

Summary: Dr. Ananda Shankar Hati, Chartered Engineer-India

[ORCID](#) | [LinkedIn](#) | [Website](#) | [Google Scholar](#)

Education:

- PhD in Electrical Engineering (Electrical Machines/Electrical Drives) from Indian Institute of Technology (Indian School of Mines), Dhanbad, India (2016).
- M.Tech. in Applied Electronics & Instrumentation Engineering from West Bengal University of Technology, Kolkata, India (2009).
- B.Tech. in Electrical Engineering from West Bengal University of Technology, Kolkata, India (2007).

Research/Work Experience:

- Assistant Professor (May 2013 to date), Indian Institute of Technology (Indian School of Mines), Dhanbad.
- Assistant Professor (Jan 2013 to May 2013), National Institute of Technology, Arunachal Pradesh.
- Research Scholar (September 2010 to Jan 2013), Indian Institute of Technology (Indian School of Mines), Dhanbad.
- Lecturer (January 2009 to September 2010), Bengal Institute of Technology & Management, Shantiniketan, India.

Research Contribution:

- Journal Papers: 26 (Q_1 : 15, Q_2 : 4, Q_3 : 2, Q_4 : 1)
- Conference Papers: 14
- Book Chapter: 02
- Patents (granted): 38

Graduate Student Supervision:

- PhD Students Graduated: 03
- PhD Students Ongoing: 04
- MTech Students Graduated: 16
- MTech Students Ongoing: 2

Professional Memberships and Editorial Board

- **Fellow**, The Royal Society of Arts (RSA)
- **Fellow**, The Institution of Electronics & Telecommunication Engineers (IETE)
- **Fellow**, The Nikhil Bharat Shiksha Parishad (NBSP), Registered under MCA, Govt. of India
- **Senior Member**, Institute of Electrical and Electronics Engineers (IEEE)
- **Senior Member**, Iranian Neuroscience Society-Fars Chapter (INSS)
- **Associate Editor** of [Complex Engineering Systems - OAE Publishing Inc.](#) (June 2022 to June 2026.)
- **Guest Editor** [Mathematics | Special Issue: Recent Advances in Machine Learning and Deep Learning Theories: Towards Intelligent Fault Diagnosis \(mdpi.com\)](#), MDPI Publications.
- **Editorial Board Member** of [SSRG International Journal of Electrical and Electronics Engineering Editorial Board \(internationaljournalssrg.org\)](#).

Dr. Ananda Shankar Hati

✉ anandashati@iitism.ac.in | anandashankarhati@ieee.org | ☎ +91-326-223 5083 (O), +91-9471191571

Professor (Assistant) | Chartered Engineer-India (Electrical Engineering)

Department of Electrical Engineering

Indian Institute of Technology (Indian School of Mines), Dhanbad, Jharkhand

A Professor, Researcher (h-index 19) and a Fellow of many prestigious organisations with over 12 years of experience in multidisciplinary environments, focusing on AI, the Internet of Things (IoT), and sensor networks applied to real-world challenges in electrical engineering. Authored numerous articles in peer-reviewed journals, conferences, and patents and held multiple honorary positions at national and international levels. My work has been recognised with several honorary degrees from esteemed organisations globally.

[ORCID](#) | [LinkedIn](#) | [Website](#) | [Google Scholar](#)

ACADEMIC QUALIFICATION

PhD (Electrical Engineering) 2016

Electrical Machines Laboratory, Department of Electrical Engineering

Indian Institute of Technology (Indian School of Mines), Dhanbad, India

Dissertation Title: Design and Development of Online Condition Monitoring Instrumentation System for Mine Winder Motor.

M. Tech (Applied Electronics & Instrumentation Engineering) 2009

Department of Applied Electronics & Instrumentation Engineering

Heritage Institute of Technology (WBUT), Kolkata, India

Dissertation Title: Design of symmetrical component filter for online non-invasive diagnosis of induction motor.

B. Tech (Electrical Engineering) 2007

Department of Electrical Engineering

Aryabhatta Institute of Engineering & Management (WBUT), Durgapur, India

Dissertation Title: Online non-invasive diagnosis of induction motor

XIIth Standard 2003

De-Nobili School, CMRI Dhanbad (CICSE)

Xth Standard 2001

De-Nobili School, CMRI Dhanbad (CICSE)

RESEARCH INTEREST

- Deep learning-based Prognostics and Health Management
- AI-based Energy Efficiency of Drives
- Intelligent Systems
- Heating, Ventilation and Air Conditioning
- Model Reference Adaptive System

TEACHING

- Mine Electrical Technology (MMC 206)
- Basic Electrical Engineering (EEI 101)
- Electrical Machines (MMC 15104)
- Electrical Machines Lab (MMC 15204)
- Mine Electrical Technology-I (MMC 17104)
- Mine Electrical Technology-I Lab. (MMC 17204)
- Mine Electrical Engineering (MME 15301)

RESEARCH EXPERIENCE

Post-Doctoral Research (Online Mode due to COVID-19) April 22-August 23

Faculty of Information Technology, Ton Duc Thang University, Vietnam

Research Title: Investigation on Energy Efficiency in HVAC using Artificial Neural Network.

Post-Doctoral Research (Online Mode due to COVID-19) 2021

Cyber-Physical System Laboratory, Faculty of Science, Engineering and Built Environment

Deakin University, Australia

Research Title: Development of an efficient drive for a ventilation system using Artificial Intelligence.

