Dr. ANIL KUMAR SONI

Assistant Professor
Electronics and Communication Engineering,
School of Studies of Engineering & Technology
Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.)

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Educational Qualification

Ph. D. (NDT Instrumentation and Image Processing), 2016
Indira Gandhi Centre for Atomic Research, Kalpakkam, (HBNI-BARC, Mumbai)

M. Tech. (Digital Communication Engineering), 2009
R. V. College of Engineering, Bangalore, (Visvesvaraya Technological University, Belgaum)

B. E. (Electronics & Telecommunication Engineering), 2006
Chouksey Engineering College, Bilaspur,(Guru Ghasidas University, Bilaspur)

Technical Skills

Area of interest:

- Sensor Development
- Instrumentation Development
- NDT Image Processing
- Signal Processing
- Absorber design

Software languages:

- Matlab
- LabVIEW
- COMSOL
- CST STUDIO SUIT
- CIVA

Course Taught:

- Signal and System
- Digital Signal Processing
- Digital System Design
- Automatic Control System
- Network Analysis
- Instrumentation and measurement
- Communication System
- Digital Image Processing
- Research Methodology

No. of Ph.D. students/research scholar: 02 (Ongoing)

Work Experience

Assistant Professor, Guru Ghasidas Vishwavidyalaya Bilaspur (February 2020-Present)

Sr. Assistant Professor, Madanapalle Institute of Technology and Science, Madanapalle (April 2018 – February 2020)

Assistant Professor , Lakhmi Chand Institute of Technology, Bilaspur (January 2017–April 2018)

Assistant Professor , Central College of Engineering and Management, Raipur (February 2016–January 2017)

DGFS Ph.D Fellow, Indira Gandhi Center for Atomic Research, Kalpakkam (February 2011–January 2016)

Lecturer, Lakhami Chand Institute of Technology, Bilaspur (February 2010 – February 2011)

Lecturer, Dr. C. V. Raman University, Bilaspur (July 2009 – January 2010)

Scholastic Achievements

- Top Performing Mentor by NPTEL, Swayam, MHRD, Govt. of India, 2019.
- Best Paper Award by OPJU, Raigarh, 2019.
- DGFS-Ph.D. Fellowship by DAE, BARC Mumbai, Govt. of India, 2011.
- GATE Scholarship by MHRD, Govt. of India, 2007

List of publications

Patent:

[1]. Australian Patent Granted: A SYSTEM AND A METHOD FOR AUTOMATED IRRIGATION USING INTERNET OF THINGS, Patent Number: 2020104385, Year March 2021.

Journal Publications (SCI/Scopus Indexed):

[1]. **Anil Kumar. Soni**, S. Mahadevan, S. Thirunavukkarasu and B. Purna Chandra Rao, 'A study on the scan plans for rapid flaw detection by eddy current non-destructive evaluation', IETE Journal of Research, January 2022, https://doi.org/10.1080/03772063.2021.2021822. (SCI Indexed Impact factor:2.333)

[2]. **Anil Kumar Soni**, Pushpa Giri, and Gaurav Varshney, 'Metal-Free Super-Wideband THz Absorber for Electromagnetic Shielding', Physica Scripta, Vol. 96, No. 12, 125866, November 2021, https://doi.org/10.1088/1402-4896/ac3ea1. (SCI Indexed Impact factor:2.487)

[3]. **Anil Kumar Soni** and Gaurav Varshney, 'Multiband Generation and Absorption Enhancement in a Graphite based Metal-Free Absorber', Plasmonics, Vol. 16, pp. 241-252, 2020, https://doi.org/10.1007/s11468-020-01286-5. (SCI Indexed Impact factor: 2.404).

