

RESUME

Dr. Umesh Chandra Pati

Professor

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1. SHORT BIOSKETCH



Dr. Umesh C. Pati is a Full Professor at the Department of Electronics and Communication Engineering, National Institute of Technology (NIT), Rourkela. He has obtained his B.Tech. Degree in Electrical Engineering from the National Institute of Technology (NIT), Rourkela, Odisha. He received both M.Tech. and Ph.D. degrees in Electrical Engineering with specialization in Instrumentation and Image Processing, respectively, from the Indian Institute of Technology (IIT), Kharagpur. He is currently serving as Chairperson of the International Students Cell, NIT Rourkela. He has also served as Head of the Career Development Center at NIT Rourkela for three years.

His current areas of interest are Image/Video Processing, Computer Vision, Artificial Intelligence, Medical Imaging, Internet of Things (IoT), Industrial Automation, and Instrumentation Systems. He has authored/edited two books and published more than 150 articles in peer-reviewed international journals as well as conference proceedings. He has served as a reviewer in a wide range of reputed international journals and conferences. He has delivered a number of Keynote/Invited Talks at various International/National platforms. He has also guest-edited Special Issues of Cognitive Neurodynamics and the International Journal of Signal and Imaging System Engineering. Dr. Pati has filed 4 Indian patents. Besides other sponsored projects, he is currently associated with a high-value IMPRINT project, “Intelligent Surveillance Data Retriever (ISDR) for Smart City Applications,” which is an initiative of the Ministry of Education and Ministry of Housing and Urban Affairs, Govt. of India.

He has visited countries like the USA, Italy, Austria, Australia, Singapore, Mauritius, Bangladesh, Nepal, etc., in connection with research collaboration and paper presentations. He was also an academic visitor to the Department of Electrical and Computer Engineering, San Diego State University, USA, and the Institute for Automation, University of Leoben, Austria. He is a Senior member of IEEE, a Fellow of The Institution of Engineers (India), a Fellow of The Institution of Electronics and Telecommunication Engineers (IETE), and a life member of various professional bodies like MIR Labs (USA), The Indian Society for Technical Education, Instrument Society of India, Computer Society of India, and Odisha Bigyan Academy. His biography has been included in the 32nd edition of MARQUIS Who's Who in the World 2015. He is also recipient of Torchbearer of Education Award 2020 by Coding Ninjas.

2. EDUCATION

Degree	Specialization	Institute/University
B.Tech	Electrical Engineering	National Institute of Technology Rourkela
M.Tech	Instrumentation Engineering	Indian Institute of Technology Kharagpur
Ph.D	Computer Vision	Indian Institute of Technology Kharagpur

3. PROFESSIONAL AFFILIATION

- Senior Member: IEEE (Geoscience and Remote Sensing Society)
- Fellow: Institute of Engineers (India)
- Fellow: Institution of Electronics and Telecommunication Engineers (India)
- Life Member: The Indian Society for Technical Education (ISTE)
- Life Member: Instrument Society of India
- Life Member: Computer Society of India
- Life Member: Odisha Engineering Congress
- Life Member: Odisha Bigyan Academy
- Life Member: MIR Labs (USA)

4. AWARDS & RECOGNITION

- Best paper award in the International Conference on Intelligent Computing and Emerging Communication Technologies (ICEC-2024), 23rd-25th November, 2024, SRM University-AP, Amaravati, Andhra Pradesh, India.
- Best paper award in the 3rd Odisha IEEE International Conference on Electrical Power Engineering, Communication, and Computing Technology, 8th – 9th November, 2024, Siksha ‘O’ Anusandhan Deemed to be University, Bhubaneswar, Odisha.
- Best paper award in the 1st International Conference on Electronics, Communication and Signal Processing (ICECSP-2024), 8th -10th August, 2024, NIT-Delhi, Delhi, India, .
- Best paper award in the IEEE 3rd International Conference on Sustainable Energy and Future Electric Transportation (SEFET-2023) held on 9th -12th August, 2023, Siksha ‘O’ Anusandhan Deemed to be University, Bhubanswar, Odisha.
- Recipient of Torchbearer of Education Award 2020 by Coding Ninjas.
- Biography included in 32nd Edition of MARQUIS Who’s Who in the World 2015.
- Best paper award in the category of Computer science and Information Technology in International Conference on Advance Computing and Communication (ICACC 2013) held on 16th – 17th March 2013, Ranchi.
- Second prize for a paper in Electrical, Electronics, and Computer Science Division in 54th Annual Session of Orissa Engineering Congress, Bhubaneswar held on 9th February 2009.
- Third prize for a paper in Electronic and Electrical Engineering Division during Golden

Jubilee Session held on 26th February, 2005 of Odisha Engineering Congress.

- National Scholarship (High School Certificate Examination).
- National Rural Talent Search (NRTS) Scholarship (Class-VII).
- Upper Primary Scholarship (Class-V).

5. CURRENT AREA OF RESEARCH

- Image/Video Processing
- Computer Vision
- Artificial Intelligence / Machine Learning / Deep Learning
- Internet of Things (IoT)
- Biomedical Imaging
- Industrial Automation
- Instrumentation Systems

6. RESEARCH PROJECTS

Sl. No.	Sponsoring Agency	Project Title	Duration	Amount (in INR)
1.	Defense Research and Development Organization (DRDO), India	Development of Wireless Multi Sensor based Intelligent Security and Surveillance System	Jun. 2018 to Nov. 2021	27.24 Lakh
2.	IMPRINT India, an initiative of Ministry of Human Resource Development and Ministry of Housing and Urban Affairs, Government of India.	Intelligent Surveillance Data Retriever (ISDR) for Smart City Applications	Sep. 2017 to Mar. 2021	3.86 Crore
3.	Institute of Minerals & Materials Technology (IMMT), Bhubaneswar, Odisha	Application of Optical Triangulation to determine the wear of liner and lifter in ball mill	Jun. 2014 to Jan. 2015	2 Lakh
4.	Department of Science and Technology (DST), Govt. of India	Development of Virtual and Intelligent Instrumentation Laboratory (FIST Program)	Jan. 2012 to Jan. 2017	64 Lakh

7. PATENTS

- Goutam Kumar Sahoo, Rashmiranjan Nayak, Harshit Srivastava, Santos Kumar Das, Poonam Singh, **Umesh C. Pati**, Unagallage Nirmal Chathura Unagalle, Dhayan Dhananjaya Senanayake, and Bamunusinghe Arachchige Umesh Maduwantha, “A Low-Cost IMU/GPS Sensor-Based Real-Time System With Esp32 For Automatic Vehicle

Accident Detection And Alerting,” Indian Patent, Complete Specification (Filed, Indian Patent Application No.: 202331060341, Date of Filing: 08.09.2023).

- Rashmiranjan Nayak, **Umesh C. Pati**, Santos Kumar Das, Goutam Kumar Sahoo, and Poonam Singh, and Mohini Mohan Behera, “A Method and System for Video Surveillance based Automatic Crime Alert,” Indian Patent, Complete Specification (Published, Indian Patent Application No.: 202031030956, Date of Filing: 20.07.2020, Date of Publication: 14.08.2020, Date of FER: 16.09.2021, Date of Filing Reply to FER: 10.03.2022).
- Goutam Kumar Sahoo, Poonam Singh, Santos Kumar Das, Rashmiranjan Nayak, **Umesh C. Pati**, Dinesh Singh and Swetalin Priyadarshini, “Multi-sensor based real-time system for Automatic Accident detection and Intimation,” Indian Patent, Complete Specification (Published, Indian Patent Application No.: 202031028424, Date of Filing: 20.07.2020, Date of Publication: 14.08.2020, Date of FER: 24.05.2021, Date of Filing Reply to FER: 26.10.2021).

8. SHORT-TERM COURSES / WORKSHOP ORGANIZED

Sl. No.	Type	Title of the Program	Sponsoring Agency	Duration
1.	Workshop	2022 International Workshop on Remote Sensing and Societal Applications	IEEE GRSS Kolkata Chapter	28 th – 29 th Sept, 2022
2.	Workshop	Practical Implementation of Smart City Systems	Self-financed	21 st – 25 th May 2018
3.	Short Term Course	Design and Implementation of Instrumentation Systems using LabVIEW (DIISL 2016)	Self-financed	19 th – 23 rd Dec. 2016
4.	Short Term Course	Microsensors and Signal Conditioning (MSSC 2016)	TEQIP-II	24 th – 25 th Sept 2016
5.	Short Term Course	Design and Implementation of Instrumentation Systems using LabVIEW (DIISL 2015)	Self-financed	14 th – 19 th Dec. 2015

9. GUIDANCE

A. Ph.D. Thesis Supervision: 5 completed, 6 ongoing

Sl. No.	Name of the Research Scholar	Title of Ph.D. Thesis	Year of Completion
1.	Ranjan Kumar Senapati	Low Power VLSI Implementation of Image Compression Algorithms	2013
2.	Sankata Bhanjan Prusty	Development of Adaptive Robust Controllers for Controlling Liquid Level in a Tank	2018
3.	Achala Pandey	Development and Implementation of Novel	2018

		Algorithms for Image Mosaicing	
4.	Subhransu Padhee	System Identification and Model-based Controller Design	2018
5.	Sourav Paul	Development of Efficient Registration Algorithms for Remote Sensing Optical and SAR Images	2019
6.	Rashmiranjan Nayak	Automatic Detection, Classification, and Intimation of Video Anomalies for Smart City Applications	Ongoing
7.	Naba Krushna Sabat	Development of Wireless Multi Sensor-based Intelligent Security and Surveillance System	2025
8.	V N Sujit Vudattu	Development of Deep Learning-based Change Detection Techniques for Remote Sensing Images	Ongoing
9.	Prajnyajit Mohanty	Design and Development of Energy Autonomous IoT System	Submitted
10.	Mayank Mishra	Detection of Autism using AI-based Approaches	Ongoing
11.	Pranshu Jena	Brain Tumor detection using Deep Learning Approaches	Ongoing
12.	Nihar Ranjan Mohapatra	Deep Learning-based Biomedical Image Analysis for Disease Detection	Ongoing
13.	Akankhya Mohanty	Biometric Security using Machine Learning	Ongoing

B. M.Tech. Research Thesis Supervision: 1 completed

Sl. No.	Name of the Student	Title of Master Thesis	Year of Completion
1.	Vijay Kumar Sharma	Efficient VLSI Architectures for Image Compression Algorithms	2012

C. M.Tech. Thesis Supervision: 57 completed, 3 ongoing

Sl. No.	Name of the Student	Title of Master Thesis	Year of Completion
1.	Adarsh Kumar	Deep Learning for Time Series Anomaly Detection	Ongoing
2.	Ravi Monika Sai	Development of a Hybrid Machine Learning based Framework for Prediction of Photovoltaic Output Power	Ongoing

3.	Rambarki Pavan Kumar	Brain Tumor Detection using Machine Learning and Deep Learning	Ongoing
4.	Neeraj Kumar Gautam	Coral Reef Species and Bleaching Detection using Deep Learning based Approaches	2024
5.	Aella Govindarajulu	Development of machine learning based framework for forecasting solar panel output power.	2024
6.	Shalini Priya	Video anomaly detection using deep learning-based weakly supervised learning techniques	2024
7.	Anarkali Prabhakar	Multiclass classification of Brain Tumor using MRI Scans.	2024
8.	Pritha Dutta	Enhancing Industrial Quality Assurance through Deep Learning-based Unsupervised Image Anomaly Detection	2024
9.	Akshay Khanna	Detection of Autism Spectrum Disorder using Facial Images	2023
10.	Cherukuri Syam Sandeep	Solar Energy Forecasting using Machine Learning Technique	2023
11.	Prashant Dwivedi	Deep learning based insect pest detection	2023
12.	Shaik Riyaaz Nayeem	Detection of Anomalous Events in Surveillance Videos using Deep-learning based One-Class Classification Models	2023
13.	Devansh Sehrawat	Deep learning based detection of anomalous events using Surveillance videos	2023
14.	P. Sivakumar Reddy	Performance of Deep Learning Models for Time Series Data Forecasting	2023
15.	Shivam Gupta	Traffic Lane Localization using Clothoid Road Model	2022
16.	Mogarala Tejoyadav	Water Quality Forecasting of River Ganga Using Statistical and Deep Learning Approaches.	2022
17.	Chinmaya Kumar Meher	Automatic Detection of Abnormal Activities from Surveillance Videos using Deep-Generative Models for real-time applications.	2022
18.	Aishwarya Premlal Kogekar	Water Quality Forecasting of the River Ganga using Statistical and Deep	2021

		Learning Approaches	
19.	Ashwani	Nonlinear Compensation of Sensors	2021
20.	Omprakash Astya	Wireless Sensor Network Data Monitoring System	2020
21.	Goli Vishnukiran	Design of Computer Vision-based Bottle Inspection System using LabVIEW	2020
22.	Bhanu Pratap	Representation Learning for Image Anomaly Detection	2020
23.	Divya S.V	Development of SIFT-based Algorithms for SAR Image Registration	2019
24.	Shubham Shukla	Development of Control Algorithms for Two Tank Liquid Level Systems	2019
25.	M G Kiran	Modelling, Parametric Identification, and Control of CSTR System	2019
26.	Sukumar Barik	IoT Based Weather Monitoring and Intimation.	2018
27.	Subhajit Kumar Indra	Design of Wireless Data Acquisition System for Landslide Detection.	2018
28.	Unni R	PC Based Ultrasonic Intrusion Detection System	2018
29.	Susmitha Yalamati	Image Registration Using SIFT Algorithm	2018
30.	Prasanmit Nath	Sensor Integration for Inertial Navigation System in Ground Vehicles	2018
31.	Sukhada Ashok Raut	Underwater Image Registration	2017
32.	Abhinav Kumar Singh	Vision Based Inspection System of Beverage Industry	2017
33.	Ujwal Kumar Durgam	Synthetic Aperture Radar Image Registration Using Speeded Up Robust Features.	2016
34.	Ganesh Baliram Ingale	Design of PV Based Stand-Alone System for DC Microgrid	2016
35.	Rajesh Kumar Jha	Zigbee and GSM Based Wireless Data Acquisition System for Farming as well as Automatic Irrigation system	2016
36.	Purusottum Kumar	Dynamic Modelling of Process in Coal Based Thermal Power Plant	2016
37.	Praveen Kumar	IoT and GUI based Monitoring as well as Control of Home Appliances	2016
38.	Sudhansu Mallik	Underwater Image Enhancement	2016
39.	Nisha Kashyap	Design of Low-Cost Multi-Channel Data Acquisition System for Meteorological Application	2015
40.	G. Santhosh Kumar	Identification and Study of Performance of Controllers on Heat Exchanger	2015