TEACHING EXPERIENCE

Assistant Professor Department of Electrical Engineering Indian Institute of Technology (Indian School of Mines), Dhanbad	Dhanbad, India April 22-To date
Assistant Professor Department of Mining Machinery Engineering Indian Institute of Technology (Indian School of Mines), Dhanbad	Dhanbad, India July 13– April 22
Assistant Professor Department of Electrical Engineering Indian Institute of Technology (Indian School of Mines), Dhanbad	Dhanbad, India May 13–July 13
Assistant Professor Department of Electrical and Electronics Engineering National Institute of Technology, Arunachal Pradesh	Arunachal Pradesh, India January 13–May 13
Research Scholar Department of Electrical Engineering Indian Institute of Technology (Indian School of Mines), Dhanbad	Dhanbad, India September 10- January 13
Lecturer Department of Electrical Engineering Bengal Institute of Technology & Management	Shantiniketan, India January 09- September 10

ACHIVEMENTS/AWARDS/HONOR

Awarded Honorary Positions

- **Honorary PhD** in "Applied Artificial Intelligence in Electrical Engineering and Humanitarian Service" from Crown University International, USA, on February 05, 2021.
- **Honorary D.Sc. (Honoris Causa)** for outstanding contribution in "Neuroleadership-Mining Machinery Engineering" from the Iranian Neuroscience Society Fars Chapter and Dana Brain Health Institute, Iran, on August 27, 2021.
- **Honorary Adjunct Distinguished Scientist** of Data Analytics & Artificial Intelligence Laboratory (DAAI) of **Thu Dau Mot University** (public university of Vietnam) from April 12, 2021, to April 11, 2022.
- **Honorary D.Eng. (Honoris Causa)** for outstanding contribution in "Electrical and Mining Engineering" from Iranian Neuroscience Society Fars Chapter and Dana Brain Health Institute, Iran, on April 27, 2021.
- **Honorary Senior Fellow in Artificial Intelligence Applications in Mining Machinery Engineering** of Wales Institute of Digital Information, The University of South Wales, UK, CF37 from September 15, 2021, to September 14, 2023.
- **Honorary Scientist** of **NeuroLabs (Brain Health Tech.-An initiative by DBHI)** from September 1, 2021, to August 31, 2023, and promoted to **Honorary Adjunct Senior Research Scientist** from June 8, 2022, to June 08, 2025.
- **Honorary Director and Investigator**, Center of Excellence in Robotics and Mechatronics, Department of Mechatronics Engineering, School of Technology and Engineering of ITM(SLS) Baroda University from June 09 2022 to June 08, 2027.
- **Honorary Adjunct Distinguished Scientist** of Trisol, UK, from April 01, 2022, to March 31, 2025.
- **Honorary Adjunct Distinguished Professor and Senior Research Fellow** of Scientific Innovation Research Group (SIRG) in Beni-Suef City, Egypt, from August 08, 2022, to March 31, 2025.
- **Honorary Adjunct Distinguished Scientist** of Intelligent Electrical Agricultural Machines and Complexes, Don State Technical University RUSSIA (under Ministry of Science and Higher Education of the Russian Federation), from April 05, 2023, to April 04, 2025.

Other Achievements

- Felicitated by **Director, IIT(ISM), Dhanbad**, on December 9, 2021 (96th Foundation Day), for excellent research efforts.
- Top Cited Article 2021-22 by **IET ELECTRIC POWER APPLICATIONS** among work published in an issue between January 01 2021–December 15 2022 for the article "Convolutional Neural Network with batch normalisation for fault detection in SCIM", [DOI](#).
- Highly Cited Paper 2021 by **MACHINES** for the article "ANN-based Pattern Recognition for Induction Motor Broken Rotor Bar Monitoring under Supply Frequency Regulation" [DOI](#).

OUTREACH PROGRAMMES (PROFESSIONAL DEVELOPMENT PROGRAMMES)

Sl. No.	Title	Role	Duration	Amount (in ₹)
1.	Five weeks of an intensive training program for management trainees of the E&M cadre of Coal India Limited	Co-CI	Aug'16 – Sep' 16	2,12,500
2.			Nov' 16 - Dec' 16	29,75,000
3.			Dec' 16 - Jan' 17	32,93,750
4.			May' 17 - Jun' 17	31,76,726
5.			Jul' 17 - Sep' 17	35,10,335
6.			May' 18 – Jun' 18	19,35,483
7.	Three Days Professional Development Course on Electrical Drives and control for Open Cast Mining Machinery at Kolkata Centre for NCL, WCL, SCCL, SECL	Co-CI	Jul' 17	6,30,000
8.	5-day Hands-on Training Programme on Programmable Logic Controller (PLC)-Programming, Trouble-shooting & Industry Applications for NALCO, UCIL, CCL	Co-CI	Jan' 18	4,60,200
9.	4-day Professional Development Course on Electrical Drives & Control for Surface Mining Equipment for BEML, NCL & NLC	CI	Dec' 23	5,60,000

ACADEMIC/INSTITUTE SERVICES

Departmental

• Lab-in-charge (Electrical Machines Lab)/MME [@]	August 15–April 22
• Lab-in-charge (Mine Electrical Technology Lab)/MME & EE ^{&}	August 15–Present
• Faculty-in-charge MME Society	January 14–March 18
• Member, BOCS [*] /MME	January 15–July 19
• Member, Tabulation Committee/MME	September 17–June 18 & September 14–August 15
• Member, Moderation Board/MME	January 17–June 18
• Faculty Advisor (B. Tech. 2nd Year)/MME	April 18–April 22
• Faculty Advisor (B. Tech. 1st Year)/MME	June 15–April 18
• Training & Industrial Visit In-charge/MME	April 18–January 20
• Departmental Website In-charge/MME	August 15– August 19
• Member, DPGC [~] /MME	July 19–April 22
• Member, DFSC [#] /MME	December 20–December 21
• Member, DRC ^{\$} /MME	2020–2021
• Member, DUGC [^] /EE	October 22–October 24
• Member, DRGC [^] /EE	February 28, 2024–February 27, 2026

