

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 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 has also served as Head, Career Development Center, 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 125 articles in the 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 2 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 (formerly the Ministry of Human Resource Development) and Ministry of Housing and Urban Affairs, Govt. of India.

He has visited countries like the USA, Italy, Austria, Singapore, Mauritius, Nepal, etc. in connection with research collaboration and paper presentation. 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, Fellow of The Institution of Engineers (India), Fellow of The Institution of Electronics and Telecommunication Engineers (IETE), and 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 the 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: The Institution of Engineers (India)
- Fellow: The 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

- 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), 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 AREAS OF RESEARCH

- Image/Video Processing
- Computer Vision
- Artificial Intelligence
- Internet of Things (IoT)

- Medical 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

- 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. SHORTTERM COURSES / WORKSHOP ORGANIZED

Sl. No.	Type	Title of the Program	Sponsoring Agency	Duration
1.	Workshop	Practical Implementation of Smart City Systems	Self-financed	21 st – 25 th May 2018
2.	Short Term Course	Design and Implementation of Instrumentation Systems using LabVIEW (DIISL 2016)	Self-financed	19 th – 23 rd Dec. 2016
3.	Short Term Course	Microsensors and Signal Conditioning (MSSC 2016)	TEQIP-II	24 th – 25 th Sept 2016
4.	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 Algorithms for Image Mosaicing	2018
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	Ongoing
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	Ongoing
10.	Mayank Mishra	Detection of Autism using AI based Techniques	Ongoing
11.	Pranshu Jena	Brain Tumor Detection using Deep Learning Techniques	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: 46 completed, 6 ongoing

Sl. No.	Name of the Student	Title of Master Thesis	Year of Completion
1.	Akshay Khanna	Facial Image based Approach for the Detection of Autism	Ongoing
2.	Cherukuri Syam Sandeep	Solar Energy Forecasting using Machine Learning Technique	Ongoing
3.	Prashant Dwivedi	Deep Learning based Insect Pest Detection	Ongoing
4.	Shaik Riyaz Nayeem	Detection of Anomalous Events in Surveillance Videos using Deep Learning based One-Class Classification Models	Ongoing
5.	Devansh Sehrawat	Deep Learning based Detection of Anomalous Events using Surveillance Videos	Ongoing
6.	P. Sivakumar Reddy	Performance of Deep Learning Models for Time Series Data Forecasting	Ongoing
7.	Shivam Gupta	Traffic Lane Localization using Clothoid Road Model	2022
8.	Mogarala Tejoyadav	Water Quality Forecasting of River Ganga Using Statistical and Deep Learning Approaches.	2022
9.	Chinmaya Kumar Meher	Automatic Detection of Abnormal Activities from Surveillance Videos using Deep-Generative Models for Real-time Applications.	2022
10.	Aishwarya Premlal Kogekar	Water Quality Forecasting of the River Ganga using Statistical and Deep Learning Approaches	2021
11.	Ashwani	Nonlinear Compensation of Sensors	2021
12.	Omprakash Astya	Wireless Sensor Network Data	2020

		Monitoring System	
13.	Goli Vishnukiran	Design of Computer Vision-based Bottle Inspection System using LabVIEW	2020
14.	Bhanu Pratap	Representation Learning for Image Anomaly Detection	2020
15.	Divya S.V	Development of SIFT-based Algorithms for SAR Image Registration	2019
16.	Shubham Shukla	Development of Control Algorithms for Two Tank Liquid Level Systems	2019
17.	M G Kiran	Modelling, Parametric Identification, and Control of CSTR System	2019
18.	Sukumar Barik	IoT-based Weather Monitoring and Intimation.	2018
19.	Subhajit Kumar Indra	Design of Wireless Data Acquisition System for Landslide Detection.	2018
20.	Unni R	PC Based Ultrasonic Intrusion Detection System	2018
21.	Susmitha Yalamati	Image Registration using SIFT Algorithm	2018
22.	Prasanmit Nath	Sensor Integration for Inertial Navigation System in Ground Vehicles	2018
23.	Sukhada Ashok Raut	Underwater Image Registration	2017
24.	Abhinav Kumar Singh	Vision-based Inspection System of Beverage Industry	2017
25.	Ujwal Kumar Durgam	Synthetic Aperture Radar Image Registration using Speeded Up Robust Features.	2016
26.	Ganesh Baliram Ingale	Design of PV based Standalone System for DC Microgrid	2016
27.	Rajesh Kumar Jha	Zigbee and GSM based Wireless Data Acquisition System for Farming as well as Automatic Irrigation System	2016
28.	Purusottum Kumar	Dynamic Modelling of Process in Coal Based Thermal Power Plant	2016
29.	Praveen Kumar	IoT and GUI based Monitoring as well as Control of Home Appliances	2016
30.	Sudhansu Mallik	Underwater Image Enhancement	2016
31.	Nisha Kashyap	Design of Low-Cost Multi-Channel Data Acquisition System for Meteorological Application	2015
32.	G. Santhosh Kumar	Identification and Study of Performance of Controllers on Heat Exchanger	2015
33.	Deepak Choudhary	Two Degree of Freedom PID Controller for Quadruple Tank System	2015
34.	Upendra R. Moyyila	Detection and Recognition of Soccer Ball and Player	2015
35.	Pratish K. Sahoo	Mutual Information based Image	2015

