Ambarish G. Mohapatra, Ph.D.

Designation : Associate Professor

Department : Department of Electronics and Instrumentation

Engineering

(JOINED THE INSTITUTE IN 2010)

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RESEARCH INTERESTS

- Fiber Bragg Grating Sensors
- Precision Agriculture and Decision Support System
- IoT/M2M/WSN devices and Remote measurement schemes
  Design of Pressure Transducers, Load transducers and smart transmitters (Live Zero)

Academic Qualifications

Ph. D. (Engineering): Suresh Gyan Vihar University, Jaipur, India.

M. Tech.: Sensor System Technology, VIT University, Vellore, India.

B.Tech: National Institute of Science and Technology, Berhampur, Orissa, India.

Specialization: Electronics Engineering.

Teaching Experience/Industrial Experience/Research Experience

✓ Dec-2010 to Present
  Assistant Professor in Applied Electronics and Instrumentation Department, Silicon Institute of Technology, Bhubaneswar, Orissa, India.

✓ Jan-2009 to Nov-2010,
  Senior Lecturer in Applied Electronics and Instrumentation Department, Krupajal Engineering College, Bhubaneswar, Orissa, India.

JOURNAL& CONFERENCES

CONFERENCES:

1. D. R. Nayak, A. G. Mohapatra, B. Keswani, A. Mohanty, P. K. Tripathy and A. K. Samantaray, "IoT enabled predictive maintenance of diesel generator in the context to Industry 4.0," *2021 IEEE 19th OITS International Conference on Information Technology (OCIT)*, 2021, pp. 364-368, doi: 10.1109/OCIT53463.2021.00078.

2. Ambarish G. Mohapatra, Pradyumna Kumar Tripathy, Maitri Mohanty, Ashish Khanna, "Fiber Bragg Grating (FBG) sensor for the monitoring of Cardiac Parameters in healthcare facilities", in Proceedings of 2nd Doctoral Symposium on Computational Intelligence (DoSCI-2021), Springer, Lucknow, India, 2021.

3. Ambarish G. Mohapatra, Pradyumna Kumar Tripathy, Maitri Mohanty, Ashish Khanna, "IoT enabled distributed cardiac monitoring using Fiber Bragg Grating (FBG) sensing technology", in Proceedings of 2nd Doctoral Symposium on Computational Intelligence (DoSCI-2021), Springer, Lucknow, India, 2021.

4. Bright Keswani, Prity Vijay, Narayan Nayak, Poonam Keswani, Saumyaranjan Dash, Laxman Sahoo, Tarini Ch. Mishra, Ambarish G. Mohapatra, "Imbalanced Dataset Performance Hindrance Challenge for Machine Learning Classification Algorithms", Proceedings of the International Conference on Innovative Computing and Communication (ICICC-2019), Springer Series: Advances in Intelligent Systems and Computing, Pages In-Press, First Online: 29 February 2020.
   DOI: https://doi.org/10.1007/978-981-15-1286-5.38. Scopus

5. Saroj Kumar Lenka, Ambarish G. Mohapatra," Gradient Descent with Momentum based neural network pattern classification for the prediction of soil moisture content in Precision Agriculture", Proceedings of the IEEE International Symposium on Nanoelectronic and Information Systems (iNIS), Pages 63-66, 21-23 December 2015. Scopus

6. Ambarish G. Mohapatra, Saroj Kumar Lenka, "Hybrid Decision Model for Weather Dependent Farm Irrigation Using Resilient Backpropagation based Neural Network Pattern Classification and Fuzzy Logic", Proceedings of the Springer Smart Innovation, Systems and Technologies (SIST) Book series, Chapter 30, Pages 1-12, 2016. Scopus

7. Ambarish G. Mohapatra, Saroj Kumar Lenka, "Neural Network Pattern Classification and Weather Dependent Fuzzy Logic Model for Irrigation Control in WSN Based Precision Agriculture", ICISP-2015, Proceedings of the Elsevier Procedia Engineering, Volume 78, Pages 499-506, 2016.