[@]Department of Mining Machinery Engineering

[&]Department of Electrical Engineering

^{*}Board of Courses Studies

[~]Departmental Post-Graduate Committee

[#]Departmental Faculty Screening Committee

^{\$}Departmental Review Committee

[^]Departmental Under-Graduate Committee

[^]Departmental Grievance Redressal Committee

Institutional

• Polling Officer and Counting Officer for Students Gymkhana Election	2019
• Member, Centre of Societal Mission (CSM)	May 21–Present
• Faculty Advisor of Fast Forward India (under CSM)	May 21–Present
• Reporting Centre (RC) Officer/JEE (Advance)	2021
• Warden, Amber Hostel	July 01, 2023–June 30, 2025
• Member (Core Committee), Student Gymkhana Election	2024

PROFESSIONAL MEMBERSHIPS and EDITORIAL BOARD

- **Fellow**, The Royal Society of Arts (RSA)
- **Fellow**, The Institution of Electronics & Telecommunication Engineers (IETE)
- **Fellow**, The Nikhil Bharat Shiksha Parishad (NBSP), Registered under MCA, Govt. of India
- **Senior Member**, Institute of Electrical and Electronics Engineers (IEEE)
- **Senior Member**, Iranian Neuroscience Society-Fars Chapter (INSS)

- **Member**, The Institution of Engineering and Technology (IET)
- **Member**, Institution of Engineers (IEI)
- **Member**, International Association of Engineers (IAENG)
- **Life Member**, Indian Science Congress Association (ISCA)
- **Life Member**, Indian Society for Technical Education (ISTE)
- **Associate Editor** of [Complex Engineering Systems - OAE Publishing Inc.](#) from June 2022 to June 2026.
- **Guest Editor** [Mathematics | Special Issue: Recent Advances in Machine Learning and Deep Learning Theories: Towards Intelligent Fault Diagnosis \(mdpi.com\)](#), MDPI Publications.
- **Editorial Board Member** of [SSRG International Journal of Electrical and Electronics Engineering Editorial Board \(internationaljournalssrg.org\)](#).

PROFESSIONAL ACTIVITIES

Invited Talks

- **TALK** on "Ventilation-on-demand using ANN" as an invited speaker at an International Webinar on "Safe Mining and Advanced Resources Technology (SMART-2020)" on December 16-18, 2020, **IIT Kharagpur**.
- **TALK** on "Application of AI in Electrical and Mining Engineering" as an invited speaker at "Tech Talks Season-2" on June 11, 2021, at Techno India NJR Udaipur under the aegis of **IEEE Computer Society**.
- **TALK** on "Development of deep learning-based multiple fault detection approach for squirrel cage induction motor" at the Graduate Student Seminar on March 17, 2022, at **Dongguk University**, Seoul, South Korea.
- **TALK** on "Development of deep learning-based multiple fault detection approach for squirrel cage induction motor" at the International Symposium on Applied Artificial Intelligence on March 31, 2022, at Techno India NJR Udaipur.
- **TALK** on "Applications of Artificial Intelligence in various real-world applications" at the Expert Lecture Series from June 7-10, 2022, at ITM (SLS) Baroda University.
- **TALK** on "Technology & Empowerment" at the Social Entrepreneurship on October 12, 2022, at IIT (ISM) Dhanbad.
- **TALK** on "Social Entrepreneurship" at the Workshop on Academic Courses on Social Awareness and Intervention on December 08-09, 2023, at MANIT, Bhopal.

Track Chairs

- [2023 IEEE 3rd International Conference on Sustainable Energy and Future Electric Transportation \(SeFeT 2023\)](#) at Gokararaju Rangaraju Institute of Engineering & Technology, Bachupally, Kukatpally, Hyderabad, INDIA 500090.
- [IEEE Technically Sponsored International Conference on Energy, Materials and Communication Engineering \(ICEMCE\) 2023](#) at Thiagarajar College of Engineering, Madurai 625 015.
- [IEEE International Transportation Electrification Conference - India 2023](#) at SAEINDIA, No 1/17Ceebros Arcade, 3rd Cross, Kasturba Nagar, Adyar, Chennai -600 020.
- [11th IEEE International Conference on Power Electronics Drives and Energy Systems \(PEDES 2024\)](#) at National Institute of Technology Karnataka, Surathkal, India.
- [2025 IEEE 1st International Conference on Smart and Sustainable Developments in Electrical Engineering \(SSDEE\)](#) at Indian Institute of Technology (Indian School of Mines), Dhanbad, India.

Session Chairs

- [2023 IEEE 3rd International Conference on Smart Technologies for Power, Energy and Control \(STPEC\)](#) at School of Electrical Engineering, KIIT Deemed to be University, Bhubaneswar, India

Workshops Arranged

- Organised a two-day workshop on "**Explosion Protection for Electrical Equipment in Mines and other Hazardous Areas**" under the aegis of "**TEQIP-III**" from January 30-31, 2018.

Conference Organisations

- **Member** of Technical Program Committee for the 3rd International Conference on Machine Intelligence and Signal Processing organised by the **National Institute of Technology (NIT), Arunachal Pradesh**, on September 23-25, 2021.
- **PLENARY CHAIR** at 2023 IEEE 3rd International Conference on Smart Technologies for Power, Energy and Control (STPEC), KIIT Bhubaneswar, India, from December 10-13, 2023.

Special Session

- **ORGANISER** for Special Session SS0708 at IECON 2023, The 49th Annual Conference of the IEEE Electronics Society at Marina Bay Sands Expo and Convention Center titled "Prognostics and health management (PHM) of electrical assets, electric vehicles and industrial systems" <https://www.iecon2023.org/>.
- **ORGANISER** for Special Session 7 at SSDEE 2025, The 1st International Conference on Smart and Sustainable Developments in Electrical Engineering (SSDEE) at IIT (ISM), Dhanbad, titled "Machine Learning Applications in Power Electronics and Control for Futuristic Grid."

