

Personal Information

Date of Birth : 31st October, 1977
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**Academic Identity**

Vidwan-ID : 184789
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Researcher Id : ABI-2099-2020
Google Scholar Id : bhFnOosAAAAJ
Scopus Id : 56519047400

RESUME SUMMARY

- ✓ **Alper-Doger Scientific Index rank holder**
- ✓ **Worked as Dean Student Welfare & Associate Professor of ECE**
- ✓ **22+ years Professional experience**
- ✓ **Multidisciplinary Research Experience, Current Specialization in IoT, Signal Processing**
- ✓ **Collaboration with IoT Research Groups in IIST, UPES, GITAM University**
- ✓ **Guiding Ph.D scholar on Secure communication in IoT Application**
- ✓ **Patent and publications are communicated on IoT**
- ✓ **Currently supervising B. tech & M. Tech projects on IoT applications**
- ✓ **B.Tech, M.Tech, Ph.D in ECE from NIT, Durgapur**
- ✓ **Remarkable Published Papers of national & international repute**
- ✓ **Worked as Head, Examination Department**
- ✓ **Leading roles in MODROB & AICTE-IDEA Lab Projects**

- ✓ **Leading roles in NBA, NAAC, NIRF accreditation and ranking process**
- ✓ **Program Coordinator of UG & PG course for ECE**
- ✓ **Departmental coordinator for MOOCs courses and MAR activities**
- ✓ **Adept and experienced in academic, administrative & cultural activities**

RESEARCH INTERESTS

- Secret Sharing in IoT, Data Encryption, Data Science & ML
- Statistical Signal Processing
- Time series analysis, modeling
- Nonlinear and Complex dynamics
- Analysis of Dynamical Systems
- Chaos and Fractal Theories
- Weather Dynamics
- Meteorology
- Solar Activities

Ph.D GUIDANCE

- Number of students: 4 (1 registered, 3 To be Enrolled soon)
- Visual Data Encryption & Secret sharing in IoT Applications

M.TECH PROJECT SUPERVISION

- Application of IoT in Dipthong and NLP
- Multi-fractality and Singularity in Daily Mean Temperature and Dew-point in India.
- Dynamical complexity of Rainfall in India.

ACADEMICS

- **Ph.D** in Electronics and Communication from **NIT** (Formerly Known as Regional Engineering College), Durgapur, WB Deemed University–in January, 2020
- **M.Tech** in Electronics and Communication (1st Class, CGPA: 8.48) from **NIT** (Formerly Known as Regional Engineering College), Durgapur, WB Deemed University–in 2008.

- **B.E** in Electronics and Communication (1st CLASS, 67.4%) from Regional Engineering College, Durgapur (Burdwan University) in 2002.
- Higher Secondary (Science-74.4%) from W.B.C.H.S.E in 1996.
- Secondary (83.33%) from W.B.B.S.E in 1994

WORK EXPERIENCE

❖ Total experience of 21+ years in teaching

1. **Associate Professor** in Electronics and Communication Engineering Department, School of Engineering, Swami Vivekananda University, Barrackpore, India, 1st November 2024 to till date
2. **Associate Professor** in Electronics and Communication Engineering Department in Dr. B.C Roy Engineering College, Durgapur, WB 1st February 2024 to 31st October 2024
3. **Assistant Professor-III** in Electronics and Communication Engineering Department in Dr. B.C Roy Engineering College, Durgapur, WB November 2019 to 31st January 2024
4. **Assistant Professor-II** in Electronics and Communication Engineering Department in Dr. B.C Roy Engineering College, Durgapur, WB 1st July 2014 to November 2019
5. **Assistant Professor-I** in Electronics and Communication Engineering Department in Dr. B.C Roy Engineering College, Durgapur, WB April 2010 to 30th June 2014
6. **Senior Lecturer** in Electronics and Communication Engineering Department in Dr. B.C Roy Engineering College, Durgapur, WB 29th February 2008 to March 2010
7. **Lecturer** in Electronics and Communication Engineering Department in Dr. B.C Roy Engineering College, Durgapur, WB 31st January 2005 to 28th February 2008
8. **Lecturer** in Electronics and Communication Engineering IMPS College of Engineering and Technology, Malda, WB 20th January 2004 to 30th January 2005.

