

Curriculum Vitae – Akash Anand

PhD Student

Department of Forestry and Wildlife Ecology, University of Wisconsin-Madison

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Education

2021 - present PhD student; Department of Forestry and Wildlife Ecology, University of Wisconsin-Madison, USA

2014 - 2019 Integrated Bachelor and Master in Geoinformatics, Department of Geoinformatics, Central University of Jharkhand, India

Research experience

2019-2021 Junior Research Fellow, Institute of Environment and Sustainable Development, Banaras Hindu University, India

Project Title: Hyperspectral Imaging for sharper definitions of the Himalayan ecosystems and its high value plant species under climate uncertainties

Skills

GIS & Remote Sensing

- Undergraduate coursework in advanced GIS, remote sensing, and digital image processing
- Proficiencies: ArcGIS, QGIS, ENVI: advanced; Python, Google Earth Engine: advanced.

Statistical Analysis

- Graduate and undergraduate coursework in statistics for biological sciences and research methodologies
- Proficiencies: R: advanced

Publications

Anand, A., Srivastava, P.K., Pandey, P.C., Khan, M.L., & Behera, M.D. (2022). Assessing the niche of *Rhododendron arboreum* using entropy and machine learning algorithms: role of atmospheric, ecological, and hydrological variables. *Journal of Applied Remote Sensing*, 16, 042402

Şandric, I., Irimia, R., Petropoulos, G.P., **Anand, A.**, Srivastava, P.K., Pleşoianu, A., Faraslis, I., Stateras, D., & Kalivas, D. (2022). Tree's detection & health's assessment from ultra-high resolution UAV imagery and deep learning. *Geocarto International*, 1-21

Anand, A., Malhi, R.K.M., Srivastava, P.K., Singh, P., Mudaliar, A.N., Petropoulos, G.P., & Kiran, G.S. (2022). Optimal band characterization in reformation of hyperspectral indices for species diversity estimation. *Physics and Chemistry of the Earth, Parts A/B/C*, 126, 103040

Malhi, R.K.M., **Anand, A.**, Srivastava, P.K., Chaudhary, S.K., Pandey, M.K., Behera, M.D., Kumar, A., Singh, P., & Kiran, G.S. (2022). Synergistic evaluation of Sentinel 1 and 2 for biomass estimation in a tropical forest of India. *Advances in Space Research*, 69, 1752-1767

Malhi, R.K.M., Pandey, M.K., **Anand, A.**, Srivastava, P.K., Petropoulos, G.P., Singh, P., Sandhya Kiran, G., & Bhattarcharya, B. (2022). Band selection algorithms for foliar trait retrieval using AVIRIS-NG: a comparison of feature based attribute evaluators. *Geocarto International*, 37, 4071-4087

Akash Anand, Anand Singh Dinesh, Prashant K Srivastava, Sumit Kumar Choudhary, A K

Verma, Pavan Kumar (2021). Rainfall Rate estimation over India using Global Precipitation Measurement's Microwave Imager dataset and Machine Learning algorithms. *Geocarto International*, Taylor & Francis.

Swati Maurya, Prashant K. Srivastava, Aradhana Yaduvanshi, **Akash Anand**, George P.

Petropoulos, Lu Zhuo, R. K. Mall (2022). Rainfall rate estimation over India using global precipitation measurement's microwave imager datasets and different variants of fuzzy information system. *Geocarto International*, 37(21), 6213-6231.

Anand, A., Pandey, P.C., Petropoulos, G.P., Pavlides, A., Srivastava, P.K., Sharma, J.K., & Malhi, R.K.M. (2020). Use of hyperion for mangrove forest carbon stock assessment in Bhitarkanika forest reserve: A contribution towards blue carbon initiative. *Remote Sensing*, 12, 597

Malhi, R.K.M., **Anand, A.**, Mudaliar, A.N., Pandey, P.C., Srivastava, P.K., & Sandhya Kiran, G. (2020). Synergetic use of in situ and hyperspectral data for mapping species diversity and above ground biomass in Shoolpaneshwar Wildlife Sanctuary, Gujarat. *Tropical Ecology*, 61, 106-115

Book Chapters

Akash Anand, Prachi Singh, Prashant K. Srivastava, Manika Gupta (2021). GIS-based analysis for soil moisture estimation via kriging with external drift. In Agricultural water management (pp. 391-408). Academic Press.