Other Relevant Activities

Institutional

- Organised a **BLOOD DONATION CAMP** under the aegis of Fast Forward India (under CSM) on June 14, 2022 (World Blood Donation Day), September 11, 2022, January 26, 2023 & 2024, August 15 2023 & 2024.
- Organised a **STATIONARY DONATION DRIVE** among slum children, "PRAYAS", under the aegis of Fast Forward India, in collaboration with the SPE IIT (ISM) student chapter on September 5, 2022.
- Organised a **FREE MEDICAL CAMP** (Health Check-up, Covid vaccination & Medicine distribution) under the aegis of CSM in association with Health Centre, IIT(ISM), Dhanbad, on February 28, 2023, at Middle School Kusumdaha Bogula, Dhanbad.
- Organised a **Hands-on-Training for underprivileged School Children (Class 9-12)** under the aegis of CSM, IIT(ISM), Dhanbad, from April 14-23, 2023, at IIT(ISM), Dhanbad.

Global

- Acted as a **Panelist** for a Panel Discussion (Challenges, Opportunities, and Impact of Digitalization) on **ABB Technology Day** on July 17, 2018.
- **Expert member** of the preliminary assessment committee of **Shastri Indo-Canadian Institute** for 2020-2021.
- **Member** of Technical Program Committee for the 3rd International Conference on Machine Intelligence and Signal Processing organised by the **National Institute of Technology (NIT), Arunachal Pradesh**, on September 23-25, 2021.
- **Member** of **IEEE MOVE INDIA TECHNOLOGY COMMITTEE of DART** (Disaster Assistance and Recovery Team).
- Signed an MoU with **Machine Intelligence Research Labs (MIR Labs), USA**, on August 19, 2020.
- Served as **Mentor** during the Professional Mentoring Program for Young Faculty Members organised by **IEEE India Council Industry Academia Young Professionals** from October 1, 2023 to December 31, 2023.
- Served as **Expert** in the Quiz in the 5th Binod Bihari Mahto Koyalanchal University Inter College Youth Festival "**Antarnad 2024**" from 20-22 December 2024 at [Guru Nanak College, Dhanbad](#).

DISSERTATION GUIDED

PhD:

Sl. No.	Title	Name & Admission No.	Year of degree award
1.	Development of deep learning-based multiple fault detection approach for squirrel cage induction motor.	Prasant Kumar & 17DR000446	Awarded (February 28, 2022)
2.	Development of Artificial Intelligence-based Energy Efficient Control of Induction Motor Drive.	Prince & 17DR000610	Awarded (April 17, 2023)
3.	Deep Learning-Based Dielectric Response Analysis for Condition Monitoring of Transformers. <i>Honoured with Best PhD Thesis Award for the year 2024.</i> people.iitism.ac.in/~download/news_and_events/academic/2024_11_28_11_20_17Notice_for_Best_Ph.D_Thesis_Award_to_be_conferred_in_the_44th_Convocation.pdf	Aniket Vatsa & 18DR0027	Awarded (July 07, 2024)
4.	Development of control strategies of electrical drives for energy efficiency improvements using artificial intelligence.	Md Asif Hussain & 20DR0073	Ongoing
5.	Development of an energy-efficient controller for optimising the HVAC system using artificial intelligence	Nishant Mishra & 22DR0149	Ongoing
6.	AI-based PHM for Electrical Drives (Resigned on personal grounds)	Rajeev Ranjan & 23DR0126	Resigned
7.	Prognostics and Health Management of electrical drives using AI	Amritanshu & 23DP0009	Ongoing
8.	Design of an energy-efficient AI-driven controller for optimising HVAC system performance.	Sonu Kumar & 24DR0178	Ongoing

Post Graduate:

Sl. No.	Title	Name & Admn. No.
2014-2015		
1.	Studies of electric drives and control circuits of electric rope shovel.	Rahul Kumar & 2013MT0080
2015-2016		
2.	Design & development of an online condition monitoring system for mine wine winder motors using axial leakage flux monitoring technique	Om Prakash Singh & 2014MT000604
2016-2017		
3.	Determination of pressure sustainability of Flameproof Transformer Enclosure.	Nandini Priya & 15MT000495
4.	Design of an intrinsically safe power supply system for underground coal mines.	Rashmi Prasad & 15MT000686
5.	Design & development of an online condition monitoring system for mine wine winder motors using a motor current monitoring technique.	Rajan Tiwari & 15MT000159
6.	Design & development of an online condition monitoring system for mine wine winder motors using a motor vibration monitoring technique.	Md. Akram & 15MT000185
2017-2018		
7.	Design of cascaded multilevel converter topology with a reduced number of components for solar power used in the mining industry.	Rahul Gorai & 16MT001142
8.	Design & development of an intelligent online condition monitoring system for induction motors used in the mining industry through axial leakage flux monitoring technique.	Md. Asif Khan & 16MT001464
9.	Design aspects of electrical drives & control circuits used in Dragline.	Abhishek Priyadarshi & 16MT001470
10.	Design aspects of electrical drives & control circuits used in Electric Rope Shovel.	Jay Prakash Kumar & 16MT001314
11.	Design & development of an energy-efficient, intelligent mine ventilation system.	Megha Biswas & 16MT001115
2018-19		
12.	Condition monitoring of an induction motor using vibration analysis.	Rahul Kumar & 17MT002256
13.	Design & development of rotor fault detection technique of an induction motor using wavelet analysis.	Birendra Kumar & 17MT001815
14.	Induction motor drives for loss reduction and efficiency improvement.	Neha Singh & 17MT002224
2019-20		
15.	Monitoring of the parameters of an electrical circuit model of a miner's respiratory system based on IoS data	Baldau Singh & 18MT0486
16.	Design and development of an exhale breath analyser to detect respiratory dysfunction in miner	Ranveer Singh & 18MT0173
2023-24		
17.	HVAC Automation: AI-Based HVAC Automation For More Comfort And Saving	Rajat Vishal & 22MT0276
2024-25		
18.	Design of an energy-efficient controller for HVAC	Akanksha Rani & 23MT0028
2025-26		
19.	Design of an AI-Driven HVAC Automation for Enhanced Comfort and Energy Savings	Gunjan Kumar & 24MT0167