TEACHING EXPOSURE**Courses Taught: B.Tech**

- Internet of Things (IoT)
- Electronic Devices
- Solid state Devices
- Digital Signal Processing
- Wireless Communication
- Communication Engineering
- Digital Electronics
- VLSI Design and Microelectronics
- VLSI & ASIC Design
- Basic Electronics
- Analog Electronics

Courses Taught: M.Tech

- Processor Architecture for VLSI
- Satellite Communication
- Mobile Communication
- Audit Course: Research Methodology

Courses Taught: Ph.D

- Research Methodology

Laboratories Attached With

- Computer Networks
- Electronic Devices
- Project Lab
- DSP Laboratory.
- Analog and Digital Communication Laboratory.
- Digital Electronics Laboratory.
- Basic Electronics Laboratory.
- Wireless Communication Laboratory.

Supervision of B. Tech Projects (a few of them)

- IoT Application in Electronic Vehicle
- IoT Application in Biomedical Images
- Soil moisture control using Arduino Uno
- Comparative study of different Interpolation Methods
- Robust interpolation algorithm using Radial Basis Function, ANN
- Energy optimization in synthetic AWGN signals
- Stochastic modeling of average rainfall in India

- Smart Water Tap using arduino
- GSM based Weather Reporting
- Detection of Chaos in natural signals
- DTMF based home automation
- Greenhouse Agricultural System using Microcontroller

Supervision of M. Tech Projects

- Application of IoT in Diphthong and NLP
- Multifractality & Singularity in weather parameters
- AI & ML based internet data analysis

EDITORIAL, PATENTS, PROJECTS & COPYRIGHTS**Editorial:**

- Editor-in Chief, Journal of Innovation and Advancement in Electronic Frontier

Patents:

- "Smart Mattress using Blockchain Technology". Application Number: 440243-001. Application Status: Application Accepted, Certificate of Design Generated. On process:
- Design Application no. 454967-001 entitled 'DATA ANALYSIS SYSTEM FOR PREDICTING CONSUMER SATISFACTION' . Application Under Process(awaiting for Technical Examination)
- PID 10360SR: Automatic Municipal Water Dispensing System By using IOT and RTC

Projects:

- 'Comprehensive Strategies for Early Identification and Prevention of Cardio-Metabolic Health Risks', Submitted to Department of Biotechnology, Govt. of India
- "Application of Artificial Intelligence Methods in Identifying Critical Genes in Breast Cancer", Submitted to SVU for University Minor Research Grant.

Copyright:

- From Greenwashing to Green Living: Authentic Sustainability. Diary Number:3190/2025-CO/L

PAPERS COMMUNICATED

- SCI: 3 ESCI: 1 SCOPUS: 2

PAPERS PUBLISHED

Journal
International

1. Edge-based intelligent and smart health monitoring on PYNQ-Z2 using lightweight protocol and integration of machine learning models Basu Samik; Ray, Rajdeep; Maitra Arkadip; Banerjee Pritha; Chakrabarti Amlan. International

