Name: Dr. Rajib Banerjee

Department: ECE

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Email: rajib.banerjee@bcrec.ac.in

Qualifications: M.Tech (ECE), Ph.D (Engineering)

Designation: Assistant Professor

Vidwan Id: https://vidwan.inflibnet.ac.in/profile/193357

Experience (Teaching / Research / Industry, in years): 19yrs

Date of Joining at the Present Institution: 11/9/2007

Qualifications Summary (Reverse chronological order):

Degree	Institute	From – To	Subjects
PhD Engineering	IIEST, Shibpur	2014-2019	Wireless Multimedia Sensor Networks
M.Tech (ECE)	MAKAUT	2007-2009	Electronics and Communication Engineering
M.Sc, (Electronics)	Pune University	1997-1999	Electronic Science

Experience Summary (In chronological order):

Designation,	Organization,	Date From – Date To
Support Engineer	Sansui Engineering Pvt.Ltd	11-10-1999 to 28-09-2001
Lecturer	DSMS,Durgapur	11-03-2002 to 05-05-2003
Scientific Officer & Lecturer	B.B. College, Asansol	06-05-2003 to 10-09-2007
Assistant Professor	Dr. B.C. Roy Engineering College, Durgapur	04-09-2009 to till date

Specialization/Research Interest:

Communication Engineering, Wireless sensor network, Wireless multimedia sensor network, Data compression, Data aggregation techniques, compressed sensing and Computer aided health and diagonostic system

Awards & Recognitions
Best paper/ scholarship/Position in university exam / awards while at industry/ other organizations etc.
1.Awarded as Best Research progress in IEEE, ICC Covid-19 Congress at Bangaladesh, July 2020
2. PhD external examiner of VTU, 2020
3. Judge of Science fair organized by Department of Youth services and sports, Govt. of West Bengal August 2019.

4**.** Guest of honour, IEI centre May 17, 2016

5. Guest of honour, IEI centre May 17, 2015

Courses taught: **B.Tech: Specify the name of the subject/s**

Theory
Analog Electronics, Digital Electronics, Analog and digital communication, Computer networks, Wireless communication, Digital image processing, Microprocessors and computer organization.

Practical:
Analog Electronics Lab, Digital Electronics Lab, Communication Lab, Computer Network Lab

M.Tech: specify the name of the Subject/s
Computer Network, Wireless Communication, Wireless sensor network

Online Mode of Teaching:
Lectures through Google platform/Zoom /Cisco webex. Question and answers through google drive

https://drive.google.com/open?id=1FEMdgH352mLSsXWsPTVTMyai3bIUY3O3

Publications:
Publication Link: https://scholar.google.co.in/citations?user=sJKJzB4AAAAJ&hl=en

Journal: (SCI)

 R. Banerjee, Pulakesh Roy, Surajeet Das, Manash K. Paul "A Hybrid Model integrating warm heat and ultraviolet germicidal irradiation might efficiently disinfect respirators and personal protective equipment" *Elsevier American journal of Infection control*, accepted July 2020, Impact factor 2.9.
 10.1016/j.ajic.2020.07.022

Citation: 16 (last 5years)

R. Banerjee and S. Das Bit "Low-overhead video compression combining partial discrete cosine transform and compressed sensing in WMSNs" *Springer wireless networks,* Aug 2019, vol.25, (8), pp.5113-5135, , Impact factor 2.6
https://doi.org/10.1007/s11276-019-02119-y
Citation: 4 (last 5years)

R. Banerjee, S. Chatterjee and S. Das Bit "Performance of a partial discrete wavelet transform based   path merging compression technique for wireless multimedia sensor networks" *Springer wireless personal communication,* Jan 2019, *vol.*104, (1), pp. 57-71, Impact factor 1.67.
https://doi.org/10.1007/s11277-018-6008-7

Citation: 5 (last 5years)

 R. Banerjee, S. Das Bit "An energy efficient image compression scheme for wireless multimedia

sensor network using curve fitting technique" *Springer wireless networks*, Jan 2019, vol.23, (1), pp.167-183,. Impact factor 2.6.
https://doi.org/10.1007/s11276-017-1543-9
Citation: 19 (last 5years)

 R. Banerjee, S. Chatterjee and S. Das Bit "An energy saving audio compression scheme for wireless multimedia sensor networks using spatio-temporal partial discrete wavelet transform" *Elsevier Computers and Electrical Engineering*, Nov 2015, vol. 48, pp. 389-404, Impact factor 3.8.
https://doi.org/10.1016/j.compeleceng.2015.09.009

Citation: 14 (last 5years)

Patent Published:

Rajib Banerjee, Manash K Paul, Surajeet Das and Pulakesh Roy, "Methods and disinfection equipment for respirators and personal protective equipment", published on 02/07/2021, issue-27/2021.