Undergraduate:

Sl. No.	Title	Year
1.	Development of an online condition monitoring system for induction motor using axial leakage flux monitoring technique	2015
2.	Study of Mine Winders and its safety instrumentation	2016
3.	Energy Audit of IIT(ISM), Dhanbad	2017

Section-2: Research Grant Record

Secured over ₹35 Lakhs in research funding as the Principal Investigator (PI) or Co-Principal Investigator (Co-PI) from external and internal sources.

Externally Funded Project	Development of an intelligent helmet for safety & communication of underground mines. Agency: SERB Budget: ₹ 33.03 lakhs Role: Co-PI
Internally Funded Project	Design & development of an energy-efficient intelligent mine ventilation system. Agency: TEQIP-II Budget: ₹ 2.0 lakhs Role: PI

Section-3: Publication Record

Summary

Publications		Citations	
		As of January 03, 2025	
Journals	26	Total Google Scholar Citations	1034
$Q_1 Q_2 Q_3 Q_4$	15 04 02 01	Google Scholar H-index	19
Conference Proceedings	14	Google Scholar i10-index	24
Book Chapter	02		
Granted Patents	38		
Australian Innovation Patent 34 01 02			
German Patent UK Patent			

Journal Publication

- Ananda Shankar Hati** and T. K. Chatterjee "Some studies on condition monitoring techniques for online condition monitoring and fault diagnosis of mine winder motor", *International Journal of Engineering Science and Technology (IJEST)*, vol. 4, no—08, pp. 3785-3793, August 2012.
- Ananda Shankar Hati** and T. K. Chatterjee "Axial leakage flux-based online condition monitoring instrumentation system for mine winder motor", *Journal of Mines, Metals & Fuels*, vol. 63, no. 5&6, pp. 132-140, May-June 2015. (SCOPUS| Q_4 |0.123).
- Ananda Shankar Hati** and T. K. Chatterjee "Current monitoring Instrumentation system for detecting airgap eccentricity in mine winder motor", *International Journal of Applied Engineering Research*, vol. 10, no. 22, pp. 43000-43007, 2015. (SCOPUS| Q_2 |0.18).
- Ananda Shankar Hati** and T. K. Chatterjee "Symmetrical component filter based online condition monitoring instrumentation system for mine winder motor" *Measurement (Elsevier)*, vol. 82, pp. 284-300, 2016 <https://doi.org/10.1016/j.measurement.2016.01.005> (SCI| Q_1 |IF: 3.927).
- Ananda Shankar Hati** "Vibration monitoring instrumentation system for detecting airgap eccentricity in mine winder motor", *Journal of Mine Metals and Fuels*, vol. 64, no. 5&6, pp. 240-248, May-June 2016. (SCOPUS| Q_4 |0.123).
- Prashant Kumar and **Ananda Shankar Hati** "Review on Machine Learning Algorithm Based Fault Detection in Induction Motors," *Archives of Computational Methods in Engineering*, Vol: 28, pp: 1929-1940, 2021 <https://doi.org/10.1007/s11831-020-09446-w> (SCI| Q_1 |IF: 7.351).
- Prashant Kumar and **Ananda Shankar Hati** "Convolutional Neural Network with batch normalisation for fault detection in SCIM," *IET Electric Power Application*, Vol: 15, issue: 1, pp. 39-50, 2021 <https://doi.org/10.1049/elp2.12005> (SCI| Q_2 |IF: 2.926).
- Prashant Kumar and **Ananda Shankar Hati** "Deep Convolutional Neural Network based on adaptive gradient optimiser for fault detection in SCIM," *ISA Transactions*, Vol: 111, pp: 350-359, 2021 <https://doi.org/10.1016/j.isatra.2020.10.052> (SCI| Q_1 |IF: 5.468).
- Prince, **Ananda Shankar Hati**, Prasun Chakrabarti, Jemal Hussein Abawajy and Ng Wee Keong "Development of Energy Efficient Drive for Ventilation System using Recurrent Neural Network," *Neural Computing and Applications*, Vol. 33, no. 14, pg. 8659–8668 2021 <https://doi.org/10.1007/s00521-020-05615-x> (SCI| Q_1 |IF: 5.606).
- Ashish Kumar Sinha, **Ananda Shankar Hati**, Mohamed Benbouzid and Prasun Chakrabarti "ANN-based Pattern Recognition for Induction Motor Broken Rotor Bar Monitoring under Supply Frequency Regulation" *Machines*, vol. 9, no. 5, p. 87, 2021 <https://doi.org/10.3390/machines9050087> (SCI| Q_2 |IF: 2.428).

