# Profile Page


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| Name | : | Dr Sharvan Kumar Pahuja |
| Designation | : | Professor |
| Department | : | Instrumentation & Control Engg. |
| Qualification | : | PhD (IIT Delhi)<br>M Tech (REC Kurukshetra)<br>B Tech (REC Kurukshetra) |
| Address | : | ICE Department<br>Dr B R Amdedkar NIT<br>Jalandhar, punjab - 144011 |
| Email | : | pahujas@nitj.ac.in |
| Phone | : | 9888482910 |


## Research Interests :

Feto-Maternal Monitoring, Electrical Impedance tomography, Physiological Control System, Mathematical Modeling of Physiological Systems, Signal Processing, Control System

## Journal Publications :

| Year | Journal | Publication |
|---|---|---|
| 2021 | International Journal of Sensors Wireless Communications and Control, 2021 Feb, 1;11(2):189-96 | Kaur H, Pahuja SK. “A Review of Data Transmission Techniques for Wireless Biomedical Data Communication |
| 2021 | Mini-Reviews in Medicinal Chemistry | Pooja, SK Pahuja and Karan Veer,” A Systematic Review of Machine learning Based Gait characteristics in Parkinson’s disease” |
| 2021 | Robotica, pp. 1-25 | Pooja, SK Pahuja and Karan Veer,” Recent Approaches on Classification and Feature Extraction of EEG Signal: A Review” |
| 2021 | Current Medical Imaging, Volume 17, Issue 6 , pp. 714-719 | • Pooja, S. K. Pahuja and Karan Veer, “Significance of MRI Guided Focused Ultrasound Thalamotomy for Parkinson’s Disease: A Review” |
| 2020 | International Journal of Sensors, Wireless Communications and Control 10: 1. | Harminder Kaur and Sharavan Kumar Pahuja, “A Review of Data Transmission Techniques for Wireless Biomedical Data Communication” |
| 2020 | IETE Journal of Research | Ramesh Kumar, Sharwan Kumar & A. Sengupta, "Optimization of Bio-Impedance Techniques-Based Monitoring System for Medical & Industrial Applications" |
| 2019 | Sensor Letters, Volume 17, Number 9, pp. 688-695(8) | Kumar, Ramesh; Kumar, Sharvan; Sengupta, A.,Design and Validation of a New Programmable Current Source for Electrical Impedance Tomography Applications |
| 2019 | International Journal of Biomedical Engineering and Technology, Inderscience, 2019 | Ramesh Kumar, Sharwan Kumar, Amit Sengupta,Optimization of Electrical Impedance Techniques based System for Medical & Non-Medical Application Monitoring |

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|---|---|---|
| 2019 | Biomedical Engineering: Applications, Basis And Communications, Volume 31, Issue 02 (April 2019) | • Ramesh Kumar, Sharvan Kumar and A. Sengupta, An Experimental Analysis And Validation Of Electrical Impedance Tomography Technique For Medical Or Industrial Application |
| 2019 | Biomedical Physics & Engineering Express, Volume 5, Number 3 | Jyoti Thakur1, 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, Volume 31, Issue 01 | Jyoti Thakur, Sharvan Kumar Pahuja and Roop Pahuja ,NON-INVASIVE PREDICTION MODEL FOR DEVELOPING COUNTRIES TO PREDICT SEPSIS IN NEONATES |
| 2018 | International Journal of Intelligent Systems and Applications in Engineering, 6(1) | Kumar R, Pahuja SK, Sengupta A. “Analysis and Validation of medical Application through Electrical Impedance based System” |
| 2018 | I.J. Intelligent Systems and Applications 69-79 | Abdullah Bin Queyam, Sharvan Kumar, Dilbag Singh, "Doppler Ultrasound Based Non-Invasive Heart Rate Telemonitoring System for Wellbeing Assessment" |
| 2018 | I.J. Intelligent Systems and Applications, 12, 69-79 | Abdullah Bin Queyam, Sharvan Kumar, Dilbag Singh, "Doppler Ultrasound Based Non-Invasive Heart Rate Telemonitoring System for Wellbeing Assessment" |
| 2017. | Children, 4, 4(12 ),1-9 | Jyoti Thakur, Sharvan Kumar Pahuja, Roop Pahuja, “Performance Comparison of Systemic In?ammatory Response Syndrome with Logistic Regression Models To Predict Sepsis in Neonates" |
| 2017. | International Journal of Performability Engineering, Vol13( 2),143-152 | Ishan Luthra and S. K. Pahuja, "Simulation and Analysis of an Eddy Current Damper" |
| 2017 | Journal of Engineering Science and Technology Review (JESTR), vol. 6, no. 5, pp. 7–14 | A. B. Queyam, S. K. Pahuja, and D. Singh, “Non-Invasive Feto-Maternal Well-Being |
| 2017 | International Journal of Intelligent Systems and Applications (IJISA), vol. 9, no. 3, pp. 41–50 | A. B. Queyam, S. K. Pahuja, and D. Singh, “Simulation and Analysis of Umbilical Blood Flow using Markov-based Mathematical Model” |
| 2017 | Technologies 2017, 5(4), 68 | A. B. Queyam, S. K. Pahuja, and D. Singh, “Quantification of Feto-Maternal Heart Rate from Abdominal ECG Signal using Empirical Mode Decomposition for Heart Rate Variability Analysis” |
| 2016 | Journal of Instrumentation Technology & Innovation (JoITI), vol. 6, no. 1, pp. 1–9 | A. B. Queyam, S. K. Pahuja, and D. Singh, “LabVIEW-based Virtual Instrument for Simulation of Doppler Blood Flow Velocimetry of Umbilical Artery” |
| 2016 | Journal of Control & Instrumentation. ,7(2): | Ramesh Kumar, Sarwan Kumar, Amit Sengupta. A Review: Electrical Impedance Tomography System and Its Application |
| 2015 | Journal of Instrumentation Technology and Innovation. 5(3). | Kumar R, Pahuja SK, A. Sengupta. Phantom based Analysis and Validation using Electrical Impedance Tomography |