41.	Deepak Choudhary	Two Degree of Freedom PID Controller for Quadruple Tank System	2015
42.	Upendra R. Moyyila	Detection and Recognition of Soccer Ball and Player	2015
43.	Pratish K. Sahoo	Mutual Information based Image Registration for Medical Imaging	2015
44.	Satish H. Bhati	Fingerprint Mosaicing using Modified Phase Correlation Method	2015
45.	Sandeep Kumar	Tuning of PID Controller for Higher Order System	2014
46.	Nilimamayee Samal	Data Acquisition and Linearization of Sensors: Greenhouse Case Study	2014
47.	Jyoti Ranjan Pati	Modeling, Identification, and Control of Cart-Pole System	2014
48.	Sangeeta Sahu	Image Registration Techniques for Medical Images	2014
49.	P. Govardhan	Night Time Pedestrian Detection for Advanced Driving Assistance Systems using Near-Infrared Images	2014
50.	Shishir Maheshwari	Image Blending using Graph Cut Method for Image Mosaicing	2014
51.	Sunita Mohanta	A LABVIEW based Data Acquisition System for Monitoring and Analysis of Vibration Signal	2013
52.	Raja N. Reddy	Fetal ECG Extraction using Wiener, SVD, and ICA Techniques	2013
53.	Abhyarthana Bisoyi	Implementation of Online Temperature Controller based on LABVIEW	2013
54.	Abhinav Deo	Recognition of Licence Plate and Detection of Optical Nerve Pattern using Hough Transform	2013
55.	Vimal Singh Bind	Robust Techniques for Feature-based Image Mosaicing using Image Fusion	2013
56.	Priya Ranjan Muduli	Development and Implementation of Image Fusion Algorithms based on Wavelets	2013
57.	Sankata Bhanjan Prusty	Linearization and Analysis of Level as well as Thermal Process using LabVIEW	2012
58.	Jyoti Prasanna Patra	A Phase-Locked Loop-based Integer N Frequency Synthesizer	2012
59.	Roopal Agrawal	Internet-based Data Logging and Supervisory Control of Boiler Drum	2012

		Level using LabVIEW	
60.	Rashmi Panda	Removal of Artifacts from Electrocardiogram	2012

D. B.Tech. Thesis Supervision: 42 completed, 1 ongoing

Sl. No.	Name of the Student	Title of the UG Thesis	Year of Completion
1.	Anurag Gan Chaudhuri	Anomalous action classification	Ongoing
2.	Savan Kumar	Detection of Brain Tumor using using YOLOv8 cascaded with Spatial Attention Module	2024
3.	Satya Ranjan Dutta	Detection of Anomalies and Forecasting in Time Series Data Generated by IoT Devices Using Machine Learning	2024
4.	Luv Khandelwal	Change detection in synthetic aperture radar images using spatial channel attention mechanism	2023
5.	Cheeraag Mishra	Time series analysis of river water quality forecasting using deep learning techniques	2023
6.	Ajay Kumar	Temperature forecasting using deep learning models	2023
7.	Heramba Panda	Deep learning-based efficient model for intrusion detection application	2022
8.	Suprabha Nayak	IoT enabled Smart Garbage Bin	2021
9.	Tushr Kanta Sahoo	Video-based Human Activity Recognition using Deep Neural Networks	2020
10.	Sneha Satakshi Tripathy	IoT based Monitoring of Water and Air Pollution in Real-Time	2020
11.	Bhatraju Veeranjanyulu	Real-time camera-based intruder detection by using deep learning	2020
12.	Gowrigari Sravan Kumar Reddy	Data Acquisition from sensors and Linearization using neural network techniques	2019
13.	Yasmin Kukul	Image-Based Abnormal Activity Detection	2019
14.	Anindita Gain	Image-Based Smart Parking System	2019
15.	Priyadarsani Suchismita Jena	Traffic Monitoring System using Image Processing	2018
16.	Vikash Singhal	Accident Detection and Automatic Hospital Intimation	2018

17.	Salman Siddique Khan	Detection of Anomalous Events in Surveillance Videos	2018
18.	Shubham Singh	Vehicle Accident Detection and Messaging using Arduino and GSM Module	2017
19.	Rajesh Kumar Behera	Linearization of Differential Pressure Flow sensor with Hardware Implementation	2017
20.	K. S. Manikanta Kumar	Accident Detection and Automatic Hospital Intimation	2017
21.	Himanshu S. Behera	A Comparative Analysis of Corner Detection Algorithms	2016
22.	Deepak K. Nayak	Image Segmentation using Hough Transform	2016
23.	Brajen Malakar	Design and development of a Heart Rate Sensor using Fingertip	2016
24.	Shital N. Meshram	Wireless Data Acquisition System using Global System for Mobile Communication (GSM)	2016
25.	Pooja Ghosh	Image Mosaicing using Feature Detection Algorithms	2015
26.	Abhisek Parida	Vein Pattern Extraction using Near-Infrared Imaging for Biometric Purposes	2015
27.	Siniprabha Behera	Data Acquisition from LVDT and its Analysis	2015
28.	Saurav Kumar	Design of Controllers for Three Tank System	2015
29.	Ishan Kumar Sarangi, Sudarshan Nayak	Image Mosaicing of Panoramic Images	2014
30.	Aditya N. Sahoo Jyoti P. Behera	Analysis and Control of Processes	2014
31.	Abhilash Mishra, Pinaki Mishra	Design of ON/OFF, Proportional, and PID Temperature Controllers using LABVIEW	2013
32.	Anuran Maiti	Analysis and Control of Processes	2013
33.	Pragyan Paramita Kar, Priyam Saikia	Performance of Different Control Strategies for Boiler Drum Level Control using LABVIEW	2013
34.	Ritesh Kumar Nayak, Sharad Agarwal	Comparison of Iris Identification Technique by using Modified SIFT and SURF Keypoint Descriptor	2013
35.	Pamarthi Kranthi Kumar, Ritika Ojha	Solar Tracker System for PV Module	2013
36.	Debesh Kuanr, Lokanath Tripathy	Accuracy Improvement in Odia Zip Code Recognition Technique	2012

37.	Birendra Nath Tripathy, Abinash Dash	Prototype Drowsiness Detection System	2012
38.	Asutosh Mishra, Alok Nanda	Master Hand Technology for the HMI using Hand Gesture and Colour Detection	2012
39.	Kavita Ekka, Sushmita Tigga	A Study on Photoplethysmography and its use for Heartbeat Counting	2011
40.	Dibyaranjan Pradhan, Ramakant Behera	Modeling of a Vehicle Speed Measurement System using Piezoelectric Sensors	2011
41.	Biswajit Jena, Sagar Kumar	Design of PID Controller using Bioinspired Evolutionary Techniques	2011
42.	Soumya Ranjan Nayak, Sagar Kumar Jena	Data Acquisition using PCL-207 Card	2010
43.	Sanjev Kumar, Sayed S Mohammad	PC-Based Data Acquisition using PCL- 208	2010

10. PEER-REVIEW ACTIVITIES

A. Journals / Books

1. Editor-in-Chief, ACCENTS Transactions on Image Processing and Computer Vision (TIPCV).
2. Editor, Annals of Applied Sciences.
3. Editor, Global Journal of Neurology and Neuroscience.
4. Editor, Journal of Electronics and Telecommunication Engineering.
5. Editor, Computing and Artificial Intelligence.
6. Guest Editor, Special Issue in “Cognitive Vision and Intelligent Computation Approaches for COVID -19”, Cognitive Neurodynamic, 2020 (Springer).
7. Guest Editor, International Journal of Signal and Imaging Systems Engineering, Vol. 5, No. 4, 2012.
8. Guest Editor, International Journal of Signal and Imaging Systems Engineering, Vol. 6, No. 1, 2013.
9. Guest Editor, International Journal of Signal and Imaging Systems Engineering, Vol. 7, No. 1, 2014.
10. Editor, International Journal of Emerging Trends in Electrical and Electronics (ISSN: 2320-9569).
11. Advisory Board Member, International Journal of Advanced Computer Research (ISSN: 2249-7277).
12. Reviewer, Virtual Instrumentation using LabVIEW, Sanjay Gupta and Joseph John, 2nd Edition, Tata McGraw Hill, New Delhi.
13. Reviewer, Optical Fiber Communication, Gerd Keiser, 4th Edition, Tata McGraw-Hill Pvt. Limited.
14. Reviewer, Optical Fiber Communication, Cambridge University Press India.
15. Reviewer, IEEE Transactions on Industrial Electronics.

16. Reviewer, IEEE Transactions on Geoscience and Remote Sensing.
17. Reviewer, IEEE Transactions on Medical Imaging.
18. Reviewer, IEEE Transactions on Neural Networks and Learning Systems.
19. Reviewer, IEEE Transactions on Evolutionary Computation.
20. Reviewer, IEEE Transactions on Aerospace and Electronic Systems.
21. Reviewer, IEEE Transactions on Artificial Intelligence.
22. Reviewer, IEEE Transactions on Information Forensics and Security.
23. Reviewer, IEEE Transactions on Neural Systems and Rehabilitation Engineering.
24. Reviewer, IEEE Transactions on Automation Science and Engineering.
25. Reviewer, IEEE Transactions on Services Computing.
26. Reviewer, IEEE Transactions on Components, Packaging and Manufacturing Technology.
27. Reviewer, IEEE Transactions on Industrial Informatics.
28. Reviewer, IEEE Geoscience and remote sensing letters.
29. Reviewer, IEEE/ASME Transactions on Mechatronics.
30. Reviewer, IEEE Access.
31. Reviewer, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing.
32. Reviewer, Biomedical Signal Processing and Control (Elsevier).
33. Reviewer, Computers and Electrical Engineering (Elsevier).
34. Reviewer, Computers and Electronics in Agriculture (Elsevier).
35. Reviewer, Water Research (Elsevier).
36. Reviewer, Engineering Science and Technology (Elsevier).
37. Reviewer, Pattern Recognition (Elsevier).
38. Reviewer, Nuclear Engineering and Technology (Elsevier).
39. Reviewer, Heliyon (Elsevier).
40. Reviewer, Optik-International Journal for light Electron Optics (Elsevier).
41. Reviewer, Computer Methods and Programs in Biomedicine Update (Elsevier).
42. Reviewer, Expert Systems with Applications (Elsevier).
43. Reviewer, Journal of King Saud University: Engineering Sciences (Elsevier).
44. Reviewer, Ecological Informatics (Elsevier).
45. Reviewer, Digital Signal Processing (Elsevier).
46. Reviewer, Optics and Lasers in Engineering (Elsevier).
47. Reviewer, Marine Pollution Bulletin (Elsevier).
48. Reviewer, Signal Processing: Image Communication (Elsevier).
49. Reviewer, Cold Regions Science and Technology (Elsevier).
50. Reviewer, Alexandria Engineering Journal (Elsevier).
51. Reviewer, Scientific African (Elsevier).
52. Reviewer, Infrared Physics & Technology (Elsevier).
53. Reviewer, Measurement (Elsevier).
54. Reviewer, Journal of Cleaner Production (Elsevier).
55. Reviewer, Engineering Applications of Artificial Intelligence (Elsevier).
56. Reviewer, Image and Vision Computing (Elsevier).

57. Reviewer, Journal of Cleaner Production (Elsevier).
58. Reviewer, International Journal of Applied Earth Observation and Geoinformation (Elsevier).
59. Reviewer, International Society for Photogrammetry and Remote Sensing (ISPRS) (Elsevier).
60. Reviewer, Computers in Industry (Elsevier).
61. Reviewer, Ecological Engineering (Elsevier).
62. Reviewer, Neurocomputing (Elsevier).
63. Reviewer, EURASIP Journal on Advances in Signal Processing (Springer).
64. Reviewer, Journal of Institution of Engineers (India): Series B (Springer).
65. Reviewer, CSI Transactions on ICT (Springer).
66. Reviewer, International Journal of Automation and Computing (Springer).
67. Reviewer, The Visual Computer (Springer).
68. Reviewer, Artificial Intelligence Review (Springer).
69. Reviewer, Advances in Computational Intelligence (Springer).
70. Reviewer, Complex and Intelligent Systems (Springer).
71. Reviewer, Journal of Ambient Intelligence and Humanized Computing (Springer).
72. Reviewer, IET Image Processing (Wiley).
73. Reviewer, International Journal of Intelligent Systems (Wiley).
74. Reviewer, IET Electronics Letters (Wiley).
75. Reviewer, IET Circuits, Devices & Systems (Wiley).
76. Reviewer, Stat (Wiley).
77. Reviewer, Computational Intelligence, an International Journal (Wiley).
78. Reviewer, IETE Journal of Research (Taylor & Francis).
79. Reviewer, International Journal of Remote Sensing (Taylor & Francis).
80. Reviewer, Geocarto International (Taylor & Francis).
81. Reviewer, The Imaging Science Journal (Taylor & Francis).
82. Reviewer, Photogrammetric Record (Taylor & Francis).
83. Reviewer, Journal of Spatial Science (Taylor & Francis).
84. Reviewer, Cogent Engineering (Taylor & Francis).
85. Reviewer, Mathematical Problems in Engineering (Hindawi).
86. Reviewer, International Journal of Distributed Sensor Networks (Hindawi).
87. Reviewer, Advances in Computer Engineering (Hindawi).
88. Reviewer, International Journal of Computational Vision and Robotics (Inderscience).
89. Reviewer, International Journal of Automation and Control (Inderscience).
90. Reviewer, Remote Sensing (MDPI).
91. Reviewer, Sensors (MDPI).
92. Reviewer, Frontiers in Earth Science (Frontiers).
93. Reviewer, Mechatronics Systems and Control (ACTA Press).
94. Reviewer, AIMS Mathematics.
95. Reviewer, Journal of Applied Remote Sensing (SPIE).
96. Reviewer, Journal of Electronic Imaging (SPIE).
97. Reviewer, Transactions of Nanjing University of Aeronautics and Astronautics.

