

## Profile Page



Name : Dr Roop Pahuja

Designation : Associate Professor

Department : Instrumentation & Control Engg.

Qualification : PhD (NIT Jalandhar)  
M.Tech Measurement and Instrumentation (Indian Institute of Technology, Roorkee)  
B.Tech Instrumentation and Control (Thapar Institute of Engineering and Technology)

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### Research Interests :

Smart Sensors and Systems, Intelligent VI systems for Measurement/Control Application, WSN and its Applications, Machine Vision, Image Processing and Machine Learning.

### Journal Publications :

Year	Journal	Publication
Sept 2022	Journal of East China University of Science and Technology, 65(3), 877–885.	Chitranshu Kumar Rai, Roop Pahuja. DIGITAL IMAGE PROCESSING-BASED VIRTUAL INSTRUMENTS FOR THE DETECTION AND CLASSIFICATION OF EATEN LEAVES
Nov 2022	Measurement, Vol. 203, 111907, pp 1-18	Roop Pahuja, Development of semi-automatic recalibration system and curve-fit models for smart soil moisture sensor
May 2021	Materials Today: Proceedings, vol 56 , part 06, pp 4852-4861	Sagar Verma, Roop Pahuja "Recalibration and performance comparison of soil moisture sensors using regression and neural network characteristic models"
March 2020	Instrumentation Measure Métrologie, Vol. 19, No. 1, pp. 9-18	Kumar, S., Pahuja, R. "Eco-friendly power generator cum fitness analyzer"
June 2021	Applied Acoustics, vol. 180, pp 1-13.	Roop Pahuja, Avijeet Kumar, "Sound-spectrogram based automatic bird species recognition using MLP classifier"
July 2019	International Journal of Agricultural and Environmental Information Systems (IJAEIS), vol. 10, no. 3, pp 30-54.	Himanshu Gupta, Roop Pahuja, "Estimating Morphological Features of Plant Growth Using Machine Vision"
Feb 2022	Wireless Personal Communication , Vol. 125, pp 1-27	Deepak Choudhary, Roop Pahuja "Deep Learning Approach for Encryption Techniques in Vehicular Network"

Dec 2022	The International Journal of Software Innovation, Vol . 10 , no. 1, pp. 1-16	Deepak Choudhary, Roop Pahuja , Two –Way Emergency Message Protocol in M-VANETS
Aug 2022	International Journal of Interactive Multimedia and Artificial Intelligence, Vol. 7, No-5, pp 51-58	Choudhary. D, Pahuja. R, Improvement in Quality of Service Against Doppelganger Attacks for Connected Network
April 2022	International Journal of Software Innovation (IJSI), Vol. 10, no. 1, pp 1-23	Rajandeep Kaur, Rajneesh Rani and Roop Pahuja, "Text-Dependent and Text-Independent Written Identification Approaches:Challenges and Future"
April 2022	ECS Transactions, vol. 107, no. 1	Narendra Kumar Dhakar and Roop Pahuja, "Analysis of Landsat 8 Imagery for Landform Classification and Change Detection"
2019	Biomed. Phys. Eng. Express, vol.5, pp. 1-8	Jyoti Thakur, Sharvan Kumar Pahuja and Roop Pahuja, “ Performance comparison of prediction models for neonatal sepsis using logistic regression, multiple discriminant analysis and artificial neural network”
2019	Biomedical Engineering: Applications, Basis and Communications, vol. 31, no. 1, pp 1-10	Jyoti Thakur, S. K. Pahuja and Roop Pahuja, Non-Invasive Prediction Model for Developing Countries To Predict Sepsis In Neonates
2017	J. of Biosystems Engg, Vol. 42, No. 1, Pages 23-43	Roop Pahuja, Harish Kumar Verma, Moin Uddin, "An Intelligent Wireless Sensor and Actuator Network System for Greenhouse Microenvironment Control and Assessment"
2017	Children, vol. 111, no. 04, pp 2-9	Jyoti Thakur, Sharvan Kumar Pahuja and Roop Pahuja, "Performance Comparison of Systemic Inflammatory Response Syndrome with Logistic Regression Models to Predict Sepsis in Neonates"
2017	American Journal of Traffic and Transportation Engineering, vol. 02, no. 4, pp 45-58	Rajesh Kumar Jakkar, Roop Pahuja, Raj Kumar Saini, Bhagirath Sahu, Natwar, “Drunk-Driver Detection and Alert System &#40;DDAS&#41; for Smart Vehicles”
2017	I.J. Engineering and Manufacturing, vol. 02, pp 23-38	Pallavi Singla , Prashant Jain and Dr. Roop Pahuja, “Implementation of Gas Scathe Admonisher and Control System Prototype"
2016	I.J. Intelligent Systems and Applications, Vol. 11, Pages 19-26	Prerit Saxena , Roop Pahuja, Manmeet Singh Khurana, Sumrit Satija, "Real-Time Fuel Quality Monitoring System for Smart Vehicles"
2016	Bulletin of Electrical Engineering and Informatics, Vol. 5 No. 4, Pages 403-411	Purnima Singh, Roop Pahuja, Meghavi Karwasra, Sunita Beniwal, Meenakshi Bansal, Anamika Dadhich, "Dual Axis Solar Tracking System for Solar Panel"
2016	Journal of Control and Instrumentation, vol. 7, no.3, pp 1-20.	Ramswaroop Yadav, Roop Pahuja, “Virtual Instrumentation System for 3D Tilt Estimation of Moving Object using MEMS Multi-Sensor Fusion"
2016	Journal of Sensors and Instrumentation, Columbia International Publication, vol.04, no. 01, pp 1-8.	Aman Nath Prajapati, Roop Pahuja “Design and Implementation of novel automated snow depth sensing system”
2015	Engineering in Agriculture, Environment and Food, Vol.8 No. 4, Page 273-288	Roop Pahuja, Harish Kumar Verma, Moin Uddin, "Implementation of Greenhouse Climate Control Simulator based upon dynamic model and vapor pressure deficit controller"
2015	I.J. Modern Education and Computer Science, vol. 4, pp 12-22.	Vaibhav Gautam, Roop Pahuja, “Web-enabled Simulated and Remote Control Virtual Laboratory of Transducer,”
2013	IEEE Pervasive Computing, Vol. 12 No. 2, Pages 49-58	Roop Pahuja, H.K Verma, Moin Uddin, "A Wireless Sensor Network for Greenhouse Climate Control"