8. S.G. Mohapatra, A.G. Mohapatra, Dept. Electronics & Telecommunication Engineering, Silicon Institute of Technology, Bhubaneswar, India, S.K. Lenka, "Cyclostationarity based windowing method for spectrum sensing in cognitive radio networks", IEEE International Conference on Information Communication and Embedded Systems (ICICES), Pages 603-608, 2013.

9. Subhashri G. Mohapatra, Ambarish G. Mohapatra, Dr. S. K. Lenka, "Performance Evaluation Of Cyclostationary Based Spectrum Sensing In Cognitive Radio Network", Pages 90-97, IEEE IMAQ4S 2013.

10. Saroj Kumar Lenka, Ambarish G. Mohapatra, "A Study on MOEMS based MicroSpectrometer for Real-Time Precision Agriculture Application", International Conference on Technical and Executive Innovation in Computing and Communication (TEICC 2012), Pages 490-493, 2012.

11. Nalini Singh, Ambarish G. Mohapatra, Biranchi Narayan Rath and Gurukalyan Kanungo, "Breast cancer mass detection in Mammograms using K-means and fuzzy C-means clustering", 4th IEEE ICCSIT, Chengdu, China, Volume 6, Number 3, Pages 122-126, 2011.

12. Dr. Saroj Ku. Lenka, Ambarish G. Mohapatra, Sasmita Nayak, "Wireless Sensor Network used for monitoring the quality of drinking water", National Seminar on "24th National Convention of IPHE (I) (Institute of Public Health Engineers, Govt. Of India) in Bhubaneswar", Pages 105-113, February-2011.

13. Neeta Kiran, Ambarish G. Mohapatra, "Towards A Distributed Data Mining System for Tourism Industry", National Conference on "Future Trends on Data Mining" at Gandhi Engineering College, Bhubaneswar, May-2010.
14. Dr. Saroj Ku. Lenka, Ambarish G. Mohapatra, Sidharth Das and Sonali Pradhan, "Wireless sensor network based cattle health monitoring system for early detection of disease", IEEE ICINC 2010, Malaysia, Volume 2, Pages 337-341, May 2010.

JOURNALS:

