

RESUME

Dr. Umesh Chandra Pati

Professor

Department of Electronics and Communication Engineering

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1. BRIEF 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 is also serving as Head, Career Development Center, NIT Rourkela at present.

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 100 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 also has 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, 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 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: Institution of Engineering and Technology (IET)
- 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 AREA OF RESEARCH

- Image/Video Processing
- Computer Vision
- Artificial Intelligence

- Internet of Things (IoT)
- Industrial Automation
- Instrumentation Systems
- Medical Imaging

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	Aug. 2018 to Aug. 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	Jul. 2017 to Jul. 2020	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 (7 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	Brain Disorder detection using Machine Learning	Ongoing
11.	Venkanna Chanogiri	Health Care Applications	Ongoing
12.	Pranshu Jena	Medical Imaging	Ongoing

B. M.Tech. Research Thesis Supervision: 1 completed (0 ongoing)

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: 43 completed (3 ongoing)

Sl. No.	Name of the Student	Title of Master Thesis	Year of Completion
1.	Shivam Gupta	Traffic Lane Localization using Clothoid Road Model	Ongoing
2.	Mogarala Tejoyadav	Water Quality Forecasting of River Ganga Using Statistical and Deep Learning Approaches.	Ongoing
3.	Chinmaya Kumar Meher	Automatic Detection of Abnormal Activities from Surveillance Videos using Deep-Generative Models for real-time applications.	Ongoing
4.	Aishwarya Premlal Kogekar	Water Quality Forecasting of the River Ganga using Statistical and Deep Learning Approaches	2021
5.	Ashwani	Nonlinear Compensation of Sensors	2021
6.	Omprakash Astya	Wireless Sensor Network Data Monitoring System	2020
7.	Goli Vishnukiran	Design of Computer Vision-based Bottle Inspection System using LabVIEW	2020
8.	Bhanu Pratap	Representation Learning for Image Anomaly Detection	2020
9.	Divya S.V	Development of SIFT-based Algorithms for SAR Image Registration	2019
10.	Shubham Shukla	Development of Control Algorithms for Two Tank Liquid Level Systems	2019
11.	M G Kiran	Modelling, Parametric Identification, and Control of CSTR System	2019
12.	Sukumar Barik	IoT Based Weather Monitoring and Intimation.	2018
13.	Subhajit Kumar Indra	Design of Wireless Data Acquisition System for Landslide Detection.	2018
14.	Unni R	PC Based Ultrasonic Intrusion Detection System	2018
15.	Susmitha Yalamati	Image Registration Using SIFT Algorithm	2018

16.	Prasanmit Nath	Sensor Integration for Inertial Navigation System in Ground Vehicles	2018
17.	Sukhada Ashok Raut	Underwater Image Registration	2017
18.	Abhinav Kumar Singh	Vision Based Inspection System of Beverage Industry	2017
19.	Ujwal Kumar Durgam	Synthetic Aperture Radar Image Registration Using Speeded Up Robust Features.	2016
20.	Ganesh Baliram Ingale	Design of PV Based Stand-Alone System for DC Microgrid	2016
21.	Rajesh Kumar Jha	Zigbee and GSM Based Wireless Data Acquisition System for Farming as well as Automatic Irrigation system	2016
22.	Purusottum Kumar	Dynamic Modelling of Process in Coal Based Thermal Power Plant	2016
23.	Praveen Kumar	IoT and GUI based Monitoring as well as Control of Home Appliances	2016
24.	Sudhansu Mallik	Underwater Image Enhancement	2016
25.	Nisha Kashyap	Design of Low-Cost Multi-Channel Data Acquisition System for Meteorological Application	2015
26.	G. Santhosh Kumar	Identification and Study of Performance of Controllers on Heat Exchanger	2015
27.	Deepak Choudhary	Two Degree of Freedom PID Controller for Quadruple Tank System	2015
28.	Upendra R. Moyyila	Detection and Recognition of Soccer Ball and Player	2015
29.	Pratish K. Sahoo	Mutual Information based Image Registration for Medical Imaging	2015
30.	Satish H. Bhati	Fingerprint Mosaicing using Modified Phase Correlation Method	2015
31.	Sandeep Kumar	Tuning of PID Controller for Higher Order System	2014
32.	Nilimamayee Samal	Data Acquisition and Linearization of Sensors: Greenhouse Case Study	2014
33.	Jyoti Ranjan Pati	Modeling, Identification, and Control of Cart-Pole System	2014
34.	Sangeeta Sahu	Image Registration Techniques for Medical Images	2014
35.	P. Govardhan	Night Time Pedestrian Detection for Advanced Driving Assistance Systems using Near-Infrared Images	2014
36.	Shishir Maheshwari	Image Blending using Graph Cut Method for Image Mosaicing	2014

