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# Curriculum Vitae

## **Dr. Anoop Kumar Shukla**

M.Tech. (Geomatics), Ph. D. (IIT-Roorkee-India)  
Post-Doctoral Fellow (PDF), CAS, Beijing, China



### **Assistant Professor,**

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Manipal Academy of Higher Education, Manipal,  
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**ResearchGate ID:** <https://www.researchgate.net/profile/Anoop-Shukla-4/research>

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## **Academic Qualifications:**

**Post-Doctoral Fellow (PDF)** - Institute of Geographic Sciences and Natural Resources Research,  
Chinese Academy of Sciences, 11A, Datun Road, Chaoyang District,  
Beijing, China-100101.

**Ph. D.** - Department of **Civil Engineering**, Geomatics Engineering, Indian Institute of Technology, Roorkee (IIT-Roorkee), India – 2018. The thesis titled is “*Precipitation and Water Yield Variability in Upper Ganga Basin using Geomatics.*”

**M. Tech.** - **Geomatics Engineering**, from Indian Institute of Surveying and Mapping (Survey of India) and Jawaharlal Nehru Technological University (JNTU), Hyderabad, India – 2008. The thesis titled is “*Geo-Spatial Database Generation using High-Resolution Satellite data*” at National Remote Sensing Centre (NRSC), Indian Space Research Organization (ISRO), Department of Space, Government of India, Hyderabad, India.

**M. Sc.** - **Environmental Sciences**, from Department of Environmental Science, Central University of Allahabad, Allahabad, Uttar Pradesh, India – 2004.

## **Research Experience:**

I have Seven years of research experience in Research & Development in Civil engineering, Geomatics engineering techniques such as Surveying Engineering (Basic Surveying, Advance Surveying), Geomatics, Photogrammetry, Remote Sensing and Geographical Information System (GIS), Global Positioning System (GPS), Hydrological Modelling, i.e., SWAT Modelling, Variable Infiltration Capacity (VIC), Water Quality, Climate Change, Environmental Geochemistry, Environmental Engineering and Engineering Hydrology, Natural Resource Management Using Remote Sensing & GIS, etc. related subjects.

## **Software skills:**

Working knowledge in image processing and GIS software viz. ERDAS Imagine 2016, LPS 2016, eCognition 9.1, Matlab 2015a, Arc GIS 10.3, Q-GIS, ENVI 5.0, Arc SWAT, Variable Infiltration Capacity (VIC), R-Programming and Python, etc.

## **Publication in Journals:**

- 1. Anoop Kumar Shukla, C. S. P. Ojha, A. Mijic, W. Buytaert, Shray Pathak, R. D. Garg, and Satyavati Shukla. (2018). "Population growth, land use and land cover transformations, and water quality nexus in the Upper Ganga River basin." *Hydrology and Earth System Science (HESS) EGU Publication*, 22(9), 4745-4770. <https://doi.org/10.5194/hess-22-4745-2018>. ISSN: 1027-5606, Impact Factor: 5.748.**
- 2. Anoop Kumar Shukla, Shray Pathak, Lalit Pal, C. S. P. Ojha, A. Mijic, and R. D. Garg. (2018). "Spatio-temporal assessment of annual water-balance model for Upper Ganga Basin." *Hydrology and Earth System Science (HESS) EGU Publication*, 22(10), 5357-5371. <https://doi.org/10.5194/hess-22-5357-2018>. ISSN: 1027-5606, Impact Factor: 5.748.**
- 3. Anoop Kumar Shukla, C. S. P. Ojha, R. P. Singh, Lalit Pal, and Dafang Fu. (2019). "Evaluation of TRMM Precipitation Dataset over Himalayan Catchment: The Upper Ganga Basin, India." *Water*, 11(3), 613-1-25. <https://doi.org/10.3390/w11030613>. ISSN: 2073-4441, Impact Factor: 3.103.**
- 4. Shray Pathak, C. S. P. Ojha, Anoop Kumar Shukla, and R. D. Garg. (2019). "Assessment of annual water-balance model for diverse Indian watersheds." *Journal of Sustainable Water in the Built Environment (ASCE)*, 5(3), 04019002. <https://doi.org/10.1061/JSWBAY.0000881>. ISSN: 2379-6111, Impact Factor: 0.54.**
- 5. C. Sharma, C. S. P. Ojha, Anoop Kumar Shukla, Q. B. Pham, N. T. T. Linh, C. M. Fai, H. H. Loc, and T. D. Dung. (2019). "Modified Approach to Reduce GCM Bias in Downscaled Precipitation: A Study in Ganga River Basin." *Water*, 11(10), 2097-1-31. <https://doi.org/10.3390/w11102097>. ISSN: 2073-4441, Impact Factor: 3.103.**
- 6. Anoop Kumar Shukla, C. S. P. Ojha, R. D. Garg, Satyavati Shukla and Lalit Pal. (2020). "Influence of Spatial Urbanization on Hydrological Components of the Upper Ganga River Basin, India." *Journal of Hazardous, Toxic, and Radioactive Waste, (ASCE)*, 24(4), 04020028-1-19. [https://doi.org/10.1061/\(ASCE\)HZ.2153-5515.0000508](https://doi.org/10.1061/(ASCE)HZ.2153-5515.0000508). ISSN: 2153-5493, Impact Factor: 1.44.**
- 7. C. Sharma, Anoop Kumar Shukla and Y. Zhang. (2021). "Climate change detection and attribution in the Ganga-Brahmaputra-Meghna River basins." *Geoscience Frontiers*, 12(5), 101186-1-10. <https://doi.org/10.1016/j.gsf.2021.101186>. ISSN: 1674-9871, Impact Factor: 6.853.**