[4]. **Anil Kumar. Soni** and B. Purna Chandra Rao, 'Lock-in Amplifier Based Eddy Current Instrument for Detection of Sub-surface Defect in Stainless Steel Plates', Sensing and Imaging, Vol. 19, No.32, August 2018. (Scopus Indexed)

[5]. **Anil Kumar Soni**, B. Sasi, S. Thirunavukkarasu and B. Purna Chandra Rao 'Development of eddy current probe for detection of deep sub-surface defects', IETE Technical Review, Vol. 33, No. 4, pp. 386-395, November 2015. (SCI Indexed Impact factor: 2.342)

[6]. **Anil Kumar. Soni**, S. Thirunavukkarasu, B. Sasi, B. Purna Chandra Rao, T. Jayakumar, 'Development of a high sensitive eddy current instrument for detection of sub-surface defects in stainless steel plates', Insight-Non-Destructive Testing & Condition Monitoring, Vol. 57, No. 9, pp. 508-512, September 2015. (SCI Indexed Impact factor: 0.80)

Journal Publications (UGC Listed):

[7]. S. Thirunavukkarasu, B.P.C. Rao, **Anil Kumar Soni**, S. Shuaib Ahmed, T. Jayakumar, 'Comparative performance of image fusion methodologies in eddy current testing', Research Journal of Applied Sciences, Engineering and Technology, Vol. 4, No 24, pp. 5548-5551, 2012.

Book Chapter

[8]. **Anil Kumar Soni**, Shrawan Kumar Patel and Gaurav Varshney, 'Metal free Terahertz Absorber/Sensor Using Multi-layered Graphite', Lecture Notes in Mechanical Engineering, 2021. (In Press)(Scopus Indexed).

[9]. **Anil Kumar Soni,** Ranjeet Kumar, Shrawan Kumar Patel and Aradhana Soni, 'Non-destructive fusion method for image enhancement of eddy current sub-surface defect images', In: Bajpai M.K., Kumar Singh K., Giakos G. (eds) Machine Vision and Augmented Intelligence—Theory and Applications, Lecture Notes in Electrical Engineering, Vol. 796, pp. 613-621, November 2021. DOI: 10.1007/978-981-16-5078-9_50 (Scopus Indexed).

[10]. Ranjeet Kumar, **Anil Kumar Soni**, and Aradhana Soni, 'Histogram-based Image Enhancement and Analysis for Steel Surface and Defects Images', In: Bajpai M.K., Kumar Singh K., Giakos G. (eds) Machine Vision and Augmented Intelligence—Theory and Applications, Lecture Notes in Electrical Engineering, Vol. 796, pp. 623-632, November 2021. DOI: 10.1007/978-981-16-5078-9_51 (Scopus Indexed).

List of Conference Presented

[1]. **Anil Kumar Soni,** Ranjeet Kumar, and Shrawan Kumar Patel, 2019, 'Development of image fusion methodology for image enhancement of sub-surface defect in eddy current non-destructive testing', International conference on Advances in steel, Power and construction Technology, Raigarh.

[2]. Ranjeet Kumar, **Anil Kumar Soni**, and B. Ramachandra Reddy, 2019 'Analysis of Histogram-based Image Enhancement Techniques for Steel Surface and Defects Images', International conference on Advances in steel, Power and construction Technology, Raigarh.

[3]. **Anil Kumar Soni**, S Shuaib Ahmed, S. Thirunavukkarasu, B P C Rao and T Jayakumar, 2013, 'Multi-Sensor Image Fusion for Enhanced Detection of Sub-Surface Defects by Eddy Current Testing', 14th Asia Pacific conference on Non-destructive Testing, Mumbai.

[4]. **Anil Kumar Soni**, B P C Rao, B. Sasi, Saji Jacob George, T Jayakumar, 2013, 'Development of a Low Frequency Eddy Current Instrument for Non-destructive Evaluation', National Symposium on Instrumentation (NSI-38), Hubli.

[5]. **Anil Kumar Soni,** C.S. Angani, K. Sambasiva Rao, Jaskaran Singh Grover, S. Thirunavukkarasu, B.P.C. Rao, T. Jayakumar, 2012, 'Development of Pulsed Eddy Current System and Model Based Optimization', National Seminar on NDE-2012, New Delhi.

