

Manoj Kaushik

(Member and former student chair IEEE-GRSS Kerala chapter)

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EDUCATION

Indian Institute of Space Science and Technology (IIST)	Thiruvananthapuram (ISRO-DoS, Kerala, IN)
○ Ph.D. in GeoAI and Precision Agriculture	Jan'2022 – present
○ Area: Precision agriculture using satellite and drone remote sensing	
Centre for Advanced Studies (CAS), AKTU	Lucknow (Govt. Research Institute, Uttar Pradesh, IN)
○ M.Tech. in CSE-ML Specialization (Gold Medal)	2019-21
○ Master's Dissertation: Analysis and Diagnosis of Specific Language Impairment Problem Using Deep Learning	
Kamla Nehru Institute of Technology (KNIT)	Sultanpur (Govt. Engineering College, Uttar Pradesh, IN)
○ B.Tech. in Information Technology	2012-16
○ Project: Ease At KNIT: An intranet e-commerce web portal	

TEACHING EXPERIENCE

Assistant Professor at Graphic Era Hill University, Bhimtal	Jan'2026-Present
○ Courses "Design and Analysis of Algorithms" and "Compiler Design" B.Tech level	
Teaching Assistant to Master students at IIST, Thiruvananthapuram	Aug-Dec (2024 & 2025)
○ Course 'Probability and Statistics for Geo-informatics'	
Teaching Assistant to Bachelor students at MMMUT, Gorakhpur	Oct-Dec 2021
○ Course 'Fundamentals of Machine Learning and Artificial Intelligence'	

INDUSTRY EXPERIENCE

Data Science Internship in KaleidEO (a SatSure company), Bengaluru	Jan-Apr 2024
○ End-to-end ML segmentation modeling of high-yield vegetable crops using multispectral drone	
Project Executive Officer in MeitY GOI and MMMUT, Gorakhpur	Oct-Jan 2022
○ The project title is "Development of IoT and drone-based agriculture monitoring system with the objective of skill development of a socially deprived community."	
Software Developer in Kranti Tech Services Pvt. Ltd., Noida	Mar-Oct 2021
○ Applied Machine learning to classify grievance emails using NLP. Used Term Frequency and Inverse Document Frequency (TF-IDF) for feature extraction from the prepared dataset.	
○ Working on Grievance Redressal System (Webnyay), Django Python	
Worked as a Young Professional at ICAR-IGFRI, Jhansi	Mar'18-May'19
○ This includes the development of different software modules and applications based on organizational requirements.	
Software Developer Internship in Edureka, Bengaluru	Jun'17-Feb'18
○ Worked on learning management system (LMS). Most of the work is on the CakePHP MVC framework and other web technologies	

REVIEWER

Conference MIGARS, at IIST Thiruvananthapuram	2026
Journal Advances in Space Research, Elsevier (link)	2026
Conference InGARSS, at NIT Goa (link)	2024

TRAINING, CERTIFICATIONS AND WORKSHOPS

○ NISAR workshop from ISRO-IIST	2025
○ Multispectral Drone pilot	2024
○ Legacy Responsive Web design V8 FCC	2023
○ Data Analysis with Python, FCC	2023
○ AICTE (ATAL FDP) training certificate on Bio-medical instrumentation	2020
○ First Position at Innovation Idea Contest organized at AKTU	2020
○ Award of Best Team from ICAR-IGFRI on Developing Mobile App	2018
○ GATE Qualified	2017 & 2019
○ Certificate in Data Analytics , Introductory Course in Python , OOP in C++	2017
○ Research Paper presentation at International Conference in:	
○ IGARSS : Brisbane Australia	2025
○ InGARSS : NIT Goa	2024

○ MIGARS: VCE Hyderabad	2023
○ IWOBI: Costa Rica	2020
○ ICRTAC: VIT Chennai	2020
○ FRSM: NIT Silchar	2020

PUBLICATIONS

Journal papers:

- Manoj Kaushik, Srinija Enimireddy, Rama Rao Nidamanuri, "**SpectraGeni: A Deep Learning Convolutional Conditional Variational Autoencoder for Synthetic Hyperspectral Data Generation from Highly Imbalanced Spectral Measurements**" <https://doi.org/10.1016/j.asoc.2026.115578>, Applied Soft Computing (2026). **Q1 Ranking Journal**
- Manoj Kaushik, Lt. Col. Jarmal Singh, Rama Rao Nidamanuri, "**Machine Learning-based Estimation and Model Transferability of Soil Organic Carbon using Ground, Airborne and Satellite Hyperspectral Remote Sensing**", <https://doi.org/10.1016/j.asr.2026.03.093>, Advances in Space Research (2026). **Q1 Ranking Journal**
- Manoj Kaushik, Rama Rao Nidamanuri, Aparna B, "**Hyperspectral Discrimination of Vegetable Crops Grown Under Organic and Conventional Cultivation Practices: A Machine Learning Approach**", <https://doi.org/10.1038/s41598-024-78714-7>, Scientific Reports 15.1 (2025): 7897. **Q1 Ranking Journal**
- Juwairiya Siraj Khan, Manoj Kaushik, Anushka Chaurasia, Malay Kishore Dutta, and Radim Burget. "**Cardi-Net: A deep neural network for classifying cardiac disease using phonocardiogram signal**." Computer Methods and Programs in Biomedicine 219 (2022): 106727, <https://doi.org/10.1016/j.cmpb.2022.106727>, **Q1 Ranking Journal**
- Manoj Kaushik, Rakesh Chandra Joshi, Atar Singh Kushwah, Maneesh Kumar Gupta Monish Banerjee Radim Burget Malay Kishore Dutta, "**Cytokine Gene Variants and Socio-Demographic Characteristics as Predictors of Cervical Cancer: A Machine Learning Approach**" Computers in Biology & Medicine, <https://doi.org/10.1016/j.combiomed.2021.104559>, 2021, **Q1 Ranking Journal**
- Manoj Kaushik, Neeraj Baghel, Radim Burget, Carlos M. Travieso, M.K.Dutta, "**SLINet: Dysphasia Detection in Children using Deep Neural Network**" Biomedical Signal Processing and Control, Volume 68, July 2021, 102798. <https://doi.org/10.1016/j.bspc.2021.102798>, **Q1 Ranking Journal**
- Rakesh Chandra Joshi, Manoj Kaushik, Malay Kishore Dutta, Ashish Srivastava & Nandlal Choudhary, "**VirLeafNet: Automatic Analysis and Viral Disease Diagnosis Using Deep-Learning in Vigna Mungo Plant**" Ecological Informatics, <https://doi.org/10.1016/j.ecoinf.2020.101197>, 2020, **Q1 Ranking Journal**

International Conferences:

- Manoj Kaushik, Jarmal Singh, Rama Rao Nidamanuri, "**Estimation of soil organic carbon content using ground, airborne, and satellite hyperspectral imagery**", presented in IEEE IGARSS 2025, Brisbane Australia
- Manoj Kaushik, Anagha S Sarma, Harsha Chandra, et al., "**Automated mapping of vegetable crop farms in high-resolution drone multispectral imagery using ensemble machine learning modelling**", presented in 2024 IEEE India Geoscience and Remote Sensing Symposium (InGARSS 2024) at NIT Goa
- Srinija, Manoj Kaushik, and Rama Rao Nidamanuri, "**Hybrid ensemble learning and probabilistic simulation modelling for drone-based multispectral imagery classification for crop mapping**", presented in 2024 IEEE India Geoscience and Remote Sensing Symposium (InGARSS 2024) at NIT Goa
- Kaushik, Manoj, Rama Rao Nidamanuri, B. Aparna, and A. M. Ramiya. "**Spectral discrimination of vegetable crops using in situ hyperspectral data and reference to organic vegetables**." In 2023 International Conference on Machine Intelligence for GeoAnalytics and Remote Sensing (MIGARS), vol. 1, pp. 1-4. IEEE, 2023, <https://doi.org/10.1109/MIGARS57353.2023.10064553>
- Manoj Kaushik, Anagha S Sarma, Rama Rao Nidamanuri. "**CloudSegnet: A Deep Learning Based Segmentation Method for Cloud Detection in Multispectral Satellite Imagery**" in IGARSS 2023-2023 IEEE International Geoscience and Remote Sensing Symposium, <https://doi.org/10.1109/IGARSS52108.2023.10282395>
- H Chaitra, Manohar Kumar CVSS, Manoj Kaushik, RG Sharathchandra, Rama Rao Nidamanuri. "**Hyperspectral Detection of Fusarium Wilt in Tomato Plants Using Machine Learning-Based Approaches**" in IGARSS 2023-2023 IEEE International Geoscience and Remote Sensing Symposium, <https://doi.org/10.1109/IGARSS52108.2023.10282890>
- Kaushik, Manoj, Divyanshu Singh, Malay Kishore Dutta, and Carlos Manuel Travieso González. "**A deep learning approach for epilepsy seizure detection using EEG signals**." Tecnología en Marcha 35, no. 4 (2022): 110-118. <https://dialnet.unirioja.es/servlet/articulo?codigo=8828180>
- Kaushik M., Rani S., Yadav V. (2021) **Vocalist Identification in Audio Songs Using Convolutional Neural Network**. In: Biswas A., Wennekes E., Hong TP., Wiczorkowska A. (eds) Advances in Speech and Music Technology. Advances in Intelligent Systems and Computing, vol 1320. Springer, Singapore. https://doi.org/10.1007/978-981-33-6881-1_9
- Rani S., Kaushik M., Yadav V. (2022) **Identifying Mood in Music Using Deep Learning**. In: Raje R.R., Hussain F., Kannan R.J. (eds) Artificial Intelligence and Technologies. Lecture Notes in Electrical Engineering, vol 806. Springer, Singapore. https://doi.org/10.1007/978-981-16-6448-9_55