98. Reviewer, F1000Research.
99. Reviewer, PeerJ Computer Science.
100. Reviewer, Journal of Electronic Imaging.

B. Conferences

1. Member, Technical Program Committee, 8th World Engineering Conference on Contemporary Technologies (WECON 2025), 10th-11th October 2025, Chitkara University, Punjab, India.
2. Member, Technical Program Committee, 13th International Conference on Contemporary Engineering and Technology 2025 (ICCET), 19th – 20th September 2025, Prince Shri Venkateshwara Padmavathy Engineering College, Chennai, India.
3. Member, Technical Program Committee, 1st International Conference on Electronics and Computing, Communication Networking Automation Technologies (ICEC2NT - 2025), 4th – 5th September, 2025, Pune, India.
4. Member, Technical Program Committee, 4th International Conference on Mechatronics and Mechanical Engineering (ICMME 2025), 22nd-24th August 2025, Dalian, China.
5. Member, Technical Program Committee, 45th International Geoscience and Remote Sensing Symposium (IGARSS 2025), 3rd – 8th August 2025, Brisbane, Australia.
6. Member, Technical Program Committee, 8th International Conference on Machine Learning and Machine Intelligence (MLMI 2025), 25th -27th July 2025, Ritsumeikan University, Kyoto, Japan.
7. Member, Technical Program Committee, 5th International Conference on Electrical, Computer and Energy Technologies (ICECET 2024), 3rd – 6th July 2025, Paris, France.
8. Member, Technical Program Committee, International Joint Conference on Neural Networks (IJCNN 2025), 30th June – 5th July 2025, Rome, Italy.
9. Member, Technical Program Committee, 7th Asia Symposium on Image Processing (ASIP 2025), 13th – 15th June 2025, Tsukuba University, Tsukuba, Japan.
10. Member, Technical Program Committee, International Workshop on Advanced Sensing and Geo-Spatial Intelligence (ASGT 2025), 22nd-24th August 2025, Nanchang, China.
11. Member, Technical Program Committee, International Conference on “Recent Advancements in AI, Computational Intelligence, and Inclusive Technologies” (ICRAIC2IT-2025), 2nd-3rd May 2025, Vijayawada, India.
12. Member, Technical Program Committee, 50th IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 6th – 8th April 2025, Hyderabad, India.
13. Member, Advisory Committee, 5th International Conference On Emerging Trends And Technologies On Intelligent Systems (ETTIS 2025), 19th - 21st March 2025, Centre for Development of Advanced Computing (CDAC), India
14. Member, Technical Program Committee, 5th International Conference On Emerging Trends And Technologies On Intelligent Systems (ETTIS 2025), 19th - 21st March 2025, Centre for Development of Advanced Computing (CDAC), India
15. Member, Technical Program Committee, 3rd IEEE International Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation

- (IATMSI-2025), 6th - 8th March 2025, Atal Bihari Vajpayee Indian Institute of Information Technology and Management (ABV-IIITM), Gwalior, Madhya Pradesh, India.
16. Member, Technical Program Committee, 3rd International Conference On Intelligent Systems, Advanced Computing And Communication (ISACC 2024), 27th -28th February 2025, Assam University, Silchar, India.
 17. Member, Technical Program Committee, 3rd IEEE International Conference on Industrial Electronics: Developments & Applications (ICIDeA 2025), 21st – 22nd February 2025, KIIT School of Electrical Engineering, Bhubaneswar, India.
 18. Member, Technical Program Committee, 9th Edition of Computer Vision and Image Processing (CVIP) Conference, 19th – 21st December 2024, Indian Institute of Information Technology Design and Manufacturing (IIITDM Kancheepuram), Chennai, India.
 19. Member, Local Organizing Committee, 6th International Conference on Innovative Product Design and Intelligent Manufacturing Systems (IPDIMS 2024), 4th – 5th December 2024, National Institute of Technology, Rourkela, India.
 20. Member, Technical Program Committee, 6th Asia Digital Image Processing Conference, 14th – 16th December, 2024, Japan.
 21. Member, Technical Program Committee, 3rd International Conference on Automation, Robotics and Computer Engineering (ICARCE-2024), 17th – 18th December 2024, Online.
 22. Member, Technical Program Committee, 4th International Conference on Artificial Intelligence, Information Processing and Cloud Computing (AIIPCC 2024), 13th – 15th December 2024, Sanya, China.
 23. Member, Technical Program Committee, International Conference on Electrical and Computer Engineering Researches (ICECER 2024), 4th – 6th December 2024, Gaborone, Botswana.
 24. Member, Technical Program Committee, 6th International Conference on Innovative Product Design and Intelligent Manufacturing Systems (IPDIMS 2024), 4th – 5th December 2024, Rourkela, India.
 25. Member, Publicity Chair, 17th International Conference on International Conference on Security of Information and Networks (SINCONF-2024), 2nd – 4th December 2024, Sydney, Australia.
 26. Member, Technical Program Committee, 17th International Conference on International Conference on Security of Information and Networks (SINCONF-2024), 2nd – 4th December 2024, Sydney, Australia.
 27. Member, Technical Program Committee, 11th IEEE UP Section International Conference On Electrical, Electronics And Computer Engineering (UPCON-2024), 29th November – 1st December 2024, Lucknow, India.
 28. Member, Technical Program Committee, 4th International Conference on Applied Electromagnetics, Signal Processing & Communication (AESPC 2024), 29th – 30th November 2024, Bhubaneswar, India.
 29. Member, Technical Program Committee, 1st International Conference on Smart Technologies for Sustainable Development Goals (ICSTSDG), 06th - 08th November 2024, Chennai, India.

30. Member, Technical Program Committee, 10th International Conference on Fuzzy Systems and Data Mining (FSDM 2024), 5th – 9th November, 2024, Matsue, Japan.
31. Member, Technical Program Committee, 4th International Conference on Electrical, Computer, Electronics and Mechatronics Engineering (ICECCME 2024), 4th – 6th November, 2024, Maldives.
32. Member, Technical Program Committee, 8th International Conference on Computer Science and Application Engineering (CSAE), 18th - 20th October, 2024, Shanghai, China.
33. Member, Technical Program Committee, 3rd IEEE International Conference on Computer Vision and Machine Intelligence (IEEE-CVMI), 19th - 20th October, 2024, Prayagraj, India.
34. Member, Technical Program Committee, 13th International Conference on Recent Challenges in Engineering and Technology (ICRCET-24), 27th-28th September, 2024, Chennai, India.
35. Member, Technical Program Committee, 5th International Conference on Advanced in Electrical Engineering and Computer Applications (AEECA2024), 16th - 18th August, 2024, Dalian, China.
36. Member, Technical Program Committee, International Conference on Data Analytics and Insights (ICDAI-2024), 25th – 27th July, 2024, Techno International New Town, Kolkata, India.
37. Member, Technical Program Committee, 6th International Conference on Machine Learning and Computing (ACMLC-2024), 26th – 28th July, 2024, Bangkok, Thailand.
38. Member, Technical Program Committee, International Conference on Electrical, Computer and Energy Technologies (ICECET 2024), 25th – 27th July, 2024, Sydney, Australia.
39. Member, Technical Program Committee, IEEE International Conference on Smart Power Control and Renewable Energy (ICSPCRE 2024), 19th – 21st July, 2024, National Institute of Technology Rourkela, Odisha, India.
40. Member, Technical Program Committee, Asia Conference on Trends in Image Processing (ATIP-2024), 21st – 23rd June, 2024, London, United Kingdom.
41. Member, Technical Program Committee, 2nd International Conference on Communications, Computing and Artificial Intelligence (CCCAI 2024), 21st- 23rd June, 2024, Jeju, Korea.
42. Member, Technical Program Committee, 2024 International Conference on Intelligent Computing and Robotics, 12th – 14th April, 2024, Dalian, China.
43. Member, Technical Program Committee, International Conference on Cognitive Robotics and Intelligent Systems, 17th – 19th April, 2024, KPR Institute of Engineering and Technology, Coimbatore, India.
44. Member, Technical Program Committee, 11th International Conference on Advanced Computing (ADCO-2024), 23rd – 24th March, 2024, Sydney, Australia.
45. Member, Technical Program Committee, 11th International Conference on Bioinformatics and Bioscience (ICBB 2024), 20th – 21st January, 2024, Zurich, Switzerland.

46. Member, Technical Program Committee, 3rd International Conference on Control, Instrumentation, Energy & Communication (CIEC24), 25th – 27th January, 2024, University of Calcutta, India.
47. Member, Technical Program Committee, 4th International Conference on Computing and Information Technology (COIT 2024), 27th – 28th January, 2024, Copenhagen, Denmark.
48. Member, Technical Program Committee, International Conference on Intelligent Systems and Embedded Design (ISED-2023), 15th – 17th December, 2023, DIT University, Dehradun, India.
49. Member, Technical Program Committee, 20th India Council International Conference (INDICON) – 2023, 14th - 17th December, 2023, National Institute of Technology Warangal, India.
50. Member, Technical Program Committee, 3rd IEEE International Conference on Smart Technologies for Power, Energy and Control (STPEC) 10th – 13th December, 2023.
51. Member, Technical Program Committee, 2nd International Conference on Innovations in Data Analytics (ICIDA 2023), 29th - 30th November, 2023, Eminent College of Management and Technology, Kolkata, India.
52. Member, Technical Program Committee, 2023 International Conference on Advance in Artificial Intelligence and Applications (AAIA 2023), 19th - 20th November, 2023, Wuhan, China.
53. Member, Technical Program Committee, 5th International Conference on Intelligent Circuits and Systems (ICICS 2023), 12th – 13th October, 2023, Lovely Professional University, India.
54. Member, Technical Program Committee, IEEE 3rd International Conference on Sustainable Energy and Future Electric transportation (SEFET), 9th – 12th August, 2023, Siksha 'O' Anusandhan University, Bhubaneswar, India.
55. Member, Technical Program Committee, 2nd International Conference on Machine Learning Deep Learning Computational Intelligence for Wireless Communication (MDCWC2023), 22nd – 24th June, 2023, National Institute of Technology Tiruchirappalli, India.
56. Member, Technical Program Committee, 4th International Conference on Communication, Circuits, and Systems (iC3S 2023), 26th – 28th May 2023, Kalinga Institute of Industrial Technology, Bhubaneswar, India.
57. Member, Technical Program Committee, International Conference on Data Analytics and Insights (ICDAI-2023), 11th – 13th May, 2023, Techno International New Town, Kolkata, India.
58. Member, Technical Program Committee, 3rd International Conference on Emerging Trends and Technologies on Intelligent Systems (ETTIS 2023), 23rd – 24th February, 2023, Centre for Development of Advanced Computing (CDAC) Noida in association with the Automatic Control, Computers & Electronics Department, Faculty of Mechanical and Electrical Engineering, Petroleum-Gas University of Ploiesti, Romania, and the University of Haute-Alsace, France, India.
59. Member, Program Committee, 3rd International Conference on Internet of Things & Embedded Systems (IoTE 2022), 23rd - 24th December, 2022, Sydney, Australia.
60. Member, Technical Program Committee, International Conference on Automation, Robotics and Computer Engineering (ICARCE-2022), 16th - 17th December, 2022, Huazhong University of Science and Technology, Wuhan, China.

61. Member, Technical Program Committee, 9th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON-2022), 2nd - 4th December, 2022, Indian Institute of Information Technology Allahabad, India.
62. Member, Technical Program Committee, International Conference on Innovations in Data Analytics, 29th - 30th November, 2022, Eminent College of Management and Technology (ECMT), West Bengal, India.
63. Member, Technical Program Committee, 2022 IEEE Silchar Subsection Conference, 4th - 6th November, 2022, National Institute of Technology Silchar, Assam, India.
64. Member, Technical Program Committee, 7th IAPR International Conference on Computer Vision & Image Processing, 4th - 6th November, 2022, Visvesvaraya National Institute of Technology Nagpur, Nagpur, Maharashtra, India.
65. Member, Technical Program Committee, 2022 IEEE 2nd International Conference on Computer Science, Engineering and Applications, 8th September, 2022, Gandhi Institute of Engineering and Technology University, Gunupur, Odisha, India.
66. Member, Technical Program Committee, International Conference on Computer Vision and Machine Intelligence (CVMI-2022), 12th – 13th August, 2022, Department of Information Technology, Indian Institute of Information Technology Allahabad, India.
67. Member, Technical Program Committee, 7th Annual International Conference on Information System and Artificial Intelligence, 13th - 15th May, 2022, Wuhan, China.
68. Member, Technical Program Committee, International Conference on Advancements in Interdisciplinary Research (AIR-2022), 6th - 7th May, 2022, Motilal Nehru National Institute of Technology Allahabad, Prayagraj, India.
69. Member, National Advisory Committee, International Conference on Communication, Computing and Industrial Engineering (ICCCIE-2022), 26th - 27th April, 2022, IIIMT College of Engineering, Greater Noida, India.
70. Member, Technical Program Committee, International Conference on Recent Advancements and Innovation in Computing, Communications, and Information Technology (ICRAIC21T), 22nd - 24th April, 2022, NRI Institute of Technology, Agiripalli, India.
71. Member, Technical Program Committee, IEEE Bombay Section Signature Conference (IBSSC-2021), 18th – 20th November, 2021, ABV Indian Institute of Information Technology and Management, Gwalior, India.
72. Member, Technical Program Committee, 5th International Conference on Computer Science and Application Engineering (CSAE), 19th - 21st October, 2021, Sanya, China.
73. Member, Technical Program Committee, 2021 International Mobile, Intelligent and Ubiquitous Computing Conference (MIUCC), 26th – 27th May, 2021, Misr International University, Cairo, Egypt.
74. Member, Technical Program Committee, 2021 IEEE Second International Conference on Control, Measurement and Instrumentation (CMI), 8th - 10th January, 2021, Department of Applied Physics, University of Calcutta, Kolkata, India.
75. Member, Technical Program Committee, International Conference on IoT and its application (ICIA 2020), 26th – 27th December, 2020, National Institute of Technology, Jamshedpur, India.
76. Member, Technical Program Committee, Asia Digital Image Processing (ADIP) Conference, 18th – 20th December, 2020, Kyoto, Japan.

77. Member, Technical Program Committee, 5th IAPR International Conference on Computer Vision and Image Processing, 4th – 6th December, 2020, Indian Institute of Information Technology, Allahabad, India.
78. Member, Technical Program Committee, 5th IEEE International Conference on Recent Advances and Innovations in Engineering (ICRAIE 2020), 1st – 3rd December, 2020, Jaipur, India.
79. Member, Technical Program Committee, Workshop on Machine Learning Deep Learning and Computational Intelligence for Wireless Communication (MDCWC 2020), 22nd – 24th October, 2020, National Institute of Technology Tiruchirappalli, India.
80. Member, Technology Advisory Committee, International Conference on IoT, High Performance and Edge Computing (ICIHPE), 14th – 18th October 2020, Global Technology Forum, Chennai, Tamil Nadu, India.
81. Member, Technical Program Committee, International Conference on Contemporary Computing and Applications (IC3A 2020), 5th – 7th February, 2020, Dr. A.P.J. Abdul Kalam Technical University, Lucknow, India.
82. Member, Technical Review Committee, International Conference on Modeling, Simulation and Intelligent Computing (MoSICom), 29th – 31st January, 2020, Birla Institute of Technology & Science, Dubai.
83. Member, International Advisory Board, 24th World Conference on Applied Science, Engineering and Technology (WCASET), 26th – 27th November, 2019, Kuala Lumpur, Malaysia.
84. Member, Technical Programme Committee, International Conference on Computational Intelligence in Data Mining (ICCIDM 2014), 20th – 21st December, 2014, Veer Surendra Sai University of Technology (VSSUT), Burla, India.
85. Member, Technical Programme Committee, 9th IEEE International Conference on Industrial and Information Systems (ICIIS 2014), 15th – 17th December, 2014, Atal Bihari Vajpayee Indian Institute of Information Technology and Management, Gwalior, India.
86. Member, Technical Program Committee, International Conference on Computational Advancement in Communication Circuits and Systems (ICCACCS 2014), 30th October-1st November, 2014, Narula Institute of Technology, Kolkata, India.
87. Member, Technical Programme Committee, International Conference on Advances in Electronics, Computers and Communications (ICAECC 2014), 10th -11th October, 2014, Reva University, Bangalore, India.
88. Member, Technical Programme Committee, International Conference on Signal Processing and Integrated Networks (SPIN 2014), 20th – 21st February, 2014, Amity University, Noida, India.
89. Member, Technical Programme Committee, International Symposium on Knowledge-Intensive Software Engineering (KISE 2013), 22nd – 25th August, 2013, Mysore, India.
90. Member, Technical Program Committee, 2nd Students' Conference on Engineering and Systems (SCES-2013), 12th -14th April, 2013, Motilal Nehru National Institute of Technology Allahabad, Prayagraj, India.
91. Member, Technical Program Committee, 2nd International Conference on Soft Computing for Problem Solving (SocProS 2012), 28th – 30th December, 2012, Institute of Engineering and Technology, JK Lakshmipat University (JKLU), Jaipur, India.