Research Supervision

No. of Ph.D. students/research scholar: 02 (Ongoing)

Administrative Responsibilities

Current Activity

- **Assistant Director** of Internal Quality Assurance Cell (IQAC), GGV Bilaspur
- **Faculty Representative from SoS (E&T) (Member)** of skill development cell (SDC) GGV Bilaspur
- **Research Coordinator** for Department of ECE in SoS (E&T), GGV Bilaspur
- **Member** of Indian Society for Technical Education (ISTE)
- **2nd Year Coordinator** for Department of ECE in SoS (E&T), GGV Bilaspur
- **Website Coordinator** for Department of ECE in SoS (E&T), GGV Bilaspur
- **Newsletter Faculty Coordinator** for Department of ECE in SoS (E&T), GGV Bilaspur
- **Member of NAAC Committee** for Department of ECE in SoS (E&T), GGV Bilaspur

Past Activity

- **1st Year Coordinator** for Department of ECE in SoS (E&T), GGV Bilaspur
- **Web/ Design Team Lead** in Newsletter (In the Loop) IEEE Bombay Section
- **NBA Coordinator** for Department of ECE in MITS Madanapalle
- **NAAC Coordinator (criteria-1)** for Department of ECE in MITS Madanapalle
- **Program Co-coordinator** for AICTE sponsored two-week FDP on embedded with wireless for IoT
- **Newsletter Coordinator** for Department of ECE in MITS Madanapalle

Additional Information

Guest Lectures/Chair Person

- **Guest Lecture** in AICTE-CSVTU MoU One Week Joint Teachers Training Program (TTP-2021) jointly organized by Chhattisgarh Swami Vivekanand Technical University Bhilai and Lakhmi Chand Institute of Technology, Bilaspur dated March 22, 2022.
- **Chair Person** for Technical Session in International conference on Machine Vision and Augmented Intelligence (MAI-2022), organized by National institute of Technology Jamshedpur during March 04-06, 2022
- **Guest Lecture** in B.Tech. Students Induction program 2021-22 organized by School of Studies Engineering and Technology, Guru Ghasidas Vishwavidyalaya Bilaspur dated December 23, 2021.
- **Guest Lecture** in one day webinar on "Image Processing and Applications with MATLAB" organized by Lakhmi Chand Institute of Technology, Bilaspur dated April 3, 2021.

- **Chair Person** for Technical Session (Deep Learning: Theory and Application) in International conference on Machine Vision and Augmented Intelligence (MAI-2021) organized by Indian Institute of Information Technology, Design and Manufacturing, Jabalpur during February 11-14, 2021

Event Organized

- **One day webinar** on Art of Writing Research Paper, November 7, 2020 at School of Studies Engineering and Technology, Guru Ghasidas Vishwavidyalaya Bilaspur.
- **One week online seminar series** on "Current Trends in Engineering Projects" jointly organized by Skill Development Cell and Department of Electronics & Communication Engineering, School of Studies in Engineering and Technology, Guru Ghasidas Vishwavidyalaya Bilaspur Chhattisgarh during November 25-29, 2020.
- **One week online Workshop** on "Skill Development for Technology Transfer (SDTT-2021)" jointly organized by Research & Development Cell, SoS (E&T) and Skill Development Cell, Guru Ghasidas Vishwavidyalaya Bilaspur during September 13-18, 2021.
- **One week online Workshop** on "Scheme for Facilitation Intellectual Property Protection (SFIPP-2021)" jointly organized by Research & Development Cell, SoS (E&T) and Skill Development Cell, Guru Ghasidas Vishwavidyalaya Bilaspur during October 18-23, 2021.

Academic Identity

- **Web of Science ResearcherID:** J-9379-2018
- **Orcid Id:** 0000-0003-1612-6161
- **Scopus Id:** 55497653400
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Journal/Conference Paper Reviewer

- **Measurement**, Elsevier.
- **IET image processing**, IET (IEEE) Journals,
- **Journal of Testing and Evaluation**, ASTM International.
- **Insight - Non-Destructive Testing & Condition Monitoring**, The British Institute of Non-Destructive Testing.
- **Sensing and Imaging**, Springer.
- **SN Computer Science**, Springer.
- International conference on Machine Vision and Augmented Intelligence (MAI-2021 and MAI 2022)
- 4th International Conference on Machine Intelligence and Signal Processing (MISP2022)

- International Conference on Advancements in Interdisciplinary Research, Theme: Smart and Sustainable Society (AIR 2022)
- 5th International Conference on "Advances in Steel, Power and Construction Technology (ICASPCT-2022)

List of FDP and workshop attended

[1]. One week Faculty Development Programme on "Artificial Intelligence and Machine Learning" by AICTE Training and Learning (ATAL) Academy, AICTE, 04-08 October, 2021.