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

D. B.Tech. Thesis Supervision: 37 completed, 3 ongoing

Sl. No.	Name of the Student	Title of the UG Thesis	Year of Completion
1.	Luv Khandelwal	Change Detection in Synthetic Aperture Radar Images using Spatial Channel Attention Mechanism	Ongoing
2.	Cheeraag Mishra	Time series Analysis of River Water Quality Forecasting using Deep Learning Techniques	Ongoing
3.	Ajay Kumar	Temperature Forecasting using Deep Learning Models	Ongoing
4.	Heramba Panda	Deep Learning-based Efficient Model for Intrusion Detection Application	2022
5.	Suprabha Nayak	IoT enabled Smart Garbage Bin	2021
6.	Tushr Kanta Sahoo	Video-based Human Activity Recognition using Deep Neural Networks	2020
7.	Sneha Satakshi Tripathy	IoT based Monitoring of Water and Air Pollution in Real-time	2020
8.	Bhatraju Veeranjanyulu	Real-time Camera-based Intruder Detection by using Deep Learning	2020
9.	Gowrigari Sravan Kumar Reddy	Data Acquisition from Sensors and Linearization using Neural Network Techniques	2019
10.	Yasmin Kukul	Image-based Abnormal Activity Detection	2019
11.	Anindita Gain	Image-based Smart Parking System	2019
12.	Priyadarsani Suchismita Jena	Traffic Monitoring System using Image Processing	2018
13.	Vikash Singhal	Accident Detection and Automatic Hospital Intimation	2018
14.	Salman Siddique Khan	Detection of Anomalous Events in Surveillance Videos	2018
15.	Shubham Singh	Vehicle Accident Detection and Messaging using Arduino and GSM Module	2017
16.	Rajesh Kumar Behera	Linearization of Differential Pressure Flow Sensor with Hardware Implementation	2017
17.	K. S. Manikanta Kumar	Accident Detection and Automatic Hospital Intimation	2017
18.	Himanshu S. Behera	A Comparative Analysis of Corner Detection Algorithms	2016
19.	Deepak K. Nayak	Image Segmentation using Hough	2016

		Transform	
20.	Brajen Malakar	Design and Development of a Heart Rate Sensor using Fingertip	2016
21.	Shital N. Meshram	Wireless Data Acquisition System using Global System for Mobile Communication (GSM)	2016
22.	Pooja Ghosh	Image Mosaicing using Feature Detection Algorithms	2015
23.	Abhisek Parida	Vein Pattern Extraction using Near-Infrared Imaging for Biometric Purposes	2015
24.	Siniprabha Behera	Data Acquisition from LVDT and its Analysis	2015
25.	Saurav Kumar	Design of Controllers for Three Tank System	2015
26.	Ishan Kumar Sarangi, Sudarshan Nayak	Image Mosaicing of Panoramic Images	2014
27.	Aditya N. Sahoo Jyoti P. Behera	Analysis and Control of Processes	2014
28.	Abhilash Mishra, Pinaki Mishra	Design of ON/OFF, Proportional, and PID Temperature Controllers using LabVIEW	2013
29.	Anuran Maiti	Analysis and Control of Processes	2013
30.	Pragyan Paramita Kar, Priyam Saikia	Performance of Different Control Strategies for Boiler Drum Level Control using LabVIEW	2013
31.	Ritesh Kumar Nayak, Sharad Agarwal	Comparison of Iris Identification Technique by using Modified SIFT and SURF Keypoint Descriptor	2013
32.	Pamarthi Kranthi Kumar, Ritika Ojha	Solar Tracker System for PV Module	2013
33.	Debesh Kuanr, Lokanath Tripathy	Accuracy Improvement in Odia Zip Code Recognition Technique	2012
34.	Birendra Nath Tripathy, Abinash Dash	Prototype Drowsiness Detection System	2012
35.	Asutosh Mishra, Alok Nanda	Master Hand Technology for the HMI using Hand Gesture and Colour Detection	2012
36.	Kavita Ekka, Sushmita Tigga	A Study on Photoplethysmography and its use for Heartbeat Counting	2011
37.	Dibyanjan Pradhan, Ramakant Behera	Modeling of a Vehicle Speed Measurement System using Piezoelectric Sensors	2011
38.	Biswajit Jena, Sagar Kumar	Design of PID Controller using Bioinspired Evolutionary Techniques	2011