## Conference Publications :

| Year | Conference | Publication |
|---|---|---|
| 2021 | International Conference on Women Researchers in Electronics and Computing” (WREC 2021) | Kaur H, PahujaSK. “Study of MAC Protocols for Wireless Body Sensor Networks”. |
| 2019 | International Conference on Humanizing Work and Work Environment | Kaur, H., Pahuja, S.K. “A Comparative Review Of Available Systems For E-Health Monitoring”, |
| 2018 | KumInternational Conference On Secure Cyber Computing And Communications, | Kumar R, Pahuja SK, Sengupta A. Object Identify Using Electrical Impedance Tomography Technique For Industrial Application |

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|---|---|---|
| 2018 | Jyoti Thakur, Sharvan Kumar Pahuja, Roop Pahuja,Neonatal Sepsis Prediction Model IEEE, 2nd International Conference on Electronics, Materials Engineering & Nano-Technology, India. | Jyoti Thakur, Sharvan Kumar Pahuja, Roop Pahuja,Neonatal Sepsis Prediction Model for Resource-Poor Developing Countries |
| 2018 | IEEE International Conference, CONFLUENCE | Kumar R, Pahuja SK, Sengupta A. An validation of Bio-Impedance Technique for medical or non-medical Application, |
| 2018 | 8th International Conference CONFLUENCE–2018 on Cloud Computing, Data Science & Engineering, Amity University, Noida, India, 2018 | A. B. Queyam, R. K. Meena, S. K. Pahuja, and D. Singh, “An IoT based Multi-Parameter Data Acquisition System for Efficient Bio-Telemonitoring of Pregnant Women at Home” |
| 2018 | 8th International Conference CONFLUENCE–2018 on Cloud Computing, Data Science & Engineering, Amity University, Noida, India, 2018 | R. K. Meena, S. K. Pahuja, A. B. Queyam and A. Sengupta, “An Experimental validation of Bio-impedance Technique for medical & non-medical Application” |
| 2017 | International Conference, ICET: EITM 2017, National institute of technology Hamirpur | Kumar R, Pahuja SK, Sengupta A. An Experimental Study of Bio-Impedance Technique for Biomedical Application, |
| 2016 | International Conference, Humanizing Work and Work Environment | Kumar R, Pahuja SK, Sengupta A. An Experimental Study of Electrical Impedance Tomography Technique for Biomedical Application, |
| 2015 | Indian Journal of Physiology and Pharmacology - Supplement, APPICON 2015, AIIMS Jodhpur, India 59(5) | A. B. Queyam, S. K. Pahuja, and D. Singh, “Fetal well-being Prediction Using Simulation of Markov Based Mathematical Model” |

