My Research Group

(updated in November 2024)

Research Associates (Post Doctoral Fellows)

1	Dr. Vimal Chandra Sharma V (Jun, 2024 – Present) Research Area: Flood modelling using remote sensing and machine learning tools Funded by: IISc - International Centre of Excellence for Dams (ICED), Central Water Commission, Ministry of Jal Shakti, Govt of India. Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru - 560012, India	
2	Dr. Sreedevi. S (March, 2022 – Feb, 2023) Research Area: Watershed Hydrology, Hydro-climatology, Hydrologic modelling Funded by: DST (Project: Hindon Roots Sensing, HIROS) Current Address: Scientist 'B' (River Hydraulics), Central Water and Power Research Station, Pune, India	
3	Dr. Ruchi Bala (Jan, 2022 – Jan, 2024) Research Area: Thermal pattern analysis in urban areas using optical and thermal remote sensing. Funded by: SERB, DST, Govt. of India Current Address: Banaras, UP, India	
4	Dr. M. Sakthi Asvini (Sept, 2021 – Aug, 2024) Research Area: Estimation of Reservoir Sedimentation using Microwave remote sensing Funded by: UGC - Dr. D. S. Kothari post doctoral fellowship, Govt. of India Current Address: Udumalpet, Tamilnadu, India	
5	Dr. Tabasum Rasool [™] (Jun, 2021 – May, 2022) Research Area: GIS, climate change, hydrological modelling, vadose zone modelling, groundwater modelling and integrated water resources management and extreme weather events Funded by: SERB, DST, Govt. of India Current Address: Interdisciplinary Centre for Water Research, Indian Institute of Science, Bengaluru – 560 012, India * jointly with Dr Rajarshi Das Bhowmik	
6	Dr. Subir Paul (Aug, 2020 – Jan, 2022) Research Area: Remote Sensing and Machine Learning for Agricultural and Hydrological Applications Funded by: Ministry of Earth Sciences, Govt. of India Current Address: Data Scientist, M/s Varaha Climate Ag Pvt. Ltd., Bengaluru, India	

7	Dr. Rajesh Kumar Sah (Sept, 2019 – Sept, 2022)	
7	Research Area: Brahmaputra River system Funded by: CSIR Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India	
8	Dr. Karthikeyan Lanka (Jan, 2018 – Jan, 2019) Research Area: Soil Moisture Retrievals using Passive Microwave Satellite Data Funded by: Indian Institute of Science Current Address: Assistant Professor, Centre of Studies in Resources Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India	
9	Dr. Shwetha H.R. (Jan, 2017 – May, 2017) (Sep, 2018 – 2019) Research Area: Estimation of Daily Actual Evapotranspiration using Microwave and Optical Vegetation Indices for Clear and Cloudy Sky Conditions Funded by: Ministry of Earth Sciences, Govt. of India Current Address: Assistant Professor, Dept. of Water Resources and Ocean Engg., National Institute of Technology Karnataka, Surathkal	
10	Dr. J. Indu (Jan, 2015 – Jun, 2015) Research Area: Hydrologic Modelling using Microwave Remote Sensing Funded by: Indian Institute of Science Current Address: Associate Professor, Department of Civil Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India	
11	Dr. Basudev Biswal (Dec, 2011 – Jun, 2013) Research Area: Hydrograph Recession Curve Analysis Funded by: Indian Institute of Science Current Address: Associate Professor, Department of Civil Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India	
12	Dr. T. V. Reshmidevi (Oct, 2009 – 2013) Research Area: Assessment of Climate Change Impacts on the Agricultural and Water Sectors Funded by: SERC Fast Track fellowship Scheme, Dept of Science and Technology, Government of India Current Address: Assistant Professor, Department of Civil Engineering, BMS College of Engineering, Bengaluru – 560 019, India	
13	Dr. C. T. Dhanya (Aug, 2010 – Nov, 2011) Research Area: Hydroclimatological Modeling using Data Mining and Chaos Theory Funded by: Indian Institute of Science Current Address: Associate Dean (PG&R), Associate Professor, Department of Civil Engineering, Indian Institute of Technology Delhi, Hauz Khas, New Delhi – 110 016, India	
14	Dr. Aavudai Anandhi Swamy [*] (May, 2008 – Dec, 2008) Research Area: Downscaling GCM Projections to River Basin Scale for Water Resources Assessment Funded by: Indian Institute of Science Current Address: Associate Professor, Biological Systems Engineering, Florida A&M University, USA * jointly with Prof. V.V. Srinivas	