92. Member, International Program Committee, 2nd World Congress on Information and Communication Technologies (WICT 2012), 30th October – 2nd November, 2012, Machine Intelligence Research Labs (MIR Labs) and Indian Institute of Information Technology and Management, Trivandrum, Kerala, India.
93. Member, Technical Program Committee, International Program Committee, Second International Conference on Digital Information and Communication Technology and its Applications (DICTAP 2012), 16th – 18th May, 2012, University of the Thai Chamber of Commerce(UTCC), Bangkok, Thailand.
94. Member, Technical Program Committee, Students' Conference on Engineering and Systems (SCES-2012), 16th -18th March, 2012, Motilal Nehru National Institute of Technology Allahabad, Prayagraj, India.
95. Member, Technical Program Committee, International Conference on Soft Computing for Problem Solving (SocProS 2011), 20th – 22nd December, 2011, Indian Institute of Technology Roorkee, Roorkee, India.
96. Member, Technical Program Committee, 8th IEEE International Conference on Information, Communications and Signal Processing (ICICS 2011), 13th – 16th December, 2011, Singapore.
97. Member, Technical Program Committee, International Program Committee, World Congress on Information and Communication Technologies (WICT 2011), 11th – 14th December, 2011, Machine Intelligence Research Labs (MIR Labs) and University of Mumbai, Mumbai, India.
98. Member, Technical Program Committee, National Advisory Committee, International Conference on Advances in Computing and Communications (ICACC 2011), April 2011, National Institute of Technology, Hamirpur, India.

11. ADMINISTRATIVE RESPONSIBILITY

1. **Chairperson**, International Students Cell, NIT Rourkela from Dec 2023 to till date.
2. **Head**, Career Development Center, NIT Rourkela from July 2019 to July 2022.
3. **Chairman**, Skill Hub Initiative Committee for the year 2022.
4. **Chairman**, Apex Committee, Formulation of SOP to bring back students for the year 2021.
5. **Member**, Fast Pace Programme Committee for the year 2020.
6. **Member**, Committee regarding Reallocation of Department Space from 2017 to till date.
7. **Member**, Biometric Machine Installation Committee from 2017 to till date.
8. **Member**, Academic Programme Oversight Committee for the institute from 2009 to 2012.
9. **Head**, Instrumentation Group of the department from 2013 to till date.
10. **Member**, Departmental Academic Programme Oversight Committee from 2021 to till date.
11. **Prof-in-Charge (PIC)**, Process Control Lab for the department from July 2009 to till date.
12. **Chairman**, Departmental Purchase Committee for the year 2017-2018, and 2023 to till date.
13. **Member**, Purchase Committee of the department from July 2014 to 2017, and 2019 to 2022.

14. **Member**, Department Research Committee from July 2014 to till date.
15. **Member**, Departmental Academic Committee from 2017 to till date.
16. **Prof-in-Charge (PIC)**, Virtual and Intelligent Instrumentation Lab for the department from Feb 2012 to till date.
17. **Faculty Advisor**, M. Tech (E&I) of the department from July 2012 to till date.
18. **Member**, Departmental Academic Committee from 2015 to till date.
19. **Member**, Department promotion subcommittee for non-teaching employees for the year 2019.
20. **Member**, Joint Seat Allocation Authority (JoSSA) Committee for the year 2017.
21. **Member**, Institute Standing Disciplinary Committee from 2015 to 2017.
22. **Member**, Purchase Committee for TEL Equipment from 2015 to 2016.
23. **Prof-in-Charge (PIC)**, Departmental Infrastructure from 2014 to 2016.
24. **Dept. Coordinator for Accreditation** for the year 2013-2014.
25. **Member**, Departmental Curriculum Development Committee for the year 2013-2014.
26. **Chairman (PG & R)** for the department for three consecutive years from 2010 to 2013.
27. **Teacher Guardian** of B. Tech (E&I) for the department for three consecutive years from 2009 to 2012.
28. **Prof-in-Charge (PIC)**, Direct Purchase for the department for two consecutive financial years from 2009 to 2011.
29. **Prof-in-Charge (PIC)**, Research Programme (UG) for the department for two consecutive years from 2009 to 2011.
30. **Prof-in-Charge (PIC)**, Training and Placement for the department for two consecutive years from 2009 to 2011.

12. ACADEMIC OUTREACH ACTIVITIES

1. **Executive Committee Member**, IEEE GRSS Kolkata Chapter, 2025.
2. **Expert Member** of the AICTE Expert Visit Committee, 2025.
3. **Expert** in the Interview Board for faculty selection at National Institute of Technology Agartala, 18th January 2024.
4. **Expert**, Academic Committee, Sambalpur University Institute of Information Technology, Burla, for the academic year 2023-24 to 2024-25.
5. **Nomination Chair**, IEEE GRSS Kolkata Chapter, 2024.
6. **Nomination Chair**, IEEE GRSS Kolkata Chapter, 2023.
7. **Expert Member**, Faculty Selection Committee, Department of Electronics and Instrumentation Engineering, Guru Ghasidas Vishwavidyalaya (A Central University), 25th October 2024, Bilaspur, Chhattisgarh.
8. **AICTE Expert** in Selection Committee, Harcourt Butler Technical University (HBTU), 13th – 17th September 2023.
9. **Expert Member** of the AICTE Expert Visit Committee, 2023.
10. **External Examiner**, Board of Studies, Department of Electronics and Instrumentation Engineering, Odisha University of Technology and Research (OUTR), 2023 to date.
11. **External Expert**, Project Staff Selection, Institute of Minerals & Materials Technology (IMMT), Bhubaneswar, India, 24th December 2022.

12. **Nomination Chair**, IEEE GRSS Kolkata Chapter, 2022.
13. **External Expert**, Board of Studies, Department of Electronics and Communication Engineering, Sambalpur University Institute of Information Technology, Odisha, India, 2021 to date.
14. **External Expert**, Faculty Selection Board, C V Raman Global University, Bhubaneswar, Odisha, India.
15. **Expert Member**, Selection Committee, Department of Electronics and Communication Engineering, Biju Patnaik University of Technology (BPUT), Rourkela, Odisha, India, 16th August 2022.
16. **External Examiner**, Department of Electronics and Instrumentation Engineering, Odisha University of Technology and Research (OUTR), Bhubaneswar, India, 29th July, 2022.
17. **External Examiner**, Department of Electronics and Communication Engineering, Indira Gandhi Institute of Technology, Sarang, India, 31st May, 2022.
18. **Expert Member**, Screening Committee, Department of Electronics and Computer Engineering, National Institute of Advanced Manufacturing Technology, Ranchi, India, 24th February, 2022.
19. **Session Chair** in 3rd Asian Digital Image Processing Conference, 17th – 19th December, 2021, Tokyo, Japan.
20. **Executive Committee Member**, IEEE GRSS Kolkata Chapter, 2021.
21. **Session Chair** in 2nd International Conference on Advanced Communication Technologies and Signal Processing (IEEE-ACTS), 15th – 17th December, 2021, National Institute of Technology, Rourkela, India.
22. **Session Chair** in 2021 IEEE Workshop on “Spatial Geoinformatics using Machine Learning Approaches,” GRSS Kolkata Chapter in collaboration with GRSS Bombay Chapter, 24th September, 2021, Kolkata, India.
23. **Expert Member**, Selection Committee, Department of Electronics and Telecommunication Engineering, Indira Gandhi Institute of Technology, Sarang, India, 3rd August, 2021.
24. **Expert Member**, Screening-cum-Scrutiny Committee, Biju Patnaik University of Technology (BPUT), Rourkela, Odisha, India, 9th July, 2021.
25. **Member**, Research Council of University (RCU), Biju Patnaik University of Technology (BPUT), Rourkela, Odisha, India, from April, 2021 to till date.
26. **AICTE Representative**, Board of Governors, Government College of Engineering, Keonjhar, Odisha, India, from April, 2021 to till date.
27. **Member**, Board of Studies, Birla Institute of Technology, Mesra, India, 2021 to till date.
28. **Primary Evaluator** for Toycathon 2021 conducted by Ministry of Education’s Innovation Cell, India.
29. **Session Chair** in 9th International Conference on Computing, Communication and Sensor Networks (CCSN 2020), 17th – 18th October, 2020, Kolkata, India.
30. **Session Chair** in International Symposium on Smart Electronics Systems (IEEE-iSES, formerly IEEE-iNIS), 16th – 18th December, 2019, National Institute of Technology, Rourkela, India.

31. **Expert Member**, Board of Studies Meeting for Finalization of Syllabus of Instrumentation and Electronics Engineering on 9th March, 2019, College of Engineering and Technology, Bhubaneswar, India.
32. **Expert Member**, Selection Committee, Biju Patnaik University of Technology (BPUT), Odisha, India, 2018.
33. **Session Chair** in National Conference on "VLSI Design, Signal Processing, Image Processing Communication and Embedded Systems", 19th July, 2018, Jawaharlal Technological University, Kakinada, Andhra Pradesh, India.
34. **External Expert** for the Final Evaluation of B.Tech. Projects by Siksha 'O' Anusandhan University, Bhubaneswar, India, 14th -15th May, 2016.
35. **Expert Member** in Board of Studies Meeting for finalization of course structure of Instrumentation and Electronics Engineering Discipline by Biju Patnaik University of Technology, Odisha, India, 30th April - 1st May, 2016.
36. **External Expert** on the occasion of Research Week 2016, 16th - 18th March, 2016, Gujarat Technological University, Ahmedabad, India.
37. **External Expert** for Principals of Govt. Polytechnic and ITI, Bihar Public Service Commission, Patna, 2015.
38. **Industrial Track Chair and Session Chair** in International Conference on “Advanced Computing, Networking and Informatics”, 24th - 26th June, 2014, Kolkata, India.
39. **Academic Visitor** to the Department of Electrical and Computer Engineering, San Diego State University, USA, 2013.
40. **Session Chair** in International Conference on "Emerging Trends, Technology and Research", 21st – 22nd September, 2013, Nagpur, India.
41. **Session Chair** in International Conference on "Advance Computing and Communication", 16th -17th March, 2013, Ranchi, India.
42. **Academic Visitor** to the Institute for Automation, University of Leoben, Austria by Prof. Paul O' Leary from 8th -12th November, 2010.

13. CONFERENCE ORGANIZED

- **Co-Chair**, Award Committee, 2025 IEEE India Geoscience and Remote Sensing Symposium (InGARSS 2025), 10th – 13th December 2025, IIIT Bhubaneswar, Odisha, India.
- **Sponsorship Chair**, 4th IEEE International Conference on Computer Vision and Machine Intelligence (CVMI 2025), 12th – 13th October, 2025, National Institute of Technology, Rourkela, India.
- **Convenor**, National Conference on Intelligent Systems, IoT, and Wireless Communication for the Society (IIWCS-2024), 16th -17th February, 2024, National Institute of Technology, Rourkela, India.
- **General Chair**, International Conference on Electronic Systems (ICES -2011), 7th – 9th January, 2011, National Institute of Technology, Rourkela, India.

14. TECHNICAL TALKS

1. Invited as Keynote Speaker in 3rd International Conference on Automation, Robotics and Computer Engineering (ICARCE 2024), held during 18th – 19th December, 2025 (Online).
2. Invited as Keynote Speaker in 15th International Conference on Electronics, Communications and Networks (CECNet 2025), held during 24th-26th November, 2025, Hong Kong.
3. Invited as Keynote Speaker in 2nd Global Summit on Analog Electronics, Sensors and Signal Processing (GSAESS 2025), held during 08th – 10th September, 2025, Kuala Lumpur, Malaysia.
4. Invited as Keynote Speaker in 3rd International Conference on Mechatronics and Mechanical Engineering (ICMME2024) held during 24th– 22th August, 2025, Dalian, China.
5. Invited as Keynote Speaker in the International Workshop on Advanced Sensing and Geo-Spatial Intelligence (ASGT 2025) held during 22nd-24th August, 2025, Nanchang, China.
6. Invited as Keynote Speaker in 4th International Conference on Mechatronics and Mechanical Engineering (ICMME 2025) held during 22nd-24th August, 2025, Dalian, China.
7. Invited as Keynote Speaker 6th International Conference on Advances in Electrical Engineering and Computer Applications (AEECA 2025) held during August 22-24, 2025, Dalian, China.
8. Invited as Keynote Speaker in 2nd International Conference on Intelligent Computing and Robotics (ICICR 2025) held during May 16-18, 2025, Dalian, China.
9. Invited to deliver a Talk for the Two-Week Faculty Development Program organized by Sambalpur University Institute of Information Technology (SUIIT) during 24th February - 7th March 2025, Odisha, India.
10. Invited as Keynote Speaker in 3rd International Conference on Automation, Robotics and Computer Engineering (ICARCE 2024), held during 17th – 18th December, 2024 (Online).
11. Invited to deliver a Talk in 6th Asia Digital Image Processing Conference, 14th - 16th December, 2024, Japan.
12. Invited to deliver a Talk in 5th International Conference on Advanced in Electrical Engineering and Computer Applications (AEECA2024), 16th -18th August, 2024, Dalian, China.
13. Invited to deliver a Talk in 6th Asia Conference on Machine Learning and Computing (ACMLC-2024), 26th -28th July, 2024, Bangkok, Thailand.
14. Invited to deliver a Talk in Online Faculty Development Programme (FDP) on Implementing IoT and Deep Learning Applications on Edge Devices, 15th July 2024 – 25th July, 2024, Electronics & ICT Academy, NIT Warangal.
15. Invited to deliver a Talk in Asia Conference on Trends in Image Processing (ATIP-2024), 21st – 23rd June, 2024, London, United Kingdom.

16. Invited as Keynote Speaker in 3rd International Conference on Mechatronics and Mechanical Engineering (ICMME2024) held during 24th– 22th May, 2024, Xi'an, China.
17. Invited to deliver a Talk in All India National Seminar on Artificial Intelligence and Machine Learning in Materials Engineering for Environment (AIMLMEE-2024), 18th - 19th May, 2024, The Institution of Engineerings (India), National Institute of Technology Rourkela Campus, Rourkela, India.
18. Invited as Keynote Speaker in National Workshop on “Remotely Sensed Data Analysis for Sustainable Environment (RSDASE)” organized jointly by IIIT Bhubaneswar, and IEEE Geoscience & Remote Sensing Society (Kolkata Chapter) held during 10th – 11th May, 2024, Bhubaneswar, India.
19. Invited as Keynote Speaker in SERB sponsored Two Days National Conference on Machine Learning in Healthcare Applications (MLHA 2024) held during 18th -19th April, 2024, Guru Nanak Institute of Technology, Kolkata, India.
20. Invited to deliver a Guest Lecture to Asian Academic Institutions, 2024.
21. Invited to deliver a Talk in 5th Asia Digital Image Processing Conference, 15th - 17th December, 2023, Japan.
22. Invited to deliver a Talk in a Workshop on “Machine Learning: An Industry Academia Initiative, held during 11th - 15th December, 2023, Department of Electronics and Communication Engineering, National Institute of Technology Rourkela, India.
23. Invited to deliver a Talk on “Video-based Intrusion Detection System using Deep Learning Techniques” at the 3rd International Conference on Engineering, Social Sciences and Humanities (ICESSU 2023) organized by the Institute for Engineering Research and Publication (IFERP) at Manila, Philippines on 30th March 2023.
24. Invited to deliver a Talk on “Sensors and Actuators for Internet of Things (IoT)” in AICTE-ATAL Sponsored Two-week Faculty Development Program on Hardware Security for Internet of Things on 22nd November 2022, Department of Electronics and Communication Engineering, National Institute of Technology, Rourkela, India.
25. Invited to deliver Talks on “Intelligent Video Surveillance System using Deep Learning Techniques” to Faculties and Students of the Department of Information Technologies and Big Data Analysis at Financial University under the Government of the Russian Federation on 27th October 2022 and 23rd May 2022 respectively.
26. Invited to deliver a Talk in International Conference on Sustainability: Integrated and Scientific Approach held on 4th August, 2022, University of Mumbai, Mumbai, Maharashtra.
27. Invited to deliver a Talk on “Video based Intrusion Detection System using Deep Learning Techniques” in International E-Conference on Big Data, Data Mining and AI held on 27th June, 2022.
28. Invited to deliver a Talk on “Sensors and Actuators” in the Professional Development Programme on IoT and Machine Intelligence for Industry 4.0 held on 7th June 2022, Department of Electronics and Communication Engineering, National Institute of Technology, Rourkela.
29. Invited to deliver a Talk on “How to Improve Training and Placement Cell” in Skill Academy Campus Program by Quantel.in and Testbook held on 14th May, 2022.