8. Shankar, M. S., Manish Pandey and **Anoop Kumar Shukla**, (2021). "Analysis of Existing Equations for Calculating the Settling Velocity." **Water**, 13, no. 14: 1987-1-12. <https://doi.org/10.3390/w13141987>. ISSN: 2073-4441, Impact Factor: 3.103.
9. **Anoop Kumar Shukla**, C. S. P. Ojha, and R. D. Garg. (2014). "Trends and Variability Assessment of Rainfall and Temperature in Upper Ganga River Basin, Uttarakhand, India." **Journal of Indian Cartographer**, Vol. XXXIV: 2014, pp. 34-53. ISSN: 0972-8392, Impact Factor: 0.39.
10. **Anoop Kumar Shukla**, C. S. P. Ojha, and R. D. Garg. (2015). "Comparative Study of Satellite-Based Estimated Rainfall Data with Rain Gauge Data Over Himalayan River Basin of India." **Journal of Indian Cartographer**, Vol. 35: 2015, pp. 518-524. ISSN: 0972-8392, Impact Factor: 0.39.
11. **Anoop Kumar Shukla**, C. S. P. Ojha, and R. D. Garg. (2016). "Geo-spatial Approach for Estimation of Precipitation over Upper Ganga River Basin, Uttarakhand, India." **Indian Journal of Science and Technology**, Vol 9 (48), pp. 2-8. DOI: 10.17485/ijst/2016/v9i48/105269, ISSN: 0974-5645, Impact Factor: 0.14.
12. Kumar Kumarapu, Shashi Mesapam, Venkat Reddy Keesara, **Anoop Kumar Shukla**, Naga Venkata Sai Kumar Manapragada, and Babar Javed. (2022). "RCC Structural Deformation and Damage Quantification Using Unmanned Aerial Vehicle Image Correlation Technique." **Applied Sciences**, 12(13), 6574-1-15; <https://doi.org/10.3390/app12136574>, ISSN: 2076-3417, Impact Factor: 2.83.
13. Shoumik Desai, Naga Venkata Sai Kumar Manapragada, **Anoop Kumar Shukla** and Gloria Pignatta. (2022). "Mould-Growth Study in Building Materials Exposed to Warm and Humid Climate Using Heat and Mass Transfer (HAMT) EnergyPlus Simulation Method." **Sustainability**, 14(14), 8292-1-28; <https://doi.org/10.3390/su14148292>, ISSN: 2071-1050, Impact Factor: 3.88.
14. Deeksha and **Anoop Kumar Shukla**. (2022). "Ecosystem Services: A Systematic Literature Review and Future Dimension in Freshwater Ecosystems" **Applied Sciences**, 12(17), 8518-1-19; <https://doi.org/10.3390/app12178518>, ISSN: 2076-3417, Impact Factor: 2.83.
15. Lav Kumar Gupta, Manish Pandey, P. Anand Raj, **Anoop Kumar Shukla**. (2022). "Fine Sediments Intrusion and its Consequences on River Ecosystem: A Review." **Journal of Hazardous, Toxic, and Radioactive Waste, (ASCE)**, 27 (1), 04022036-1-04022036-12, [https://doi.org/10.1061/\(ASCE\)HZ.2153-5515.0000729](https://doi.org/10.1061/(ASCE)HZ.2153-5515.0000729), ISSN: 2153-5493, Impact Factor: 1.44.
16. Shivashankar M, Manish Pandey and **Anoop Kumar Shukla**. (2022). "Numerical investigation on evaluation of the sediment retention efficiency of the invert traps in an open rectangular combined sewer channel." **Journal of Hazardous, Toxic, and Radioactive Waste**, DOI:10.1061/(ASCE)HZ.2153-5515.0000733, ISSN: 2153-5493, Impact Factor: 1.44.

### **Publication in Conferences International/National:**

1. Satyavati Shukla, **Anoop Kumar Shukla**, A. V. Suresh Babu, and A. Lesslie. (2009). "Satellite-Based inputs for Irrigation Water Management." In Proceedings of the International Conference on Water-Harvesting Storage & Conservation held on November 23-25, 2009 at Indian Institute of Technology Kanpur (IIT-K), India, pp. 175-183.
2. C. S. P. Ojha, Himanshu Arora, Pragya Ojha and **Anoop Kumar Shukla**. (2014). "Rejuvenation of River Ganga: Technical and Societal Issues." In Proceedings of the XIX International Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering "Hydro 2014 International" held on December 18-20, 2014 at Bhopal, India, pp. 03.