11. Prince and **Ananda Shankar Hati** "A Comprehensive Review of Energy-Efficiency of Ventilation System using Artificial Intelligence" *Renewable and Sustainable Energy Reviews*, Vol: 146, p. 111153, 2021 <https://doi.org/10.1016/j.rser.2021.111153> (SCI|Q₁|IF: 14.982).
12. Prashant Kumar and **Ananda Shankar Hati** "Transfer Learning Based Deep CNN Model for Multiple Faults Detection in SCIM" *Neural Computing and Applications*, vol. 33, no. 22, pp. 15851–15862, 2021 <https://doi.org/10.1007/s00521-021-06205-1> (SCI|Q₁|IF: 5.606).
13. Prince and **Ananda Shankar Hati** "Temperature and Humidity Dependent MRAS Based Speed Estimation Technique for Induction Motor used in Mine Ventilation Drive" *Journal of Mining Science*, Vol. 57, No. 5, pp. 842–851., 2021 <https://doi.org/10.1134/S1062739121050148> (SCI|Q₄|IF: 0.85).
14. Prashant Kumar and **Ananda Shankar Hati** "Dilated Convolutional Neural Network Based Model For Bearing Faults and Broken Rotor Bar Detection in Squirrel Cage Induction Motors" *Expert Systems With Applications*, Vol. 191, p. 116290, 2022 <https://doi.org/10.1016/j.eswa.2021.116290> (SCI|Q₁|IF: 8.665).
15. Prince and **Ananda Shankar Hati** "Convolutional Neural Network-Long Short-Term Memory Optimization for Accurate Prediction of Airflow in a Ventilation System" *Expert Systems with Applications*, Vol. 195 p. 116618, Jun. 2022 <https://doi.org/10.1016/j.eswa.2022.116618> (SCI|Q₁|IF: 8.665).
16. Aniket Vatsa and **Ananda Shankar Hati** "Depolarization Current Prediction of Transformers OPI System Affected From Detrapped Charge Using LSTM," *IEEE Transactions on Instrumentation and Measurement* (2022), Vol. 71, pp. 1-11, Art no. 2511711, <https://doi.org/10.1109/TIM.2022.3181286> (SCI|Q₁|IF: 5.332).
17. Prashant Kumar, Prince, **Ananda Shankar Hati** and Kim Heung Soo "Deep Transfer Learning Framework for Bearing Fault Detection in Motors" *Mathematics* (2022); 10(24):4683, <https://doi.org/10.3390/math10244683> (SCI|Q₁|IF: 2.592).
18. Prince, **Ananda Shankar Hati** and Prashant Kumar "An Adaptive Neural Fuzzy Interface Structure Optimisation for Prediction of Energy Consumption and Airflow of a Ventilation System" *Applied Energy* (2023), Vol. 337 <https://doi.org/10.1016/j.apenergy.2023.120879> (SCI|Q₁|IF: 11.446).
19. Aniket Vatsa, **Ananda Shankar Hati**, Vadim Bolshev, Alexander Vinogradov, Vladimir Panchenko and Prasun Chakrabarti "Deep Learning-Based Transformer Moisture Diagnostics Using Long Short-Term Memory Networks" *Energies* (2023), Vol. 16, no. 5: 2382 <https://doi.org/10.3390/en16052382> (SCI|Q₃|IF: 3.252).
20. Prashant Kumar, **Ananda Shankar Hati**, and Prince "A transfer learning-based deep convolutional neural network approach for induction machine multiple faults detection" *International Journal of Adaptive Control and Signal Processing* (2023), vol. 37, no. 9, pp. 2380–2393, <https://doi.org/10.1002/acs.3643> (SCI|Q₂|IF: 3.369).
21. Md Asif Hussain, **Ananda Shankar Hati**, Prasun Chakrabarti, Bui Thanh Hung, Vadim Bolshev, and Vladimir Panchenko "DSVM-Based Model-Free Predictive Current Control of an Induction Motor" *Energies* (2023) Vol. 16, no. 15: 5657. <https://doi.org/10.3390/en16155657> (SCI|Q₃|IF: 3.252).
22. Aniket Vatsa, **Ananda Shankar Hati** and Akshay Kumar Rathore "Enhancing Transformer Health Monitoring with AI-Driven Prognostic Diagnosis Trends" *IEEE Industrial Electronics Magazine* (2023), <https://doi.org/10.1109/MIE.2023.3329277> (SCI|Q₁|IF: 8.360).
23. Aniket Vatsa and **Ananda Shankar Hati** "Insulation Aging Condition Assessment of Transformer in the Visual Domain Based on SE-CNN" *Engineering Applications of Artificial Intelligence* (2024), Volume 128: 107409, <https://doi.org/10.1016/j.engappai.2023.107409> (SCI|Q₁|IF: 8.0).
24. Aniket Vatsa, **Ananda Shankar Hati**, Prashant Kumar, Martin Margala and Prasun Chakrabarti "Residual LSTM-Based Short Duration Forecasting of Polarization Current for Effective Assessment of Transformers Insulation" *Scientific Reports* 14, 1369 (2024), <https://doi.org/10.1038/s41598-023-50641-z> (SCI|Q₂|IF: 4.9).
25. Aniket Vatsa and **Ananda Shankar Hati** "Enhanced Visual Identification of Dimensionally Expanded FDS for Transformers Insulation Aging State Assessment" *IEEE Transactions on Industry Applications - IEEE IAS* <https://doi.org/10.1109/TIA.2024.3523886> (SCI|Q₁|IF: 4.2).
26. Aniket Vatsa and **Ananda Shankar Hati** "Enhanced Transformers Insulation Assessment of Noise-Affected Time-Domain Spectroscopy Using Hybrid EMD-en-de-LSTM" *IEEE Transactions on Instrumentation and Measurement* (Accepted) (SCI|Q₁|IF: 5.6).

Conference Proceedings

1. **Ananda Shankar Hati** and T. K. Chatterjee, "Online Condition Monitoring Instrumentation System of Mine Winder Motor" *Proceedings of National Conference on Frontiers in Electronics, Communication and Instrumentation Technology (FECIT-2011)*, 3rd-4th Nov. 2011, Dhanbad, India.
2. Rahul Gorai, **Ananda Shankar Hati**, and Tanmoy Maity, "A new cascaded multilevel converter topology with a reduced number of components", *2017 IEEE International Conference on Power, Control, Signals and Instrumentation Engineering (ICPCSI)*, 21-22 September 2017, Chennai, India., pp. 539-543, DOI: 10.1109/ICPCSI.2017.8392351.

