



Ronald Singh

Curriculum Vitae

*Dynamic, open minded, fast learner and always ready to change:
I consider these skills to be my strenghts.*

*Remote Sensing specialists, Highly Experienced in using Remote Sensing for
Agricultural Applications.*

*I have a B.Tech degree in Agriculture Engineering, and M.Tech in Remote
Sensing and Geographical Information system. I studied in Sam Higginbottom
University of Agricultural Technology and Sciences. Now I work in National
Remote Sensing Centre (NRSC)-ISRO as Research Scientist.*

*Bringing to you a combined six years of experience in Handling Government
Water Resource and crop management project in Remote Sensing and
Geographical Information System domain. Considered to be a detail oriented
and methodical professional successful in developing in-depth research projects.*

Education and training

2014 - 2016 **M.Tech Remote Sensing and GIS, SHUATS University, Allahabad, Uttarpradesh, India.**

Project Executed: Crop Yeild Estimation and Forecasting using Remote Sensing and GIS for Samrakalwana Village field in Allahabad. **Minor Projects:** Watershed Hydrology and Conservation planning, LULC classification for Allahabad Region.

Outgoing profile: Remote Sensing Spatialist in Agriculture and Hydrology Domain.

Training Attended: Advances in Arcgis from MITCON Institute Pune Maharashtra.
Global Mapper Software for spatial Data processing tools.

2009 - 2013 **B.Tech Agriculture Engineering, SHUATS, Allahabad, Uttarpradesh, India.**

Project Executed: Fabrication of Seed ball making machine

Training Attended: Farm Machinery and Technology North Eastern Region Farm Machinery Training Testing (NERFMTTI) Assam.

Auto-CAD from Dysmech Consultancy Services DCS, Raipur.

Pro Engineering from Dysmech Consultancy Services DCS, Raipur.

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Working Experiences

Jan 2018 **Research Scientist**, *National Remote Sensing Centre (NRSC)-ISRO*, Hyderabad, (Currently Working) Telangana.

Activities Performed:

Establishing a satellite derived in-season crop information to capture the near real time water requirement at field level.

Established an soil moisture based irrigation demand estimate Algorithm for estimation near real time and Forecasted irrigation demand in Narayanpur command area.

In charge to create a Geo-spatial database for estimating distributary level irrigation demand.

Experienced in SAR data processing for crop classification.

Responsible to generate in-season crop map with daily irrigation demand using Versatile Soil moisture budgeting algorithm and populate it to desired portals.

Developed a semi automatic irrigation demand algorithm in MATLAB environment so having experience in MATLAB as well as Python.

Experience in Field Information collection using GPS and Map pads software.

Experience in Handling instruments like LAI meter, Spectro-radiometer, Plant Canopy Analyser, IRGA etc.

Experience in Hydrological Modelling Like Variable Infiltration Capacity Model (VIC), Soil Water Assesment Tool (SWAT), HEC-HMS, Versatile Soil Mositure Budgeting (VSMB).

Sep 2016 - **Researcher**, *National Institute of Abiotic stress Management (NISAM)-ICAR*, Pune, Dec 2018 Maharashtra.

- Responsible for identify stress in sugarcane and citrus crops using hyper-spectral remote sensing.
- Experienced in estimating health of the based based on Biotic and Abiotic stress of the plant using several vegetation indices.
- Team lead for NG-AVRIS data collection in Maharashtra region for sugarcane areas.
- Responsible to generate daily analysis plots for ASD spectroradiometer collected spectral data.
- Responsible for building spectral library of different crops with Biotic and Abiotic stresses.

Projects Handled

Project 1: **Satellite Derived Inputs for Irrigation Scheduling and to Create a Decision Support System for a Selected Irrigation Command Area**, *Under National Hydrology Project*, India.

Under this study, it is proposed to develop a Decision Support System (DSS) for irrigation water management. The DSS is expected to support efficient irrigation water management through generation of periodic advisories on actual irrigation demand at canal level based on near real time satellite data derived inputs..

They were experiences that allowed me to:

- In-season Crop Advisory to Irrigation Implementing Agency;
- In-season Irrigation Advisory to Irrigation Department of the State;
- Collect the Field Information by Marking the Fields for Validation;
- Provide the Capacity Building to the State Irrigation Officials;
- Design a DSS for State implementing Irrigation Authority;

Project 2: **Characterising Sugarcane and Citrus responses to Biotic and Abiotic Stress Management Through Hyper-spectral Remote Sensing**, *Baramati*, Pune, Maharashtra.

Under this Project the aim was to identify the abiotic and biotic stress in the sugarcane and citrus farms by providing different type of stress to the plant and to observe the behaviour of the plants. The aim was to build a spectral library for abiotic stressed crops which will be useful for identification of stress prone areas in the country.

This was really helpful to:

- increase the level of understanding of different bands used for identification of vegetation stresses;
- To learn the hyper-spectral Remote Sensing and Big data Analysis;
- To understand and work with the AVIRIS-NG data for vegetation studies;

Project 3: **Effect of climate change on water resources parameters over the Jhelum basin using hydrological modeling based on a copula function and variable infiltration capacity (VIC)**, *SKUAST*, Jammu and Kashmir, Maharashtra.

Under this Project the aim was to identify the uncertainty for the past and future stream flow of Jhelum Basin and integrating with copula function statistics for multivariate data distributions to understand the relationship between the climate variables and the streamflow.

The objectives curated for the project are:

- To calibrate and validate the hydrological model to predict the future stream flow variations for different climatic scenarios using VIC hydrological model;
- To determine Copula function for drought variables and uncertainty analysis of the statistical model;

Skills

Remote Sensing ARC GIS, ARC GIS PRO, ERDAS IMAGINE, QGIS, ENVI, SNAP, IMAGE PROCESSING, SAR DATA PROCESSING, HYPERSPECTRAL DATA PROCESSING, UAV DATA PROCESSING, BIG DATA ANALYSIS.

Applications CROP CLASSIFICATION, CROP MANAGEMENT, SPECTRAL LIBRARY GENERATION, IRRIGATION WATER MANAGEMENT, SOIL WATER BUDGETING, HYDROLOGICAL MODELLING, AGRO-HYDROLOGICAL MODELLING, FIELD DATA COLLECTION AND ANALYSIS.

Programming Languages MATLAB, PYTHON, SQL

Achievements

Qualified GATE 2022 in Geomatics Engineering

Awarded with Gold medal by the Governor of Uttar Pradesh in the year 2016.

Awarded with Yeshu Darbar Scholarship for Graduation in 2009.

Languages

Hindi **Mother tongue**

English **Advanced** *Fluent in speaking, very good in listening and very good in writing*

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Recent Publications

Mapping of Intra Seasonal Dynamics in the Cropping Pattern Using Remote Sensing for Irrigation Management. <https://www.tandfonline.com/doi/full/10.1080/10106049.2021.1903573>

Hyperspectral Remote Sensing: Use in Detecting Abiotic Stresses in Agriculture. https://doi.org/10.1007/978-981-13-1861-0_12.

Analysis of the Extreme Rainfall Events Over Upper Catchment of Sabarmati River Basin in Western India Using Extreme Precipitation Indices. DOI: 10.1007/978-981-13-8181-2_8

Evaluation of the SWAT Model for Analysing the Water Balance Components for the Upper Sabarmati Basin. DOI: 10.1007/978-981-13-8181-2_11

References

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