- 3. Anoop Kumar Shukla, C. S. P. Ojha, and R. D. Garg. (2014).** “Satellite-based estimation and validation of monthly rainfall distribution over Upper Ganga river basin.” In Proceedings of the International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XL-8, 2014 ISPRS Technical Commission VIII Symposium, held on December 09-12, 2014, Hyderabad, India, Vol. XL-8, pp. 399-404. doi:10.5194/isprsarchives-XL-8-399-2014. ISSN: 2194-9034, Impact Factor: 0.31.
- 4. Niraj Kumar Pandey, Anoop Kumar Shukla, Satyavati Shukla and Mamta Pandey. (2014).** “Assessment of Underground Water Potential Zones using Modern Geomatics Technologies in Jhansi District, Uttar Pradesh, India.” In Proceedings of the International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XL-8, 2014 ISPRS Technical Commission VIII Symposium, held on December 09-12, 2014, Hyderabad, India, Vol. XL-8, pp. 377-381. doi:10.5194/isprsarchives-XL-8-377-2014. ISSN: 2194-9034, Impact Factor: 0.31.
- 5. Anoop Kumar Shukla, C. S. P. Ojha, and R. D. Garg. (2015).** “Estimation of Rainfall Variability from TRMM Satellite Data over upper Ganga River, Uttarakhand, India.” In Proceedings of the 9th Uttarakhand State Science and Technology Congress 2015-16, Uttarakhand State Council for Science and Technology (UCOST) held on February 26-28, 2015 at Dehradun, India, pp. 250. (**Got Young Scientist Award for Best Paper**).
- 6. Anoop Kumar Shukla, C. S. P. Ojha, and R. D. Garg. (2015).** “Comparative Study of TRMM Satellite Estimated Rainfall Data with Rain Gauge Data over Himalayan River Basin of India.” In Proceedings of HYDRO 2015, 20th International Conference on Hydraulics, Water Resources, and River Engineering held on December 17-19, 2015 at IIT Roorkee, India, pp. 146-147.
- 7. Satyavati Shukla, M. V. Khire, S. S. Gedam and Anoop Kumar Shukla. (2015).** “Effects of Land Use/Land Cover Changes and Climatic Variability on Sub-surface Hydrology of the Bhima Watershed, India.” In Proceedings of HYDRO 2015, 20th International Conference on Hydraulics, Water Resources, and River Engineering held on December 17-19, 2015 at IIT Roorkee, India, pp. 147.
- 8. Anoop Kumar Shukla, C. S. P. Ojha, and R. D. Garg. (2016).** “Statistical Analysis of Annual Rainfall Distribution for Water Resources in Upper Ganga river basin, Uttarakhand, India using TRMM Algorithm”. In Proceedings of the 10th Uttarakhand State Science and Technology Congress 2015-16, Uttarakhand State Council for Science and Technology (UCOST) held on February 10-12, 2016 at Dehradun, India, pp. 153.
- 9. Anoop Kumar Shukla, C. S. P. Ojha, and R. D. Garg and R. P. Singh. (2016).** “Calibration of TRMM rainfall climatology over Uttarakhand State, India during 1998-2012”. In Proceedings of Geoscience and Remote Sensing Symposium (IGARSS-2016), 2016 IEEE International Symposium held on July 10-15, 2016 at Beijing, China, pp. 609-612, IEEE Xplore Digital Library. DOI: 10.1109/IGARSS.2016.7729152, ISSN: 2153-7003.
- 10. Shray Pathak, Anoop Kumar Shukla, C. S. P. Ojha, and R. D. Garg. (2016).** “Identifying Hot Spots for Stormwater Harvesting and Reuse in Urban Areas Applying Remote Sensing, GIS and System Optimization Techniques.” In Proceedings of Geoscience and Remote Sensing Symposium (IGARSS-2016), 2016 IEEE International Symposium held on July 10-15, 2016 at Beijing, China, pp. 967-970, IEEE Xplore Digital Library. DOI: 10.1109/IGARSS.2016.7729245, ISSN: 2153-7003.
- 11. Anoop Kumar Shukla, C. S. P. Ojha, and R. D. Garg. (2017).** “Surface water quality assessment of Ganga River Basin, India using index mapping.” In Proceedings of Geoscience and Remote Sensing Symposium (IGARSS-2017), 2017 IEEE International Symposium held on July 23-28, 2017 at Fort Worth, Texas, USA, pp. 5609-5612, IEEE Xplore Digital Library. DOI: 10.1109/IGARSS.2017.8128277, ISSN: 2153-7003.