37.	Sunita Mohanta	A LABVIEW based Data Acquisition System for Monitoring and Analysis of Vibration Signal	2013
38.	Raja N. Reddy	Fetal ECG Extraction using Wiener, SVD, and ICA Techniques	2013
39.	Abhyarthana Bisoyi	Implementation of Online Temperature Controller based on LABVIEW	2013
40.	Abhinav Deo	Recognition of Licence Plate and Detection of Optical Nerve Pattern using Hough Transform	2013
41.	Vimal Singh Bind	Robust Techniques for Feature-based Image Mosaicing using Image Fusion	2013
42.	Priya Ranjan Muduli	Development and Implementation of Image Fusion Algorithms based on Wavelets	2013
43.	Sankata Bhanjan Prusty	Linearization and Analysis of Level as well as Thermal Process using LabVIEW	2012
44.	Jyoti Prasanna Patra	A Phase-Locked Loop-based Integer N Frequency Synthesizer	2012
45.	Roopal Agrawal	Internet-based Data Logging and Supervisory Control of Boiler Drum Level using LabVIEW	2012
46.	Rashmi Panda	Removal of Artifacts from Electrocardiogram	2012

D. B.Tech. Thesis Supervision: 36 completed (1 ongoing)

Sl. No.	Name of the Student	Title of the UG Thesis	Year of Completion
1.	Heramba Panda	Deep learning-based efficient model for intrusion detection application	Ongoing
2.	Suprabha Nayak	IoT enabled Smart Garbage Bin	2021
3.	Tushr Kanta Sahoo	Video-based Human Activity Recognition using Deep Neural Networks	2020
4.	Sneha Satakshi Tripathy	IoT based Monitoring of Water and Air Pollution in Real-Time	2020
5.	Bhatraju Veeranjanyulu	Real-time camera-based intruder detection by using deep learning	2020
6.	Gowrigari Sravan Kumar Reddy	Data Acquisition from sensors and Linearization using neural network techniques	2019
7.	Yasmin Kukul	Image-Based Abnormal Activity Detection	2019
8.	Anindita Gain	Image-Based Smart Parking System	2019

9.	Priyadarsani Suchismita Jena	Traffic Monitoring System using Image Processing	2018
10.	Vikash Singhal	Accident Detection and Automatic Hospital Intimation	2018
11.	Salman Siddique Khan	Detection of Anomalous Events in Surveillance Videos	2018
12.	Shubham Singh	Vehicle Accident Detection and Messaging using Arduino and GSM Module	2017
13.	Rajesh Kumar Behera	Linearization of Differential Pressure Flow sensor with Hardware Implementation	2017
14.	K. S. Manikanta Kumar	Accident Detection and Automatic Hospital Intimation	2017
15.	Himanshu S. Behera	A Comparative Analysis of Corner Detection Algorithms	2016
16.	Deepak K. Nayak	Image Segmentation using Hough Transform	2016
17.	Brajen Malakar	Design and development of a Heart Rate Sensor using Fingertip	2016
18.	Shital N. Meshram	Wireless Data Acquisition System using Global System for Mobile Communication (GSM)	2016
19.	Pooja Ghosh	Image Mosaicing using Feature Detection Algorithms	2015
20.	Abhisek Parida	Vein Pattern Extraction using Near-Infrared Imaging for Biometric Purposes	2015
21.	Siniprabha Behera	Data Acquisition from LVDT and its Analysis	2015
22.	Saurav Kumar	Design of Controllers for Three Tank System	2015
23.	Ishan Kumar Sarangi, Sudarshan Nayak	Image Mosaicing of Panoramic Images	2014
24.	Aditya N. Sahoo Jyoti P. Behera	Analysis and Control of Processes	2014
25.	Abhilash Mishra, Pinaki Mishra	Design of ON/OFF, Proportional, and PID Temperature Controllers using LABVIEW	2013
26.	Anuran Maiti	Analysis and Control of Processes	2013
27.	Pragyan Paramita Kar, Priyam Saikia	Performance of Different Control Strategies for Boiler Drum Level Control using LABVIEW	2013
28.	Ritesh Kumar Nayak, Sharad Agarwal	Comparison of Iris Identification Technique by using Modified SIFT and SURF Keypoint Descriptor	2013