30. Invited to deliver a Talk in 3rd Asian Digital Image Processing Conference held during 17th – 19th December, 2021, Tokyo, Japan.
31. Invited to deliver a Talk on “Image-based non-invasive dimension measurement of real-world objects” in AICTE Training & Learning (ATAL) online Faculty Development Programme (FDP) on Role of Measurement & Control in Automation in Department of Electrical and Electronics Engineering, Birla Institute of Technology, Mesra, India, 29th June, 2021.
32. Invited to deliver a Talk on “3D Surface Reconstruction of Real-World Object”, Department of Electronics Engineering, Madhav Institute of Technology & Science, Gwalior, India, 21st November, 2020.
33. Invited to deliver a Talk in ATAL Sponsored Faculty Development Programme on "Machine Learning for Smart City Applications " held during 1st - 5th October, 2020, School of Electronics, Kalinga Institute of Industrial Technology, Bhubaneswar, India.
34. Invited to deliver a Talk in TEQIP-III Sponsored National Workshop on “Applications of NI LabVIEW in Electronics and Communication Engineering (ANECE-2019)” held during 7th – 12th June, 2019, Department of Electronics and Communication Engineering, National Institute of Technology Jamshedpur, Jharkhand, India.
35. Invited to deliver a Talk in TEQIP - III Sponsored Faculty Development Programme on "Signal Processing in Instrumentation and Communication - Recent Advances" held during 25th - 30th March, 2019, College of Engineering and Technology, Bhubaneswar, India.
36. Invited to deliver a Talk in National Conference on VLSI Design, Signal Processing, Image Processing, Communication and Embedded Systems held on 19th July, 2018, Jawaharlal Technological University, Kakianada, Andhra Pradesh, India.
37. Invited to deliver a Talk in AICTE Sponsored Faculty Development Programme on "Application of Advanced Signal Processing for Operation Control and protection of Modern Power System with Integration of Large Scale Sustainable Energy Sources" held on 29th November, 2017, Indira Gandhi Institute of Technology, Sarang, India.
38. Invited to deliver a Talk in QIP Short Term Course on "Distributed Estimation and Control in Networked Systems" on 10th February, 2017, Veer Surendra Sai University of Technology, Burla, Odisha, India.
39. Invited to deliver a Talk in TEQIP Sponsored Faculty Development Programme on "Recent Advances in Control and Instrumentation" held during 21st - 26th December, 2015, College of Engineering and Technology, Bhubaneswar, India.
40. Invited to deliver a Talk in National Workshop on “Recent Advancements in Computer Science and Electronics Engineering for Information Technology" held during 15th – 17th January, 2015, Sambalpur University Institute of Information Technology, Sambalpur, Odisha, India.
41. Invited as Keynote Speaker in International Conference on Emerging Trends, Technology and Research held during 21st – 22nd September, 2013, Nagpur, India.
42. Invited to deliver a Talk in National Conference on Emerging Trends in Information Technology on 17th August 2013, Lakshmi Narain College of Technology, Bhopal, India.

43. Invited to deliver Talk in International Conference on Advance Computing and Communication held during 16th – 17th March, 2013, Ranchi, India.
44. Invited to deliver a Talk in the "Paper Meeting" of the Institution of Engineers (India) on 27th July, 2012, National Institute of Technology Rourkela, India.
45. Invited to deliver a Talk in National Conference on “Advancements in Signal Processing and Integrated Networks” held during 24th - 25th February, 2011, Amity School of Engineering and Technology, Noida, India.

15. CONFERENCES ATTENDED

1. 22nd International Symposium on Communications and Information Technologies (ISCIT), 16th - 18th October, 2023, Sydney, **Australia**.
2. IEEE International Conference on Emerging Technologies and Innovative Business Practices for the Transformation of Societies (IEEE EmergiTech 2016), 1st – 6th August 2016, **Mauritius**.
3. International Conference on Computer Communication and Informatics (ICCCI), 4th – 6th January, 2013, Chennai, India.
4. International Conference on Emerging Trends, Technology and Research (ICETTR 2013), 21st – 22nd September, 2013, Nagpur, India.
5. IEEE 8th International Conference on Information, Communications and Signal Processing (ICICS 2011), 13th -16th December, 2011, **Singapore**.
6. IEEE International Conference on Virtual Environment, Human-Computer Interfaces and Measurement Systems (VECIMS 2010), 6th – 8th September, 2010, Taranto, **Italy**.
7. International Conference on Instrumentation (ICI 2010), 21st – 23rd January, 2010, Pune, India.
8. IEEE Symposium Series on Computational Intelligence (SSCI 2009), 30th March – 2nd April, 2009, Nashville, TN, **USA**.

16. PUBLICATIONS

A. Books / Edited Books

- [1] Ashutosh Kumar Dubey, Abhishek Kumar, Fausto Pedro García Márquez, Arun Lal Srivastav, **Umesh Chandra Pati**, and Vicente García-Díaz, "Computer Vision and Machine Intelligence for Renewable Energy Systems", Elsevier, ISBN print: 978-0-443-28947-7, 2024. (DOI: 10.1016/C2023-0-50068-0).
- [2] **Umesh Chandra Pati**, "3-D Surface Geometry and Reconstruction: Developing Concepts and Applications", IGI Global, ISBN print: 978-1-46660-114-7, 2012 (DOI: 10.4018/978-1-4666-0113-0).
- [3] **Umesh Chandra Pati**, Pranab Kumar Dutta, and Alok Barua, "3-D Reconstruction with Feature Level Fusion: Using Range and Intensity Images of an Object", Lambert Academic Publishing, ISBN print: 978-1-46660-113-0, 2010.

B. Book Chapters

- [1] Prajnyajit Mohanty, **Umesh Chandra Pati**, and Kamalakanta Mahapatra, "EnSlight: Energy Autonomous LoRaWAN based, IoT-enabled, Real-Time Street Light Management System for Smart Cities and Smart Villages" in *Artificial Intelligence Techniques for Sustainable Development*, 2024, CRC Press (ISBN print: 9781032774954). (Accepted).
- [2] Prajnyajit Mohanty, Krityeeprava Subhadarshini, Rashmiranjan Nayak, **Umesh Chandra Pati**, and Kamalakanta Mahapatra, "Exploring data-driven multivariate statistical models for the prediction of solar energy" In *Computer Vision and Machine Intelligence for Renewable Energy Systems*, 2024, pp. 85-101, 2024, Elsevier (DOI: 10.1016/B978-0-443-28947-7.00005-7).
- [3] Rashmiranjan Nayak, Prashant Dwivedi, and **Umesh Chandra Pati**, "YOLO-IP: An Efficient and Robust Deep Learning Framework to Detect Insect Pests for Agricultural Applications." *Artificial Intelligence Tools and Technologies for Smart Farming and Agriculture Practices*, pp. 133-158, 2023, IGI Global (DOI: 10.4018/978-1-6684-8516-3.ch008).
- [4] Naba Krushna Sabat, Rashmiranjan Nayak, **Umesh Chandra Pati**, and Santos Kumar Das, "A Deep Learning-Based Vector Autoregressive-Gated Recurrent Unit Hybrid Model for Long-Term Forecasting of Weather Parameters for Smart Farms." In *Artificial Intelligence Tools and Technologies for Smart Farming and Agriculture Practices*, pp. 159-183, 2023, IGI Global (DOI: 10.4018/978-1-6684-8516-3.ch009).
- [5] Rashmiranjan Nayak, Mogarala Tejoyadav, Prajnyajit Mohanty, and **Umesh Chandra Pati**, "Water Quality Time-Series Modeling and Forecasting Techniques," In R. Gupta, A. Jain, J. Wang, V. Singh, & S. Bharti (Ed.), *Artificial Intelligence of Things for Weather Forecasting and Climatic Behavioral Analysis*, pp. 177-200, 2022, IGI Global (DOI: <https://doi.org/10.4018/978-1-6684-3981-4.ch012>).

C. International Journals

- [1] Rashmiranjan Nayak, **Umesh C. Pati**, and Santos Kumar Das, "A Panoramic Review on Cutting-Edge Methods for Video Anomaly Localization" in *IEEE Access*, Dec. 2024 (DOI: <https://doi.org/10.1109/ACCESS.2024.3510039>).
- [2] Prajnyajit Mohanty, **Umesh C. Pati**, K. Mahapatra and S. P. Mohanty, "bSlight 2.0: Battery-free Sustainable Smart Street Light Management System," in *IEEE Transactions on Sustainable Computing*, pp. 1-15, Jun. 2024 (DOI: 10.1109/TSUSC.2024.3408630).
- [3] Prajnyajit Mohanty, **Umesh C. Pati**, K. Mahapatra and S. P. Mohanty, "bSlight: Battery-less Energy Autonomous Street Light Management System for Smart City," in *IEEE Transactions on Sustainable Computing*, Vol. 9, No. 1, pp. 100-114, Jan. – Feb. 2024 (DOI: 10.1109/TSUSC.2023.3310884).
- [4] Rashmiranjan Nayak, **Umesh C. Pati**, and Santos Kumar Das, "A comprehensive review of datasets for detection and localization of video anomalies: a step towards data-centric artificial intelligence-based video anomaly detection," in *Multimedia Tools and Applications*, Dec. 2023 (DOI: <https://doi.org/10.1007/s11042-023-17889-z>).

- [5] V. N. Sujit Vudattu and **Umesh C. Pati**, "Change Detection in Synthetic Aperture Radar Images based on a Spatial Pyramid Pooling Attention Network (SPPANet)," in *Remote Sensing Letters*, Vol. 14, No. 11, pp. 1139-1149, Oct. 2023 (DOI: /10.1080/2150704X.2023.2273244).
- [6] Naba Krushna Sabat, Rashmiranjan Nayak, Harshit Srivastava, **Umesh C. Pati**, and Santos Kumar Das, "Prediction of Meteorological Parameters Using Statistical Time Series Models: A Case Study," in *Internal Journal of Global Warming*, Vol. 31, No. 1, pp. 128-149, Aug. 2023 (DOI: 10.1504/IJGW.2023.133547).
- [7] Mayank Mishra and **Umesh C. Pati**, "A classification framework for Autism Spectrum Disorder detection using sMRI: Optimizer based ensemble of deep convolution neural network with on-the-fly data augmentation," in *Biomedical Signal Processing and Control*, Vol. 84, pp. 1-13, Jul.2023 (DOI: 10.1016/j.bspc.2023.104686)
- [8] Naba Krushna Sabat, **Umesh C. Pati**, and Santos Kumar Das, "ABTCN: an efficient hybrid deep learning approach for atmospheric temperature prediction," in *Environmental Science and Pollution Research*, pp. 1-18, 2023 (DOI: 10.1007/s11356-023-27985-0).
- [9] Sourabh Paul and **Umesh C. Pati**, "High-resolution optical-to-SAR image registration using mutual information and SPSA optimization," in *IET Image Processing*, Vol. 15, No. 6, pp. 1319-1331, May. 2021 (DOI: <https://doi.org/10.1049/ipr2.12107>).
- [10] Sourabh Paul and **Umesh C. Pati**, "A comprehensive review on remote sensing image registration." in *International Journal of Remote Sensing*, Vol. 42, No. 14, pp. 5400-5436, Apr. 2021 (DOI: 10.1080/01431161.2021.1906985).
- [11] Rashmiranjan Nayak, **Umesh C. Pati**, and Santos Kumar Das, "A comprehensive review on deep learning-based methods for video anomaly detection," in *Image and Vision Computing*, Vol. 106, pp. 1-19, Feb. 2021 (DOI: <https://doi.org/10.1016/j.imavis.2020.104078>).
- [12] Divya S. V., Sourabh Paul and **Umesh C. Pati**, "Structure tensor-based SIFT algorithm for SAR image registration," in *IET Image Processing*, Vol. 14, No. 5, pp. 929-938, Apr. 2020 (DOI: 10.1049/iet-ipr.2019.0568).
- [13] Sankata B. Prusty, Sridhar Seshagiri, **Umesh. C. Pati** and Kamala K. Mahapatra, "Sliding mode control of coupled tank systems using conditional integrators," in *IEEE/CAA Journal of Automatica Sinica*, Vol. 7, No. 1, pp. 118-125, Jan. 2020 (DOI: 10.1109/JAS.2019.1911831).
- [14] Sourabh Paul and **Umesh C. Pati**, "Automatic Optical-to-SAR Image Registration using a Structural Descriptor", *IET Image Processing*, Vol. 14, pp. 62-73, Jan. 2020 (DOI: 10.1049/iet-ipr.2019.0389).
- [15] Achala Pandey and **Umesh C. Pati**, "Image Mosaicing: A Deeper Insight", *Image and Vision Computing*, Vol. 89, pp. 236-257, Sept. 2019 (DOI: <https://doi.org/10.1016/j.imavis.2019.07.002>).
- [16] Sourabh Paul and **Umesh C. Pati**, "SAR Image Registration Using an Improved SAR-SIFT Algorithm and Local Matching," *IEEE Journal of Selected Topics in Applied Earth Observations*

- and Remote Sensing*, Vol. 12, No. 8, pp. 2958-2966, Aug. 2019 (DOI: 10.1109/JSTARS.2019.2918211).
- [17] Sourabh Paul and **Umesh C. Pati**, “A Gabor Odd Filter-Based Ratio Operator for SAR Image Matching”, *IEEE Geoscience and Remote Sensing Letters*, Vol. 16, No. 3, pp. 397-401, Oct. 2018 (DOI: 10.1109/LGRS.2018.2872979).
 - [18] Subhransu Padhee, **Umesh C. Pati**, and Kamalakanta Mahapatra, “Closed-Loop Parametric Identification of DC-DC Converter”, *Proceedings of the Institution of Mechanical Engineers, Part 1: Journal of Systems and Control Engineering*, Vol. 232, No. 10, pp. 1429-1438, Jul. 2018 (DOI: 10.1177/0959651818785291).
 - [19] Sourabh Paul and **Umesh C. Pati**, “A Block-Based Multi-Feature Extraction Scheme for SAR Image Registration”, *IEEE Geoscience and Remote Sensing Letters*, Vol. 15, No. 99, pp. 1-5, Jun. 2018 (DOI: 10.1109/LGRS.2018.2842921).
 - [20] Subhajit Kumar Indra, Subhransu Padhee, and **Umesh C. Pati**, “Design of Wireless Electronic Telltale System for Indication of Rock Deformation”, *IEEE Sensors Letters*, Vol. 2, No. 3, pp. 1-4, Jun. 2018 (DOI: 10.1109/LENS.2018.2845708).
 - [21] Subhransu Padhee, **Umesh C. Pati**, and Kamalakanta Mahapatra, “Overview of High-Step-Up DC-DC Converters for Renewable Energy Sources”, *IETE Technical Review*, Vol. 35, No. 1, pp. 99-115, Dec. 2016 (DOI: 10.1080/02564602.2016.1255571).
 - [22] Achala Pandey and **Umesh C. Pati**, “A Novel Approach to Multiscale Blending Based on Saliency Mapping for Multimedia Image Compositing Applications”, *Computers and Graphics*, Vol. 59, pp. 93-106, Oct. 2016 (DOI: 10.1016/j.cag.2016.06.003).
 - [23] Sangeeta Sahu and **Umesh C. Pati**, “Intensity Based Registration of Medical Images”, *International Journal of Computational Vision and Robotics*, Vol. 6, No. 4, pp. 319-330, Sept. 2016 (DOI: 10.1504/IJCVR.2016.079393).
 - [24] Sourabh Paul and **Umesh C. Pati**, “Remote Sensing Optical Image Registration using Modified Uniform Robust SIFT”, *IEEE Geoscience and Remote Sensing Letters*, Vol. 13, No. 9, pp. 1300-1304, Jul. 2016 (DOI: 10.1109/LGRS.2016.2582528).
 - [25] Ritika Ojha, Kranthi P. Kumar, and **Umesh C. Pati**, “Automated Solar Tracking System for PV Module”, *International Journal of Current Research*, Vol. 7, No. 10, pp. 22018-22025, Oct. 2015 (ISSN: 0975 – 833X).
 - [26] Vijay Kumar Sharma, Kamalakanta Mahapatra, and **Umesh C. Pati**, “Non-Recursive Computation of 8 X 8 2D DCT for High Accuracy and Low Area”, *Journal of Circuits, Systems and Computers*, Vol. 23, No. 10, pp. 1-21, Sept. 2014 (DOI: 10.1142/S0218126614501436).
 - [27] Ranjan Kumar Senapati, and **Umesh C. Pati**, Kamalakanta Mahapatra, “Reduced Memory, Low Complexity Embedded Image Compression Algorithm using Hierarchical Listless Discrete Tchebichef Transform”, *IET Image Processing*, Vol. 8, No. 4, pp. 213-238, Apr. 2014 (DOI: 10.1049/iet-ipr.2012.0295).