- 12. Anoop Kumar Shukla, C. S. P. Ojha, R. D. Garg, Lalit Pal, Shray Pathak and Satyavati Shukla. (2018).** “Groundwater Appraisal of Dehradun City, Uttarakhand, India using Remote Sensing and Geographical Information System Technology.” In Proceedings of the International Conference on Sustainable Technologies for Intelligent Water Management (STIWM-2018), held on February 16-19, 2018 at IIT Roorkee, India, pp. 108.
- 13. Dolonchapa Prabhakar, Anoop Kumar Shukla, Humaib Nasir, Saumyadeep Bhowmik, and Murari Kumar. (2018).** “Landslide Hazard Zonation Mapping using Remote Sensing and GIS in Mountainous Terrain.” In Proceedings of the International Conference on Sustainable Technologies for Intelligent Water Management (STIWM-2018), held on February 16-19, 2018 at IIT Roorkee, India, pp. 58.
- 14. Anoop Kumar Shukla, C. S. P. Ojha, and R. D. Garg. (2018).** “Overall Index of Pollution (OIP) based Water Quality Index- An instrument for Water Resources management.” In Proceedings of the 12th Uttarakhand State Science and Technology Congress 2017-18, Uttarakhand State Council for Science and Technology (UCOST) held on March 07-09, 2018 at Dehradun, India.
- 15. Anoop Kumar Shukla, C. S. P. Ojha, and R. D. Garg. (2018).** “Comparative Study of TRMM Satellite Predicted Rainfall Data with Rain Gauge Data over Himalayan Basin.” In Proceedings of Geoscience and Remote Sensing Symposium (IGARSS-2018), 2018 IEEE International Symposium held on July 22-27, 2018 at Valencia, Spain, pp. 9347-9350, IEEE Xplore Digital Library. DOI: 10.1109/IGARSS.2018.8651413, ISSN: 2153-7003.
- 16. Anoop Kumar Shukla, C. S. P. Ojha, R. D. Garg and Satyavati Shukla. (2018).** “Relating Land Use and Land Cover to surface water quality in the Ganga River basin, India.” In Proceedings of American Geophysical Union (AGU-2018) Fall Meeting held on December 10-14, 2018 at Washington, D. C. USA. Paper ID: B33L-2833. Bibliographic Code: 2018AGUFM.B33L2833S.
- 17. Shray Pathak, C. S. P. Ojha, R. D. Garg, Venkat Lakshmi, and Anoop Kumar Shukla. (2018).** “GIS-Based Multi-Criteria Analysis for Evaluating Groundwater Potential Zones in Dehradun, India.” In Proceedings of American Geophysical Union (AGU-2018) Fall Meeting held on December 10-14, 2018 at Washington, D. C. USA. Paper ID: H51V-1637. Bibliographic Code: 2018AGUFM.H51V1637P.
- 18. Anoop Kumar Shukla and Satyavati Shukla. (2019).** “Assessing the Impacts of Land Use Land Cover (LULC) Change on Surface Runoff for Upper Ganga River Basin: A Watershed Modeling Approach.” In Proceedings of International Conference on Advances in Agriculture & Allied Science Research 2019 held on February 23-24, 2019 at Rama University Kanpur, Uttar Pradesh, India. pp. 227-228. ISBN: 978-93-5351-407-5.
- 19. R. D. Garg, Anoop Kumar Shukla and C. S. P Ojha. (2019).** “Water Yield and Water Quality Variability in Upper Ganga Basin: A Geospatial Approach.” In proceedings of Geospatial Technology an Aid to Ganga Rejuvenation held on June 27, 2019 at Geodetic & Research Branch, Survey of India, Dehradun, India. pp. 14.
- 20. Anoop Kumar Shukla, C. S. P. Ojha, Satyavati Shukla and R. D. Garg. (2019).** “Evaluating Hydrological Response to Urbanization in Upper Ganga River Basin: A Watershed Modeling Approach.” In Proceedings of American Geophysical Union (AGU-2019) Fall Meeting held on December 09-13, 2019 in San Francisco, California, USA. Paper ID: H13K-1845.
- 21. Anoop Kumar Shukla, C. S. P. Ojha, Satyavati Shukla and R. D. Garg. (2019).** “Spatio-temporal Variability of Water Yield and Water Quality in Upper Ganga Basin.” Roorkee Water Conclave- 2020 held on February 26-28, 2020 in Department of Water Resources Development & Management, Indian Institute of Technology Roorkee, Uttarakhand, India.

**22. Anoop Kumar Shukla** and S. Shukla (2020). “Satellite Precipitation Estimates (SPEs) and their Validation using Ground-Based Measurements: A Case Study in Uttarakhand State, India.” In Proceedings of Geoscience and Remote Sensing Symposium (IGARSS-2020), 2020 IEEE International Symposium held on September 26 to October 02, 2020, Virtual Symposium at Waikoloa, Hawaii, USA. pp. 5360-5363, IEEE Xplore Digital Library. DOI: 10.1109/IGARSS39084.2020.9323333, ISSN: 2153-7003.

**23. Deen Dayal and Anoop Kumar Shukla.** (2021). “Assessment of Drought Trend and Variability over Ganga River Basin.” In Proceedings of American Geophysical Union (AGU-2021) Fall Meeting held on December 13-17, 2021 in New Orleans, LA. Paper ID: NH15F-0497, <https://agu.confex.com/agu/fm21/meetingapp.cgi/Paper/1001618>

**24. Dolonchapa Prabhakar, Anoop Kumar Shukla** and Babar Javed. (2022). “Landslide Hazard Zonation Mapping using Remote Sensing and GIS in Mountainous Terrain.” In Proceedings of International Virtual Conference on Developments and Applications of Geomatics (**DEVA-2022**) held on August 29-31, 2022 in Department of Civil Engineering, National Institute of Technology Warangal, India. (Paper to be published in a Scopus-indexed book by Springer, CRC Press, Taylor & Francis Group). (**Presented**).

**25. Deeksha Nayak, Anoop Kumar Shukla** and Nandineni Rama Devi. (2022). “Effects of Urbanization on Urban Ecosystem Services (UESS) - A Framework.” In Proceedings of Mediterranean Geosciences Union (**MedGU-2022**) to be held on November 27-30, 2022, in Cadi Ayyad University in Marrakech. (Paper to be published in a Scopus-indexed book by Springer publication). (**Accepted**).

**26. Soumyashree B Tillihal and Anoop Kumar Shukla.** (2022). “Historical Development, Applications, and Future Opportunities for Study of Soil and Water Assessment Tool (SWAT).” In Proceedings of International Conference on Education 5.0- Role of Institution, Industry, and Society (**ERIIS - 2022**) held on October 14-15, 2022, in Department of Civil Engineering, National Institute of Technology Warangal, India. (Paper to be published in a Scopus-indexed book by Springer). (**Presented**).

**27. Deeksha Nayak, Anoop Kumar Shukla** and Nandineni Rama Devi (2022). “Land use and Land cover classification of Mangaluru city using Object Based Image Analysis (OBIA) approach.” In Proceedings of International Conference on Education 5.0- Role of Institution, Industry, and Society (**ERIIS - 2022**) held on October 14-15, 2022, in Department of Civil Engineering, National Institute of Technology Warangal, India. (Paper to be published in a Scopus-indexed book by Springer). (**Presented**). (**Got Award for Best Paper**).