39.	Soumya Ranjan Nayak, Sagar Kumar Jena	Data Acquisition using PCL-207 Card	2010
40.	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.
2. Editor, Annals of Applied Sciences.
3. Guest Editor, Special Issue in “Cognitive Vision and Intelligent Computation Approaches for COVID -19”, Cognitive Neurodynamic, 2020 (Springer).
4. Guest Editor, International Journal of Signal and Imaging Systems Engineering, Vol. 5, No. 4, 2012.
5. Guest Editor, International Journal of Signal and Imaging Systems Engineering, Vol. 6, No. 1, 2013.
6. Guest Editor, International Journal of Signal and Imaging Systems Engineering, Vol. 7, No. 1, 2014.
7. Editor, International Journal of Emerging Trends in Electrical and Electronics (ISSN: 2320-9569).
8. Advisory Board Member, International Journal of Advanced Computer Research (ISSN: 2249-7277).
9. Reviewer, Virtual Instrumentation using LabVIEW, Sanjay Gupta and Joseph John, 2nd Edition, Tata McGraw Hill, New Delhi.
10. Reviewer, Optical Fiber Communication, Gerd Keiser, 4th Edition, Tata McGraw-Hill Pvt. Limited.
11. Reviewer, Optical Fiber Communication (Cambridge University Press India).
12. Reviewer, IEEE Transactions on Industrial Electronics.
13. Reviewer, IEEE Transactions on Geoscience and Remote Sensing.
14. Reviewer, IEEE Transactions on Medical Imaging.
15. Reviewer, IEEE Transactions on Automation Science and Engineering.
16. Reviewer, IEEE Geoscience and remote sensing letters.
17. Reviewer, IEEE/ASME Transactions on Mechatronics.
18. Reviewer, IEEE Access.
19. Reviewer, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing.
20. Reviewer, Biomedical Signal Processing and Control (Elsevier).
21. Reviewer, Computers and Electrical Engineering (Elsevier).
22. Reviewer, Engineering Science and Technology (Elsevier).
23. Reviewer, Pattern Recognition (Elsevier).
24. Reviewer, Optik-International Journal for light Electron Optics (Elsevier).
25. Reviewer, Computer Methods and Programs in Biomedicine Update (Elsevier).
26. Reviewer, Expert Systems with Applications (Elsevier).