SUBMITTED Work

- Harsha Chandra, Anagha S Sarma, **Manoj Kaushik**, Rama Rao Nidamanuri, et a., “A Spectral-Knowledge Engineering and Domain Adaptation Method for Scalable Regional-Level Crop Mapping using Multispectral Satellite Imagery”, is submitted

FUNDING and GRANTS

- ANRF(SERB) ITS grant for IGARSS, Brisbane Australia, 2025
- CSIR foreign travel grant for IGARSS, Brisbane Australia, 2025
- IIST international travel grant, 2025
- IEEE IGARSS Travel Grant, Brisbane Australia, 2024
- IEEE InGARSS Travel Grant, NIT Goa, 2024
- IEEE IGARSS Travel Grant, California, USA, 2024

OTHER PROJECTS

Webnyay: an online dispute resolution system

- Client project of Thotnr Pvt. Ltd., Webnyay is an online grievance redressal system built on top of Django, ReactJS, PostgreSQL, and integrated with advanced AI documentation

LMS (Learning Management System) modules for Edureka pvt. Ltd.

- PHP, Angularjs based LMS system.

Iron corrosion image Segmentation using Deep Learning

- Segment out various colored corrosion parts in Iron using UNET Deep Learning Architecture

Mailing Management System: A PHP Web App

- Application to send email notifications to employees to avoid the penalty for late settlements of their office Advances

Chara-App: Hybrid Mobile Application

- Mobile application provides all information and technologies regarding better Fodder production for farmers

Drishticone: College Newsletter Website

- Web portal for college students in which college-related news and placement guidance-related articles can be found easily in one place

Analysis of Parallel Algorithms

- Analyzed the time and space complexity of parallel algorithms over sequential algorithms. Designed a Parallel hybrid sort algorithm to run on multiple cores using MATLAB (PCT tool)

CASE STUDIES

Decision Support System (DSS)

A comprehensive study of various DSS's in agriculture areas for better utilization of agricultural resources to benefit the Farmers.

Mammography Image Segmentation

This study involves a variety of Machine Learning, and Deep Learning Architectures used to segment out the Breast Cancer part from a digital Mammogram to reduce radiologist dependency.

RESPONSIBILITY AND EXTRACURRICULAR

- Young Professional Activity Chairs in Conference MIGARS 2026 [link](#)
- GEHU Bhimtal MOU with ARIES Nainital on research projects
- Volunteered in International Yoga Mohotsav in IIST Thiruvananthapuram.
- Managed, taught, and volunteered in DST-funded three-week winter school training in IIST
- Managed, taught, and volunteered in IEEE GRSS's one-day hands-on workshop in IIST
- Managed and volunteered Geo Innovation challenge in April'2022 organized by DST, Govt. of India
- Managed and volunteered in IC3A2020 Organized by AKTU and CAS in February'2020

TECHNICAL SKILL

Programming Languages and Technologies: Python, TensorFlow, OpenCV, Keras, C, C++, SQL

Area of Interest: Hyperspectral Remote Sensing, Artificial Intelligence, Data Science, Data Analytics and Development

Platforms: Linux, Windows, Google Colab

Tools: PyCharm, Anaconda, Nvidia CUDA, LaTeX, MS Office, Dev C++, and Adobe Photoshop