### **Publication in Books Chapters:**

**1. Anoop Kumar Shukla,** Satyavati Shukla and Richa Ojha. (2017). “Geospatial Technologies for Rainfall and Atmospheric Water Vapor Measurement over Arid Regions of India.” Book Chapter 10 in “Sustainable Water Resources Management,” **American Society of Civil Engineers (ASCE)**, Pages 263-292, ISBN: 978-0-7844-1476-7, **ASCE Publications** (International).

**2. Anoop Kumar Shukla,** C. S. P Ojha, and R. D. Garg. (2017). “Application of Overall Index of Pollution (OIP) for the Assessment of the Surface Water Quality in the Upper Ganga River Basin, India.” Book Chapter 12 in “Development of Water Resource in India.” Pages 135-149, ISBN: 978-3-319-55124-1, **Springer International Publishing AG**.

**3. Anoop Kumar Shukla,** C. S. P Ojha, S. Shukla and R. D. Garg. (2021). “Water Quality Challenges in Ganga River Basin, India.” Book Chapter 1 in “The Ganga River Basin: A Hydrometeorological Approach.” Pages 1-19, ISBN 978-3-030-60869-9, [https://doi.org/10.1007/978-3-030-60869-9\\_1](https://doi.org/10.1007/978-3-030-60869-9_1), **Springer, Cham**.

**4. Anoop Kumar Shukla, Satyavati Shukla, Rao Y. Surampalli, Tian C. Zhang, and Kao, Jimmy (C.M) Kao.** (2022). “Modeling Microconstituents Based on Remote Sensing and GIS Techniques.” Book Chapter 10 in “Microconstituents in the environment: occurrence, fate, removal and management,” Published by **John Wiley & Sons Publications** (International), (**In press**).

**5. Deeksha and Anoop Kumar Shukla.** (2022). “Review of State-of-the-Art Research on River Hydrological Hazards, Restoration, and Management.” Book Chapter 25 in “River Dynamics and Flood Hazards.” ISBN: 978-981-19-7099-3, DOI: 10.1007/978-981-19-7100-6\_25, Published by **Springer Nature Singapore Pte Ltd.** (**In press**).

### **Membership of Professional Societies:**

1. Indian National Cartographic Association (INCA), Hyderabad (Life member) - LM-2210.
2. Indian Association of Hydrologists (IAH), NIH Roorkee (Life member) - LM-1748.
3. IEEE Geoscience & Remote Sensing Society (IEEE-GRSS), New York, USA. (member) - 93776938.
4. American Geophysical Union (AGU), (member) - 779034.

### **Fellowship of Academies / Scholarships / Prizes:**

1. Got Junior Research Fellow (JRF) Scholarship from 16-08-2012 to 31-07-2016 from Natural Environmental Research Council (NERC), Ministry of Earth Sciences, Govt. of India.
2. Got Senior Research Fellow (SRF) Scholarship for pursuing Ph. D. at IIT Roorkee, Uttarakhand, India from 01-05-2016 to 31-12-2017 from Ministry of Human Resources Development (MHRD), Govt. of India.
3. Got Young Research Scientists award for best oral paper presentation on 9<sup>th</sup> Uttarakhand State Science and Technology Congress 2014-15, Uttarakhand State Council for Science and Technology (UCOST) held on 26 February to 28 February 2015, at Dehradun, India.
4. Got Financial Travel Support for Research Paper Presented on Population Growth – Land Use/Land Cover Transformations-Water Quality Nexus in Upper Ganga River Basin, India at Natural Environmental Research Council, UK (NERC, UK) Department of Civil & Environmental Engineering, Imperial College of London, South Kensington Campus, London, UK, held on 15 June 2016 to 19 June 2016.
5. Got Financial Travel Support for International Summer Program: 6<sup>th</sup> SEU Innovative Summer Program on Water Engineering held at School of Civil Engineering, Southeast University (SEU), Nanjing, China from 02 July 2016 to 09 July 2016.
6. Got Financial Travel Support from IEEE-GRSS, USA for presenting a research paper in Geoscience and Remote Sensing Symposium (IGARSS-2016), 2016 IEEE International Symposium held on 10 July 2016 to 15 July 2016, at Beijing, China.
7. Awarded IIT Roorkee Alumni Affairs Grant fund for presenting a research paper in Geoscience and Remote Sensing Symposium (IGARSS-2018), 2018 IEEE International Symposium held on 22 July 2018 to 27 July 2018 at Valencia, Spain.



8. Got Orange Knowledge Programme (OKP) Fellowship for attending the Short training course on “Data Acquisition, Pre-processing and Modelling using SWAT,” organized by IHE Delft Institute for Water Education, The Netherlands from 14 September 2018 to 29 September 2018.

9. Got Financial Travel Support from Council of Scientific & Industrial Research (CSIR), Govt. of India, for presenting a research paper in the 39th Asian Conference on Remote Sensing (ACRS 2018) held on 15 October 2018 to 19 October 2018 at Kuala Lumpur Malaysia.

10. Got Financial Travel Support for attending the Fifth Global Forum of Young Scholars held on 20 May 2019 to 23 May 2019 at College of Water Resources and Hydropower Sichuan University, Chengdu, China.

11. Got President’s International Fellowship Initiative (PIFI) 2020 from the Chinese Academy of Sciences (CAS), Beijing, China, for Postdoctoral Researchers from 24 September 2019 to 30 September 2021.

### **Invited lectures/ Conference Session Chair/ Lead Chair of the Special Session:**

1. Delivered **invited lecture** on “Crop Health Monitoring using Geospatial Technology” on Feb. 01-02, 2021, organized by Institutional Development Plan, National Agricultural Higher Education Project, (IDP-NAHEP) G. B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India. (**NIRF Rank-34**).