1. Ambarish G. Mohapatra, Jaideep Talukdar, Tarini Ch. Mishra, Sameer Anand, Ajay Jaiswal, Ashish Khanna and Deepak Gupta, "Fiber Bragg Grating sensors driven structural Health Monitoring by using Multimedia-enabled IoT and Big Data Technology", Multimedia Tools and Applications, Springer, 2021.
2. Ambarish G. Mohapatra, Ashish Khanna, Deepak Gupta, Maitri Mohanty, Victor Hugo C. de Albuquerque, An Experimental Approach to Evaluate Machine Learning Models for the Estimation of Load Distribution on Suspension Bridge using FBG Sensors and IoT, Computational Intelligence, Willy, In-Press, July 2020. Indexed and Abstracted: Sci-E, Scopus.
3. Ajaya K. Tripathy, Pradyumna K. Tripathy, Ambarish G. Mohapatra, Niranjan K Ray, Saraju P Mohanty, WeDoShare: A Ridesharing Framework in Transportation Cyber-Physical System for Sustainable Mobility in Smart Cities, IEEE Consumer Electronics Magazine, Volume: 9, Issue: 4, 1st July 2020. Indexed and Abstracted: Sci-E, Scopus. (DOI: 10.1109/MCE.2020.2978373)
4. Ajaya K. Tripathy, Ambarish G Mohapatra, Saraju P. Mohanty, Elias Kougianos, Amit M. Joshi, Gautam Das, EasyBand: A Wearable for Safety-Aware Mobility during Pandemic Outbreak, IEEE Consumer Electronics Magazine, 13 May 2020. Indexed and Abstracted: Sci-E, Scopus. (DOI: 10.1109/MCE.2020.2992034)
5. Bright Keswani, Ambarish G. Mohapatra, Poonam Keswani, Ashish Khanna, Deepak Gupta, Joel J P C Rodrigues, Improving Weather Dependent Zone Specific Irrigation Control Scheme in IoT and BigData Enabled Self Driven Precision Agriculture Mechanism, Enterprise Information Systems, Print ISSN: 1751-7575, Online ISSN: 1751-7583, Taylor & Francis, Pages 1-23, 2020. Indexed and Abstracted: Sci-E, Scopus. (DOI: https://doi.org/10.1080/17517575.2020.1713406)
6. Ambarish G. Mohapatra, Bright Keswani, Shivani Nanda, Abhishek Ray, Ashish Khanna, Deepak Gupta, Poonam Keswani, Precision local positioning mechanism in underground mining using IoT-enabled WiFi platform, International Journal of Computers and Applications, ISSN: 1206-212X (Print) 1925-7074 (Online), Taylor & Francis, Pages 1-12, 2018.
7. Bright Keswani, Ambarish G. Mohapatra, Amarjeet Mohanty, Ashish Khanna, Joel J. P. C. Rodrigues, Deepak Gupta, Victor Hugo C. de Albuquerque, Adapting Weather Conditions Based IoT Enabled Smart Irrigation Technique in Precision Agriculture Mechanisms, Neural Computing and Applications, Springer, Pages 1–16, 2018.
8. Ambarish G. Mohapatra, Dr. Bright Keswani, Dr. Saroj Kumar Lenka, "Neural Network and Fuzzy Logic Based Smart DSS Model for Irrigation Notification and Control in Precision Agriculture", Proceedings of the National Academy of Sciences, India Section A: Physical Sciences, Springer, Volume 6, Issue 24, Pages 1-10, 2018.
9. Ambarish G. Mohapatra, Saroj Kumar Lenka, "Hybrid Decision Support System using PLSR-Fuzzy Logic for GSM based Site Specific Irrigation Notification and Control in Precision Agriculture", International Journal of Intelligent Systems Technologies and Applications, Inderscience, Volume 15, Issue 1, Pages 4-18, 2016.
10. Ambarish G. Mohapatra, Saroj Kumar Lenka, "Neuro-Fuzzy-Based Smart DSS for Crop Specific Irrigation Controland SMS Notification Generation for Precision Agriculture", International Journal of Convergence Computing, Inderscience, Volume 2, Issue 1, Pages 3-22, 2016.
11. Laxmi Shaw, Sangeeta Bagha, Ambarish G. Mohapatra, and Narayan Nayak Member, "Kernel Approach on Detection of Ethanol Concentration Using ZnO Gas Sensor", International Journal of Machine Learning and Computing, Volume 2, Issue 1, Pages 71-75, February 2012.
12. Nalini Singh, Ambarish G Mohapatra, Biranchi Narayan Rath, and Guru Kalyan Kanungo, "GUI Based Automatic Breast Cancer Mass and Calcification Detection in Mammogram Images

using K-means and Fuzzy C-means Methods", International Journal of Machine Learning and Computing, Volume 2, Issue 1, Pages 7-12, February 2012.

13. Ambarish G. Mohapatra, Saroj kumar lenka, "Motion artifact cancellation in ambulatory ECG measurement System for the detection of cardiac diseases", Advances in computational research, Volume 3, Issue 1, Pages 42-49, December 2011.

14. Saroj kumar lenka, Ambarish G. Mohapatra, "Linear Discriminant Analysis Based Sensing Characteristics Study of ZnO thick film Gas Sensor", Advances in computational research, Volume 3, Issue 1, Pages 31-36, December 2011.

15. Ambarish G Mohapatra, "Computer Vision Based Smart Lane Departure Warning System for Vehicle Dynamics Control", Sensors & Transducers Journal, International Frequency Sensor Association (IFSA), Volume 132, Issue 9, Pages 122-135, September 2011.

16. Ambarish G Mohapatra, "Design and Implementation of Diaphragm Type Pressure Sensor in a Direct Tire Pressure Monitoring System (TPMS) for Automotive Safety Applications", International Journal of Engineering Science and Technology" (IJEST), Volume 3, Issue 8, Pages 6514-6524, August 2011 Edition.

17. Ambarish G Mohapatra, Biranchi N. Rath, "Pattern Recognition Based Discrimination of Ethanol Concentration Using ZnO Thick-Film Gas Sensor for the Detection and Warning of Drunken Driving", International Journal of Engineering Science and Technology" (IJEST), Volume 3, Issue 6, Pages 4604-4613, June 2011 Edition.