27. Reviewer, Journal of King Saud University: Engineering Sciences (Elsevier).
28. Reviewer, Digital Signal Processing (Elsevier).
29. Reviewer, Signal Processing: Image Communication (Elsevier).
30. Reviewer, Cold Regions Science and Technology (Elsevier).
31. Reviewer, Alexandria Engineering Journal (Elsevier).
32. Reviewer, Computers & Electrical Engineering (Elsevier).
33. Reviewer, Scientific African (Elsevier).
34. Reviewer, Journal of Cleaner Production (Elsevier).
35. Reviewer, Computer Methods and Programs in Biomedicine Update(Elsevier).
36. Reviewer, International Journal of Applied Earth Observation and Geoinformation (Elsevier).
37. Reviewer, EURASIP Journal on Advances in Signal Processing (Springer).
38. Reviewer, Journal of Institution of Engineers (India): Series B (Springer).
39. Reviewer, CSI Transactions on ICT (Springer).
40. Reviewer, International Journal of Automation and Computing (Springer).
41. Reviewer, The Visual Computer (Springer).
42. Reviewer, Artificial Intelligence Review (Springer).
43. Reviewer, Advances in Computational Intelligence (Springer).
44. Reviewer, Complex and Intelligent Systems (Springer).
45. Reviewer, IET Image Processing (Wiley).
46. Reviewer, IET Electronics Letters (Wiley).
47. Reviewer, Computational Intelligence, an International Journal (Wiley).
48. Reviewer, IETE Journal of Research (Taylor & Francis).
49. Reviewer, International Journal of Remote Sensing (Taylor & Francis).
50. Reviewer, Geocarto International (Taylor & Francis).
51. Reviewer, The Imaging Science Journal (Taylor & Francis).
52. Reviewer, Photogrammetric Record (Taylor & Francis).
53. Reviewer, Mathematical Problems in Engineering (Hindawi).
54. Reviewer, International Journal of Distributed Sensor Networks (Hindawi).
55. Reviewer, Advances in Computer Engineering (Hindawi).
56. Reviewer, International Journal of Computational Vision and Robotics (Inderscience).
57. Reviewer, International Journal of Automation and Control (Inderscience).
58. Reviewer, Remote Sensing (MDPI).
59. Reviewer, Sensors (MDPI).
60. Reviewer, Mechatronics Systems and Control (ACTA Press).
61. Reviewer, AIMS Mathematics.
62. Reviewer, Journal of Applied Remote Sensing (SPIE).
63. Reviewer, Transactions of Nanjing University of Aeronautics and Astronautics.
64. Reviewer, F1000Research.
65. Reviewer, PeerJ Computer Science.
66. Reviewer, Journal of Electronic Imaging.

B. Conferences

1. Member, Technical Program Committee, 3rd International Conference on Control, Instrumentation, Energy & Communication (CIEC24), 25th – 27th January, 2024, University of Calcutta, India.
2. 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.
3. Member, Technical Program Committee, 2023 International Conference on Advance in Artificial Intelligence and Applications (AAIA 2023), 19th - 20th November, 2023, Wuhan, China.
4. 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.
5. Member, Technical Program Committee, International Conference on Data Analytics and Insights (ICDAI-2023), 11th – 13th May, 2023, Techno International New Town, Kolkata, India.
6. 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.
7. Member, Technical Program Committee, 3rd International Conference on Internet of Things & Embedded Systems (IoTE 2022), 23rd - 24th December, 2022, Sydney, Australia.
8. 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.
9. 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.
10. 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.
11. Member, Technical Program Committee, 2022 IEEE Silchar Subsection Conference, 4th - 6th November, 2022, National Institute of Technology Silchar, Assam, India.
12. 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.
13. 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.
14. 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.

15. Member, Technical Program Committee, 7th Annual International Conference on Information System and Artificial Intelligence, 13th - 15th May, 2022, Wuhan, China.
16. 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.
17. 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.
18. 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.
19. 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.
20. Member, Technical Program Committee, 5th International Conference on Computer Science and Application Engineering (CSAE), 19th - 21st October, 2021, Sanya, China.
21. Member, Technical Program Committee, 2021 International Mobile, Intelligent and Ubiquitous Computing Conference (MIUCC), 26th - 27th May, 2021, Misr International University, Cairo, Egypt.
22. 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.
23. Member, Technical Program Committee, International Conference on IoT and its application (ICIA 2020), 26th - 27th December, 2020, National Institute of Technology, Jamshedpur, India.
24. Member, Technical Program Committee, Asia Digital Image Processing (ADIP) Conference, 18th - 20th December, 2020, Kyoto, Japan.
25. 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.
26. Member, Technical Program Committee, 5th IEEE International Conference on Recent Advances and Innovations in Engineering (ICRAIE 2020), 1st - 3rd December, 2020, Jaipur, India.
27. 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.
28. 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.
29. 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.

30. Member, Technical Review Committee, International Conference on Modeling, Simulation and Intelligent Computing (MoSICom), 29th – 31st January, 2020, Birla Institute of Technology & Science, Dubai.
31. Member, International Advisory Board, 24th World Conference on Applied Science, Engineering and Technology (WCASET), 26th – 27th November, 2019, Kuala Lumpur, Malasiya.
32. 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.
33. 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.
34. 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.
35. Member, Technical Programme Committee, International Conference on Advances in Electronics, Computers and Communications (ICAIECC 2014), 10th -11th October, 2014, Reva University, Bangalore, India.
36. Member, Technical Programme Committee, International Conference on Signal Processing and Integrated Networks (SPIN 2014), 20th – 21st February, 2014, Amity University, Noida, India.
37. Member, Technical Programme Committee, International Symposium on Knowledge-Intensive Software Engineering (KISE 2013), 22nd – 25th August, 2013, Mysore, India.
38. 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.
39. 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.
40. 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.
41. 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.
42. 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.
43. 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.
44. Member, Technical Program Committee, 8th IEEE International Conference on Information, Communications and Signal Processing (ICICS 2011), 13th – 16th December, 2011, Singapore.