2. **Lead Chair** of the one Special Session on "Integration of Remote Sensing & GIS application for Urban and Rural Ecological Water Resources." in the 7th International Conference on Water Resource and Environment (**WRE- 2021**), Xi'an, China, held on November 01 to November 04, 2021.

3. Delivered **invited lecture** on “Water Yield and Water Quality Variability in Upper Ganga Basin (UGB), Uttarakhand, India” on July 04-07, 2022, organized by the 4th International Conference on Advances in Civil and Ecological Engineering Research (**ACEER 2022**), Xi’an, China, (Online via MS Teams).

4. Delivered **invited lecture** on “Spatio-temporal Variability of Water Yield and Water Quality in Upper Ganga River Basin, India” on July 20-21, 2022, in the Geo-enabling the Global Village-Second UNWGIC Pre-Event 2022 conference organized by the United Nations World Geo-Spatial Information Congress (UNWGIC-2022), Survey of India, Govt. of India, Hyderabad, India.

5. Invited as a **Conference Session Chair** on International Virtual Conference on Developments and Applications of Geomatics (**DEVA 2022**) in Department of Civil Engineering, National Institute of Technology Warangal, India, held on August 29-31, 2022.

6. **Lead Chair** of the Special Session on "Integration of Remote Sensing & GIS application for Urban and Rural Ecological Water Resources." in the 8th International Conference on Water Resource and Environment (**WRE- 2022**), Xi'an, China, to be held on November 01-04, 2022.

### **Professional Trainings / Short-term Courses:**

1. Attended Training Course on “Film Appreciation Course” organized by North Central Zone Cultural Centre and Central Cultural Committee, University of Allahabad, Allahabad, India, held on February 13 to February 17, 2003.

- 2.** Attended Training Course on “Artificial Recharge to Groundwater” organized by Central Ground Water Board, Ministry of Water Resources, Govt. of India, India held on March 23 to March 24, 2004.
- 3.** Attended Training Course on “Organic Farming” organized by Biological Product lab, University of Allahabad, Allahabad, India held on December 18 to December 21, 2004.
- 4.** Attended Training Course on “Research & Development project on Jatropha plant” organized by Centre for Social Forestry & Eco Rehabilitation (CSFER), Allahabad, Ministry of Environment & Forest, Govt. of India, India held on March 22 to March 23, 2005.
- 5.** Attended Training Course on “Legal Awareness & Youth Participation in Environmental Compliance and Enforcement” organized by Indian Institute of Management (IIM Luck now) & U. S. Department of State American Embassy, New Delhi, India held on June 18 to June 20, 2006.
- 6.** Attended Training Course on “Photogrammetry & Remote Sensing- Overview for policy makers” organized by Survey of India, Survey Training Institute, Hyderabad, Ministry of Science & Technology, Govt. of India, India held on September 20 to September 22, 2006.
- 7.** Attended Training Course on “Modern Survey Instruments & Techniques” organized by Survey of India, Survey Training Institute, Hyderabad, Ministry of Science & Technology, Govt. of India, India held on October 09 to October 13, 2006.
- 8.** Attended a Two-week Short-term Training Programme on “Geo-spatial Technologies” organized by DST-TIFAC Core in Environmental Geomatics, Jawaharlal Nehru Technological University (JNTU) Hyderabad & NRDMs (Dept. of Science & Technology) Govt. of India, India held on February 12 to February 24, 2007.
- 9.** Attended a Three-week SERC School on “Atmospheric on GPS aided Geo Augmented Navigation (GAGAN)” organized by the Department of Science & Technology (Govt. of India) NERTU, Osmania University Hyderabad, India held on November 14 to December 04, 2007.
- 10.** Attended Training Course on “Advanced Geoinformation System” organized by Continuing Education Centre Indian Institute of Technology, Roorkee Uttarakhand and SIPL, New Delhi, India held on September 23 to September 27, 2010.
- 11.** Attended Training Course on “Prediction and Mitigation of Climate Change impacts using space, and Agro meteorology” based techniques organized by Department of Science and Technology & Indian Institute of Technology, Roorkee, Uttarakhand, India held on November 05 to November 10, 2012.
- 12.** Attended Training Course on “Hydrology Modelling using RS/GIS with Special Reference to Climate Change” organized by National Institute of Hydrology, Roorkee, India held on June 03 to June 07, 2013.
- 13.** Attended Training Course on “Advanced Soft Computing Technique on Hydrology and its Applications” organized by National Institute of Hydrology, Roorkee and Indian Association of Hydrologists, Roorkee, India held on October 21 to October 25, 2013.
- 14.** Attended Training Course on “Integrated Catchment Modelling (ICMOD-2013)” organized by National Institute of Hydrology, Roorkee, India held on November 11 to November 15, 2013.