- Journal on Smart Sensing and Intelligent Systems; Sydney Vol. 18, Iss. 1, (2025). DOI:10.2478/ijssis-2025-0056. **ESCI**
2. Exploratory Feature Analysis for Deep Learning based Spectrum Sensing. J Mandal, S Ganguly, A Dutta, A Raza, R Ray, A Bose, Grenze International Journal of Engineering & Technology (GIJET), Vol-11, Issue-Part2, Pages- 509, 2025.
 3. "Phase-Wise Stochastic, Scaling and Dynamical Analysis of Pan-India Covid-19 Outbreak", International Journal of Electrical, Electronics and Data Communication (IJEEDC)-IJEEDC, Volume-10, Issue-7 (Jul, 2022), 90-96 <https://iraj.doionline.org/dx/IJEEDC-IRAJ-DOIONLINE-18926>
 4. "Complexity and periodicity of daily mean temperature and dew-point across India", J. Earth Syst. Sci. (2019), 128:143, Springer, Indian Academy of Sciences, <https://doi.org/10.1007/s12040-019-1174-x>. **SCI, IF: 1.423**
 5. "Scaling analysis and model estimation of solar corona index"; Samujjwal Ray, Rajdeep Ray, Mofazzal Hossain Khondekar, Koushik Ghosh; Advances in Space Research 61 (2018) 2214–2226; Elsevier. **SCI, IF: 2.177**
 6. "Multifractality and singularity in average temperature and dew point across India", Rajdeep Ray, Siddhartha Dey, Mofazzal Hossain Khondekar and Koushik Ghosh, International Journal of Advanced Technology and Engineering Exploration, Vol 5(43), ISSN(Print):2394-5443, ISSN(Online):2394-7454, <http://dx.doi.org/10.19101/IJATEE.2018.542018>, **SCOPUS**
 7. "Nonlinearity and chaos in wireless network traffic"; Somenath Mukherjeea, Rajdeep Ray, Rajkumar Samanta, Mofazzal H. Khondekard, Goutam Sanyal; Chaos, Solitons and Fractals (Nonlinear Science, and Nonequilibrium and Complex Phenomena); 96 (2017) 23–29; Elsevier. **SCI, IF: 5.944**
 8. "Characterization of univariate long-term urban internet Traffic volume". ICTACT Journal On Communication Technology, December 2017, Volume: 08, Issue: 04; 1618-1624. **UGC-CARE**
 9. "Scaling and nonlinear behavior of daily mean temperature time series across India, Chaos Solitons & Fractals, 84 (2016) 9–14, Elsevier. **SCI, IF: 5.944**
 10. "Chaos and periodicity in solar wind speed: cycle 23", (2015).. *Astrophysics and Space Science*, 357(2), 1-10, Springer **SCI, IF: 1.885**
 11. "Memory Persistency and Nonlinearity in Daily Mean Dew Point across India". Has been accepted for publication in "Theoretical and Applied Climatology", 2015, 119 (3–4). Springer. **SCI, IF: 2.882**

National

12. "COVID-19 in India: The Dynamics of the Demon", BCREC Engineering & Science Transaction, Vol. 3, Issue 1, Pp. 69-76, 2022.
www.bcrecjournal.org/articles.aspx?jid=202201
13. "Investigation of Dynamical Patterns and Complexity of Rainfall in India", Published in 'The Bulletin of Engineering & Science', ISSN: 09747176, 2014, VOL.6| NO.1, pp.31-34.
14. "Nonlinearity in Solar Wind Speed dynamics", Published in 'The Bulletin of Engineering & Science', ISSN: 09747176, 2014, VOL.6| NO.1, pp.35-38.
15. "Natural Language Processing: Devanagari to English and vice-versa using C#", Acharjee A, Chakraborty S, Chatterjee A, Patel P, Ray R. Published in 'The Bulletin of Engineering & Science', ISSN: 09747176, 2009-2012, Special Issue, VOL.4, NO.1, pp.49-52.

Conference
International

16. Communication for High-Speed Data, TS Roy, N Roy, S Roy, R Ray, S Paul, Intelligent Electrical Systems and Industrial Automation: Proceedings of IESIA 2025. Pages-123, 2026.
17. IOT for Smart Health Monitoring System, S Banerjee¹, R Ray, TS Roy, Intelligent Electrical Systems and Industrial Automation: Proceedings of IESIA 2025. Pages-111, 2026.
18. Exploratory Feature Analysis For Deep Learning Based Spectrum Sensing, Hinweis Second International Conference on Computer Science, Cyber Security and Information Technology (CCIT), June 29-30, 2024
19. Banerjee, U.K., Das, A.K., Ray, R., Koner, C. (2023). "Secure Encryption Using Bit Shuffling". In: Misra, R., Rajarajan, M., Veeravalli, B., Kesswani, N., Patel, A. (eds) Internet of Things (IoT): Key Digital Trends Shaping the Future. ICIoTCT 2022. Lecture Notes in Networks and Systems, vol 616. Springer, Singapore.
https://doi.org/10.1007/978-981-19-9719-8_20
20. "Phase-wise Stochastic, Scaling and Dynamical Analysis of Pan-India Covid-19 Outbreak", Proceedings of International Conference on Computer Science, Industrial Electronics, IEEE forum, Kolkata, India, 05th June 2022.
<https://digitalxplore.org/proceeding.php?pid=1499>
21. "Self-organized criticality, Causality and Correlation of Probability of Recurrence between Daily Mean Temperature and Dew Point across India"; ICRCICN 2017: IEEE International Conference on Research in Computational Intelligence and Communication Networks.