## Book/Chapter Publications :

| Type | Title | Publisher | Authors | ISBN/ISSN No. | Year |
|---|---|---|---|---|---|
| | “IOT and Machine Learning Algorithms for Fall Detection” | Springer Book Series Verlag | Pooja, Karan Veer, SK Pahuja | | 2021 |
| | Machine Learning Implementations in COVID-19, | CRC Press, Taylor and Francis Group Emerging Trends in Biomedical Technologies and Health informatics series, | Kabita Kumari, S.K. Pahuja and Sanjeev Kumar | | 2021 |
| Book Chapter | A Review of Different Techniques for Biomedical Data Security | IGI Global | Kaur, Harminder and Sharvan Kumar Pahuja | doi:10.4018/978-1-5225-7952-6.ch005 | 2019 |
| | Handbook of Research on Advanced Concepts in Real-Time Image and Video Processing, CH 6 | | Kumar R, Pahuja SK, Sengupta A. | | 2017 |

## Research Projects :

| Role | Project Type | Title | Funding Agency | From | To | Amount | Status | Co-Investigator |
|---|---|---|---|---|---|---|---|---|

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|---|---|---|---|---|---|---|---|---|
| PI | R & D | Development of non invasive EIT based sensor to monitor vital foetal & maternal parameters for mass health care purpose | DSIR, Technopreneur Promotion Programme (TePP), Ministry of Science & Technology | | | 2.5 lacs | Completed | |
| Co-Principal Investigator | TEQIP Collaborative Research Scheme Engineering college Ajmer | “Adaptive Bio-Impedance Based Monitoring System for Medical and Industrial Applications” | TEQIP-ACITE | 18-06-2019 | 30-06-2021 | 411000.00 | Completed | |
| PI | Under Enhancement of R & D and Institutional Consultancy Activity in TEQIP | Feto-Maternal Monitoring System | TEQIP | | | 50000 | Completed | |
| | Under Enhancement of R & D and Institutional Consultancy Activity in TEQIP | Design & Implementation of EIT based Hardware for Feto-Maternal Monitoring | TEQIP | | | 47530.00 | Completed | |
| | Under Enhancement of R & D and Institutional Consultancy Activity in TEQIP | Real time Identification with Monitoring body weight and height using image processing technique | TEQIP | | | 3000 | Completed | |

## Events Organized :

| Category | Type | Title | Venue | From | To | Designation |
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|---|---|---|---|---|---|---|
| Conference | International | Int. Conf. on Biomedical Engineering and Assistive Technologies (BEATS-2010) | Dr B R Ambedkar NIT Jalandhar | 17-12-2010 | 19-10-2010 | Jt Organising Secretary |
| Conference | International | 2nd Int. Conf. on Biomedical Engineering and Assistive Technologies (BEATS-2012) | Dr B R Ambedkar NIT Jalandhar | 06-12-2012 | 07-12-2012 | Conference Chair |
| Winter School | National | School on Instrumentation & Control Engineering | Dr B R Ambedkar NIT Jalandhar | 11-01-2010 | 15-01-2010 | Coordinator |
| One Week Online Short Term Course | National | Modeling and Identification of Physiological Systems (MIPS-2021) | Dr B R Ambedkar NIT Jalandhar | 20-10-2021 | 24-10-2021 | CONVENER |
| Workshop | National | " Model Curriculum Development of UG (B.Tech) course of Instrumentation and Control Engineering" | Dr B R Ambedkar NIT Jalandhar | 09-09-2016 | 09-09-2016 | HOD |
| One Week Online Short Term Course | National | Optimization and Control Design Techniques Innovations and Challenges (OCDT-2022) | ICE Department, Dr B R Ambedkar NIT Jalandhar | 23-05-22 | 27-05-22 | Coordinator |

## PhD Supervised :

| Scholar Name | Research Topic | Status | Year | Co-Supervisor |
|---|---|---|---|---|
| JYOTI | Internet-of-Things (IoT) Based Monitoring and Prediction Model for Neonatal Sepsis | Awarded | 2020 | Dr Roop Pahuja |
| Mr Abdullah Bin Queyam | Real - Time Monitoring Of Fetal Health Using Non Invasive Multiparameter System | Awarded | 2019 | Dr Dilbag Singh |
| Mr Ramesh Kumar Meena | "Optimization of Electrical Impedance Techniques for Feto-meternal Monitoring" | Awarded | 2019 | Dr Amit Sengupta |
| Harminder Kaur | Development of an Improved Transmission and Security System for E-health Monitoring | Pursuing | | |
| Pooja | IoT based Monitoring and Prediction Model for Parkinson's disease | Pursuing | | Dr. Karan Veer |
| Kabita Kumari | Development of novel non-invasive prototype(NNIP) for the detection of bilirubin level | Pursuing | | Dr Sanjeev |