- [28] Priya Ranjan Muduli and **Umesh C. Pati**, “Image Fusion based on Bilateral Sharpness Criterion in DT-CWT Domain”, *International Journal of Computational Vision and Robotics*, Vol. 4, No. 1-2, pp. 161-170, Feb. 2014 (DOI: 10.1504/IJCVR.2014.059371).
- [29] Ranjan Kumar Senapati, **Umesh C. Pati**, and Kamalakanta Mahapatra, “An Efficient Sparse 8 X 8 Orthogonal Transform Matrix for Colour Image Compression”, *International Journal of Signal and Imaging Systems Engineering*, Vol. 6, No. 1, pp. 16-23, Jan. 2013 (DOI: 10.1504/IJSISE.2013.051502).
- [30] Ranjan Kumar Senapati, **Umesh C. Pati**, and Kamalakanta Mahapatra, “Listless Block-Tree Set Partitioning Algorithm for Very Low Bit Rate Embedded Image Compression”, *AEU – International Journal of Electronics and Communications*, Vol. 66, No. 12, pp. 985-995, Dec. 2012 (DOI: 10.1016/j.aeue.2012.05.001).
- [31] Vijay Kumar Sharma, **Umesh C. Pati**, and Kamalakanta Mahapatra, “A Simple VLSI Architecture for Computation of 2D DCT Quantisation and Zig-Zag Ordering for JPEG”, *International Journal of Signal and Imaging Systems Engineering*, Vol. 5, No. 1, pp. 58-65, May 2012 (DOI: 10.1504/IJSISE.2012.046743).
- [32] Ranjan K Senapati, **Umesh C. Pati**, and Kamalakanta Mahapatra, “A Fast Zigzag-Pruned 4x4 DTT Algorithm for Image Compression”, *WSEAS Transactions on Signal Processing*, Vol. 7, No. 1, pp. 34-43, Jan. 2011.
- [33] **Umesh C. Pati**, Pranab K. Dutta, and Alok Barua, “Feature Detection of an Object by Image Fusion”, *International Journal of Computer Applications*, Vol. 1, No. 17, pp. 59-67, Feb. 2010 (DOI: 10.5120/362-549).
- [34] **Umesh C. Pati**, Pranab K Dutta, and Alok Barua, “Feature Level Fusion of Range and Intensity Images of an Object”, *International Journal of Computational Vision and Robotics*, Vol. 1, No. 1, pp. 2-33, Jun. 2009 (DOI: /IJCVR10.1504.2009.026826).

D. National Journals

- [1] Debojyoti Mondal, Tarun K. Dan, and **Umesh C. Pati**, “Harvesting Energy using Piezoelectric Materials”, *Journal of the Instrument Society of India*, Vol. 47, No. 3, pp. 91-95, Sept. 2017.
- [2] Rajesh K. Jha and **Umesh C. Pati**, “Zigbee and GSM based Wireless Data Acquisition for Agriculture”, *Journal of the Instrument Society of India*, Vol. 46, No. 3, pp. 117-121, Sept. 2016.
- [3] **Umesh C. Pati**, Pragyan P. Kar, and Priyam Saikia, “Design and Implementation of Fuzzy Logic Controller in PID Using LabVIEW”, *Journal of the Instrument Society of India*, Vol. 45, No. 4, pp. 204-207, Dec. 2015.
- [4] Nisha Kashyap and **Umesh C. Pati**, “Hardware Implementation of Low Cost Multi-Channel PC Based Data Acquisition System”, *Journal of the Instrument Society of India*, Vol. 45, No. 3, pp. 145-148, Sept. 2015.
- [5] Jyoti R. Pati and **Umesh C. Pati**, “Modelling and Control of Linear Cart Pendulum System”, *Journal of the Instrument Society of India*, Vol. 45, No. 1, pp. 24-28, Mar. 2015.

- [6] Nilimamayee Samal and **Umesh C. Pati**, “PC based Data Acquisition Platform for Green House”, *Journal of the Instrument Society of India*, Vol. 44, No. 2, pp. 118-121, Jun. 2014.
- [7] Pragyan P. Kar, Priyam Saikia, and **Umesh C. Pati**, “Performance of Different Control Strategies for Boiler Drum Level Control using LabVIEW”, *Journal of the Instrument Society of India*, Vol. 44, No. 1, pp. 55-58, Mar. 2014.
- [8] Abyarthana Bisoyi and **Umesh C. Pati**, “Online Written Communication using Internet Protocol based on Virtual Instrumentation”, *Journal of the Instrument Society of India*, Vol. 43, No. 3, pp. 175-178, Sept. 2013.
- [9] Anuran Maiti and **Umesh C. Pati**, “Analysis and Control of First and Second-Order Level Process using LabVIEW”, *Journal of the Instrument Society of India*, Vol. 43, No. 3, pp. 171-174, Sept. 2013.
- [10] Roopal Agrawal and **Umesh C. Pati**, “Internet based Data Logging and Supervisory Control of Boiler Drum Level using LabVIEW”, *Journal of the Instrument Society of India*, Vol. 42, No. 3, pp. 189-192, Sept. 2012.
- [11] Rashmi Panda and **Umesh C. Pati**, “Performance Analysis of LMS based Adaptive Filter Algorithms for ECG Denoising”, *Journal of the Instrument Society of India*, Vol. 42, No. 2, pp. 142-145, Jun. 2012.
- [12] Sankata B. Prusty and **Umesh C. Pati**, “Analysis of Higher-Order Thermal Process using LabVIEW”, *Journal of the Instrument Society of India*, Vol. 42, No. 2, pp. 112-114, Jun. 2012.
- [13] **Umesh C. Pati**, Dhananjay Kumar, and Pranab K Dutta, “Laser-Based Non-Contact Dimension Measurement of an Object”, *Journal of the Instrument Society of India*, Vol. 40, No. 3, pp. 165-167, Sept. 2010.
- [14] **Umesh C. Pati**, “System PC Based Humidity Monitoring”, *Journal of the Institution of Engineers (India)*, Vol. 87, pp. 30-33, Jan. 2007.
- [15] **Umesh C. Pati**, Manoj K. Ghosh, Satish Bal, and Ganapati Panda, “Design and Fabrication of a Computer Automated Dryer for Thin Grain Drying”, *Journal of the Instrument Society of India*, Vol. 34, No. 3, pp. 187-194, Sept. 2004.

E. International Conferences

- [1] Aella Govinda Rajulu, Prajnyajit Mohanty, **Umesh C. Pati**, “SolarPred: Hybrid Machine Learning based Time Series Prediction Model for Solar Energy Applications”, in *Proc. IEEE 4th International Conference on Applied Electromagnetics, Signal Processing and Communication (AESPC-2024)*, KIIT University, Bhubaneswar, India, 29th – 30th November, 2024. (DOI: 10.1109/AESPC63931.2024.10872218).
- [2] Pranshu Jena, Anarkali Prabhakar, **Umesh C. Pati**, “A Robust Multiclass Classification Framework Based on Big Transfer for Brain Tumor”, in *Proc. IEEE 4th International Conference on Applied Electromagnetics, Signal Processing and Communication*

- (AESPC-2024), KIIT University, Bhubaneswar, India, 29th – 30th November, 2024. (DOI: 10.1109/AESPC63931.2024.10872106).
- [3] Rashmiranjan Nayak, **Umesh C. Pati**, and Santos Kumar Das “Space-Time Attention Model-based Anomalous Event Classification for Smart City Applications”, in *Proc. IEEE International Conference on Intelligent Computing and Emerging Communication Technologies (ICEC-2024)*, SRM University-AP, Amaravati, Andhra Pradesh, India, 23rd-25th November, 2024.(DOI: 10.1109/ICEC59683.2024.10837247).
 - [4] Pranshu Jena, Sushree Sangita Swain, **Umesh C. Pati**, “ An Automatic Segmentation Model for Brain Tumorous and its Sub-regions in Magnetic Resonance Images”, in *Proc.3rd Odisha IEEE Conference (ODICON-2024)*, Siksha ‘O’ Anusandhan (Deemed to be University), Bhubaneswar, India, 8th – 9th November , 2024 (DOI: 10.1109/ODICON62106.2024.10797618).
 - [5] Neeraj Kumar Gautam, Mayank Mishra, and **Umesh C. Pati**, “Bleaching Detection in Coral Reef using Deep Convolutional Autoencoder based Model,” 2024 in *Proc. 4th International Conference on Artificial Intelligence and Signal Processing (AISP)*, Vijayawada, India, 26th -28th October, 2024, (DOI: 10.1109/AISP61711.2024.10870660).
 - [6] Rashmiranjan Nayak, Pritha Dutta, **Umesh C. Pati**, “Attention-enabled Convolutional Autoencoder with Optimal Threshold to Detect Image Anomaly for Industrial Quality Assurance”, 2024 *First International Conference on Electronics, Communication and Signal Processing (ICECSP)*, New Delhi, India, 2024, pp. 1-6, 8th – 10th August, 2024 (DOI: 10.1109/ICECSP61809.2024.10698695).
 - [7] Savan Kumar, Pranshu Jena, **Umesh C. Pati**, “Detection of Brain Tumors Using YOLOv8 Cascaded with Spatial Attention Module”, in *Proc. 2nd International Conference on Data Analytics and Insights (ICDAI-2024)*, Techno International New Town, Kolkata, India, 25th – 27th July, 2024 (Accepted).
 - [8] Anarkali Prabhakar, Pranshu Jena, **Umesh C. Pati**, “A New Framework for Brain Tumor Feature Extraction and Classification Using Localized Global Feature Patches”, in *Proc. 2024 International Conference on Smart Systems for Applications in Electrical Sciences (ICSSES 2024)*, Siddaganga Institute of Technology, Tumakuru, India, pp. 1-6, 3rd - 4th May, 2024 (DOI: 10.1109/ICSSES62373.2024.10561327).
 - [9] Neeraj Kumar Gautam, Mayank Mishra, and **Umesh C. Pati**, “Coral Reef Species Detection with a Modified Xception based Model,” in *Proc. 4th International Conference on Information Technology (InCITe 2024)*, Amity University, Noida, India, 6th - 7th March, 2024 (Accepted).
 - [10] Shalini Priya, Rashmiranjan Nayak, and **Umesh Chandra Pati**, “Deep Learning-based Weakly Supervised Video Anomaly Detection Methods for Smart City Applications,” in *Proc. 3rd IEEE International Conference on Artificial Intelligence for Internet of Things (AIIoT)*, Vellore Institute of Technology Vellore, India, May, 3rd - 4th , 2024 (DOI: 10.1109/AIIoT58432.2024.10574734).
 - [11] Pritha Dutta, Rashmiranjan Nayak and **Umesh C. Pati**, “Exploring Deep Learning-based Unsupervised Image Anomaly Detection and Localization Methods for Industrial Quality

- Assurance,” in *Proc. International Conference on Cognitive, Green and Ubiquitous Computing (IC-CGU)*, C. V. Raman Global University, Bhubaneswar, India, pp. 1-6, 1st -2nd March, 2024 (DOI: 10.1109/IC-CGU58078.2024.10530676).
- [12] Prajnyajit Mohanty, **Umesh C. Pati**, and K. Mahapatra, Deep Learning based Framework for Forecasting Solar Panel Output Power, in *Proc. 6th IFIP International Internet of Things (IoT) Conference*, Dallas, USA, pp. 229-239, 2nd -3rd November, 2023 (DOI: 10.1007/978-3-031-45878-1_16).
- [13] V. V. N. Sujit and **Umesh C. Pati**, " Change Detection in Synthetic Aperture Radar Images using Attention-based Siamese Network," in *Proc. 22nd International Symposium on Communications and Information Technologies (ISCIT)*, Sydney, Australia, pp. 88-92, 16th -18th October, 2023 (DOI: 10.1109/ISCIT57293.2023.10376110).
- [14] Rashmiranjan Nayak, **Umesh C. Pati**, and Santos Kumar Das, " Video Anomaly Detection Using Self-Attention-Enabled Convolutional Spatiotemporal Autoencoder," in *Proc. 22nd International Symposium on Communications and Information Technologies (ISCIT)*, Sydney, Australia, pp. 70-75, 16th -18th October, 2023 (DOI: 10.1109/ISCIT57293.2023.10376137).
- [15] Akshay Khanna, Mayank Mishra, and **Umesh C. Pati**, “Identification of Autism Spectrum Disorder using Facial Images with Big Transfer approach,” in *Proc. IEEE International Conference On Electrical, Electronics, Communication and Computers*, Indian Institute of Technology, Roorkee, India, pp. 1-5, 26th–27th August, 2023 (DOI: 10.1109/ELEXCOM58812.2023.10370468).
- [16] C. S. Sandip, Prajnyajit Mohanty, and **Umesh C. Pati**, “Machine Learning based Framework for Prediction of Photovoltaic Output Power,” in *Proc. IEEE 3rd International Conference on Sustainable Energy and Future Electric Transportation (IEEE SeFeT 2023)*, Bhubaneswar, India, pp. 1-6, 9th – 12th August, 2023 (DOI: 10.1109/TSUSC.2023.3310884).
- [17] Naba Krushna Sabat, **Umesh C. Pati** and Santos Kumar Das, "Investigation on the Impact of Attention Mechanism in Deep Learning Models for Temperature Prediction," in *Proc. 2023 3rd International Conference on Advances in Computing, Communication, Embedded and Secure Systems (ACCESS)*, Kalady, Ernakulam, India, pp. 149-153, 18th–20th May, 2023 (DOI: 10.1109/ACCESS57397.2023.10200439).
- [18] Pranshu Jena and **Umesh C. Pati**, "Performance Analysis of Optimizers on Segmentation of Brain Tumor using Atrous U- Net," in *Proc. 4th International Conference on Communication, Circuits & Systems(iC3S-2023)*, Kalinga Institute of Industrial Technology, Bhubaneswar, India, 26th -28th May, 2023 (DOI: 10.1109/IC3S57698.2023.10169220).
- [19] Akshay Khanna, Mayank Mishra, and **Umesh C. Pati**, “A Hybrid Feature based Approach of Facial Images for the Detection of Autism Spectrum Disorder,” in *Proc. International Conference on Data Analytics and Insights (ICDAI-2023)*, Techno International New Town, Kolkata, India, 11th -13th May, 2023 (DOI: 10.1007/978-981-99-3878-0_33).