22. "Characterization of Wireless Network Traffic: Fractality and Stationarity"; ICRCICN 2017: IEEE International Conference on Research in Computational Intelligence and Communication Networks.
23. "Temperature Dependent Transport properties in GaN Single Quantum Wells", Rajdeep Ray, Amit Nath, P. K. Ghosh, published in the proceedings of the 4th international conference on Computers and Devices for Communication, CODEC'09, 14-16 Dec 2009, organized by Dept. of Radio Physics & Electronics, University of Calcutta, Kolkata, India, co-sponsored by IEEE, IEEE Photonics Society, Electron Device Society. This publication is linked with IEEE-Xplore.
24. "Two-Dimensional Magneto-Electronic Transport in CdSe Single Quantum Wells", P. K. GHOSH, ANUP DEY, AMIT NATH, RAJDEEP RAY, presented in International Conference on Materials for Advanced Technology, ICMAT'09, from 28 June to 3 July 2009 at the Suntec, Singapore International Convention and Exhibition Centre (SICEC).

National

25. "Stationarity and Fractality in Monthly Rainfall Profile Across India". National Conference On Nonlinear Dynamics and its Applications (CNDA-16) February 07-09, 2017.
26. "A Comparative Analysis for Evaluation of Two Block-Ciphers of Bit-Level Implementation", published in the proceeding of National Symposium On Emerging Trends in IT.(ITCON'07),(Organized by Department of Computer Science & Engineering, CMR Institute of Technology, #132, AECS Layout, IT Park Road, Bangalore-37, India), 16-17 August, 2007, Proceedings .Page No: 08-13.)

BOOK CHAPTERS

1. "Secure Cryptography Using Chaotic Algorithm", Novel Research and Development Approaches in Heterogeneous Systems and Algorithms, IGI Global, Release Date: March, 2023, DOI: 10.4018/978-1-6684-7524-9, ISBN13: 9781668475249, ISBN10: 1668475243, EISBN13: 9781668475263, ISBN13, Chapter page no. 191-216, DOI: 10.4018/978-1-6684-7524-9.ch011. <https://www.igi-global.com/book/novel-research-development-approaches-heterogeneous/308298>

CONFERENCES AND WORKSHOPS ORGANISED

- **Technical Program Committee Chair**, IEEE International Interdisciplinary Conference on the topic "Mathematics, Engineering & Science (MESIICON-2022) to be held in the year 2022.

- **Organizing Co-chair**, IEEE conference “National Conference on Emerging trends on Sustainable Technology and Engineering Applications” (NCETSTE-2020), 7th and 8th Feb 2020.

FDPS, CONFERENCES AND WORKSHOPS ATTENDED (a few of them)