## PG Dissertation Guided :

| Student Name | Dissertation Title | Status | Year | Co-Supervisor |
|---|---|---|---|---|
| Dinesh Kumar | TO DEVELOP A 30-BUS SYSTEM AND STUDY SUB- SYNCHRONOUS OSCILLATIONS USING PSCAD | Pursuing | 2023 | Prof Dilbag Singh |
| Somen Sarkar | Cost-effective Continuous Blood Pressure Monitoring System | Completed | 2022 | |

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|---|---|---|---|---|
| Vinod Kumar Singh | IOT Based Portable Ventilator Using Arduino | Completed | 2022 | |
| Sakshi Gupta 19206117 | Detection of Ischemia by classifying DFU wound Images using Image Processing | Completed | 2021 | |
| Lalita Adhikari (18206110) | Mathematical Modeling Of Photoplethysmogram During Stroke Volume | Completed | 2020 | |
| Shiv Sagar Singh (18206121) | Detection and Classification of Brain Tumor in MRImages | Completed | 2020 | |
| VIKRAM KUMAR DAS (17206120) | Modeling and Simulation of Cardiovascular System | Completed | 2019 | |
| Manpreet Singh (15214016) | Real –Time System for Acquiring Height and Weight using Image Processing Techniques | Completed | 2017 | |
| NIVEDITA SETHY (14214005) | Real Time Measurement of Heart Rate and it's variability | Completed | 2016 | |
| PRAVEEN KUMAR (14214011) | Fusion Analysis for Multifocus and Multimodal Images using PCA, DWT and DT-CWT | Completed | 2016 | |
| Charu Maggu | Monitoring of Single Phase Supply Through DSO | Completed | 2016 | |
| Ishan Luthra | Real Time Simulation and Analysis of An Eddy Current Damper for Safety | Completed | 2016 | |
| Manish Kumar | Development of Automated Wheelchair for Cardiac Patients | Completed | 2016 | |
| Sumit Kumar | Intelligent windshield for automotive vehicle | Completed | 2016 | |
| Nivedita Sethy | Real Time Measurement of Heart Rate and It's Variability | Completed | 2016 | |
| Praveen Kumar | Fusion Analysis for Multifocus and multimodal Images using PCA, DWT and DT-CWT | Completed | 2016 | |
| Ramawatar Meena | Online Monitoring of Breathing Pattern, Body Temperature and PPG Signal | Completed | 2015 | Dr Roop Pahuja |
| Swapnil Mohite | Object Identification and Peak Detection of Bio Signals | Completed | 2015 | |
| Rakhi Kumari | Measurement of Heart Rate Variability Using PPG and APG Signal | Completed | 2015 | |
| Hrminder Singh Bhamra | Study and Simulation of Solar Radiation Effects on Human Skin | Completed | 2014 | |
| Sachin Sharma | Real time emg signal based motor control and feature extraction | Completed | 2012 | |

## Admin. Responsiblities :

| Position Held | Organization | From | To |
|---|---|---|---|
| Associate Dean PD | Dr B R Ambedkar NIT Jalandhar | 2014 | 2015 |
| HOD ICE | Dr B R Ambedkar NIT Jalandhar | 2015 | 2017 |
| Associate Dean PD | Dr B R Ambedkar NIT Jalandhar | 2019 | |
| coordinator Insititute Security | Dr B R Ambedkar NIT Jalandhar | 2019 | |
| Faculty Incharge Purchase | Dr B R Ambedkar NIT Jalandhar | 07-05-19 | 30-01-20 |
| Coordinator TBI | Dr B R Ambedkar NIT Jalandhar | 2021 | |
| HOD EE | Dr B R Ambedkar NIT Jalandhar | 2015 | 2017 |
| Chairman Campus Safety and Security | Dr B R Ambedkar NIT Jalandhar | 3/6/2022 | 15-02-2023 |
| HoD Electrical Engineering | Dr B R Ambedkar NIT Jalandhar | 16-02-2023 | |