

DIPANKAR MANDAL

Research Scholar

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Profile

Progressively involve in remote sensing applications for crop dynamics and to relate the crop dynamics for better prediction of yield within a crop season. My main career objective is to obtain a researcher position in the field of remote sensing application in agriculture so that I can associate myself with a dynamically progressing institution and the nation, which my talents fit in rightly thus putting my expertise to the best use for the institution as well as widening my technical spectrum.

Research Interest

Crop Monitoring & Remote Sensing

Model Inversion
Biophysical parameter retrieval
Crop classification

SAR Polarimetry

Vegetation canopy scattering models
Polarimetric information extraction
Linear and Compact polarimetry

Agricultural Engineering

Crop phenology
Water stress
Farm machinery

Education

Doctor of Philosophy (Ph. D.)

2017-present

Microwave Remote Sensing Lab (MRSLab), CSRE,
Indian Institute of Technology Bombay, India

Masters of Technology (M. Tech.)

2015-2017

Geoscience and Remote Sensing

Centre of Studies in Resources Engineering,
Indian Institute of Technology Bombay, India

Bachelor of Technology (B. Tech.)

2011-2015

Agricultural Engineering

Bidhan Chandra Agricultural University, West Bengal, India

Higher Secondary (10+2)

2011

Science

Chakdaha Ramlal Academy, West Bengal, India

Experience

Research Scholar

2017-present

Centre of Studies in Resources Engineering,
Indian Institute of Technology Bombay, India

Teaching Assistant

2015-present

Centre of Studies in Resources Engineering,
Indian Institute of Technology Bombay, India

Summer Trainee

June 2014 - July 2014

ICAR-Central Soil and Water Conservation Research and Training Institute (CSWCRTI),
Research Centre, Koraput, India

Summer Trainee

June 2013 - July 2013

Central Farm Machinery Training & Testing Institute- Budni,
Ministry of Agriculture and Farmers Welfare, Government of India

Honors and Awards

IEEE Geoscience and Remote Sensing Society Travel Grant, IEEE Geoscience and Remote Sensing Society (Fort Worth, Texas, United States) July 2017 | Grant

M.Tech-M.Phil & Ph.D. Assistantship (M.E,M.Tech) Ministry of Human Resource Development, Govt. of India (New Delhi, India) 2017-07 to 2021-06 | Grant

Secured 1st Rank in all India level examination (Graduate Aptitude Test in Engineering-GATE 2015) in Agricultural Engineering | Honor

Secured University Gold Medal (Under Graduation) for obtaining highest CPI | Award

Technical Skill

C | Visual Basic

ArcGIS | Quantum GIS

AutoCAD

MATLAB

ERDAS Imagine | ENVI

ANSYS

Python | R

PolSAR Pro | NEST | SNAP

HTML | CSS | PHP

Projects

JECAM SAR Inter-Comparison Experiment: Crop Type Identification & Mapping and crop biophysical parameter retrieval. Time line: 2017-2020 | Co-Investigator

RADARSAT-2 Science and Operational Applications Research - Education International (SOAR-EI): Crop characterization using fully polarimetric Radarsat-2 SAR data. Time line: 2017-2019 | Co-Investigator

Academic Projects/ Dissertation

Ph.D. Thesis (Supervisors-Prof. Y.S. Rao & Prof. Avik Bhattacharya): Crop biophysical parameter retrieval and yield forecasting using Polarimetric SAR data.

M.Tech Dissertation (Supervisor-Prof. Y.S. Rao): Crop monitoring and yield forecasting using Polarimetric SAR data.

A Novel Phenology-based Multi temporal Crop Classification using Polarimetric SAR data. SOAR-EI | Co-Investigator

Retrieval of Canopy Biophysical Parameters using PROSAIL Model from Bidirectional Reflectance Data and MERIS Sensor Product (Collaborated with Prof. S. Durbha).

Fluorescence, PRI and Canopy Temperature for Water Stress Detection in Cereal Crops.