Dr. M. Janga Reddy (Feb, 2007 – Apr, 2007)Research Area: Hybrid Softcomputing Techniques for Streamflow Forecasting
and Real-time Optimal Reservoir OperationFunded by: Indian Institute of ScienceCurrent Address: Professor, Department of Civil Engineering, Indian Institute of
Technology Bombay, Powai, Mumbai – 400 076, India



Research Scholars (PhD)

1	Ms. Meera Mohan (Aug, 2021 - present)	
	Research Area: Spatio-temporal Hydrologic Modelling using Physics-Guided Machine Learning Techniques Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru - 560012, India	
2	Ms. Shilpa K* (Feb, 2021 - present)	
	Research Area: Soil moisture studies using Microwave Remote Sensing Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru - 560012, India MIPA (Melbourne India Postgraduate Academy) PhD Fellow at Department of Infrastructure Engineering, University of Melbourne, Melbourne, Australia	
	* joint guidance with <u>Prof Dongryeol Ryu</u> and <u>Prof. Andrew Western</u> , University of Melbourne, Australia	
3	<i>Metbourne, Australia</i> <i>Ms. S.P. Vijayalakshmi (Feb, 2021 - present)</i> <i>Research Area:</i> Soil erosion and sedimentation modelling <i>Current Address:</i> Department of Civil Engineering, Indian Institute of Science, Bengaluru - 560012, India <i>DST OVDF Fellow (2024-25)</i> at Agricultural & Biological Engineering & National Soil Erosion Research Laboratory, USDA, Purdue University, West	
	Lafayette, IN, USA	
4	Mr. Kanishk Saxena [*] (Aug, 2019 - present) Research Area: Multi-reservoir Multi-objective Particle Swarm Optimization with Hedging Rules under Climate Change Conditions Current Address: Divecha Centre for Climate Change, Indian Institute of Science, Bengaluru - 560012, India * joint guidance with Prof. S.K. Satheesh	
5	Ms. Suchismita Subhadarsini* (Aug, 2019 - present) Research Area: Bayesian Modelling of the Land Use Land Cover Change and its interaction with compound extreme events Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru - 560012, India * joint guidance with Prof. Rao S. Govindaraju, Purdue University, USA	
6	Mr. Ternikar Chirag Rajendra (Aug, 2018 – present) Research Area: Soil texture mapping using spectroscopy Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India	

