate Professor, DST-SERB Microwave and Radar Imaging Laboratory VIT University, Vellore

Master of Technology (74.6 %) [Remote Sensing] 2015-2017

Jawaharlal Nehru Technological University, Kakinada, Andhra Pradesh

Title: Detection of Internal Waves from Synthetic Aperture Radar images.

Supervisors: Dr. Sasanka Sasamal, Scientist-SF, NRSC, ISRO, Hyderabad.

Dr. Padma Kumari, Head of the department, School of Spatial Information Technology, JNTU-Kakinada

Bachelor of Technology (80.25 %) [Electronics Engineering] 2011-2015

Kakinada Institute of Engineering and Technology, Kakinada, Andhra Pradesh

Title: Accessing AHB Bus using wishbone controller on System on Chip (SoC).

Research Experience

- Junior Research Fellow in (NISAR) Airborne L&S Band Research announcement project funded by Space Application Center, ISRO under the grant NDM-01. (Feb,2018 – Mar, 2021)
- Research Assistant in ALOS-2 project under Research Announcement-2 by Japanese Aerospace Exploration Agency (JAXA). (Non-funded) (Mar,2019-Mar,2021)
- Internship (Aug, 2016-Jun, 2017) at National Remote Sensing Centre, ISRO, Hyderabad.

Innovations

- SARFvcVer-1.0 – is a standalone application developed for SAR image classification with reduced false scattering representation in identifying flooded vegetation based on Hybrid Bayesian classifier with Gaussian mixture models. (*https://github.com/samvedya/SAR-flood-mapping*)
- DFDE-A Dual Frequency flood Depth Estimation tool using SAR data and DEM. (*https://github.com/samvedya/Flood-Depth-Estimation*)
- Interactive Flood Visualization System for flood Forecasts based on Synthetic Aperture Radar data (*Submitted to National Innovation Repository, Innovation ID: IR2022-794832*)

Publications

Conference Publications

S. Surampudi and V. Kumar, "A new change index for identification of flooding in fully polarimetric SAR data," *2023 International Conference on Machine Intelligence for GeoAnalytics and Remote Sensing* ***(MIGARS)***, Hyderabad, India, 2023, pp. 1-3, doi: 10.1109/MIGARS57353.2023.10064604.

S. Surampudi, V. Kumar and K. Yarrakula, "Flood Index Estimation Using L-Band Sar Data for Assam Flood Prone Regions," *2021 IEEE International Geoscience and Remote Sensing Symposium* ***(IGARSS)***, Brussels, Belgium, 2021, pp. 8301-8304, doi: 10.1109/IGARSS47720.2021.9554862.

S. Surampudi and S. Sasanka, "Internal Wave Detection and Characterization with SAR data", 2019 *IEEE Recent Advances in Geoscience and Remote Sensing*: Technologies, Standards and Applications **(TENGARSS)**, *Kochi, India, 2019, pp. 104-108, https://doi: 10.1109/TENGARSS48957.2019.8976045.*

S. Surampudi and S. Sasanka, " Flood Susceptibility Mapping Using Multi Sensor Time Series Data in Middle Brahmaputra Basin" 2024 IEEE Mediterranean and Middle-East Geoscience and Remote Sensing Symposium **(M2GARSS)** *(Submitted)*

Journal Publications

S. Surampudi and V. Kumar, "Flood Depth Estimation in Agricultural Lands From L and C-Band Synthetic Aperture Radar Images and Digital Elevation Model," in ***IEEE Access***, vol. 11, pp. 3241-3256, 2023, *doi: 10.1109/ACCESS.2023.3234742*. *[Impact factor-3.47]*

Surampudi, S., Yarrakula, K. Mapping and assessing spatial extent of floods from multitemporal synthetic aperture radar images: A case study on Brahmaputra River in Assam

State, India. ***Environ Sci Pollut Res*** 27, 1521–1532 (2020). https://doi.org/10.1007/s11356-019-06849-6 *[Impact factor-5.1]*

S. Surampudi, V. Kumar, "Hybrid Naïve Bayes Gaussian Mixture Models and SAR Polarimetry based automatic flooded vegetation studies using PALSAR-2 data", (***Int. Journal of Applied Earth Observation and Geoinformation***) (*Revision Submitted*) [*Impact factor-7.1]*

Devaraj, S., Yarrakula, K., Martha, T.R. *et al.* Time series SAR interferometry approach for landslide identification in mountainous areas of Western Ghats, India. ***J Earth Syst Sci*** 131, 133 (2022). https://doi.org/10.1007/s12040-022-01876-3 [*Impact factor-1.91]*