## Conference Publications :

Year	Conference	Publication
Oct 2022	Control, Instrumentation System Conference, Manipal, Karnatak , India, 28-29 Oct 22	Chandan Kumar, Sugat B. Dhole, Bhanu Pratap Singh Chauhan, Dr Roop Pahuja, Diagnosis of Chronic Kidney Diseases Using Machine Learning
Nov 2022	2022 International Conference on Futuristic Technologies (INCOFT) 25th – 27th Nov, 2022,	Sharma, Somya and Pahuja, Dr. Roop, Estimating Drought Severity in Maharashtra using Standard Precipitation Index
Dec 2022	The Thirteenth International Joint Conference on Advances in Engineering and Technology, AET 2022	Sameer Jain , Anurag Soni , Ujjwaldeep, Roop Pahuja, Web Application to classify Chest pneumonia/Covid-19 using CNN Algorithm
2021	5th International conference on intelligent computing and communication (ICICC - 2021), Bengaluru, India	Aniket Roy, Dr. Roop pahuja "Detection and Classification of pest bird using spectrogram and physical imagery"
2021	Sixth International Conference on Image Information Processing (ICIIP), IEEE , Himachal Pradesh, INDIA	Chitrnanjan Kumar Rai, Roop Pahuja, Jitender Kumar Chabbra, "Implementation of Virtual Instrumentation System for Estimation of Eaten Leaf Area using Digital Image Processing"
2021	Int. Conf on Recent Development of Materials, Reliability, Safety and Environmental issues, NIT-Jalandhar, India	Deepak Choudhary, Roop Pahuja, "Optimization of QoS for Intelligent Transportation system in Smart cities"
2020	International Conference on Automation, Signal processing, Instrumentation and Control, iCASIC-2020, Vellore, India	Deepak Kumar, Roop Pahuja, "Energy Harvesting By Electromechanical Assembly By Weight Pulses,"
2020	Int. Conf of Innovations in Clean Energy Technologies, Maulana Azad National Institute of Technology, Bhopal, India	Deepak Choudhary, Roop Pahuja, "Prevention of Intrusion attacks via Deep learning in Wireless Sensor Network in Smart Cities - (Review)"
2019	4th International Conference SoCTA-2019, Patna	Deepak Choudhary, Roop Pahuja, "Performance optimization by MANET AODV-DTN Communication"
2019	Proceeding of the Tenth International conference on Control, Communication and Power Engineering, Bengaluru, India.	Saurabh Pathak, Roop Pahuja, Saksham Jindal, Soutrik Maiti, Savy Garg, Divya Garg, Ginni soni, "IoT-based Smart Switch Board System for Home Appliances Control,"
2019	IEEE 1st International Conference on Ubiquitous and Emerging Concepts on Sensors and Transducers, Kolkata, India	Kulwinder Singh, Roop Pahuja, Saurav Suman, Raghav Goyal, Babu Lal, "Wireless Surveillance Robot under Robust Environmental Situations,"
2018	. 2nd International Conference on Recent Research and Innovations in Social Science, Humanities & Education (ICRRISHE-2018) Chandigarh, India,	Prakash Rathod, Roop Pahuja, "Demand- Based Control of HVAC System for Indoor Air Quality and Thermal Comfort".
2018	Proc. of IEEE, 2nd International Conference on Electronics, Materials Engineering & Nano-Technology, India	H. Singh, R. Pahuja, S. Bhanot, "Performance Investigation of WAVE Network under Influence of Highway Mobility,"
2018	Proc. of IEEE, 2nd International Conference on Electronics, Materials Engineering & Nano-Technology, India	J. Thakur, S. Pahuja, R. Pahuja, "Neonatal Sepsis Prediction Model for Resource-Poor Developing Countries,"
2016	2nd International Conference on Electrical, Electronics and Industrial Automation, Montreal, Canada	Navjeet Kaur, Roop Pahuja, "Design and Implementation of an Intelligent Kitchen Model for Smart Homes"
2010	World Congress on Engineering and Computer Science, San Francisco, USA	Roop Pahuja, H.K. Verma, Moin Uddin, "Design and implementation of VI Tool for WSN applications"