7	Dr. Ashlin Ann Alexander (Aug, 2017 – Jan, 2024) Research Area: Process-based hydrologic modelling, Sensitivity analysis, Watershed hydrology, Deep learning, HPC & Big data. Current Address: Interdisciplinary Centre for Water Research, Indian Institute of Science, Bengaluru – 560 012, India	
8	Dr. Saumya Srivastava (Aug, 2017 – March, 2024) Research Area: Evaluation Frameworks for Informed Multi-Site Multi-Variate Hydrological Assessment Current Address: Skempton building, Department of Civil and Environmental Engineering, Imperial College, London, UK	
9	Dr. Elizabeth Baby George (Aug, 2016 – Feb, 2023) Research Area: Hyperspectral remote sensing for soil property estimation in the context of spectral mixtures Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India	
10	Dr. Subir Paul (Aug, 2015 – Aug, 2020) Thesis Title: Hyperspectral Remote Sensing for Land Cover Classification and Chlorophyll Content Estimation using Advanced Machine Learning Techniques Current Address: Data Scientist, M/s Varaha Climate Ag Pvt. Ltd., Bengaluru, India	
11	Dr. Chandan Banerjee (Aug, 2013 – Aug, 2018) Thesis Title: GRACE-based assessment of Climatic Controls on Hydrological variables Current Address: Swiss Re, Bengaluru, India	
12	Dr. Himanshu Bhagat [*] (Aug, 2013 – Mar, 2019) Thesis Title: Seasonal isotopic variability and major ion chemistry of Cauvery River basin, Peninsular India Current Address: Centre for Earth Sciences, Indian Institute of Science, Bengaluru – 560 012, India * joint guidance with Prof. Prosenjit Ghosh	
13	Dr. Karthikeyan Lanka (Aug, 2013 – Jan, 2018) Thesis Title: Soil Moisture Retrievals using Passive Microwave Satellite Data Current Address: Assistant Professor, Centre of Studies in Resources Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India	
14	<u>Dr. Shwetha H.R.</u> (Aug, 2011 – Jan, 2017) Thesis Title: Estimation of Daily Actual Evapotranspiration using Microwave and Optical Vegetation Indices for Clear and Cloudy Sky Conditions Current Address: Assistant Professor, Dept. of Water Resources and Ocean Engg., National Institute of Technology Karnataka, Surathkal	
15	Dr. Ganesh D Kale (Aug, 2012 – Dec, 2016) Thesis Title: Detection of Trends in Rainfall of Homogeneous Regions and Hydro- Climatic Variables of Tapi Basin with their Attribution Current Address: Assistant Professor, Dept of Civil Engg., SV National Institute of Technology, Surat, India	

16	Dr. J. Indu (Aug, 2010 – Jan, 2015) Thesis Title: Uncertainty Analysis of Microwave Based Rainfall Estimates over a River Basin using TRMM Orbital Data Products Current Address: Associate Professor, Department of Civil Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India *Received Best Thesis Award	
17	Dr. Sonali Pattanayak (Aug, 2009 – Dec, 2014) Thesis Title: A Hydroclimatological Change Detection and Attribution Study over India using CMIP5 Models Current Address: Lead Associate (Climate Quantified Analytics), Climate and Resilience Hub, Willis Towers Watson, Bengaluru, Karnataka, India	
18	Dr. Rutuja Chitra-Tarak (Aug, 2008 – 2016) Thesis Title: Eco-Hydrology of a Seasonally Dry Tropical Forest - Tree Growth, Rooting Strategies and Drought-Vulnerability Current Address: Postdoctoral Research Associate at Los Alamos National Laboratory, Los Alamos, New Mexico, USA * joint guidance with Prof. R Sukumar	
19	Dr. C. T. Dhanya (Aug, 2006 – Aug, 2010) Thesis Title: Hydroclimatological Modeling using Data Mining and Chaos Theory Current Address: Associate Dean (PG&R) Professor, Department of Civil Engineering, Indian Institute of Technology Delhi, Hauz Khas, New Delhi – 110 016, India *Received Best Thesis Award	
20	Dr. Aavudai Anandhi Swamy (Jan, 2003 – Dec, 2007) Thesis Title: Impact of Climate Change on Hydrometeorology of Indian River Basin for IPCC SRES Scenarios Current Address: Associate Professor, Biological Systems Engineering, Florida A&M University, USA * joint guidance with Prof. V.V. Srinivas	
21	Dr. Rajib Maity (Aug, 2004 – Jan, 2007) Thesis Title: Impact of large-scale coupled Atmospheric-Oceanic circulation on hydrologic variability and uncertainty through hydroclimatic teleconnection Current Address: Professor, Department of Civil Engineering, Indian Institute of Technology Kharagpur, Kharagpur – 721 302, India	
22	Dr. M. Janga Reddy (Aug, 2002 – Sept, 2006) Thesis Title: Swarm Intelligence and Evolutionary Computation for Single and Multiobjective Optimization in Water Resource Systems Current Address: Professor, Department of Civil Engineering, Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India	
23	Dr. Falguni Baliarsingh (Aug, 1997 – Jan, 2001) (in IIT Kharagpur) Thesis Title: Long-term and short-term optimal reservoir operation for flood control Current Address: Professor, Department of Civil Engineering, College of Engineering & Technology, Bhubaneswar - 751 003	