- [20] Luv Khandelwal, V. V. N. Sujit, and **Umesh C. Pati**, "Spatial-Channel Attention based Change Detection in Synthetic Aperture Radar Images," in *Proc. 2023 IEEE International Conference on Device Intelligence, Computing and Communication Technologies (DICCT-2023)*, Graphic Era University, Dehradun, India, 17th–18th March, 2023 (DOI: 10.1109/DICCT56244.2023.10110172).
- [21] Chinmaya Kumar Meher, Rashmiranjan Nayak, and **Umesh C. Pati**, "Video Anomaly Detection Using Variational Autoencoder," in *Proc. 2022 IEEE 2nd International Symposium on Sustainable Energy, Signal Processing and Cyber Security (iSSSC)*, Gunupur, Odisha, India, pp. 1-6, Dec. 2022 (DOI: 10.1109/iSSSC56467.2022.10051511).
- [22] Naba Krushna Sabat, Rashmiranjan Nayak, **Umesh C. Pati**, and Santos Kumar Das, "A Comparative Analysis of Univariate Deep Learning-based Time-series Models for Temperature Forecasting of the Bhubaneswar," in *Proc. 2022 IEEE 2nd International Symposium on Sustainable Energy, Signal Processing and Cyber Security (iSSSC)*, Gunupur, Odisha, India, pp. 1-5, Dec. 2022 (DOI: 10.1109/iSSSC56467.2022.10051494).
- [23] Chinmaya Kumar Meher, Rashmiranjan Nayak, and **Umesh C. Pati**, "Dual Stream Variational Autoencoder for Video Anomaly Detection in Single Scene Videos," in *Proc. 2022 2nd Odisha International Conference on Electrical Power Engineering, Communication and Computing Technology (ODICON)*, Bhubaneswar, India, pp. 1-6, Nov. 2022 (DOI: 10.1109/ODICON54453.2022.10010086).
- [24] Shivam Gupta, **Umesh C. Pati**, and Deepika C. Parameswari, "Traffic Lane Localization using Clothoid Road Model," in *Proc. 2022 2nd International Conference on Computer Science, Engineering and Applications (ICCSEA)*, GIET University, Gunupur, India, pp. 1-6, Sep. 2022 (DOI: 10.1109/ICCSEA54677.2022.9936164).
- [25] Mogarala Tejoyadav, Rashmiranjan Nayak, and **Umesh C. Pati**, "A Comparative Analysis of Multivariate Statistical Time Series Models for Water Quality Forecasting of the River Ganga," in *Proc. Ambient Intelligence in Health Care: Proceedings of ICAIHC 2022*, pp. 429-441, SOA University, Bhubaneswar, India, Apr. 2022 (DOI: https://doi.org/10.1007/978-981-19-6068-0_41).
- [26] Prajnyajit Mohanty, **Umesh C. Pati**, and Kamalakanta Mahapatra, "Self-Powered Intelligent Street Light Management System for Smart City," in *Proc. IEEE 18th India Council International Conference (INDICON)*, Indian Institute of Technology Guwahati, India, pp. 1-6, Dec. 2021 (DOI: 10.1109/INDICON52576.2021.9691575).
- [27] V. V. N. Sujit and **Umesh C. Pati**, "Gabor and PCA Feature-Based Unsupervised Change Detection in Sar Images," in *Proc. 2021 IEEE International India Geoscience and Remote Sensing Symposium (InGARSS)*, Ahmedabad, India, pp. 82-85, Dec. 2021 (DOI: 10.1109/InGARSS51564.2021.9791985).
- [28] Mayank Mishra and **Umesh C. Pati**, "Autism Detection Using Surface and Volumetric Morphometric Feature of sMRI with Machine Learning Approach," in *Proc. International Conference on Advanced Network Technologies and Intelligent Computing*, Banaras Hindu University, Varanasi, India, pp. 625-633, Dec. 2021 (DOI: https://doi.org/10.1007/978-3-030-96040-7_47).

- [29] Aishwarya Premal Kogekar, Rashmiranjan Nayak, and **Umesh C. Pati**. "A CNN-BiLSTM-SVR based Deep Hybrid Model for Water Quality Forecasting of the River Ganga," in *Proc. IEEE 18th India Council International Conference (INDICON)*, Indian Institute of Technology Guwahati, India, pp. 1-6, Dec. 2021(DOI: 10.1109/INDICON52576.2021.9691532).
- [30] Aishwarya Premal Kogekar, Rashmiranjan Nayak, and **Umesh C. Pati**. "A CNN-GRU-SVR based Deep Hybrid Model for Water Quality Forecasting of the River Ganga," in *Proc. 1st International Conference on Artificial Intelligence & Machine Vision (AIMV)*, Pandit Deendayal Petroleum University, Gandhinagar, Gujarat, pp.1-6, Sept. 2021 (DOI: 10.1109/AIMV53313.2021.9670916).
- [31] Aishwarya Premal Kogekar, Rashmiranjan Nayak, and **Umesh C. Pati**. "Forecasting of Water Quality for the River Ganga using Univariate Time-series Models", in *Proc. 8th International Conference on Smart Computing and Communications (ICSCC)*, Muthoot Institute of Technology and Science, Kochi, Kerala, India, pp. 52-57, Jul. 2021 (DOI: 10.1109/ICSCC51209.2021.9528216).
- [32] Mayank Mishra and **Umesh C. Pati**, "Autism Spectrum Disorder Detection using the surface morphometric feature of sMRI in Machine Learning," in *Proc. 8th IEEE International Conference on Smart Computing and Communications (ICSCC)*, Muthoot Institute of Technology and Science, Kochi, Kerala, India, pp. 17-20, Jul. 2021 (DOI: 10.1109/ICSCC51209.2021.9528240).
- [33] Naba K. Sabat, **Umesh C. Pati**, and Santos K. Das, "A Short Survey on Real-Time Object Detection and its Challenges," in *Proc. 2nd International Conference on Emerging Trends and Advances in Electrical Engineering and Renewable Energy (ETAEERE-2020)*, Kalinga Institute of Industrial Technology, Bhubaneswar, Odisha, India, pp. 215-220, Mar. 2020 (DOI: https://doi.org/10.1007/978-981-15-8685-9_9).
- [34] Rashmiranjan Nayak, **Umesh C. Pati**, and Santos K. Das, "Video Anomaly Detection using Convolutional Spatiotemporal Autoencoder," in *Proc. IEEE International Conference on Contemporary Computing and Applications (IC3A 2020)*, Dr. A.P.J. Abdul Kalam Technical University (AKTU), Lucknow, pp. 175-180, India, Feb. 2020 (DOI: 10.1109/IC3A48958.2020.233292).
- [35] Rashmiranjan Nayak, Mohini M. Behera, V. Girish, **Umesh C. Pati**, and Santos K. Das, "An Deep Learning based Loitering Detection System using Multi-camera Video Surveillance Network," in *Proc. IEEE 5th International Symposium on Smart Electronic Systems (IEEE iSES) (Formerly iNiS)*, National Institute of Technology Rourkela, Odisha, India, pp. 215-220, Dec. 2019 (DOI: 10.1109/iSES47678.2019.00055).
- [36] Rashmiranjan Nayak, Mohini M. Behera, **Umesh C. Pati**, and Santos K. Das, "Video-based Real-time Intrusion Detection System using Deep-Learning for Smart City Applications," in *Proc. IEEE 13th International Conference on Advanced Networks and Telecommunications Systems (IEEE ANTS)*, BITS Pilani, K K Birla Goa Campus, Goa, India, pp. 1-6, Dec. 2019 (DOI:10.1109/ANTS47819.2019.9117960).
- [37] Naba K. Sabat, **Umesh C. Pati**, Biswa R. Senapati and Santos K. Das, "An IoT Concept for Region Based Human Detection Using PIR Sensors and FRED Cloud," in *Proc. IEEE 1st International Conference on Energy, Systems and Information Processing (ICESIP)*, Chennai, India, pp. 1-4, Jul. 2019 (DOI: 10.1109/ICESIP46348.2019.8938286).

- [38] Shubham Shukla and **Umesh C. Pati**, "Implementation of Different Control Strategies on a Quadruple Tank System," in *Proc. 6th International Conference on Signal Processing and Integrated Networks (SPIN)*, Noida, India, pp. 805-810, Mar. 2019 (DOI: 10.1109/SPIN.2019.8711764).
- [39] Subhajit Kumar Indra, Sukumar Barik, and **Umesh C. Pati**, "Design of Portable Indicator for Underground Mines using 433 MHz Wireless Communication", in *Proc. 2nd International Conference on Electronics, Materials Engineering and Nano-Technology (IEMENTech 2018)*, Kolkata, India, pp. 1-5, May 2018 (DOI:10.1109/IEMENTECH.2018.8465257).
- [40] Prasanmit Nath and **Umesh C. Pati**, "Low-Cost Android App based Voice Operated Room Automation System", in *IEEE 3rd International Conference for Convergence in Technology (I2CT)*, Pune, India, pp. 1- 4, Apr. 2018 (DOI: 10.1109/I2CT.2018.8529157).
- [41] Unni R and **Umesh C. Pati**, "PC Based Ultrasonic Intrusion Detection System", in *Proc. IEEE 7th International Conference on Communication and Signal Processing (ICCSP' 18)*, Chennai, India, pp. 942-947, Apr. 2018 (DOI: 10.1109/ICCSP.2018.8524262).
- [42] Sourabh Paul and **Umesh C. Pati**, "Optical-To-SAR Image Registration using Modified Distinctive Order Based Self-Similarity Operator", in *Proc. IEEE International Students Conference on Electrical, Electronics and Computer Science (SCEECS-2018)*, Bhopal, India, pp. 1 - 5, Feb. 2018 (DOI: 10.1109/SCEECS.2018.8546950).
- [43] Khirod Chandra Sahoo and **Umesh C. Pati**, "IoT based intrusion detection system using PIR sensor", in *Proc. 2nd IEEE International Conference on Recent Trends in Electronics, Information & Communication Technology (RTEICT)*, Sri Venkateshwara College of Engineering, Bangalore, India, pp. 1641-1645, May 2017 (DOI: 10.1109/RTEICT.2017.8256877).
- [44] Sourabh Paul and **Umesh C. Pati**, "SAR Image Registration using an Improved Anisotropic Gaussian-SIFT Algorithm", in *Proc. 14th IEEE India Council International Conference (INDICON)*, Roorkee, India, pp. 1-5, Dec. 2017 (DOI: 10.1109/indicon.2017.8487599).
- [45] Praveen Kumar and **Umesh C. Pati**, "Arduino and Raspberry Pi Based Smart Communication and Control of Home Appliance System", in *Proc. International Conference on Green Engineering and Technologies (IC-GET)*, Coimbatore, India, pp. 1-6, Nov. 2016 (DOI: 10.1109/GET.2016.7916808).
- [46] Sourabh Paul, Ujjwal K. Durgam, and **Umesh C. Pati**, "Multimodal Optical Image Registration using Modified Sift", in *Proc. Progress in Intelligent Computing Techniques: Theory, Practice, and Applications (Springer)*, pp. 123-129, Sept. 2016 (DOI: 10.1007/978-981-10-3373-5_11).
- [47] Subhransu Padhee and **Umesh C. Pati**, Kamalakanta Mahapatra, "Design of Photovoltaic MPPT Based Charger for Lead-Acid Batteries", in *Proc. IEEE International Conference on Emerging Technologies and Innovative Business Practices for the Transformation of Societies (EmergiTech)*, Balaclava, Mauritius, Aug. 2016 (DOI: 10.1109/EmergiTech.2016.7737365).

- [48] Subhransu Padhee, **Umesh C. Pati**, and Kamala Kanta Mahapatra, "Comparative Analysis of DC-DC Converter Topologies for Fuel Cell Based Application", in *Proc. International Conference on Power Electronics, Intelligent Control and Energy Systems (ICPEICES)*, Delhi, India, pp. 1-6, Jul. 2016 (DOI: 10.1109/ICPEICES.2016.7853129).
- [49] Praveen Kumar and **Umesh C. Pati**, "IOT Based Monitoring and Control of Appliances for Smart Home", in *Proc. International Conference on Recent Trends in Electronics, Information & Communication Technology (RTEICT)*, Bangalore, India, pp. 1145-1150, May 2016 (DOI: 10.1109/RTEICT.2016.7808011).
- [50] Ganesh Baliram Ingale, Subhransu Padhee, and **Umesh C. Pati**, "Design of Standalone PV System for DC-Micro Grid", in *Proc. International Conference on Energy Efficient Technologies for Sustainability (ICEETS)*, Kanyakumari, India, pp. 775 - 780, Apr. 2016 (DOI:10.1109/ICEETS.2016.7583852).
- [51] Ujwal Kumar Durgam, and **Umesh C. Pati**, "SURF Based Matching for SAR Image Registration", in *Proc. IEEE Students Conference on Electrical, Electronics and Computer Science (SCEECS)*, Bhopal, India, pp. 1-5, Mar. 2016 (DOI: 10.1109/SCEECS.2016.7509292).
- [52] Subhransu Padhee, Sankata Bhanjan Prusty, Aditya Prasad Singh Biswal, and **Umesh C. Pati**, "Design of an Educational Laboratory for Measurement and Data Acquisition System", in *Proc. IEEE Students Conference on Electrical, Electronics and Computer Science (SCEECS)*, Bhopal, India, pp. 1-6, Mar. 2016 (DOI: 10.1109/SCEECS.2016.7509298).
- [53] Subhransu Padhee, **Umesh C. Pati**, and Kamalakanta Mahapatra, "Modelling Switched Mode DC-DC Converter using System Identification Techniques: A Review", in *Proc. IEEE Students Conference on Electrical, Electronics and Computer Science (SCEECS)*, Bhopal, India, pp. 1-6, Mar. 2016 (DOI: 10.1109/SCEECS.2016.7509303).
- [54] Ujjwal K. Durgam, and **Umesh C. Pati**, "SURF Based Matching for SAR Image Registration", in *Proc. IEEE Students' Conference on Electrical, Electronics and Computer Science (SCEECS)*, Bhopal, India, pp. 1-5, Mar. 2016 (DOI: 10.1109/SCEECS.2016.7509292).
- [55] Sankata Bhanjan Prusty, Sridhar Seshagiri, **Umesh C. Pati**, and Kamalakanta Mahapatra, "Sliding Mode Control of Coupled Tanks Using Conditional Integrators", in *Proc. Indian Control Conference (ICC)*, Hyderabad, India, pp. 146-151, Jan. 2016 (DOI: 10.1109/INDIANCC.2016.7441120).
- [56] Sourabh Paul, Ujwal Kumar Durgam, and **Umesh C. Pati**, "LANDSAT Enhanced Thematic Mapper Plus Image Registration Using SIFT", in *Proc. IEEE 3rd International Conference on Image Information Processing (ICIIP)*, Solan, India, pp. 40-44, Dec. 2015 (DOI: 10.1109/ICIIP.2015.7414737).