Rajib Banerjee, Arindam Mondal and Suman Halder "A real-time data logger to monitor battery state of health" published on 29/10/2021, issue-44/2021

 Conference:

M.R.Babu, P.Roy, **R.Banerjee** "Harmonic analysis for power loss minimisation in radial distribution system" IEEE, ICCCNT at IIT Kharagpur, July 2020.
doi:10.1109/ICCCNT49239.2020.9225526

P. Roy, D. Roy, **R. Banerjee** "A Proficient Video Compression using Block based Fragmented Cosine Transform (BFCT) in Wireless Multimedia Sensor Network (WMSN)" IEEE NCETSTEA on 7th -8th Feb 2020.
doi: 10.1109/NCETSTEA48365.2020.9119930

S.Halder, S. Mondal, A.Mondal, **R. Banerjee** "Battery Management System Using State of Charge Estimation: An IOT Based Approach" IEEE NCETSTEA on 7th -8th Feb 2020.
doi:10.1109/NCETSTEA48365.2020.9119945

Citation: 2 (last 5years)

N. Halder, D.Roy, **R. Banerjee**, P. Roy, P.P.Sarkar, S. Bandhopadhyay "Automatic Detection and Segmentation of Optic Disc (ADSO) of Retinal Fundus Images Based on Mathematical Morphology" " IEEE NCETSTEA on 7th -8th Feb 2020.
doi:10.1109/NCETSTEA48365.2020.9119931
Citation: 1 (last 5years)

P Banerjee, K Dasgupta, S Chatterjee, **R. Banerjee** "Abnormality Detection Using Image Quality Estimation Technique Through Border Surveillance for Wireless Transmission" IEEE UEMCOS 2019.

doi: 10.1109/UEMCOS46508.2019.9221515

R. Banerjee, P. Roy, K. Layek, S. Das Bit "An energy efficient video compression using differential Interframe partial discrete wavelet transform for WMSN" IEEE INDICON, IISC Bangalore, December2016.
doi:10.1109/INDICON.2016.7838873
Citation: 2 (last 5years)

R. Banerjee and S. DasBit, "Low-Overhead Image Compression in WMSN for Post Disaster Situation Analysis," in the Proc. IEEE ANTS, ISI, Kolkata, *Dec:* 2015.
Doi: 10.1109/ANTS.2015.7413628
Citation: 5 (last 5years)

R. Banerjee, M. Mobashir, S. Das Bit "Partial DCT-based Energy Efficient Compression Algorithm for Wireless Multimedia Sensor Network," in the Proc. IEEE ,CONECCT, IISc Bangalore, January 2014.
Doi: 10.1109/CONECCT.2014.6740356
Citation: 28 (last 5years)

R. Banerjee, I. Dutta, S. Das Bit "Energy Efficient Audio Compression Scheme Based on Red Black Wavelet Lifting for Wireless Multimedia Sensor Network," in the Proc. IEEE**,** ICACCI, Mysore, Aug 2013**.**
Doi:10.1109/ICACCI.2013.6637325
Citation: 7 (last 5years)

R. Banerjee, I. Dutta, T. Acharya, S. DasBit "An energy efficient audio compression scheme using wavelet with dynamic difference technique in Wireless Sensor network", ," in the Proc. ACM, ICACCI, Chennai, Aug 2012.
Doi: doi.org/10.1145/2345396.2345456
Citation: 4 (last 5years)

S.Mondal, S.Halder, **R.Banerjee** "An Efficient Voice Assistant Approach Using IoT" ICCIC, Kolkata, Accepted conference in December 2020.
10.26480/cic.01.2020.67.71

Supervision of Phd/M.Tech / B.Tech Projects: Yes

PhD Supervision- 02 ongoing

Sandip Chaurasiya, under supervision of Dr. Rajib Banerjee, "IoT Assisted energy efficient data collection in Intermittently connected delay tolerant wireless sensor network" 2019, MAKAUT registered

Suman Halder, under supervision of Dr. Rajib Banerjee, "Study of Green Energy Environment Using IOT Based Battery operated vehicle " 2020, MAKAUT, enrolled

M.Tech Projects

Sonam Mehta :Video compression in wireless multimedia sensor networks (2014)
Adrija Chatterjee : Performance of routing protocols in MANET(2014)

Arnab Banerjee: Design of a microstrip patch antenna for zigbee band in wireless sensor network
Rupam Gangopadhyay : Designing of an efficient compression algorithm for wireless sensor network (2012)
Rumpa Mukherjee : Throughput optimization based on routing protocol, mobility and fading in mobile adhoc network(MANET) 2010.