- Cadence based VLSI training program will be conducted from Monday, 27th January 2025 to 1st February, 2025
- Two Weeks Hands-on Workshop on Design, Simulation, and Layout: Cadence based PCB Design 9th to 21st December, 2024
- Exploring the future of Artificial Intelligence and Machine Learning from 24-06-2024 to 28-06-2024
- Recent Advances And Future Trends In AI And NLP from 15-04-2024 to 19-04-2024
- Additive and Subtractive Manufacturing from 16-12-2023 to 21-12-2023
- World’s Largest 1 Week Hands-On Faculty Development Program on “Artificial Intelligence using Python” organised by Department of Computer Science & Technology of Dr. B. C. Roy Polytechnic in association with Brainovision Solutions India Pvt.Ltd. & National Youth Council of India held from 14-09-2020 to 19-09-2020.
- Three Days Faculty Development Programme On “Modern Signal Processing Technology” organized by department of electronics and telecommunication engineering Dr. B. C. Roy Polytechnic. Date : 06.08. 2020 to 08.08.2020.
- *5 Day International FDP on “Emerging Trends in Sensors, Security and Smart Automation Systems (ETSSAS 2020)” Organised by Department of Electrical Engineering B.P. Poddar Institute of Management & Technology 8th -12th July 2020.*
- One Week Faculty Development Program on “Modern Trends In Electrical Engineering” organized by the Department of Electrical Engineering, Dr. B.C. Roy Polytechnic, Durgapur held from 23rd June to 27th June, 2020.
- One Week Faculty Training Program” on “Moodle-An ICT Based Learning Management System (LMS) To Conquer The Academic Lock down” from April 21 to April 25, 2020.
- Webinar on Internet of Things: Architectures, Protocols, Applications and Security Concerns” Organised by Department of Computer Science and Technology Indian Institute of Engineering Science and Technology, Shibpur During 14th -18th December, 2020.
- Webinar “Trends of Modern Communication Engineering Systems” from 18/9/2020 to 20/9/2020 organized by Electronics and Communication Engineering Department, BCREC and IEEE student branch BCREC.

- IEEE sponsored 4th international conference on Computers and Devices for Communication, CODEC'09, 14-16 Dec 2009, Dept. of Radio Physics & Electronics, University of Calcutta, WB.
- International conference on “Emerging trends on Microelectronics and VLSI Technology”, 4-10 Jan'09, BESU, WB.
- National workshop on “EDA Tools for VLSI Design”, MCKV Institute, Howrah, WB.
- Workshop on “Synopsys EDA tools”, WBUT, Salt-Lake, WB.
- National conference on “Materials for Advanced Technology”, NIT, Durgapur, WB.

AWARDS

- Rural talent search award in 1992
- National Scholarship in 1994 & 1996

ADDITIONAL RESPONSIBILITIES

Association with different activities led to some responsibilities in the institution other than just rendering education to the students. To sum up with a few of them:

Academic and departmental responsibilities include:

- Senior member of departmental academic committee (DAC)
- Course coordinator UG courses
- Departmental coordinator of MAR, MOOCKS courses
- Departmental coordinator of placement drives
- Member of routine –committee, both departmental and college
- To co-ordinate syllabus for PG courses
- To set up PG Laboratories
- To play an important role of being a Mentor to counsel group of students in different sphere

Examination related activities include:

- Head, Examination Dept.(July' 2019-Sept',2021)
- Active member of Examination-Cell
- Assistant officer-in-charge, WBUT examinations
- Officer-in-charge, M. Tech. examinations
- Centre-in-charge, NEET, ANM-GNM, JENPAS, WB-JEE and IIT-JEE,GATE

Administrative responsibilities include:

- Dean, Student Welfare (01/03/2023 to September, 2024)
- Coordinator of NBA, NAAC, NIRF committees
- Coordinator of MODROBS & Idea Lab projects
- Treasurer of Entrepreneurial Society of the Institute
- Member Secretary of college anti-ragging committee
- Advisory, Alumni Association
- Chairman of Student council
- Chairman of Hostel council
- Member of Cultural and Techno Cell
- Teacher-in-charge of Cultural Clubs for students

REFERENCES**1. Dr. Malay Banerjee, Professor**

Department of Mathematics and Statistics, IIT, Kanpur, India.

<https://www.iitk.ac.in/new/malay-banerjee>

2. Dr. Santi Prasad Maity, Professor

Head, IT Dept, IEST, Shibpur, Howrah, West Bengal, santipmaity@it.iests.ac.in, spmaity@yahoo.com, +91 33 26684561(3 lines) x858 (O)

3. Dr. Arindam Biswas, Asst. Professor

Department of Mining Engineering, School of Mines and Metallurgy, Nirikshan Bhavan (Ground Floor), Kazi Nazrul University, Asansol-713340, Paschim Bardhaman, W.B., India. arindam.biswas@knu.ac.in; hod.miningengg@knu.ac.in



Date: 24/04/2025

Signature