45. 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.
46. 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. **Head**, Career Development Center, NIT Rourkela from July 2019 to July 2022.
2. **Chairman**, Skill Hub Initiative Committee for the year 2022.
3. **Chairman**, Apex Committee, Formulation of SOP to bring back students for the year 2021.
4. **Member**, Fast Pace Programme Committee for the year 2020.
5. **Member**, Committee regarding Reallocation of Department Space from 2017 to till date.
6. **Member**, Biometric Machine Installation Committee from 2017 to till date.
7. **Member**, Academic Programme Oversight Committee for the institute from 2009 to 2012.
8. **Head**, Instrumentation Group of the department from 2013 to till date.
9. **Member**, Departmental Academic Programme Oversight Committee from 2021 to till date.
10. **Prof-in-Charge (PIC)**, Process Control Lab for the department from July 2009 to till date.
11. **Member**, Purchase Committee of the department from July 2014 to till date
12. **Member**, Department Research Committee from July 2014 to till date.
13. **Member**, Departmental Academic Committee from 2017 to till date.
14. **Prof-in-Charge (PIC)**, Virtual and Intelligent Instrumentation Lab for the department from Feb 2012 to till date.
15. **Faculty Advisor**, M. Tech (E&I) of the department from July 2012 to till date.
16. **Member**, Department promotion subcommittee for non-teaching employees for the year 2019.
17. **Chairman**, Departmental Purchase Committee for the year 2017-2018.
18. **Member**, Joint Seat Allocation Authority (JoSSA) Committee for the year 2017.
19. **Member**, Institute Standing Disciplinary Committee from 2015 to 2017.
20. **Member**, Departmental Academic Committee from 2015 to 2016.
21. **Member**, Purchase Committee for TEL Equipment from 2015 to 2016.
22. **Prof-in-Charge (PIC)**, Departmental Infrastructure from 2014 to 2016.
23. **Dept. Coordinator for Accreditation** for the year 2013-2014.
24. **Member**, Departmental Curriculum Development Committee for the year 2013-2014.
25. **Chairman (PG & R)** for the department for three consecutive years from 2010 to 2013.
26. **Teacher Guardian** of B. Tech (E&I) for the department for three consecutive years from 2009 to 2012.

27. **Prof-in-Charge (PIC)**, Direct Purchase for the department for two consecutive years from 2009 to 2011.
28. **Prof-in-Charge (PIC)**, Research Programme (UG) for the department for the two consecutive years from 2009 to 2011.
29. **Prof-in-Charge (PIC)**, Training and Placement for the department for two consecutive years from 2009 to 2011.

12. ACADEMIC OUTREACH ACTIVITIES

1. Invited as an **External Expert**, Project Staff Selection, Institute of Minerals & Materials Technology, Bhubaneswar, India, 24th December, 2022.
2. Elected as **Nomination Chair**, IEEE GRSS Kolkata Chapter, 2022.
3. Invited as an **External Expert** in Board of Studies for the session 2021-22 and 2022-23, Department of Electronics and Communication Engineering, Sambalpur University Institute of Information Technology, Odisha, India.
4. Invited as an **Expert Member**, Selection Committee, Department of Electronics and Communication Engineering, Biju Patnaik University of Technology (BPUT), Rourkela, Odisha, India, 16th August, 2022.
5. Invited as an **External Examiner**, Department of Electronics and Instrumentation Engineering, Odisha University of Technology and Research (OUTR), Bhubaneswar, India, 29th July, 2022.
6. Invited as an **External Examiner**, Department of Electronics and Communication Engineering, Indira Gandhi Institute of Technology, Sarang, India, 31st May, 2022.
7. Invited as an **Expert Member**, Screening Committee, Department of Electronics and Computer Engineering, National Institute of Advanced Manufacturing Technology, Ranchi, India, 24th February, 2022.
8. Invited to serve as **Session Chair** in 3rd Asian Digital Image Processing Conference, 17th – 19th December, 2021, Tokyo, Japan.
9. Elected as **Executive Committee Member**, IEEE GRSS Kolkata Chapter, 2021.
10. Invited to serve as **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.
11. Invited to serve as **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.
12. Invited as an **Expert** member, Selection Committee, Department of Electronics and Telecommunication Engineering, Indira Gandhi Institute of Technology, Sarang, India, 3rd August, 2021.
13. Invited as an **Expert member**, Screening-cum-Scrutiny Committee, Biju Patnaik University of Technology (BPUT), Rourkela, Odisha, India, 9th July, 2021.
14. **Member**, Research Council of University (RCU), Biju Patnaik University of Technology (BPUT), Rourkela, Odisha, India, from April, 2021 to till date.