18. Nalini Singh, Ambarish G Mohapatra. "Breast Cancer Mass Detection in Mammograms using K-means and Fuzzy C-means Clustering". International Journal of Computer Applications (IJCA), Volume 22, Issue 2, Article 3, Pages 15-21, May 2011, Accepted by Villanova University Digital library, Villanova, PA, USA.

BOOK CHAPTER PUBLICATIONS

1. Bright Keswani, Ambarish G. Mohapatra, Tarini Ch. Mishra, Poonam Keswani, Pradeep Ch. G. Mohapatra, Md Mobin Akhtar, Prity Vijay, World of Virtual Reality (VR) in Healthcare, Advanced Computational Intelligence Techniques for Virtual Reality in Healthcare, Studies in Computational Intelligence (Springer Book Series), Volume 875, Pages 1-23, Dec-2019, ISBN 978-3-030-35251-6.

2. Bright Keswan, Tarini Ch. Mishra, Ambarish G. Mohapatra, Poonam Keswani, IoT Security and Privacy Preservation, Security Designs for the Cloud, IoT and Social Networking, Scrivener Publishing, Feb-2020, ISBN: 9781119592266.

3. Bright Keswani, Ambarish G. Mohapatra, Tarini Ch. Mishra, Poonam Keswani, Priyatosh Sahu, Anish Kumar Sarangi, IDA with Space Technology and Geographic Information System, Intelligent Data Analysis: From Data Gathering to Data Comprehension, Willy, Pages 173-197, March-2020, ISBN: 9781119544456.

4. Bright keswani, Poonam keswani, Prity Bihar, Ambarish G. Mohapatra, Hybridization Pre-processing and Re-sampling Technique (HPRT) based Neural Network Approach for Credit Card Fraud Detection, Bright keswani, Poonam keswani, Prity Bihar, Ambarish G. Mohapatra, Taylor & Francis, Chapter 6, November 2020, Hard ISBN: 9781771889308.

PATENT FILED

- 2021 Ambarish Gajendra Mohapatra, Ashish Khanna, Deepak Gupta, Maitri Mohanty, Pradyumna Tripathy, Poonam Rani, and Piyush Kumar Pareek, Performance Enhancement of Polymer Deposited FBG Sensor for Cardiac Parameter Monitoring in MRI Environment, Application No. 202131001862 A

- 2018 National Patent Filed (Indian) "A Wireless Sensor Network (WSN) for IoT Based Agriculture Applications". File Number: 30687/DEL/2018 dt. 17/11/2018

- 2018 National Patent Filed (Indian) "A System For Precision Local Positioning Mechanism In Underground Mining Using IoT Enabled Wi-Fi Platform". File Number: 30687/DEL/2018 dt. 17/11/2018

- 2016 National Patent (Indian) "Smart Agriculture: WSN with GSM for Automation and Control of Vegetation, Irrigation and Flood in Precision

Agriculture". File Number: 2670/DEL/2014 dt. 17/09/2014. Published on: 25/03/2016, Journal Number: 13/2016

PHD SCHOLARS

- 2019 Mrs. Maitri Mohanty, Research Area: IoT and Distributed FBG sensor in Healthcare, GIET University, Gunupur, Odisha, India. (Status: On-Going)
- 2020 Mr. Saurjyadipta Samantaray, Research Area: High Performance Envelop Tracking Power Amplifier for 5G Communication, Biju Patnaik University of Technology (BPUT), Odisha, India. (Status: On-Going)
- 2021 Mr. Deepak Ranjan Nayak, Research Area: Predictive maintenance of machines, University of Technology, Jaipur, India. (Status: On-Going)
- 2022 Mr. Narayan Nayak, Research Area: IoT and FBG sensors for prognostics maintenance, Silicon Institute of Technology, Bhubaneswar, Odisha, India. (Status: On-Going)

AWARDS

- 2013–2016 Career Award For Young Teachers (CAYT) for the project on "Wireless Sensor Network in Precision Agriculture" sponsored by All India Council Technical Education (AICTE), New Delhi, India.
- 2020-2021 University Foundation Day Award-2020 by Biju Patnaik University of Technology, Odisha, India in the discipline of engineering and technology for research publications. Received on: 21st November 2020.