29.	Pamarthi Kranthi Kumar, Ritika Ojha	Solar Tracker System for PV Module	2013
30.	Debesh Kuanr, Lokanath Tripathy	Accuracy Improvement in Odia Zip Code Recognition Technique	2012
31.	Birendra Nath Tripathy, Abinash Dash	Prototype Drowsiness Detection System	2012
32.	Asutosh Mishra, Alok Nanda	Master Hand Technology for the HMI using Hand Gesture and Colour Detection	2012
33.	Kavita Ekka, Sushmita Tigga	A Study on Photoplethysmography and its use for Heartbeat Counting	2011
34.	Dibyanjan Pradhan, Ramakant Behera	Modeling of a Vehicle Speed Measurement System using Piezoelectric Sensors	2011
35.	Biswajit Jena, Sagar Kumar	Design of PID Controller using Bioinspired Evolutionary Techniques	2011
36.	Soumya Ranjan Nayak, Sagar Kumar Jena	Data Acquisition using PCL-207 Card	2010
37.	Sanjev Kumar, Sayed S Mohammad	PC-Based Data Acquisition using PCL- 208	2010

10. PEER-REVIEW ACTIVITIES

A. Journals / Books

- Editor-in-Chief, ACCENTS Transactions on Image Processing and Computer Vision (TIPCVC).
- Editor, Annals of Applied Sciences.
- Guest Editor, Special Issue in “Cognitive Vision and Intelligent Computation approaches for COVID -19”, Cognitive Neurodynamic, 2020 (Springer).
- Guest Editor, International Journal of Signal and Imaging Systems Engineering, Vol. 5, No. 4, 2012.
- Guest Editor, International Journal of Signal and Imaging Systems Engineering, Vol. 6, No. 1, 2013.
- Guest Editor, International Journal of Signal and Imaging Systems Engineering, Vol. 7, No. 1, 2014.
- Editor, International Journal of Emerging Trends in Electrical and Electronics (ISSN: 2320-9569).
- Advisory Board Member, International Journal of Advanced Computer Research (ISSN: 2249-7277).
- Reviewer, Virtual Instrumentation using LabVIEW, Sanjay Gupta and Joseph John, 2nd Edition, Tata McGraw Hill, New Delhi.
- Reviewer, Optical Fiber Communication, Gerd Keiser, 4th Edition, Tata McGraw-Hill Pvt. Limited.