15. **AICTE Representative**, Board of Governors, Government College of Engineering, Keonjhar, Odisha, India, from April, 2021 to till date.
16. **Member**, Board of Studies, Birla Institute of Technology, Mesra, India, February, 2021.
17. Invited to serve as **Primary Evaluator** for Toyathon 2021 conducted by Ministry of Education's Innovation Cell, India.
18. Invited to serve as **Session Chair** in 9th International Conference on Computing, Communication and Sensor Networks (CCSN 2020), 17th – 18th October, 2020, Kolkata, India.
19. Invited to serve as **Session Chair** in International Symposium on Smart Electronics Systems (IEEE-iSES, formerly IEEE-iNIS), 16th – 18th December, 2019, National Institute of Technology, Rourkela, India.
20. Invited as an **Expert** in Board of Studies Meeting for Finalization of Syllabus of Instrumentation and Electronics Engineering on 9th March, 2019, College of Engineering and Technology, Bhubaneswar, India.
21. Invited as an **Expert**, Selection Committee, Biju Patnaik University of Technology (BPUT), Odisha, India, 2018.
22. Invited to serve as **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.
23. Invited as an **External Expert** for the Final Evaluation of B.Tech. Projects by Siksha 'O' Anusandhan University, Bhubaneswar, India, 14th -15th May, 2016.
24. Invited as an **Expert** 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.
25. Invited as an **External Expert** on the occasion of Research Week 2016, 16th - 18th March, 2016, Gujarat Technological University, Ahmedabad, India.
26. Invited as an **Expert** for Principal, Govt. Polytechnic and ITI by Bihar Public Service Commission, Patna, 2015.
27. Invited to serve as **Industrial Track Chair and Session Chair** in International Conference on "Advanced Computing, Networking and Informatics", 24th - 26th June, 2014, Kolkata, India.
28. Invited as **Academic visitor** to the Department of Electrical and Computer Engineering, San Diego State University, USA, 2013.
29. Invited to serve as **Session Chair** in International Conference on "Emerging Trends, Technology and Research", 21st – 22nd September, 2013, Nagpur, India.
30. Invited to serve as **Session Chair** in International Conference on "Advance Computing and Communication", 16th -17th March, 2013, Ranchi, India.
31. Invited as an **Academic Visitor** to the Institute for Automation, University of Leoben, Austria by Prof. Paul O' Leary from 8th -12th November, 2010.

13. CONFERENCE ORGANIZED

- **General Chair**, International Conference on Electronic Systems (ICES -2011), Jan. 2011, National Institute of Technology, Rourkela, India.

14. TECHNICAL TALKS

1. Invited to deliver a Talk on “**Video-based Intrusion Detection System using Deep Learning Techniques**” in 3rd International Conference on Engineering, Social Sciences and Humanities (ICESSU 2023) organized by Institute for Engineering Research and Publication (IFERP) at Manila, Philippines on 30th March 2023.
2. 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.
3. 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.
4. Invited to deliver a Talk in **International Conference on Sustainability: Integrated and Scientific Approach** held on 4th August, 2022, University of Mumbai, Mumbai, Maharashtra.
5. 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.
6. Invited to deliver a Talk on “**Sensors and Actuators**” in **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.
7. 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.
8. Invited to deliver a Talk in **3rd Asian Digital Image Processing Conference** held during 17th – 19th December, 2021, Tokyo, Japan.
9. 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.
10. 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.