2009	National Conference on Computing, Communication and Control. UIET, Punjab University, Chandigarh	Roop Pahuja, H.K Verma, Moin Uddin, "WSN application for power aware data acquisition and transmission"
	Control, Instrumentation System Conference, Manipal, Karnatak , India, 28-29 Oct 22	Chandan Kumar, Sugat B. Dhole, Bhanu Pratap Singh Chauhan, Dr Roop Pahuja, Diagnosis of Chronic Kidney Diseases Using Machine Learning

### Book/Chapter Publications :

Type	Title	Publisher	Authors	ISBN/ISS N No.	Year
Chapter	"Temperature as a Predictor of Neonatal Sepsis in Soft Computing: Theories and Applications, Advances in Intelligent Systems and Computing.	Springer, Singapore	Thakur J., Pahuja S.K., Pahuja R		2020
Chapter	"Performance Optimization by MANET AODV-DTN Communication'' in Soft Computing: Theories and Applications	Springer Singapore	Deepak Choudhary, Roop Pahuja		2020
Chapter	Design and implementation of VI Tool for WSN Applications , Lecture notes in Engineering and Computer science, International Association of Engineers	Newswood Publisher, Vol. 2186-2187	Roop Pahuja, H.K. Verma, Moin Uddin		2010

### Research Projects :

Role	Project Type	Title	Funding Agency	From	To	Amount	Status	Co-Investigator
Investigator	Sponsored	Calibration, Testing and Maintenance Lab	MHRD/AIC TE under Modernization of Laboratory and Removal of Obsolescence (MODROB)	2001	2004	7.99 Lacs	Completed	
Principal Investigator	Innovative R&D and Socially Relevant projects	Solar Powered Remote Micro-Irrigation Management System for Agriculture	TEQIP III	2019	2021	4 lakhs	Completed	Dr S K Pahuja

Supervisor	R & D Project for PG	Design and Implementation of an Intelligent Kitchen model for Smart Homes	TEQIP II	2015	2016	20,000	Completed	Navjeet Kaur (M-Tech Student)
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### Events Organized :

Category	Type	Title	Venue	From	To	Designation
Conference	International	International Conference on 'Women Researchers in Electronics and Computing'	Organized by ECE Department, NIT-Jalandhar			Session chair for the conference

### PhD Supervised :

Scholar Name	Research Topic	Status	Year	Co-Supervisor
Deepak Choudhary	WSN-IOT Application	Ongoing (Full-Time)	2019	
Ranjandeep Kaur	Classification of hand-written text	Ongoing (Part-Time)	2018-19	Dr Rajeesh Rani (Supervisor) , CSE Dept.
Chitranjan Kumar Rai	Application of WSN and image processing	Ongoing (Full-Time)	2018	
Jyoti Thakur	Internet-of-Things based Monitoring and Prediction Model of Neonatal Sepsis	PhD awarded	2015	Dr. S K Pahuja (Supervisor), ICE Dept.