Drafts in submission

S. Surampudi, V. Kumar, "Understanding Brahmaputra Floods: An Introduction to Flood Forecasting using SAR images – A model based on hybrid LSTM and Multi Adaptive Regression Splines*" (Submitted- IEEE trans. on Geoscience and Remote sensing)*

S. Surampudi, V. Kumar, "A Time Series Flood Susceptibility Mapping of Middle Brahmaputra Basin using hybrid cuckoo optimization and Monte Carlo" (*Under drafting*)

Honors and Awards

- Recipient of 2023 IEEE GRSS IDEA Microgrants award up to 500USD.
- Recipient of Raman Research Award from Vellore Institute of Technology, Vellore (Year ofreception- 2019)
- Junior Research Fellowship from Indian Space Research Organization (Year of reception- 2018)
- Recipient of Pratibha award of excellence and cash prize from Government of Andhra Pradesh,India. (Year of reception- 2017)
- Champion team in national level mapping competition *Mapthon* conducted by Indian Space Research Organization, IIT Bombay and AICTE. *(https://iitb-isro-aicte-mapathon.fossee.in/results)*
- 3rd place in University rankings in Masters of Technology.
- 2nd place in College rankings in Bachelors of Technology.

Training Programs

- 6th Advanced training course on Radar Polarimetry organized by *European Space Agency* (ESA) from 10th to 14th May 2021.
- Short-term training program on Hydrologic-Hydraulic Modelling of Flash Floods, conducted by *Indian Institute of Technology, Madras (IITM)* from 18th to 22nd March

2019.

- Training program on SAR data processing and Analysis for Land Applications from 6-10th August 2018 organized by *Space Application Centre (SAC), ISRO.*
- NISAR Science workshop 2018 organized by *Space Application Centre (SAC), ISRO* from 15th to 17th November 2018.

Summer Schools

- Attended 12th International Summer School on Radar/SAR, by Fraunhofer Institute for High Frequency Physics and Radar Techniques, (Fraunhofer-Gesellschaft), Bonn, Germany.

Conferences

- IEEE Recent Advances in Geoscience and Remote Sensing: Technologies, Standards and Applications conference (TENGARSS) held in Cochin, 17th -20th October 2019.
- IEEE Geoscience and Remote Sensing Symposium (IGARSS), 11th -16th July, 2021, held in Brussels, Belgium (Hybrid).
- Geospatial World Forum conference held in Hyderabad from 23rd -25th January, 2017.

Areas of Research Interest

Remote Sensing

- Radar Remote Sensing for disaster applications
- SAR polarimetry
- Electromagnetic scattering models

Hydrology

- Statistical methods, Deep learning
- Hydrological modeling

Skills

Programming Skills

- Matlab - Advanced
- Python (GDAL, Geopandas)
- HTML

Remote Sensing software

- SNAP, PolSARPro, GMTSAR
- QGIS, ArcGIS, ERDAS, ENVI, SAGAGIS
- HEC-HMS, HEC-RAS

Interpersonal skills

- Research and design thinking
- Active listening and strong communication

Extracurricular Activities

- Diploma in Carnatic music from Andhra University.

References

Dr. Vijay Kumar	Dr.Sasanka Sasmal	Dr. K. Padma Kumari
Professor, DST-SERB Microwave and Radar Imaging Laboratory, Microwave and Photonics Group, School of Electronics and Communication Engineering Vellore Institute of Technology, Vellore-632014, TN, India Ph: +91 8110019925 +914162202429 (Off) E-mail: vijaykumar@vit.ac.in	Scientist-SG, Ocean Sciences Group, Earth and Climate Science Area (ECSA), National Remote Sensing Center, Dept. of Space, Govt. Of India, Balanagar, Hyderabad – 500037, Telangana, India Email :sasmal_sk@nrsc.gov.in	Head & Professor, School of Spatial Information Technology, Institute of Science & Technology, Jawaharlal Nehru Technological University Kakinada, Kakinada-533003, Andhra Pradesh, India Phone: +91 9959026889 Email : sit.jntuk@gmail.com

Personal Information

Date of Birth	:	11th November 1993
Marital status	:	Single
Gender	:	Female (She/Her)
Category	:	General
Address	:	Flat-D2, Prabhu Apartments, Opposite to VIT 3rd gate, Vellore, Tamil Nadu- 632014

Language		Proficiency
English	-	Full Professional proficiency
Telugu	-	Native or Bilingual proficiency
Hindi	-	Full Professional proficiency
Tamil	-	Elementary Proficiency

Declaration:

I hereby declare that the information mentioned above is true to the best of my knowledge and feel responsible for any corrections if any.