- Reviewer, Optical Fiber Communication (Cambridge University Press India).
- Reviewer, IEEE Transactions on Industrial Electronics.
- Reviewer, IEEE Transactions on Geoscience and Remote Sensing.
- Reviewer, IEEE Transactions on Medical Imaging.
- Reviewer, IEEE Geoscience and remote sensing letters.
- Reviewer, IEEE/ASME Transactions on Mechatronics.
- Reviewer, IEEE Access.
- Reviewer, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing.
- Reviewer, Biomedical Signal Processing and Control (Elsevier).
- Reviewer, Computers and Electrical Engineering (Elsevier).
- Reviewer, Engineering Science and Technology (Elsevier).
- Reviewer, Pattern Recognition (Elsevier).
- Reviewer, Optik-International Journal for light Electron Optics (Elsevier).
- Reviewer, Computer Methods and Programs in Biomedicine Update (Elsevier).
- Reviewer, Expert Systems with Applications (Elsevier).
- Reviewer, Journal of King Saud University: Engineering Sciences (Elsevier).
- Reviewer, Digital Signal Processing (Elsevier).
- Reviewer, Expert Systems with Applications (Elsevier).
- Reviewer, Signal Processing: Image Communication (Elsevier).
- Reviewer, Cold Regions Science and Technology (Elsevier).
- Reviewer, Alexandria Engineering Journal (Elsevier).
- Reviewer, Computers & Electrical Engineering (Elsevier).
- Reviewer, Scientific African (Elsevier).
- Reviewer, EURASIP Journal on Advances in Signal Processing (Springer).
- Reviewer, Journal of Institution of Engineers (India): Series B (Springer).
- Reviewer, CSI Transactions on ICT (Springer).
- Reviewer, International Journal of Automation and Computing (Springer).
- Reviewer, The Visual Computer (Springer).
- Reviewer, Artificial Intelligence Review (Springer).
- Reviewer, Advances in Computational Intelligence (Springer).
- Reviewer, IET Image Processing (Wiley).
- Reviewer, IET Electronics Letters (Wiley).
- Reviewer, Computational Intelligence, an International Journal (Wiley).
- Reviewer, IETE Journal of Research (Taylor & Francis).
- Reviewer, International Journal of Remote Sensing (Taylor & Francis).
- Reviewer, Geocarto International (Taylor & Francis).
- Reviewer, The Imaging Science Journal (Taylor & Francis).
- Reviewer, Photogrammetric Record (Taylor & Francis).
- Reviewer, Mathematical Problems in Engineering (Hindawi).
- Reviewer, International Journal of Distributed Sensor Networks (Hindawi).

- Reviewer, Advances in Computer Engineering (Hindawi).
- Reviewer, International Journal of Computational Vision and Robotics (Inderscience).
- Reviewer, International Journal of Automation and Control (Inderscience).
- Reviewer, Remote Sensing (MDPI).
- Reviewer, Sensors (MDPI).
- Reviewer, Mechatronics Systems and Control (ACTA Press).
- Reviewer, AIMS Mathematics
- Reviewer, Journal of Applied Remote Sensing (SPIE).
- Reviewer, Transactions of Nanjing University of Aeronautics and Astronautics.
- Reviewer, F1000Research.

B. Conferences

- Member, Technical Program Committee, International Conference on Automation, Robotics and Computer Engineering (ICARCE-2022), 16th - 17th December, 2022, Wuhan, China.
- 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.
- 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.
- Member, Technical Program Committee, 7th Annual International Conference on Information System and Artificial Intelligence, 13th - 15th May, 2022, Wuhan, China.
- 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.
- 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.
- 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.
- Member, Technical Program Committee, 5th International Conference on Computer Science and Application Engineering (CSAE), 19th - 21st October, 2021, Sanya, China.
- Member, Technical Program Committee, 2021 International Mobile, Intelligent and Ubiquitous Computing Conference (MIUCC), 26th - 27th May, 2021, Cairo, Egypt.
- Member, Technical Program Committee, 2021 IEEE Second International Conference on Control, Measurement and Instrumentation (CMI), 8th - 10th January, 2021, Kolkata, India.
- Member, Technical Program Committee, International Conference on IoT and its application (ICIA 2020), 26th - 27th December, 2020, National Institute of Technology, Jamshedpur, India.
- Member, Technical Program Committee, Asia Digital Image Processing (ADIP) Conference, 18th - 20th December, 2020, Kyoto, Japan.