RESEARCH PROJECTS

External Research Projects

- 2013–2016 (Completed): Research project "Wireless Sensor Network in Precision Agriculture" sponsored by All India Council Technical Education (AICTE), New Delhi, India.
- 2019–2020 (Completed): Research project "Design and Development of Fibre Bragg Grating Based Cardiac Probe for MRI Environment" under TEQIP-III Collaborative Research Initiative Scheme (CRIS) scheme sponsored by TEQIP-III BPUT Odisha.

Institute Research Projects

- 2019–2020 (Completed): Research project "Design and Development of packaged FBG sensors for real-time monitoring of strain as well as temperature" under Silicon Research Promotion Scheme (SRPS) scheme sponsored by Silicon Institute of technology, Bhubaneswar, India.
- 2018–2019 (Completed): Research project "Characterization of FBG sensor and preliminary interrogation technique" under Silicon Research Promotion Scheme (SRPS) scheme sponsored by Silicon Institute of technology, Bhubaneswar, India.
- 2014–2015 (Completed): Research project on "WSN Design for Precision Agriculture" under Silicon Research Promotion Scheme (SRPS) scheme sponsored by Silicon Institute of technology, Bhubaneswar, India.
- 2014–2015 (Completed): Research project on "Smart Eye for Monitoring and Control of Plant Conditions" under Silicon Research Promotion Scheme (SRPS) scheme sponsored by Silicon Institute of technology, Bhubaneswar, India.

BOOK PUBLICATIONS

- 2011 Mr. Ambarish G. Mohapatra and Dr. Saroj Lenka, A Comprehensive Course on LabVIEW (Practical Approach to WSN using LabVIEW), Lambert Academic Publishing, LLC.
- 2011 Subhashri G.Mohapatra and Mr. Ambarish G. Mohapatra, Spectrum sensing in cognitive radio: Use of cyclo-stationary detector followed by windowing technique, Lambert Academic Publishing, LLC.

CORE PROFICIENCY

- ✓ Virtual Instrumentation Tools
  National Instruments LabVIEW, National Instruments Vision development tool, NI-Multisim.
- ✓ Mathematical Modelling Tools
  MATLAB and its toolkits.
- ✓ Microcontroller Based Application Design Tools
  CCS PICC compiler, MPLab, ISIS 7 Professional.
- ✓ Working Experience on Microcontrollers
  Arduino Environment Supporting Controllers, Microchip PIC series, Raspberry pi
- ✓ Wireless Communication Devices
  Zigbee, ESP8266 Wifi, Bluetooth, GSM, GPRS, GPS.
- ✓ Analog and Digital Circuit Design Tools
  Cadence OrCAD circuit and layout design.
- ✓ Multiphysics Simulation Tools
  ANSYS Multiphysics, COMSOL Multiphysics.

SOFTWARE PROFICIENCY

- ✓ Software Languages
  ANSI C, C++, Core JAVA.
- ✓ Web Technology
  HTML, PHP, Java Script, Python.
- ✓ Mobile Application Development
  Android Application Development.
- ✓ Big Data and Hadoop Skills
  Data operation in HDFS for further analysis.
  Moving data from HDFS to RDBMS and vice-versa using SQOOP.
  Analyzing/Transforming data with Hive and Pig.
  Scheduling tools like Oozie.
  Data ingestion tools like flume.
  Data analytics using R and R Shiny.

AREAS OF INTERESTS

- ✓ Sensors and Transducers.
- ✓ National Instruments LABVIEW.
- ✓ Decision Support Systems in Precision Agriculture.
- ✓ Design of Measuring Instruments.
- ✓ Internet of Things (IoT).

EXPERIENCE ON SENSOR AND TRANSDUCER DESIGN

- ✓ Strain Gauge based Loadcell.
- ✓ Diaphragm based pressure sensor.
- ✓ Capacitive liquid level sensor.
- ✓ Trunk diameter sensor.
- ✓ Torque sensor.

MEMBERSHIP

International Association of Computer Science & Information Technology (IACSIT), Singapore, Membership Number 80339474.

CERTIFIED TEACHING PROFESSIONAL

Excellence in Engineering Education through Innovations" High Impact Teaching Skills - MISSION 10X", by Wipro Technologies Ltd.