11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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.
18. 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.
19. Invited as Keynote Speaker in International Conference on "**Emerging Trends, Technology and Research**" held during 21st – 22nd September, 2013, Nagpur, India.
20. 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.
21. Invited to deliver Talk in International Conference on "**Advance Computing and Communication**" held during 16th – 17th March, 2013, Ranchi, India.
22. 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.
23. 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. IEEE International Conference on Emerging Technologies and Innovative Business Practices for the Transformation of Societies (IEEE EmergiTech 2016), 1st – 6th August 2016, **Mauritius**.
2. International Conference on Computer Communication and Informatics (ICCCI), 4th – 6th January, 2013, Chennai, India.
3. International Conference on Emerging Trends, Technology and Research (ICETTR 2013), 21st – 22nd September, 2013, Nagpur, India.
4. IEEE 8th International Conference on Information, Communications and Signal Processing (ICICS 2011), 13th -16th December, 2011, **Singapore**.
5. IEEE International Conference on Virtual Environment, Human-Computer Interfaces and Measurement Systems (VECIMS 2010), 6th – 8th September, 2010, Taranto, **Italy**.
6. International Conference on Instrumentation (ICI 2010), 21st – 23rd January, 2010, Pune, India.
7. IEEE Symposium Series on Computational Intelligence (SSCI 2009), 30th March – 2nd April, 2009, Nashville, TN, **USA**.

16. PUBLICATIONS

A. Books/ Book Chapters

- [1] **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).
- [2] **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.
- [3] 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>).

B. International Journals

- [1] 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)

- [2] 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>).
- [3] 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](https://doi.org/10.1080/01431161.2021.1906985)).
- [4] 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>).
- [5] 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](https://doi.org/10.1049/iet-ipr.2019.0568)).
- [6] 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](https://doi.org/10.1109/JAS.2019.1911831)).
- [7] Sourabh Paul and **Umesh C. Pati**, "Automatic Optical-to-SAR Image Registration using a Structural Descriptor," in *IET Image Processing*, Vol. 14, pp. 62-73, Jan. 2020 (DOI: [10.1049/iet-ipr.2019.0389](https://doi.org/10.1049/iet-ipr.2019.0389)).
- [8] Achala Pandey and **Umesh C. Pati**, "Image Mosaicing: A Deeper Insight," in *Image and Vision Computing*, Vol. 89, pp. 236-257, Sept. 2019 (DOI: <https://doi.org/10.1016/j.imavis.2019.07.002>).
- [9] Sourabh Paul and **Umesh C. Pati**, "SAR Image Registration Using an Improved SAR-SIFT Algorithm and Local Matching," in *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](https://doi.org/10.1109/JSTARS.2019.2918211)).
- [10] Sourabh Paul and **Umesh C. Pati**, "A Gabor Odd Filter-Based Ratio Operator for SAR Image Matching," in *IEEE Geoscience and Remote Sensing Letters*, Vol. 16, No. 3, pp. 397-401, Oct. 2018 (DOI: [10.1109/LGRS.2018.2872979](https://doi.org/10.1109/LGRS.2018.2872979)).
- [11] Subhansu Padhee, **Umesh C. Pati**, and Kamalakanta Mahapatra, "Closed-Loop Parametric Identification of DC-DC Converter," in *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](https://doi.org/10.1177/0959651818785291)).
- [12] Sourabh Paul and **Umesh C. Pati**, "A Block-Based Multi-Feature Extraction Scheme for SAR Image Registration," in *IEEE Geoscience and Remote Sensing Letters*, Vol. 15, No. 99, pp. 1-5, Jun. 2018 (DOI: [10.1109/LGRS.2018.2842921](https://doi.org/10.1109/LGRS.2018.2842921)).
- [13] Subhajit Kumar Indra, Subhansu Padhee, and **Umesh C. Pati**, "Design of Wireless Electronic Telltale System for Indication of Rock Deformation," in *IEEE Sensors Letters*, Vol. 2, No. 3, pp. 1-4, Jun. 2018 (DOI: [10.1109/LESENS.2018.2845708](https://doi.org/10.1109/LESENS.2018.2845708)).