 Dr. P. Anand Raj (Aug, 1995 – Jul, 2000) (in IIT Kharagpur) Thesis Title: Multi criterion decision making in fuzzy environment for river basin development and management Current Address: Professor (Retd), Department of Civil Engineering, National Institute of Technology, Warangal-506 001

* joint guidance with Prof. G.L.N. Sastry



M.Sc. (Engg.)

1	Dr. Karthikeyan Lanka (Aug, 2011 – Jul, 2013)
	Thesis Title: Predictability of Nonstationary Time Series using Wavelet and
	Empirical Mode Decomposition based ARMA Models
	Current Address: Assistant Professor, Centre of Studies in Resources Engineering,
	Indian Institute of Technology Bombay, Powai, Mumbai – 400 076, India
	*Received Best Thesis Award



Project Associates

1	Mohd Galib (August, 2022 - present) Research Area: Remote Sensing and GIS, Machine Learning, Geospatial Data Analysis, Image Processing Funded by: DST (Project: Hindon Roots Sensing, HIROS) Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India	
2	 Amin Shakya (May, 2022 – present) Research Area: Hydroinformatics, geoinformatics, climate change, data assimilation Project Title: Improving the spatial resolution of GRACE TWS for India using remote sensing datasets and modeling approach Funded by: IISc-STC, IISc, Bangalore Current Address: Interdisciplinary Centre for Water Research, IISc. Bengaluru-560012, India. * Jointly with Dr. Bramha Dutt Vishwakarma 	
3	Anu S Patil (Nov, 2021 – present) Research Area: Remote Sensing and GIS, climate change, hydrological modelling, integrated models, and extreme weather events. Project Title: Development and application of a stochastic rainfall generator (SRG) to account for unprecedented rainfall events. Funded by: SERB DST, Govt. of India Current Address: Interdisciplinary Centre for Water Research, IISc. Bengaluru-560012, India. * Jointly with Dr Rajarshi Das Bhowmik	
4	Ridhee Ghosh (April, 2021 – Sept, 2022) Research Area: Development of Bilinear and Non-Linear Unmixing Tool for Hyperspectral Image Analysis. Funded by: Space Applications Centre, ISRO. Current Address: Department of Civil Engineering, Indian Institute of Science, Bengaluru – 560 012, India.	