Leaf Phenological Analysis and Retrieval of Leaf Biophysical Parameters Using PROSPECT-5 Model.

Site Selection for Minor Irrigation Dam and Environmental Impact Assessment using GIS.

B.Tech Thesis (Supervisor--Prof. P.K. Sahoo): Modelling of Ultrasound Assisted Osmotic Dehydration of Ashgourd (*Benincasa hispida*) during Murabba Processing.

Publications

Books

[1] **Mandal D.** (2016). Concepts of Farm Machinery and Power, *Narendra Publishing House, Delhi, India: ISBN9789386110176.*

Book Chapters

[1] **Mandal D.**, Nath N. and Sahoo P.K. (2017). Effect of ultrasonic pre-treatment on osmotic drying of ash gourd during Murabba processing. *Computer, Communication, and Electrical Technology, CRC Press / Balkema, Taylor and Francis Group ISBN: 9781467346986, pp 233-238.*

Journals

[1] **Mandal D.** (2017). Computer-aided engineering approach for small farm holdings in West Bengal state of India. *Agricultural Engineering International: CIGR Journal, 19 (3), 39-46.*

[2] **Mandal D.** (2015). Development of User-Friendly Software to Design Dairy Heat Exchanger and Performance Evaluation. *Int. Journal of Engineering Research and Applications, 5, 2, 111-117.*

Conference Proceedings

[1] **Mandal D.**, Kumar V., Bhattacharya A., Rao Y.S. (2017) Monitoring Rice Crop using Time Series Sentinel-1 Data in Google Earth Engine Platform. *38th Asian Conference on Remote Sensing, ACRS 2017, New Delhi, India, Paper ID: 624.*

[2] Kumar V., **Mandal D.**, Rao Y.S. (2017) Comparison of Hybrid-Pol Descriptors from Multi-sensor Polarimetric SAR Data. *38th Asian Conference on Remote Sensing, ACRS 2017, New Delhi, India, Paper ID: 600.*

[3] Kumar V., **Mandal D.**, Rao Y.S., Meadows P. (2017) Hybrid and dual linear polarimetric RISAT-1 SAR data for classification assessment. *IEEE International Geoscience and Remote Sensing Symposium-IGARSS 2017, Texas, USA, pp.1028-1031.*

[4] Kar S., **Mandal D.**, Bhattacharya A., Adinarayana J. (2017) Temporal analysis of Touzi parameters for wheat crop characterization using L-band AgriSAR 2006 data. *IEEE International Geoscience and Remote Sensing Symposium-IGARSS 2017, Texas, USA, pp.3909-3912.*

[5] **Mandal D.**, Kumar V., Rao Y.S. (2017) Winter Barley Biophysical Parameters Retrieval using Multi-output Support Vector Regression from Polarimetric SAR Data. *ESA POLinSAR 2017, Rome, Italy.*

[6] **Mandal D.**, Kumar V., Rao Y.S. (2016). Kernel-PCA based Support Vector Machine for Multi-temporal Crop Classification using RADARSAT-2 Data. *National Symposium, Indian Society of Remote Sensing and Indian Society of Geomatics ISRS 2016, Dehradun, India.*

[7] **Mandal D.**, Nath N., Sahoo P.K. (2016). Effect of ultrasonic pre-treatment on osmotic drying of ash gourd during Murabba processing. *International Conference on Advancement of Computer Communication and Electrical Technology ACCET 2016, West Bengal, India.*

Professional Memberships

IEEE Geoscience and Remote Sensing Society (S'16)

International Society for Photogrammetry and Remote Sensing (IM'16)

Indian Society of Agricultural Engineers (S'15)

Synergistic Activities

Journal Reviewer:

IEEE Geoscience and Remote Sensing Letters (GRSL)

International Journal of Remote Sensing (IJRS)

Open Access Journal of Agricultural Research

Conducted Remote Sensing Data Processing workshop at RACEM2017 at Vidyalankar Institute of Technology (VIT), Mumbai.

Student Mentor-Institute Student Companion Program 2016, IITBombay

Contact Information

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