

# Manoj Kaushik

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(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, India)

- Ph.D. in GeoAI and Precision Agriculture, Jan'2022 – present
- Area: Precision agriculture using satellite and drone remote sensing
- Supervisor: Dr. Rama Rao Nidamanuri

### Centre for Advanced Studies (CAS), AKTU, Lucknow (Govt. Research Institute)

- M.Tech. in CSE-ML Specialization (Gold Medalist), 2019-21
- Master's Dissertation: Analysis and Diagnosis of Specific Language Impairment Problem Using Deep Learning
- Supervisor: Prof. M.K. Dutta

### Kamla Nehru Institute of Technology (KNIT), Sultanpur (Govt. Engineering College)

- B.Tech. in Information Technology, 2012-16
- B.Tech. Project: Ease At KNIT: An intranet e-commerce web portal
- Project Guide: Prof. Awadhesh Kumar

## PROFESSIONAL EXPERIENCE

### Data Science Internship in KaleidEO (a SatSure company), Bengaluru, Jan'24-Apr'24

- End-to-end ML segmentation modeling of high-yield vegetable crops using multispectral drone

### Project Executive Officer in MeitY GOI and MMMUT, Gorakhpur, Oct'21-Jan'22

- 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'21-Oct'21

- 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.

## TEACHING and ACADEMICS

### Teaching Assistant to Master students at IIST, Thiruvananthapuram, Aug-Dec (2024 & 2025)

- Teaching the course 'Probability and Statistics for Geo-informatics'

### Teaching Assistant to Bachelor students at MMMUT, Gorakhpur, Oct-Dec 2021

- Teaching the course 'Fundamentals of Machine Learning and Artificial Intelligence'

### Reviewer of InGARSS 2024 Goa Conference, at NIT Goa ([link](#))

## 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, 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 Paper***
- 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>, SCI indexed Impact Factor – 7.027 ***Q1 Ranking Paper***
- 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, SCI indexed Impact Factor – 6.698. ***Q1 Ranking Paper***
- 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>, Impact Factor – 5.076. ***Q1 Ranking Paper***
- 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, SCI indexed Impact Factor – 7.3. ***Q1 Ranking Paper***

### 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., Wieczorkowska 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](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](https://doi.org/10.1007/978-981-16-6448-9_55)

## Ongoing Work

- **Manoj Kaushik**, Jarmal Singh, Rama Rao Nidamanuri, "**Machine Learning-based Estimation and model transferability of soil organic carbon using ground, airborne and satellite hyperspectral remote sensing**" is submitted.
- **Manoj Kaushik**, Srinija, Rama Rao Nidamanuri, "**SpectraGeni: A Deep Learning Convolutional Conditional Variational Autoencoder for Synthetic Hyperspectral Data Generation from Highly Imbalanced Spectral Measurements**" is submitted.
- 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
- IIIT 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.

### [Drishticon: 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

- Teaching Assistant for the master's students for the course '**Probability and Statistics**'
- Volunteered in International Yoga Mohotsav in IIST Thiruvananthapuram.
- Managed, taught, and volunteered in DST-funded three-week winter school training.
- 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 the Department of Science and Technology (DST, Govt. of India)
- Managed and volunteered in IC<sub>3</sub>A2020 (International Conference on Contemporary Computing and Applications) Organized by AKTU and CAS in February'2020

## TECHNICAL SKILL

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

**Web Technologies:** PHP, HTML, CSS, JavaScript, jQuery

**Area of Interest:** 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