- [14] Subhransu Padhee, **Umesh C. Pati**, and Kamalakanta Mahapatra, “Overview of High-Step-Up DC-DC Converters for Renewable Energy Sources,” in *IETE Technical Review*, Vol. 35, No. 1, pp. 99-115, Dec. 2016 (DOI: 10.1080/02564602.2016.1255571).
- [15] Achala Pandey and **Umesh C. Pati**, “A Novel Approach to Multiscale Blending Based on Saliency Mapping for Multimedia Image Compositing Applications,” in *Computers and Graphics*, Vol. 59, pp. 93-106, Oct. 2016 (DOI: 10.1016/j.cag.2016.06.003).
- [16] Sangeeta Sahu and **Umesh C. Pati**, “Intensity Based Registration of Medical Images,” in *International Journal of Computational Vision and Robotics*, Vol. 6, No. 4, pp. 319-330, Sept. 2016 (DOI: 10.1504/IJCVR.2016.079393).
- [17] Sourabh Paul and **Umesh C. Pati**, “Remote Sensing Optical Image Registration using Modified Uniform Robust SIFT,” in *IEEE Geoscience and Remote Sensing Letters*, Vol. 13, No. 9, pp. 1300-1304, Jul. 2016 (DOI: 10.1109/LGRS.2016.2582528).
- [18] Ritika Ojha, Kranthi P. Kumar, and **Umesh C. Pati**, “Automated Solar Tracking System for PV Module,” in *International Journal of Current Research*, Vol. 7, No. 10, pp. 22018-22025, Oct. 2015 (ISSN: 0975 – 833X).
- [19] Vijay Kumar Sharma, Kamalakanta Mahapatra, and **Umesh C. Pati**, “Non-Recursive Computation of 8 X 8 2D DCT for High Accuracy and Low Area,” in *Journal of Circuits, Systems and Computers*, Vol. 23, No. 10, pp. 1-21, Sept. 2014 (DOI: 10.1142/S0218126614501436).
- [20] Ranjan Kumar Senapati, and **Umesh C. Pati**, Kamalakanta Mahapatra, “Reduced Memory, Low Complexity Embedded Image Compression Algorithm using Hierarchical Listless Discrete Tchebichef Transform,” in *IET Image Processing*, Vol. 8, No. 4, pp. 213-238, Apr. 2014 (DOI: 10.1049/iet-ipr.2012.0295).
- [21] Priya Ranjan Muduli and **Umesh C. Pati**, “Image Fusion based on Bilateral Sharpness Criterion in DT-CWT Domain,” in *International Journal of Computational Vision and Robotics*, Vol. 4, No. 1-2, pp. 161-170, Feb. 2014 (DOI: 10.1504/IJCVR.2014.059371).
- [22] Ranjan Kumar Senapati, **Umesh C. Pati**, and Kamalakanta Mahapatra, “An Efficient Sparse 8 X 8 Orthogonal Transform Matrix for Colour Image Compression,” in *International Journal of Signal and Imaging Systems Engineering*, Vol. 6, No. 1, pp. 16-23, Jan. 2013 (DOI: 10.1504/IJSISE.2013.051502).
- [23] Ranjan Kumar Senapati, **Umesh C. Pati**, and Kamalakanta Mahapatra, “Listless Block-Tree Set Partitioning Algorithm for Very Low Bit Rate Embedded Image Compression,” in *AEU – International Journal of Electronics and Communications*, Vol. 66, No. 12, pp. 985-995, Dec. 2012 (DOI: 10.1016/j.aeue.2012.05.001).
- [24] 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,” in *International Journal of Signal and Imaging Systems Engineering*, Vol. 5, No. 1, pp. 58-65, May 2012 (DOI: 10.1504/IJSISE.2012.046743).

- [25] Ranjan K Senapati, **Umesh C. Pati**, and Kamalakanta Mahapatra, "A Fast Zigzag-Pruned 4x4 DTT Algorithm for Image Compression," in *WSEAS Transactions on Signal Processing*, Vol. 7, No. 1, pp. 34-43, Jan. 2011.
- [26] **Umesh C. Pati**, Pranab K. Dutta, and Alok Barua, "Feature Detection of an Object by Image Fusion," in *International Journal of Computer Applications*, Vol. 17, No. 1, pp. 59-67, Feb. 2010 (DOI: 10.5120/362-549).
- [27] **Umesh C. Pati**, Pranab K Dutta, and Alok Barua, "Feature Level Fusion of Range and Intensity Images of an Object," in *International Journal of Computational Vision and Robotics*, Vol. 1, No. 1, pp. 2-33, Jun. 2009 (DOI: /IJCVR10.1504.2009.026826).

C. National Journals

- [1] Debojyoti Mondal, Tarun K. Dan, and **Umesh C. Pati**, "Harvesting Energy using Piezoelectric Materials," in *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," in *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," in *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," in *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," in *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," in *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," in *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," in *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," in *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," in *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," in *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," in *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," in *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," in *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," in *Journal of the Instrument Society of India*, Vol. 34, No. 3, pp. 187-194, Sept. 2004.

D. International Conferences

- [1] 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 (Accepted).
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