- 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.
- Member, Technical Program Committee, 5th IEEE International Conference on Recent Advances and Innovations in Engineering (ICRAIE 2020), 1st – 3rd December, 2020, Jaipur, India.
- 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.
- 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.
- 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.
- Member, Technical Review Committee, International Conference on Modeling, Simulation and Intelligent Computing (MoSICom), 29th – 31st January, 2020, Birla Institute of Technology & Science, Dubai.
- Member, International Advisory Board, 24th World Conference on Applied Science, Engineering and Technology (WCASET), 26th – 27th November, 2019, Kuala Lumpur, Malasiya.
- Member, Technical Programme Committee, International Conference on Computational Intelligence in Data Mining (ICCIDM 2014), 20th – 21st December, 2014, Burla, India.
- Member, Technical Programme Committee, 9th IEEE International Conference on Industrial and Information Systems (ICIIS 2014), 15th – 17th December, 2014, Gwalior, India.
- Member, Technical Program Committee, International Conference on Computational Advancement in Communication Circuits and Systems (ICCACCS 2014), 30th October-1st November, 2014, Kolkata, India.
- Member, Technical Programme Committee, International Conference on Advances in Electronics, Computers and Communications (ICAIECC 2014), 10th -11th October, 2014, Bangalore, India.
- Member, Technical Programme Committee, International Conference on Signal Processing and Integrated Networks (SPIN 2014), 20th – 21st February, 2014, Noida, India.
- Member, Technical Programme Committee, International Symposium on Knowledge-Intensive Software Engineering (KISE 2013), 22nd – 25th August, 2013, Mysore, India.
- 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.
- Member, Technical Program Committee, 2nd International Conference on Soft Computing for Problem Solving (SocProS 2012), 28th – 30th December, 2012, Jaipur, India.

- Member, International Program Committee, 2nd World Congress on Information and Communication Technologies (WICT 2012), 30th October – 2nd November, 2012, Trivandrum, India.
- 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, Bangkok, Thailand.
- 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.
- Member, Technical Program Committee, International Conference on Soft Computing for Problem Solving (SocProS 2011), 20th – 22nd December, 2011, Roorkee, India.
- Member, Technical Program Committee, 8th IEEE International Conference on Information, Communications and Signal Processing (ICICS 2011), 13th – 16th December, 2011, Singapore.
- Member, Technical Program Committee, International Program Committee, World Congress on Information and Communication Technologies (WICT 2011), 11th – 14th December, 2011, Mumbai, India.
- 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

- **Head**, Career Development Center, NIT Rourkela from July 2019 to till date.
- **Chairman**, Skill Hub Initiative Committee from 2022 to till date.
- **Chairman**, Apex Committee, Formulation of SOP to bring back students for the year 2021.
- **Member**, Fast Pace Programme Committee for the year 2020.
- **Member**, Committee regarding Reallocation of Department Space from 2017 to till date.
- **Member**, Biometric Machine Installation Committee from 2017 to till date.
- **Member**, Academic Programme Oversight Committee for the institute from 2009 to 2012.
- **Head**, Instrumentation Group of the department from 2013 to till date.
- **Member**, Departmental Academic Programme Oversight Committee from 2021 to till date.
- **Prof-in-Charge (PIC)**, Process Control Lab for the department from July 2009 to till date.
- **Member**, Purchase Committee of the department from July 2014 to till date
- **Member**, Department Research Committee from July 2014 to till date.
- **Member**, Departmental Academic Committee from 2017 to till date.
- **Prof-in-Charge (PIC)**, Virtual and Intelligent Instrumentation Lab for the department from Feb 2012 to till date.
- **Faculty Advisor**, M. Tech (E&I) of the department from July 2012 to till date.

- **Member**, Department promotion subcommittee for non-teaching employees for the year 2019.
- **Chairman**, Departmental Purchase Committee for the year 2017-2018.
- **Member**, Joint Seat Allocation Authority (JoSSA) Committee for the year 2017.
- **Member**, Institute Standing Disciplinary Committee from 2015 to 2017.
- **Member**, Departmental Academic Committee from 2015 to 2016.
- **Member**, Purchase Committee for TEL Equipment from 2015 to 2016.
- **Prof-in-Charge (PIC)**, Departmental Infrastructure from 2014 to 2016.
- **Dept. Coordinator for Accreditation** for the year 2013-2014.
- **Member**, Departmental Curriculum Development Committee for the year 2013-2014.
- **Chairman (PG & R)** for the department for three consecutive years from 2010 to 2013.
- **Teacher Guardian** of B. Tech (E&I) for the department for three consecutive years from 2009 to 2012.
- **Prof-in-Charge (PIC)**, Direct Purchase for the department for two consecutive financial years from 2009 to 2011.
- **Prof-in-Charge (PIC)**, Research Programme (UG) for the department for the two consecutive years from 2009 to 2011.
- **Prof-in-Charge (PIC)**, Training and Placement for the department for two consecutive years from 2009 to 2011.