[2]. One week Faculty Development Programme on "Devices for Modern Wireless Communication System" by AICTE Training and Learning (ATAL) Academy, AICTE, 20-24 September, 2021.

[3]. One week Faculty Development Programme on "Sustainable Change management in technical Institutes for NEP-2020 implementation" by AICTE Training and Learning (ATAL) Academy, AICTE, 23-27 August, 2021.

[4]. One week Faculty Development Programme on "Instrumentation, Signals and Images for the Evaluation of Physiological Systems" by AICTE Training and Learning (ATAL) Academy, AICTE, 16-20 August, 2021.

[5]. Faculty Development Program on "Innovation, Incubation & Research Challenges in India" held during 21/06/2021 to 25/06/2021 organized by IES College of Engineering in association with IIC, IEDC & IETE cell.

[6]. Five days Faculty Development Program on "Inculcating Universal Human Values in Technical Education", organized by All India Council for Technical Education(AICTE) from 07/06/2021 to 11/06/2021

[7]. AICTE-ISTE approved Orientation/ Refresher Programme on "Emerging Trends on network & IoT" held during 16/04/2021 to 22/04/2021 organized by Infinity Management and Engineering College, Sagar, Madhya Pradesh

[8]. AICTE-ISTE approved Orientation/ Refresher Programme on "Industrial Application of MATLAB" held during 08/04/2021 to 14/04/2021 organized by Ojaswini Institute of Management & Technology, Damoh, Madhya Pradesh

[9]. UGC Sponsored "Guru Dakshta" Faculty Induction Programme (Online) from 15/02/2021 to 17/03/2021 organized by UGC-HRDC GGV Bilaspur.

[10]. Eight AICTE – NITTT, Technical Teachers orientation online course (Swayam), February 2021

[11]. NPTEL-AICTE Faculty development programme on 'Control Engineering' January 2021.

[12]. One week Faculty Development Programme on "Block chain" by AICTE Training and Learning (ATAL) Academy, AICTE, 20-24 December, 2020.

[13]. One week Faculty Development Programme on "Cyber security" by AICTE Training and Learning (ATAL) Academy, AICTE, 07-11 December, 2020.

[14]. One week Short Term Training Program (STTP) on Design and Simulation of Miniature Antennas for IoT Applications-DSMAIA-2020 by AICTE- MHRD, 23-28 November,2020.

[15]. One week Faculty Development Programme on "Data Sciences" by AICTE Training and Learning (ATAL) Academy, AICTE, 12-16 October, 2020.

[16]. One week Faculty Development Programme on "Data Sciences" by AICTE Training and Learning (ATAL) Academy, AICTE, 21-25 September, 2020.

[17]. One week Faculty Development Programme on Tools and Scientific Communications for Research Article and Proposal Writing by TEQIP III, 19-23 September, 2020.

[18]. One week Faculty Development Programme on Artificial Intelligence using Python by National Youth Council of India, 14-19 September, 2020.

[19]. One week Faculty Development Programme on Recent Trends in Antennas by IEEE Antennas & Propagation Society Madras Section, 7-12 September, 2020.

[20]. One Week International Workshop on Metamaterial & its Applications by IEEE Antenna & Propagation Society (APS) Chapter – Jaipur, 27-31 July, 2020.

[21]. Three days intensive training on Data Science using Python by Thermodynedutech, 23-25 July, 2020.

[22]. NPTEL-AICTE Faculty development programme on 'Principles of Human Resource Management' April 2019.

[23]. Two days National Level Workshop on Outcome base learning in NBA/NAAC Evaluation conducted by Madanapalle Institute of Technology and Science, Madanapalle, India, 30 November- 1 December, 2018.

[24]. Three days workshop on Artificial Intelligence and Deep Learning conducted by leadingindia.ai, Bennett University, Greater Noida, India, 21-23, June 2018.

[25]. Eddy current Testing Level-II certification course conducted by Indian Society of Nondestructive Testing, August 2015.

[26]. Five days course on Spatial Statistical tools in data processing and analysis conducted by Indian Statistical Institute Bangalore, November 2012.

[27]. Two Days Faculty Training Programme conducted by Chhattisgarh Swami Vivekananda Technical University, Bhilai, August 2010.

(**Dr. Anil Kumar Soni**)