- 15.** Attended Training Course on “Modelling Sustainable Agriculture under Changing Climate” organized by Department of Science & Technology, Govt. of India, New Delhi and Department of Water Resources Development and Management (WRD&M), IIT Roorkee, India held on November 11 to November 16, 2013.
- 16.** Attended Training Course on “Soil and Water Assessment Tool (SWAT) Modelling” organized by National Institute of Hydrology, Roorkee, India held on December 16 to December 20, 2013.
- 17.** Attended Training Course on “3D Modelling with FARO Focus 3D Laser Scanner (LiDAR)” organized by FARO Business Technologies India (P) Ltd. and Civil Engineering Consortium, IIT, Roorkee, India held on May 30, 2014.
- 18.** Attended QIP Training Course on “Coastal Process Modelling” Organized by Continuing Education, IIT, Bombay, Mumbai, India held on August 04 to August 08, 2014.
- 19.** Attended Training Course on “ILBM Approach for Conservation and Management of Lakes” organized by National Institute of Hydrology, Roorkee, India held on November 10 to November 14, 2014.
- 20.** Attended QIP Training Course on “GIS for Civil Engineering” organized by Continuing Education, IIT, Bombay, Mumbai, India held on December 01 to December 05, 2014.
- 21.** Attended Training Course on “Application of Remote Sensing & GIS for Natural Resources” organized by Indian Institute of Remote Sensing (IIRS), ISRO, Govt. of India and National Natural Resources Management System (NNRMS), Dehradun, India held on January 27 to March 27, 2015.
- 22.** Attended Training Course on “Remote Sensing, Geographical Information System and Global Navigation Satellite System” organized by Indian Institute of Remote Sensing (IIRS), ISRO, Govt. of India and National Natural Resources Management System (NNRMS), Dehradun, India held on August 10 to November 27, 2015.
- 23.** Attended TEQIP Course on “Remote Sensing and GIS Applications in Hydrology” organized by MHRD and Department of Civil Engineering, IIT Roorkee, India held on January 27 to January 31, 2016.
- 24.** Attended Training Course on “Geo-spatial Technologies for Urban Planning” organized by Indian Institute of Remote Sensing (IIRS), ISRO, Govt. of India and National Natural Resources Management System (NNRMS), Dehradun, India held on February 11 to March 15, 2016.
- 25.** Attended Training Course on “Modern River Management and Historical Reconstruction with Advanced Fluvial Remote Sensing” organized by Ministry of Earth Sciences, Govt. of India, Durham University and IIT, Kanpur, India held on April 09 to April 10, 2016.
- 26.** Attended International Summer Program: “6th SEU Innovative Summer Program on Water Engineering” held at School of Civil Engineering, Southeast University (SEU), Nanjing, China held on July 02 to July 09, 2016.
- 27.** Attended Training workshop on “Reference Management Software- Mendeley” organized by Mahatma Gandhi Central Library, IIT Roorkee, Uttarakhand, India held on 28 January 2017.
- 28.** Attended Training Course on “Remote Sensing and GIS Applications in Water Resources Management” organized by Indian Institute of Remote Sensing (IIRS), ISRO, Govt. of India, Dehradun, India held on May 22 to June 09, 2017.

- 29.** Attended Training Course on “UAV Remote Sensing and Applications” organized by Indian Institute of Remote Sensing (IIRS), ISRO, Govt. of India, Dehradun, India held on July 03 to July 07, 2017.
- 30.** Attended Short term Training on “Satellite-based Hydrology and Modelling” organized by Space Applications Centre (SAC), ISRO, Govt. of India, Ahmedabad, India held on August 08 to August 11, 2017.
- 31.** Attended Training Course on “Open Sources Software for Preprocessing GIS Data for Hydrological Models,” organized by IHE Delft Institute for Water Education, The Netherlands held on September 17 to September 21, 2018.
- 32.** Attended Short training course on “Data Acquisition, Pre-processing and Modelling using SWAT,” organized by IHE Delft Institute for Water Education, The Netherlands held on September 17 to September 28, 2018.
- 33.** Attended the NRDMS-DST Summer School on “Geospatial Technologies for Decision Makers,” organized by National Institute of Hydrology and Natural Resources Data Management System, Department of Science and Technology, Govt. of India, New Delhi, India held on June 19 to June 21, 2019.
- 34.** Attended the National Workshop on “Statistical Computing with R,” organized by the Department of Mathematics and Computing, Indian Institute of Technology (ISM), Dhanbad, India held on November 02 2019 to November 03, 2019.
- 35.** Attended the webinar on “Water Resources: Challenges & Research Needs,” organized by the Department of Civil Engineering & the Students’ Chapter of the Indian Water Resources Society (IIT Roorkee) and Central University of Haryana, India on 9th June, 2020.
- 36.** Attended the International Workshop on “Application of Remote Sensing and GIS in Water, Environment, Land, and Society” organized by the IAWEES and IHE Delft, The Netherlands held on December 01 to December 03, 2020.
- 37.** Attended One-week online international Training Programme on “Water Resources Modelling” organized by the Centre for Advanced Agricultural Science and Technology (CAAST) on Climate-Smart Agriculture and Water Management (CSAWM) under the World Bank aided National Agricultural Higher Education Programme (NAHEP) of the Indian Council of Agricultural Research (ICAR), New Delhi, India held on February 08 to February 12, 2021.
- 38.** Attended online International workshop on “Application of Remote Sensing and GIS in Water, Environment, Land and Society” jointly organized by IAWEES and IHE Delft in association with RNTU, NIH, CSIR-AMPRI, M.P. WALMI, NCU, Springer Nature and CVRU held on December 01 to December 03, 2020.
- 39.** Attended One-week online international Training Programme on “Water Resources Modelling” organized by the Centre for Advanced Agricultural Science and Technology (CAAST) on Climate-Smart Agriculture and Water Management (CSAWM) under the World Bank aided National Agricultural Higher Education Programme (NAHEP) of the Indian Council of Agricultural Research (ICAR), New Delhi, India held on February 08 to February 12, 2021.

40. Attended online training Programme on “Vulnerability Assessment and Resilience Development for Human Habitats” organized by National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India New Delhi in collaboration with MSAP, MAHE, held on September 27 to September 29, 2021.