- [57] Bandana Mishra, **Umesh C. Pati**, and Usha Sinha, "Modified Demons Registration for Highly Deformed Medical Images", in *Proc. IEEE 3rd International Conference on Image Information Processing (ICIIP)*, Solan, India, pp. 152-156, Dec. 2015, (DOI: 10.1109/ICIIP.2015.7414757).
- [58] Achala Pandey and **Umesh C. Pati**, "An Improved DCT-Based Phase Correlation Method for Image Mosaicing", in *Proc. IEEE 3rd International Conference on Image Information Processing (ICIIP)*, Solan, India, pp. 265-270, Dec. 2015 (DOI: 10.1109/ICIIP.2015.7414778).
- [59] Sankata Bhanjan Prusty, Subhransu Padhee, **Umesh C. Pati**, and Kamalakanta Mahapatra, "Comparative Performance Analysis of Various Tuning Methods in the Design of PID Controller", in *Proc. of Michael Faraday IET International Summit*, Kolkata, India, Sept. 2015 (DOI: 10.1049/cp.2015.1604).
- [60] Satish Harjibhai Bhati and **Umesh C. Pati**, "Phase Correlation Based Algorithm using Fast Fourier Transform for Fingerprint Mosaicing", in *Proc. Springer 3rd International Conference on Advanced Computing, Networking and Informatics (ICACNI)*, Bhubaneswar, India, pp. 507-514, Jun. 2015 (DOI: 10.1007/978-81-322-2538-6_52).
- [61] Achala Pandey and **Umesh C. Pati**, "Panoramic Image Mosaicing: An Optimized Graph-Cut Approach", in *Proc. International Conference on Advanced Computing, Networking and Informatics (Springer)*, pp. 299-305, Jun. 2015 (DOI: 10.1007/978-81-322-2538-6_31).
- [62] Shishir Maheswari and **Umesh C. Pati**, "Mosaicing of Images using Unsharp Masking Algorithm for Interest Point Detection", in *Proc. International Conference on Advanced Communication Control and Computing Technologies (ICACCCT)*, Tamilnadu, India, pp. 1431- 1434, May 2015 (DOI: 10.1109/ICACCCT.2014.7019338).
- [63] Nisha Kashyap and **Umesh C. Pati**, "Multi Channel Data Acquisition and Data Logging System for Meteorology Application", in *Proc. International Conference on Smart Technologies and Management for Computing, Communication, Controls, Energy and Materials (ICSTM)*, Chennai, India, pp. 220-225, May 2015 (DOI: 10.1109/ICSTM.2015.7225418).
- [64] Satish Harjibhai Bhati and **Umesh C. Pati**, "Novel Algorithm for Fingerprint Mosaicing using Phase Correlation Method", in *Proc. Global Conference on Communication Technologies(GCCT)*, Kanyakumari, India, pp. 29-33, Apr. 2015 (DOI: 10.1109/GCCT.2015.7342618).
- [65] Pratish Kumar Sahoo and **Umesh C.Pati**, "Image Registration Using Mutual Information with Correlation for Medical Image", in *Proc. Global Conference on Communication Technologies (GCCT)*, Kanyakumari, India, pp. 34-38, Apr. 2015 (DOI: 10.1109/GCCT.2015.7342619).
- [66] Upendra Rao Moyyila and **Umesh C. Pati**, "A Novel Algorithm for Detection of Soccer Ball and Player", in *Proc. International Conference on Communications and Signal Processing (ICCSP)*, Tamil Nadu, pp. 344-348, Apr. 2015 (DOI: 10.1109/ICCSP.2015.7322903).

- [67] Subhransu Padhee, **Umesh C. Pati**, and Kamalakanta Mahapatra, "Investigation on Transient Response of Fuel Cell Power Conditioning Unit During Rapid Load Changes", in *Proc. IEEE International Conference Computational Intelligence & Communication Technology (CICT)*, Ghaziabad, India, pp. 482-487, Feb. 2015 (DOI: 10.1109/CICT.2015.18).
- [68] Sankata Bhanjan Prusty, **Umesh C. Pati**, and Kamalakanta Mahapatra, "A Novel Fuzzy Based Adaptive Control of the Four Tank System", in *Proc. IEEE 3rd International Conference on Computer, Communication, Control and Information Technology (C3IT)*, Hooghly, India, Feb. 2015 (DOI: 10.1109/C3IT.2015.7060161).
- [69] Achala Pandey and **Umesh C. Pati**, "A Novel Technique for Mosaicing of Medical Images", in *Proc. IEEE 11th India Conference (INDICON)*, Pune, India, pp. 1-5, Dec. 2014 (DOI: 10.1109/INDICON.2014.7030465).
- [70] P Gowardhan and **Umesh C. Pati**, "NIR Image Based Pedestrian Detection in Night Vision with Cascade Classification and Validation", in *Proc. International Conference on Advanced Communication Control and Computing Technologies (ICACCCT)*, Tamil Nadu, India, pp. 1435-1438, May 2014 (DOI: 10.1109/ICACCCT.2014.7019339).
- [71] Shishir Maheswari and **Umesh C. Pati**, "Mosaicing of Images using Unsharp Masking Algorithm for Interest Point Detection", in *Proc. International Conference on Advanced Communication Control and Computing Technologies (ICACCCT)*, Tamil Nadu, India, pp. 1431-1434, May 2014 (DOI: 10.1109/ICACCCT.2014.7019338).
- [72] Nilima Samal and **Umesh C. Pati**, "Multi-Channel Data Acquisition and Data Logging for Green House Application", in *Proc. IEEE Students Conference on Electrical, Electronics and Computer Science (SCEECS)*, Bhopal, India, pp. 1-5, Mar. 2014 (DOI: 10.1109/SCEECS.2014.6804507).
- [73] Sankata Bhanjan Prusty, **Umesh C. Pati**, and Kamalakanta Mahapatra, "Implementation of Fuzzy-PID Controller to Liquid Level System using LabVIEW", in *Proc. International Conference on Control, Instrumentation, Energy and Communication (CIEC)*, Calcutta, India, pp. 36- 40, Feb. 2014 (DOI: 10.1109/CIEC.2014.6959045).
- [74] Priya Ranjan Muduli and **Umesh C. Pati**, "A Novel Edge Detection Technique for Multi-Focus Images using Image Fusion", in *Proc. International Conference on Intelligent Computing, Networking, and Informatics (Springer)*, pp. 359-367, Jan. 2014 (DOI: 10.1007/978-81- 322-1665-0_34).
- [75] Achala Pandey and **Umesh C. Pati**, "A Novel Technique for Non-Overlapping Image Mosaicing based on Pyramid Method", in *Proc. IEEE India Conference (INDICON)*, Mumbai, India, pp. 1-6, Dec. 2013 (DOI: 10.1109/INDCON.2013.6726136).

- [76] Priya Ranjan Muduli and **Umesh C. Pati**, "A Novel Technique for Wall Crack Detection using Image Fusion", in *Proc. International Conference on Computer Communication and Informatics (ICCCI)*, Coimbatore, India, pp. 1-6, Jan. 2013 (DOI:10.1109/ICCCI.2013.6466288).
- [77] Sankata Bhanjan Prusty and **Umesh C. Pati**, "Linearization of a MIMO Process using LabVIEW", in *Proc. IEEE Students Conference on Electrical, Electronics and Computer Science (SCEECs)*, Bhopal, India, pp. 1-5, Mar. 2012 (DOI: 10.1109/SCEECs.2012.6184749).
- [78] Rashmi Panda and **Umesh C. Pati**, "Removal of Artifacts from Electrocardiogram using Digital Filter", in *Proc. IEEE Students Conference on Electrical, Electronics and Computer Science (SCEECs)*, Bhopal, India, Mar. 2012 (DOI: 10.1109/SCEECs.2012.6184767).
- [79] Ranjan K Senapati, **Umesh C. Pati**, and Kamalakanta Mahapatra, "A Low Complexity Embedded Image Coding Algorithm using Hierarchical Listless DTT", in *Proc. IEEE 8th International Conference on Information, Communications and Signal Processing (ICICS)*, Singapore, Dec. 2011 (DOI: 10.1109/ICICS.2011.6174297).
- [80] Vijay Kumar Sharma, Kamalakanta Mahapatra, and **Umesh C. Pati**, "An Efficient Distributed Arithmetic based VLSI Architecture for DCT", in *Proc. International Conference on Devices and Communications (ICDeCom)*, Mesra, India, Feb. 2011 (DOI: 10.1109/ICDECOM.2011.5738484).
- [81] Ranjan K Senapati, **Umesh C. Pati**, and Kamalakanta Mahapatra, "A Novel Hybrid HVS based Embedded Image Coding Algorithm using DTT and SPIHT", in *Proc. International Conference on Devices and Communications (ICDeCom)*, Mesra, India, Feb. 2011 (DOI: 10.1109/ICDECOM.2011.5738493).
- [82] Ranjan K. Senapati, **Umesh C. Pati**, and Kamalakanta Mahapatra, "A Low Complexity Orthogonal 8×8 Transform Matrix for Fast Image Compression", in *Proc. IEEE India Conference (INDICON)*, Kolkata, India, Dec. 2010 (DOI: 10.1109/INDICON.2010.5712707).
- [83] Vijay Kumar Sharma, **Umesh C. Pati**, and Kamalakanta Mahapatra, "An Study of Removal of Subjective Redundancy in JPEG for Low Cost, Low Power, Computation Efficient Circuit Design and High Compression Image", in *Proc. International Conference on Power, Control and Embedded Systems (ICPCES)*, Allahabad, India, Nov. - Dec. 2010 (DOI: 10.1109/ICPCES.2010.5698667).
- [84] Ranjan K Senapati, **Umesh C. Pati**, and Kamalakanta Mahapatra, "A Novel Fast Zigzag Prune 4×4 Discrete Tchebichef Moment based Image Compression Algorithm", in *Proc. International Conference on Computational Intelligence and Communication Networks (CICN)*, Bhopal, India, pp. 73-78, Nov. 2010 (DOI: 10.1109/CICN.2010.25).
- [85] Vijay Kumar Sharma, Richa Agrawal, **Umesh C. Pati**, and Kamalakanta Mahapatra, "2-D Separable Discrete Hartley Transform Architecture for Efficient FPGA Resource", in *Proc.*

International Conference on Computer and Communication Technology (ICCCT), Allahabad, India, pp. 236-241, Sept. 2010 (DOI: 10.1109/ICCCT.2010.56404320).

- [86] **Umesh C. Pati**, and P K Dutta, "Simultaneous Determination of Dimension and Intensity of an Object by Image Fusion", in *Proc. IEEE International Conference on Virtual Environments Human-Computer Interfaces and Measurement Systems (VECIMS)*, Taranto, Italy, pp. 146-150, Sept. 2010 (DOI: 10.1109/VECIMS.2010.5609365).
- [87] **Umesh C. Pati**, Aditya Modi, Pranab K Dutta, and Alok Barua, "3-D Reconstruction and Automatic Fusion of Edge Maps from Different Modalities of an Object", in *Proc. IEEE Symposium on Computational Intelligence for Image Processing (CIIP-09)*, Nashville, TN, USA, pp. 53-59, Mar. – Apr. 2009 (DOI:10.1109/CIIP.2009.4937880).
- [88] **Umesh C. Pati**, Aditya Modi, Pranab K. Datta, and A. Barua, "Multimodal Image Fusion of a Real World Object", in *Proc. International Conference on Image processing, Computer vision and Pattern Recognition*, Las Vegas Nevada, USA, pp. 376-382, Jun. 2007 (DOI: 10.5120/362_549).

F. National Conferences

- [1] Rashmiranjan Nayak, Goutam Kumar Sahoo, **Umesh Chandra Pati**, Santos Kumar Das, and Poonam Singh, "A Compact YOLOv5-GhostNet-based Weapon Detection System for Smart City Applications," in *Proc. National Conference on Intelligent Systems, IoT, and Wireless Communication for the Society*, National Institute of Technology Rourkela, India, 16-18 Feb. 2024 (Accepted).
- [2] Roopal Agrawal, **Umesh C. Pati**, "Design and Data Logging of 3 Element Boiler Level Control using LabVIEW", in *Proc. National Conference on Recent Advances in Chemical and Environmental Engineering (RACEE)*, Rourkela, India, pp. 1-6, Jan. 2012.
- [3] **Umesh C. Pati**, "Various Aspects of Automatic Process Control", in *Proc. of 50th Annual Technical Journal of Orissa State Centre, The Institution of Engineers (India)*, Bhubaneswar, India, pp. 217-223, Feb. 2009.
- [4] **Umesh C. Pati**, Bibhu D. Sahoo, "3-D Surface Reconstruction: A Critical Review", in *Proc. of Orissa Engineering Congress Souvenir*, Bhubaneswar, India, Vol. 54, pp. EECS 1 – EECS 8, Feb. 2009.
- [5] **Umesh C. Pati**, Bibhu D. Sahoo, "Various Aspects of Biotelemetry", in *Proc. of Orissa Engineering Congress Souvenir*, Bhubaneswar, India, Vol. 49, pp. EECS1-EECS5, Feb. 2004.
- [5] **Umesh C. Pati**, Bibhu D. Sahoo, "A Novel PC Compatible Digital Thermometer", in *Proc. of 45th Annual Technical Journal of Orissa State Center, The Institution of Engineers (India)*, Bhubaneswar, India, pp. 320-323, Feb. 2004.
- [6] **Umesh C. Pati**, "A New Approach of Making Digital Anemometer Computer Compatible for On-line Velocity Measurement", in *Proc. of National conference on Electronics, Communication,*

- Computers, Instrumentation and Power systems (Concourse)*, Chennai, India, pp. 89-91, Jul. 2003.
- [7] **Umesh C. Pati**, Bibhu D. Sahoo, "Development of a PC-based Temperature Controller", in *Proc. of Orissa Engineering Congress Souvenir*, Bhubaneswar, India, Vol. 48, pp. EECS25-EECS27, Jan. 2003.
 - [8] **Umesh C. Pati**, Manoj K. Ghosh, "A PC-based Dryer for On-line Data Acquisition and Control", in *Proc. of 18th National Seminar on Emerging Trends in Mechatronics for Automation (NCME)*, Rourkela, India, pp. 297-304, Nov. 2002.
 - [9] **Umesh C. Pati**, Manoj K. Ghosh, Satish Bal, Ganapati Panda, "Design and Fabrication of a Computer Automated Dryer for Thin Layer Grain Drying", in *Proc. (abstract version) of National Symposium on Instrumentation (NSI-27)*, Coimbatore, India, pp. 11, Nov. 2002.
 - [10] **Umesh C. Pati**, Bibhu P. Panigrahi, Bibhuti B. Pati, Kartik C. Patra, "Effects of HVDC Power Transmission on Human and Animal Habitation", in *Proc. of National Seminar on Environment Friendly Electric Power Generation*, Roorkee, India, pp. 119-123, Nov. 1995.
 - [11] Anup K. Panda, Madan M. Maity, **Umesh C. Pati**, "A High Efficiency Zero Voltage Switched Quasi-resonant Buck Converter", in *Proc. of National Seminar on Energy Conservation: Its Planning and Management*, Sarang, India, pp. C/52-C/56, Mar. 1995.