ME/M. Tech. Students

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1	Mr. Roopesh Karabari Dhanaraj (2022-23)	
	Dissertation Project Title: to be decided	
	Current Address: Department of Civil Engineering, Indian Institute of Science,	
	Bengaluru – 560 012, India	V
		N
2	Mr. Teju Kumar N (2022-23)	
	Dissertation Project Title: to be decided	Get a
	Current Address: Department of Civil Engineering, Indian Institute of Science,	
	Bengaluru – 560 012, India	
3	Mr. Chandan Kumar (2021-22)	
3	Dissertation Project Title: Flood Inundation Mapping and Floodwater Depth	
	Estimation using FwDET model in Kosi River Basin, Bihar	
		- De
	<i>Current Address:</i> Department of Civil Engineering, Indian Institute of Science,	
	Bengaluru – 560 012, India	
A	Mr. Nishant Kumar (2021-22)	
4	Dissertation Project Title: Spatio-temporal effects on Non-stationarity	1 . 11 . 11 . 1 . 1 . 1 . 1 . 1 . 1 . 1
	of Hydrologic Time Series and it's modelling	
	Current Address: Department of Civil Engineering, Indian Institute of Science,	The NZ
	Bengaluru – 560 012, India	
_	Ma Maana Mahan (2020-21)	
5	Ms. Meera Mohan (2020-21)	
	Dissertation Project Title: Optimal Reservoir Operation Using Master-Slave	
	Optimization Algorithm	
	Current Address: Department of Civil Engineering, Indian Institute of Science,	
	Bengaluru - 560012, India	
6	Mr. Chandra Prakash Tamang (2019-20)	
	Dissertation Project Title: Downscaling Precipitation using Deep Learning	
	Techniques	
	Current Address:	
7	Mr. Mridupawan Deka [*] (2018-19)	
	Dissertation Project Title: Optimal Reservoir Operation using Water Cycle	
	Algorithm	36
	Current Address: Research Scholar, Dept of Civil Engg., IIT, Guwahati	
	* jointly with <u>Dr Rajarshi Das Bhowmik</u>	
8	Mr. Ramesh K Banagar (2017-18)	
0	Dissertation Project Title: Reliability assessment of stormwater drain network and	
	evaluating performance of low impact developments in the watershed	
	Current Address: Hydraulic Engineer Consultant, Xceedance, India	
9	Mr. Pranab Baruah (2016-17)	
	Dissertation Project Title: Soil Type Classification and Mapping using	A States
	Hyperspectral and Multispectral Remote Sensing Data	
	Current Address: Assistant Professor (under TEQIP III program) at Department	10/2-
	of Civil Engineering in B.C.E. Bhagalpur, Bihar – 813 210, India	
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10	Mr. Santhosh Kumar R (2015-16) Dissertation Project Title: Unsupervised Hyperspectral Vegetation Unmixing using Hyperion Data Current Address: Verisk Analytics India PVT. LTD., D.B.A. Air Worldwide, Hyderabad TS - 500081	
11	Mr. Anmol Jalali (2014-15) Dissertation Project Title: Prioritization of Sub-catchments of Mahanadi Basin based on Geomorphology Current Address:	
12	Dr. Subir Paul (2014-15) Dissertation Project Title: Comparative Study of Actual Evapotranspiration Estimated from MSEBAL and TSEB Models by Utilizing Landsat 8 Data Current Address: Data Scientist, M/s Varaha Climate Ag Pvt. Ltd., Bengaluru, India	
13	Dr. Apoorva R Shastry (2012-13) Dissertation Project Title: Delineation of Flood-prone Areas using Modified Topographic Index for Mahanadi Basin Current Address: Research Scientist, USRA, Columbus, Ohio, USA	
14	Dr. Chandan Banerjee (2012-13) Dissertation Project Title: Hydrological Modeling of Malaprabha Catchment using TOP Model Current Address: Swiss Re, Bengaluru, India	
15	Dr. Swagat Patnaik (2012-13) Dissertation Project Title: Analysis of Recession Flows Current Address: Senior Hydrologist, Statkraft, New Delhi, India	
16	Dr. Anjana Devanand (2011-12) Dissertation Project Title: Statistical Analysis of Daily Rainfall over India using High Resolution IMD Gridded Data Current Address: Australia * Gold Medallist	
17	Dr. Richa Ojha (2011-12) Dissertation Project Title: Modelling Uncertainuty in Variables of Different GCMs and Prediction of Extreme Events of Rainfall over India Current Address: Assistant Professor, Department of Civil Engineering, Indian Institute of Technology, Kanpur, India	
18	Mr. John Chunda Hansdak (2010-11) Dissertation Project Title: Estimation of Actual Evapotranspiration over Malaprabha River Basin using Remote Sensing and SEBAL Model Current Address:	
19	Mr. G. Sasidhar (2005-06) Dissertation Project Title: Ant colony optimization for optimal design of water distribution systems Current Address: Working in a Software Company, Bangalore	