3. Isha Pandit, Ashish Kumar Sinha, Prashant Kumar and **Ananda Shankar Hati** "Partial Discharge in Solid Insulating Materials, Causes, Effects and Factors of Dependence-A Comparative Investigation," [*International Conference on Advances & Practices in Electrical Engineering \(ICAPE-18\)*](#) 08-09 March 2018, Nagpur, Maharashtra, India.
4. Prashant Kumar and **Ananda Shankar Hati** "Vibration signature analysis for broken rotor bar detection in an Induction Motor" [*International Conference on Recent Innovations in Electrical, Electronics & Communication Engineering \(ICRIEECE\)*](#) 27-28 July 2018 | **IEEE**, KIIT Bhubaneswar, India.
5. M. Biswas, Prince and **Ananda Shankar Hati**, "Development of energy-efficient and intelligent mine ventilation system," [*Proceedings of Technological Advancement and Emerging Mining Methods \(TAEMM\)*](#), 2018, pp 286-296.
6. Prashant Kumar and **Ananda Shankar Hati** "Support Vector Classifiers based broken rotor bar detection in Squirrel cage induction motor" [*4th International and 19th National Conference on Machines and Mechanisms \(iNaCoMM-2019\)*](#) 5th-7th December 2019, IIT Mandi, INDIA.
7. Prashant Kumar, **Ananda Shankar Hati**, Sanjeevikumar Padmanaban, Leonowicz Zbigniew and Prasun Chakrabarti "Amalgamation of Transfer Learning and Deep Convolutional Neural Network for Multiple Fault Detection in SCIM" [*2020 IEEE International Conference on Environment and Electrical Engineering and 2020 IEEE Industrial and Commercial Power Systems Europe \(EEEIC/I&CPS Europe\)*](#), 9th-12th June 2020, Madrid, Spain, pp. 1-6, DOI: <https://doi.org/10.1109/EEEIC/ICPSEurope49358.2020.9160712>.
8. Ashish Kumar Sinha, Prashant Kumar, Prince and **Ananda Shankar Hati** "ANN Based Fault Detection Scheme for Bearing Condition Monitoring in SRIMs using FFT, DWT and Band-pass Filters" [*2020 International Conference on Power, Instrumentation, Control and Computing \(PICC\)*](#) Thrissur, India, 17-19 Dec. 2020, pp. 1-6, DOI: [10.1109/PICC51425.2020.9362486](https://doi.org/10.1109/PICC51425.2020.9362486).
9. Prince Kumar and **Ananda Shankar Hati** "Sensor-less Speed Control of Ventilation System Using Extended Kalman Filter For High Performance," [*2021 IEEE 8th Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering \(UPCON\)*](#), 2021, pp. 1-6, DOI: [10.1109/UPCON52273.2021.9667633](https://doi.org/10.1109/UPCON52273.2021.9667633).
10. Aniket Vatsa, **Ananda Shankar Hati** and Vinod Khadkikar "Ageing Condition Assessment of Transformer Insulation in Visual Domain Using DCNN," [*2022 IEEE International Conference on Power Electronics, Drives and Energy Systems \(PEDES\)*](#), 14-17th December, MNIT Jaipur, India 2022, pp. 1-4 DOI: [10.1109/PEDES56012.2022.10080633](https://doi.org/10.1109/PEDES56012.2022.10080633).
11. Aniket Vatsa and **Ananda Shankar Hati** "Transformer Faults Detection using Inrush Transients based on Multi-class SVM" [*2022 IEEE 6th International Conference on Condition Assessment Techniques in Electrical Systems \(CATCON\)*](#) 17-19th December, NIT Durgapur, India, pp. 24-29, DOI: [10.1109/CATCON56237.2022.10077668](https://doi.org/10.1109/CATCON56237.2022.10077668).
12. Aniket Vatsa, **Ananda Shankar Hati** and Mayank Sharma "Efficient Residual LSTM-based Short Duration Polarisation Current Forecasting Technique of Transformer" [*2023 International Conference on Energy, Materials and Communication Engineering \(ICEMCE\)*](#), 14-15th December, Thiagarajar College of Engineering, Madurai, India, 2023, pp. 1-5, DOI: [10.1109/ICEMCE57940.2023.10434272](https://doi.org/10.1109/ICEMCE57940.2023.10434272).
13. Md Asif Hussain and **Ananda Shankar Hati** "Model-Free Predictive Current Control of a Matrix Converter-fed Induction Motor" [*PEPSC 2024 – IEEE Power & Energy Society Singapore Chapter 2nd Power Electronics and Power System Conference*](#) Nov. 6-9, 2024, Singapore.
14. Md Asif Hussain, **Ananda Shankar Hati**, and Vinod Khadkikar "Model Reference Adaptive System Based on Ultra-Local Model for Induction Motor Drives" [*2024 IEEE International Conference on Power Electronics Drives and Energy Systems \(PEDES\)*](#) 18-21 December 2024, National Institute of Technology Karnataka, Surathkal, India.

Book Chapters

1. Prashant Kumar and **Ananda Shankar Hati** "Support Vector Classifiers based broken rotor bar detection in Squirrel cage induction motor" In [*Machines, Mechanisms and Robotics: Proceedings of iNaCoMM 2019 Part of the Lecture Notes in Mechanical Engineering book series \(LNME\)*](#), pp. 429-438, **Springer**, Singapore, 2022 https://doi.org/10.1007/978-981-16-0550-5_42.
2. Prashant Kumar, **Ananda Shankar Hati**, Prince Kumar, Heung Soo Kim "Bearing Fault Diagnosis in Induction Motor using hybrid CNN model" [*Recent Advances in Industrial Machines and Mechanisms. IPROMM 2022. Lecture Notes in Mechanical Engineering. Springer*](#), Singapore, pp 411–418, 2024 DOI: https://doi.org/10.1007/978-981-99-4270-1_41.