B.Tech Projects

Udayan Roychowdhury , Development of low cost oxygen concentrator, 2021

Souvik Roy, Akanksha Kumari, Automatic Accident Detection and Location communication using Arduino Based System, 2020.

Amit kumar Bhagat, Ankit Anurag, Ankit Kumar, Madhumita Ganguly, Sneha Saha Choudhury, Tarapada Pal Automated plant irrigation system and control arduino, 2019.

Vikas kumar singh, Vinit kumar, Vishnu dutt pandey, "Design of a Sonoelastography Image classifier to determine the Malignant Tissue",2018.

Abhishek Gharai, Abhishek Pandey, Ankee Singh, Arindam Mukherjee, Mritunjay Kumar, Prabhat Kumar "Video compression using discrete wavelet transform in WSN"2017.

Invited Lectures:
Topic of the lecture, Name of the event, organized by, Date
- Invited Speaker in International Covid-19 Congress (ICC-2020) Organized by IEEE Bangladesh on 9th -10th August 2020.
- Invited Speaker in International Women's in Engineering COVID-19 Congress 2021 (WIECOV-21) on 21st -22nd august 2021.

1. ICT Entrepreneurship for Social Impact organized by IEI(I) Durgapur centre May 17, 2016.
2. Telecommunications and ICTs: Drivers of innovation organized by IEI(I) Durgapur centre May 17, 2015.

Participation in conference
Name of the event, duration, Year, Organized by.

IEEE ,CONECCT, 2 days, January 2014, IISc Bangalore
IEEE ANTS, *2 days December* 2015 ISI, Kolkata.
IEEE INDICON,2 days, December 2016. IISC Bangalore.

Participation in faculty development programmes

1. Induction Training one week from MHRD, Organized online by NITTTR, Kolkata, 25th May to 29th May 2020.
2. HRD through Training and Development one week from MHRD, Organized online by NITTTR, Kolkata, 27th April to 1st May 2020.
3. NBA Accreditation and SAR Preparation one week from MHRD, Organized online by

NITTTR, Kolkata, 2oth to 24th April 2020.
4. Moodle learning management system one week Spoken tutorial project, IIT Bombay.
5. Teaching and learning skill development, Organized in association with IEEE Student branch BCREC, on 22nd Aug 2019.

Organization of events (Dr. B. C. Roy Engineering College)

 1. Organizing Co-Chair on "Innovations and Intellectual property protection" on 28th January 2021.

2. Organizing Co-Chair of webinar on "Trends of modern communication Engineering systems, online from 18-20th September 2020.

3**. Organizing Co-Chairs of IEEE conference** "National conference on Emerging trends on sustainable technology and Engineering applications" (NCETSTEA-2020) **held on 7th -8th Feb 2020. Website: http://ncetstea2020.org**

4. **Organizing Co-Chairs of Seminar on** "Enterprise architecture and its security" organized in association with IEEE Student branch BCREC, **on 21st Jan 2020.**

5. **Organizing Co-Chairs** "Teaching and learning skill development" organized in association with IEEE Student branch BCREC, **on 22nd Aug 2019.**

6. **Co-ordinator** of **FOSSEE project, IIT Mumbai through ICT MHRD** "Three day workshop on Basic Programming using Python" 1st to 3rd May 2019

7. **Organizing Co-Chairs** in **IEEE Seminar "** Role of IEEE for young Engineers and Researchers**"** 5th April 2019**.**

8. **Organizing Co-Chairs** at **Institution of Engineers (IEI)** sponsored seminar on "Integration between Global navigation satellite systems (GNSS), wireless communication and networking (WCN)" 17th Feb 2018.

9. **Organizing Co-Chairs** at **Department of science and technology (DST**) sponsored National Seminar on "Green Chemistry – Challenges and Opportunities in India," on 9th September 2016.

Participation in administrative committees (selected)
Name of the post (Convener/Joint Convenor/Member secretary/Co-ordinator etc.), Name of the committee, year

1. Counsellor IEEE student chapter BCREC- from 2019
2. Adviser of IEI(I), student chapter- from 2017
3. Convenor departmental budget committee-from 2017
4. Member departmental Routine committee-from 2014

Project Ideas Submitted to Govt. Agencies/ On-going Projects / Research Ideas under preparation & execution

Development of smart oxygen concentrator at R10, IEEE

IOT based approach for security in coal mines

2. Short term training Programme (STTP)

Teaching skill development

Membership of professional bodies: IEEE

Reviewer of SCI journals: IEEE Access, IEEE Wireless Communication, Elsevier, Springer and PLOS one Journal