20	Dr. Rajib Maity (2003-04)	
20	Dissertation Project Title: Hydrologic Time Series Analysis and Forecasting with	
	Climatic Inputs	10 0
	Current Address: Associate Professor, Department of Civil Engineering, Indian	3
	Institute of Technology Kharagpur, Kharagpur – 721 302, India	6-
	* Gold Medallist	
21	Mr. K. Laxmi Raju (2002-03)	
	Dissertation Project Title: Crop Classification using Multitemporal Imagery with	
	Penalized Fuzzy C-Means Algorithm	
	Current Address: IBM, Bangalore	
22	Mr. D. Ram Singh [*] (1999-2000) (in IIT Kharagpur)	
	Dissertation Project Title: End Depth in Inverted Semi-circular Channels:	
	Experimental and Theoretical Investigations	
	Current Address: Software Company, Hyderabad	
	* joint guidance with Prof. S. Dey	
23	Mr. D.S.V. Prasad (1998-99) (in IIT Kharagpur)	
	Dissertation Project Title: Optimal Reservoir Operation in Fuzzy Environment	
	Current Address: Group Leader, CMC Ltd, Pune	
24	Mr. Ashok Kumar (1998-99) (in IIT Kharagpur)	
	Dissertation Project Title: Application of Genetic Algorithms for Optimal	
	Reservoir Operation	
	Current Address: Construction Company, Singapore	
25	Mr. T. Sathish (1997-98) (in IIT Kharagpur)	
	Dissertation Project Title: River Flow Forecasting using Artificial Neural	
	Networks	
	Current Address: Software Company, Hyderabad	
26	Mr. K.C. Swain (1996-97) (in IIT Kharagpur)	
	Dissertation Project Title: Application of Watershed Bounded Network Model for	
	rainfall-runoff Modelling	
0.7	Current Address: Software Company, Bhubaneshwar	
27	<u>Dr. P.C. Nayak</u> (1995-96) (in IIT Kharagpur)	
	Dissertation Project Title: Model Investigations of Stepped Spillway	
	<i>Current Address:</i> Scientist, National Institute of Hydrology, Kakinada, A.P.	
28	Mr. T. Rama Mohana Rao (1994-95) (in IIT Kharagpur)	
	Dissertation Project Title: Optimal Design of Water Distribution System using Liner Programming Gradient Method	
	Current Address: Assistant Professor, Indian Institute of Management,	
	Ahmedabad, India	
	Anmeaabaa, inala * joint guidance with Prof. M. Bandyopadhyay	

Special Members

Sri D.V. Subrahmanyam

He is my father. Retired as Executive Engineer, Irrigation Dept, Govt of Andhra Pradesh in 1987. During his service to the Govt of AP, he was involved in Nagarjunasagar Dam (Tallest masonry dam in the World) construction, some of its canals alignment and reservoir operation. He is the motivating force for my research. He frequently goes through my work and makes valuable suggestions for improvement both in presentation and technical content.

Period: January 1994 to date

Current Address: We live together in IISc, Bangalore



Prof. K. Srinivasa Raju

Although Dr Raju has never worked with me for any formal degree, we have been working together on number of research topics from 1994. He fondly addresses himself as my PURS (Permanent Unbearable Research Scholar).

Period: Feb 1994 to date

Research Area: Multi Criteria Decision Making and Optimization in Water Resources Management, Climate Change impact on water resources

Current Address: Professor, Civil Engineering Department, Birla Institute of Technology and Science - Pilani, Hyderabad campus, Hyderabad - 500 078, Telangana



Others

Mr. Rajkumar V Raikar worked with me for PhD for a short period until I left IIT, Kharagpur and submitted his thesis under the guidance of Prof. S Dey Year: 2007 Research Area: Scour Studies near Channel Contractions Current Address: Principal of an Engineering College, Karnataka

Mrs. Dipanjana Maulik

worked with me for PhD until I left IIT, Kharagpur and submitted her thesis under the guidance of Prof. D.J. Sen Year: 2006 Research Area: Estuarine River Quality Modelling

Current Address: Chief Engineer, West Bengal Pollution Control Board, Kolkata