Akash Anand (2022). Sentinel SAR Data and In-Situ-Based High-Resolution Above-Ground Carbon Stocks Estimation Within the Open Forests of Ramgarh District. In *Research Anthology on Ecosystem Conservation and Preserving Biodiversity* (pp. 402-422). IGI Global.

Prashant K. Srivastava, Ramandeep Kaur M. Malhi, Prem Chandra Pandey, **Akash Anand**, Prachi Singh, Manish Kumar Pandey, Ayushi Gupta (2020). Revisiting hyperspectral remote sensing: Origin, processing, applications and way forward. In *Hyperspectral remote sensing* (pp. 3-21). Elsevier.

Prachi Singh, **Akash Anand**, Prashant K. Srivastava, Arjun Singh, Prem Chandra Pandey (2021). Delineation of groundwater potential zone and site suitability of rainwater harvesting structures using remote sensing and in situ geophysical measurements. *Advances in Remote Sensing for Natural Resource Monitoring*, 170-188, Elsevier.

Seminar/conferences

Akash Anand, Volker C Radeloff, Anna Pidgeon, Ryan Buron, Elena Razenkova, Jennifer Timmer, "Implementation of Explainable AI to Map Hierarchical Habitat Selection in Birds, IEEE International Geosciences and Remote Sensing Symposium- 2023, Pasadena, California, USA.

Akash Anand, Sumit K Chaudhary, Manish K Pandey, Ayushi Gupta, Prachi Singh, Prashant. K Srivastava, " Estimation and Generation of Carbon Stock Product using Machine Learning Algorithm through Invocation of Cloud-Based Web Services", at ISRS-ISG National Symposium- 2020, SAC-ISRO, Ahmedabad India.

Akash Anand, Prashant Kumar Srivastava, Prem Chandra Pandey, and Ramandeep Kaur M. Malhi, "Earth Observation and Analytical Hierarchy Process based fusion technique to model Regional Forest Fire Risk", Vol. 21, EGU2019-12423, EGU General Assembly 2019, Vienna.

Akash Anand, Prashant K. Srivastava, Kanhaiya Lal, Prem Chandra Pandey (2018), "Estimation of Above Ground Biomass for assessing the total carbon stock within the forest cover of Ramgarh District using Sentinel 1 SAR data", International Conference on Environmental Challenges and Sustainability (ICECS)- 2018, Ranchi, India.

Teaching Experience

- Delivered a hand-on-training at the “Online Workshop on Species Distribution Modelling using R”, held at the Institute of Environment and Sustainable Development, Banaras Hindu University, 15 – 16 March 2021.

Travel Grants

- IEEE GRSS IADF School on Computer Vision for earth Observation Travel Award - 500€

Internships / trainings / workshop

- Participated in a 10-day training on “Applied Deep Learning, Computer Vision & NLP with Python” organized by Eduxlabs, E-Cell IIT Hyderabad, 16 – 27 February 2021.
- Participated in the workshop on High Performance Computing (HPC) organized by BHU, IIT (BHU) and C-DAC at DST-Centre for Interdisciplinary Mathematical Sciences (CIMS), Institute of Science, BHU, Varanasi, 20-25 January 2020.
- Participated in the 2nd National Workshop on “Techniques in Hyperspectral Data Analysis and Processing” held at Environment and Sustainable Development, jointly organized by Institute of Environment and Sustainable Development and IIT BHU, 27 - 31 January 2020.
- Attended one week training programme on “Calibration and Validation of Satellite sensors and derived products” under TREES program at Space Application Centre (SAC), ISRO Ahmedabad, India, 22 – 26 October 2018.
- Participated in National Workshop “Popularization of Remote Sensing Based Maps & Geospatial Information” jointly organized by ISRS & ISRO, August 11, 2017.