### PG Dissertation Guided :

Student Name	Dissertation Title	Status	Year	Co-Supervisor
Somya Sharma	Assessment of Drought Severity in Maharashtra using Standard Precipitation Index Timescale	Completed	21-22	
Aniket Roy	Bird Pest Detection and Classification using Physical, Acoustic Image and CNN	Completed	2020-2021	
Narendra Kumar Dhakar	Vegetation Change Detection and Landform Classification using Landsat 8 Imagery	Completed	2020-2021	
Sagar Verma	RECALIBRATION BASED MODELING OF SMART SOIL MOISTURE SENSORS AND DATA MONITORING ON IOT	Completed	2019-2020	
Deepak Kumar	Energy harvesting by Electro-mechanical System using Weight Pulses	Completed	2018-2019	
Ranveer Singh	Design and Implementation of Smart DC Microgrid Using Solar PV Module	Completed	2017-2018	
Rahul	Ambient Environment Monitoring and Air-Sound Pollution Analyzer	Completed	2017-2018	
Sanni Kumar	Eco-Friendly Power Generation cum Fitness Analyzer	Completed	2017-2018	

Deepti Singh	Development of Remote Solar Panel Management System For DC Load	Completed	2016-2017	
Abijeet Kumar	Bird classification using sound based	Completed	2016-2017	
Himanshu Gupta	Virtual Instrument for Estimating Morphological Parameters of Plant Growth	Completed	2015-2016	
Aman Kumar	Virtual Instrumentation System for Online Motor Health Monitoring On Wi-Fi network	Completed	2015-2016	
Navjeet Kaur	Design and Implementation of an Intelligent Kitchen Model for Smart Homes	Completed	2015-2016	
Amar Nath Prajapati	Design and implementation of Novel Snow Depth Sensing System	Completed	2014-2015	
Prakash Rathod	Demand-based Control of HAVC System for Indoor Air Quality and Thermal Comfort	Completed	2014-2015	
Ramawatar Meena	Online Monitoring of Breathing Pattern , Body Temperature and PPG Signal	Completed	2014-2015	
Shafaf A.M	Development of Water Management System for Home Automation Networks	Completed	2014-2015	
Vaibhav Gautam	Design and Development of Remotely Accessible Multi-mode Virtual Laboratory of Transducers	Completed	2013-2014	
Ramswaroop Yadav	VI System for Better Tilt Estimation of 3D Moving Object using MEMS Multi-sensor Fusion	Completed	2013-2014	
Gaurav Sharma	Implementation of multi-sensor techniques for inertial navigation system	Completed	2012-2013	
Ankita	Design and implementation of virtual laboratory of sensors	Completed	2012-2013	

## Patents :

Name	Reg./Ref. No.	Date of Award/Filling	Organization	Status
Deepak kumar , Roop Pahuja, "Energy Harvesting by Electromechanical Assembly"	201911033018	15-08-19	Patent Office Delhi	Published
Dr. Roop Pahuja , Nisha Bansal , Diksha Khare, Surabhi Kashwa, Santosh Pratibha, "Wearable autonomous electronic device for personal security"	202011008721	29-02-20	Patent Office Delhi	Filled
Ranvir Singh, Dr Roop Pahuja , "SMI-?GPM : Software Metering infrastructure for DC Microgrid Power Management"	Diary no. 16777/2019-CO/SW (Reference : CR-6) , Grant no. 202011008721	24-06-21	Copyright office New Delhi	Granted
Roop Pahuja, "IrriSIM: A Noval Irrigation Simulator Using Variable Rate Controllers and Performance Analysis"	15017/2022-CO/SW	12-07-22	Copyright office New Delhi	Filled

## Admin. Responsibilities :

Position Held	Organization	From	To
Warden Girls Hostel No. 2	NIT Jalandhar	April 2007	

Advisory Committee (Utkansh 2016)	NIT Jalandhar	2016	
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## Award and Honours :

Title	Activity	Given by	Year
Certificate of Appreciation	TechNITI07	Head ICE	2007