Patents

1. **Australian Innovation Patent: 2020104352** "Future summer temperature average prediction from air temperature rate data," March 3, 2021.
2. **Australian Innovation Patent: 2020104365** "An efficient power distribution based on IoT-fog resource for effective proxy negotiation for traffic reduction," March 3, 2021.
3. **Australian Innovation Patent: 2021100000** "A method to measure the air pollution impact on terrestrial and natural vegetation in urban locations," March 3, 2021.

4. **Australian Innovation Patent:** [2021100003](#) "A deep transportation model to predict the human mobility for autonomous vehicle," March 3, 2021.
5. **Australian Innovation Patent:** [2021100083](#) "Dynamic legged locomotion process using the spring-loaded inverted pendulum(slip) for soft robot," March 17, 2021.
6. **Australian Innovation Patent:** [2021100084](#) "IoT enable wireless sensor networks for controlled and safe routing," March 17, 2021.
7. **Australian Innovation Patent:** [2021100301](#) "A closed-loop serpentine crawling technique for two anchor peristaltic mobile soft robot" March 31, 2021.
8. **Australian Innovation Patent:** [2021100302](#) "A process of degrading polystyrene plastic using beetle larvae" March 31, 2021.
9. **Australian Innovation Patent:** [2021100913](#) "Security technique in energy harvesting IoT devices using slotted aloha with noma" April 14, 2021.
10. **Australian Innovation Patent:** [2021100964](#) "GPS data spoofing and malfunctioning detection system using classifiers" April 14, 2021.
11. **Australian Innovation Patent:** [2021101252](#) "Localisation method using integrated sensors in autonomous scrubbing robots for industrial cleaning" April 21, 2021.
12. **Australian Innovation Patent:** [2021101274](#) "Integrated multimodal sensor system for Agri farms" April 21, 2021.
13. **Australian Innovation Patent:** [2021101495](#) "Intelligent hearing aid system using augmented audio relay" April 28, 2021.
14. **Australian Innovation Patent:** [2021101589](#) "Navigation technique for self-driving cleaning robots for congested public locations" May 05, 2021.
15. **Australian Innovation Patent:** [2021101590](#) "Realtime signal generators for cellular jammer with dynamic switching of frequency bands" May 05, 2021.
16. **Australian Innovation Patent:** [2021101730](#) "Dedicated functional area for leg operated computer interactive device for handless people" May 05, 2021.
17. **Australian Innovation Patent:** [2021101936](#) "Motion planning and control algorithm for obstacle avoidance for point mobile robots" May 19, 2021.
18. **Australian Innovation Patent:** [2021101989](#) "Self-tuning controller and tracking method for autonomous aerial drone" May 19, 2021.
19. **Australian Innovation Patent:** [2021101981](#) "Sewage pipeline blockage and bottle neck detection using hybrid sensor and Geo-spatial data analysis" May 26, 2021.
20. **Australian Innovation Patent:** [2021102531](#) "Three-dimensional wind, airspeed calculation, and prediction method for aerial drones using deep learning" June 16, 2021.
21. **Australian Innovation Patent:** [2021102660](#) "Navigation technique for industrial cleaning robots with multi-height and width adaptability" June 23, 2021.
22. **Australian Innovation Patent:** [2021102838](#) "Self-aware continual pose estimator in act video recording and animations" June 30, 2021.
23. **Australian Innovation Patent:** [2021102801](#) "Velocity estimation from cycle pedaling by using extended Kalman filter algorithm" July 07, 2021.
24. **Australian Innovation Patent:** [2021102847](#) "Lateral and Longitudinal displacement measurement of tire cornering stiffness of All Terrain Vehicle using Recursive Least Square technique" July 07, 2021.
25. **Australian Innovation Patent:** [2021102601](#) "Foot-operated seed and leaves pulveriser using automated thrust control technique" July 28, 2021.
26. **Australian Innovation Patent:** [2021104072](#) "Hand shape and sign recognition from video using deep convolution network" August 25, 2021.
27. **Australian Innovation Patent:** [2021105481](#) "Construction operation, monitoring, maintenance planning and future risk prediction of bigger constructions using Artificial Intelligence based Internet of things" October 27, 2021.
28. **Australian Innovation Patent:** [2021105856](#) "Bi-level energy management system with grid reinforcement for solar energy" November 3, 2021.
29. **Australian Innovation Patent:** [2021106006](#) "Simultaneous spectrum and energy allocation algorithm for cognitive internet of things" November 3, 2021.
30. **Australian Innovation Patent:** [2021106012](#) "A ranking algorithm to pick up critical scenarios of fluctuation patterns from the uncertain renewable energy production using machine learning" November 3, 2021.
31. **Australian Innovation Patent:** [2021106243](#) "Determination of movement pattern similarity using Internet of things in congested traffic" November 3, 2021.
32. **Australian Innovation Patent:** [2021106662](#) "Vision based multi object tracking and localisation from autonomous aerial vehicle" November 3, 2021.

33. **Australian Innovation Patent:** [2021106612](#) "Smart Artificial intelligence based fleet analytic system" November 24, 2021.
34. **German Patent:** 20 2022 100 460 "An intelligent system for weather monitoring and natural disasters prevention using IoT and ML" February 15, 2022.
35. **Australian Innovation Patent:** [2021104413](#) "Multi-dimensional radio resource allocation scheme to cater the fluctuations of the network situations due to 5G real time dynamic traffic" May 04, 2022.
36. **UK Patent:** 6350945 "AI-based Pot making machine" March 12, 2024.
37. **UK Patent:** 6354323 "Nanotechnology-based Oral Health Monitoring Device" March 29, 2024.
38. **UK Patent:** 6403643 "Sensor Based Robotic Display For Interactive Marketing" November 18, 2024.