12. ACADEMIC OUTREACH ACTIVITIES

- Invited as an **Expert Member**, Screening Committee, Department of Electronics and Computer Engineering, National Institute of Advanced Manufacturing Technology (NIAMT), Ranchi, India, 24th February, 2022.
- Invited to serve as **Session Chair** in 3rd Asian Digital Image Processing Conference, 17th – 19th December, 2021, Tokyo, Japan.
- 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.
- 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.
- Invited as an **Expert** member, Selection Committee, Department of Electronics and Telecommunication Engineering, Indira Gandhi Institute of Technology, Sarang, India, 3rd August, 2021.
- Invited as an **Expert member**, Screening-cum-Scrutiny Committee, Biju Patnaik University of Technology (BPUT), Rourkela, Odisha, India, 9th July, 2021.
- **Member**, Research Council of University (RCU), Biju Patnaik University of Technology (BPUT), Rourkela, Odisha, India, from April, 2021 to till date.
- **AICTE Representative**, Board of Governors, Government College of Engineering, Keonjhar, Odisha, India, from April, 2021 to till date.

- **Member**, Board of Studies, Birla Institute of Technology, Mesra, India, February, 2021.
- Invited to serve as **Primary Evaluator** for Toycathon 2021 conducted by Ministry of Education's Innovation Cell, India.
- Invited to serve as **Session Chair** in 9th International Conference on Computing, Communication and Sensor Networks (CCSN 2020), 17th – 18th October, 2020, Kolkata, India.
- 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.
- 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.
- Invited as an **Expert**, Selection Committee, Biju Patnaik University of Technology (BPUT), Odisha, India, 2018.
- 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.
- Invited as an **External Expert** for the Final Evaluation of B.Tech. Projects by Siksha 'O' Anusandhan University, Bhubaneswar, India, 14th -15th May, 2016.
- 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.
- Invited as an **External Expert** on the occasion of Research Week 2016, 16th - 18th March, 2016, Gujarat Technological University, Ahmedabad, India.
- Invited as an **Expert** for Principal, Govt. Polytechnic and ITI by Bihar Public Service Commission, Patna, 2015.
- 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.
- Invited as **Academic visitor** to the Department of Electrical and Computer Engineering, San Diego State University, USA, 2013.
- Invited to serve as **Session Chair** in International Conference on "Emerging Trends, Technology and Research", 21st – 22nd September, 2013, Nagpur, India.
- Invited to serve as **Session Chair** in International Conference on "Advance Computing and Communication", 16th -17th March, 2013, Ranchi, India.
- 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

- Invited to deliver a Talk in **3rd Asian Digital Image Processing Conference** held during 17th – 19th December, 2021, Tokyo, Japan.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

- Invited as Keynote Speaker in International Conference on “**Emerging Trends, Technology and Research**” held during 21st – 22nd September, 2013, Nagpur, India.
- 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.
- Invited to deliver Talk in International Conference on “**Advance Computing and Communication**” held during 16th – 17th March, 2013, Ranchi, India.
- 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.
- 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

- IEEE International Conference on Emerging Technologies and Innovative Business Practices for the Transformation of Societies (IEEE EmergiTech 2016), 1st – 6th August 2016, **Mauritius**.
- International Conference on Computer Communication and Informatics (ICCCI), 4th – 6th January, 2013, Chennai, India.
- International Conference on Emerging Trends, Technology and Research (ICETTR 2013), 21st – 22nd September, 2013, Nagpur, India.
- IEEE 8th International Conference on Information, Communications and Signal Processing (ICICS 2011), 13th -16th December, 2011, **Singapore**.
- IEEE International Conference on Virtual Environment, Human-Computer Interfaces and Measurement Systems (VECIMS 2010), 6th – 8th September, 2010, Taranto, **Italy**.
- International Conference on Instrumentation (ICI 2010), 21st – 23rd January, 2010, Pune, India.
- 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.