41. Attended online Webinar on “SNAP for flood modeling using Sentinel-1 Image” organized by Albedo Foundation, Nashik, India, held on October 09, 2021.

42. Attended online Webinar on “Integrated Water Resource Management Hydro Resilience and Sustainability under Climate Change” organized by National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India New Delhi in collaboration with MSAP, MAHE, held on December 16, 2021.

43. Attended online training Programme on “Geospatial Applications for Disaster Management” organized by National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India New Delhi in collaboration with MSAP, MAHE, held on December 28 to December 30, 2021.

44. Attended online Webinar on “Managing Water-Related Extreme Events Under Climate Change” organized by National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India New Delhi in collaboration with MSAP, MAHE, held on January 18, 2022.

45. Attended online training Programme on “Advanced Soft Computing Techniques in Disaster Management and Risk Assessment” organized by National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India New Delhi in collaboration with MSAP, MAHE, held on January 27 to January 29, 2022.

46. Attended online Webinar on “Applications of GIS and Remote Sensing Technologies: Trends and Prospects” organized by Albedo Foundation, Nashik, India, held on June 26, 2022.

### **Ph. D. Supervised: 02 Students** (ongoing)

1. Deeksha (Roll no. 213700101)- Joining date 11-10-2021 (Completed University DAC)

2. Soumyashree B Tillihal (Roll no. 21370010) Joining date 05-03-2022 (Completed Institutional DAC)

### **IAESTE Internship: 02 Students** Supervised

1. Elham Sedighi, Country-Iran (Ref. No. IN-2022-C0211-MU)- Joining date 22-06-2022, Traineeship Duration: 22-06-2022 to 02-08-2022, Home Institute: Iran University of Science and Technology, Title of the Project: Landscape connectivity for linking habitats under scenarios of climate and land use change.

2. Muath Odah, Country-Palestine (Ref. No. IN-2022-C0210-MU) Joining date 15-06-2022, Traineeship Duration: 15-06-2022 to 15-08-2022, Home Institute: An-Najah National University, Title of the Project: Grey Relational Modelling of Land Surface Temperature (LST) for Ranking Palestinian Urban Cities.

## **Patents Published: 02**

### **1. Title of Invention:** Smart Spex: Detect the Object and Speak Object Name Using Machine Learning

Application Number: 202111008305

Date of Filing: 27-02-2021

Publication Date: 26-03-2021

**Present Status:** Under Examination (First Examination Report (FER) Issued)

### **2. Title of Invention:** Intelligent Vehicle: Detect the Speed, Location, Insurance, DL-Validity, Sleeping, Alcohol, Automatic Control with Fine notification System (RTO- Data Base)

Application Number: 202111019429

Date of Filing: 28-04-2021

Publication Date: 21-05-2021

**Present Status:** Awaiting Request for Examination

## **Organized Funded Training/ Webinar:**

**1. Organized 3-Day Online Training Programme on “Vulnerability Assessment and Resilience Development for Human Habitats”** funded by National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India New Delhi in collaboration with MSAP, MAHE, held on September 27 to September 29, 2021. **(Received Fund INR-50,000/-).**

**2. Organized 3-Day Online Training Programme on “Geospatial Applications for Disaster Management”** funded by National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India New Delhi in collaboration with MSAP, MAHE, held on December 28 to December 30, 2021. **(Received Fund INR-1,50,000/-).**

**3. Organized 3-Day Online Training Programme on “Advanced Soft Computing Techniques in Disaster Management and Risk Assessment”** funded by National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India New Delhi in collaboration with MSAP, MAHE, held on January 27 to January 29, 2022. **(Received Fund INR-1,50,000/-).**

**4. Organized 1-Day Online Webinar on “Integrated Water Resource Management, Hydro-Resilience and Sustainability under Climate Change”** funded by National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India New Delhi in collaboration with MSAP, MAHE, held on December 16, 2021.

**5. Organized 1-Day Online Webinar on “Managing Water-Related Extreme Events Under Climate Change”** funded by National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India New Delhi in collaboration with MSAP, MAHE, held on January 18, 2022.

**6. Organized 1-Day Online Webinar on “IPR Awareness Programme: Creative India, Innovative India”** in association with National Intellectual Property Awareness Mission (NIPAM), Ministry of Commerce and

Industry, Department for Promotion of Industry and Internal Trade, Office of the Controller General of Patent, Design & Trademark, Government of India, New Delhi and MSAP, MAHE, held on October 01, 2022.

### **International/ National Responsibilities:**

1. Working as **International Technical Program Committee** (TPC) in the 8th International Conference on Water Resource and Environment (WRE- 2022), Xi'an, China, to be held on November 01-04, 2022.
2. Working as **Associate Editor**, Journal of Hazardous, Toxic, and Radioactive Waste (ASCE) from November 22, 2020.
3. Working as **Review Editor** on the Editorial Board of Water and Wastewater Management and Organic Pollutants Frontiers in Environmental Science journal.
4. Working as an **active reviewer** of more than 15 peer-reviewed International SCI journals (Q1, Q2 & Q3 rank journals).
5. **Lead Chair** of the **Special Session** on "Integration of Remote Sensing & GIS application for Urban and Rural Ecological Water Resources." in the 8th International Conference on Water Resource and Environment (WRE- 2022), Xi'an, China, to be held on November 01-04, 2022.

### **Dr. Anoop Kumar Shukla**

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Manipal School of Architecture and Planning,  
Manipal Academy of Higher Education, Manipal,  
Karnataka, India