B. International Journals:

- [1] 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>).
- [2] 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)).
- [3] 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>).
- [4] 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)).
- [5] 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)).
- [6] 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](https://doi.org/10.1049/iet-ipr.2019.0389)).
- [7] 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>).
- [8] 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](https://doi.org/10.1109/JSTARS.2019.2918211)).
- [9] 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](https://doi.org/10.1109/LGRS.2018.2872979)).
- [10] 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](https://doi.org/10.1177/0959651818785291)).
- [11] 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](https://doi.org/10.1109/LGRS.2018.2842921)).

- [12] 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).
- [13] 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).
- [14] 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).
- [15] 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).
- [16] 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).
- [17] 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).
- [18] 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).
- [19] 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).
- [20] 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).
- [21] 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).
- [22] 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).
- [23] 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).

- [24] 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.
- [25] **Umesh C. Pati**, Pranab K. Dutta, and Alok Barua, “Feature Detection of an Object by Image Fusion”, *International Journal of Computer Applications*, Vol. 17, No. 1, pp. 59-67, Feb. 2010 (DOI: 10.5120/362-549).
- [26] **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).

C. 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**, Pragyana 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] Pragyana 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.

D. International Conferences

- [1] 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, Dec. 2021.
- [2] V V N Sujit and **Umesh C. Pati**, "Gabor and PCA Feature-based Unsupervised Change Detection in SAR Images," in *Proc. IEEE India Geoscience and Remote Sensing Symposium (InGARSS)*, Dec. 2021. [Accepted]
- [3] Mayank Mishra and **Umesh C. Pati**, "Autism Detection Using Surface and Volumetric Morphometric Feature of sMRI with Machine Learning Approach," International Conference on Advanced Network Technologies and Intelligent Computing, Banaras Hindu University, Varanasi, India, pp. 625-633, Dec. 2021.
- [4] Aishwarya Premlal 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, Dec. 2021.
- [5] Aishwarya Premlal 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, Sept. 2021.
- [6] Aishwarya Premlal 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, Jul. 2021.

- [7] Mayank Mishra and **Umesh C. Pati**, "Autism Spectrum Disorder Detection using the surface morphometric feature of sMRI in Machine Learning," in *8th IEEE Int. Conf. on Smart Computing and Communications (ICSCC)*, Muthoot Institute of Technology and Science, Kochi, Kerala, India, Jul. 2021.
- [8] Naba K. Sabat, **Umesh C. Pati**, and Santos K. Das, "A Short Survey on Real-Time Object Detection and its Challenges," in *Proc. Springer 2nd International Conference on Emerging Trends and Advances in Electrical Engineering and Renewable Energy (ETAEEER-2020)*, Kalinga Institute of Industrial Technology, Bhubaneswar, Odisha, India, pp. 215-220, Mar. 2020.
- [9] Rashmiranjan Nayak, **Umesh C. Pati**, and Santos K. Das, "Video Anomaly Detection using Convolutional Spatiotemporal Autoencoder," in *Proc. IEEE Int. Conf. on Contemporary Computing and Applications (IC3A 2020)*, Dr. A.P.J. Abdul Kalam Technical University (AKTU), Lucknow, pp. 175-180, India, Feb. 2020.
- [10] 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.
- [11] 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.
- [12] 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.
- [13] 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.
- [14] 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).
- [15] Prasanmit Nath and **Umesh C. Pati**, "Low-Cost Android App based Voice Operated Room Automation System", in *Proc. IEEE 3rd International Conference for Convergence in Technology (I2CT)*, Pune, India, pp. 1- 4, Apr. 2018 (DOI: 10.1109/I2CT.2018.8529157).
- [16] 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).

- [17] 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).
- [18] 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).
- [19] 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).
- [20] 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).
- [21] 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).
- [22] 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).
- [23] 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).
- [24] 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).
- [25] 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).
- [26] 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).

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