Name: Dr. Debaprasad Mukherjee

Department: Information Technology

Contact Nos.: 9831114666

Qualifications:

1. BE Electrical Engineering,
2. One Year Post Graduate Diploma (Bioinformatics)
3. CSIR JRF (MS eqv.) (CSE) (Artificial Intelligence, Complex Systems, Bioinformatics)
4. ***PhD (CSE) (Area: Artificial Intelligence, Complex Systems, Bioinformatics)***

Designation: Professor

VIDWAN ID: 187889

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

1. Research (Full time) & Teaching (Part time): 6 years
2. Teaching (Full time) and Research (part time): 12 years
3. Industry: Nil

Date of Joining at the Present Institution: 20th August 2009

Examinations Cleared:

-GATE 2001 Electrical Engineering,
-GATE 2002 Engineering Sciences
-UGC NET Teaching and Research Methodology 2019
-JEST Physics 2001
-JNCASR Research Fellowship Exam, 2001
-CSIR JRF Exam, 2003
-CSIR SRF Exam, 2005

Qualifications Summary (Reverse chronological order):

Degree	Institute	From – To	Subjects
PhD	Council Of Scientific and Industrial Research, (CSIR), Govt. of India and Jadavpur University, Govt. of WB, India	2005 - 2011	Computer Science and Engineering (Artificial Intelligence, Complex Systems, Bioinformatics)
CSIR JRF (MS) (CSE)	Council Of Scientific and Industrial Research, (CSIR), India, Govt. of India	2003-2005	Artificial Intelligence, Complex Systems, Bioinformatics
One Year Post Graduate Diploma	Institute of Bioinformatics and Applied Biotechnology, India Govt. of Karnataka	2002-2003	Bioinformatics
Bachelor of Engineering	Jalpaiguri Govt Engineering College, University of North Bengal, Govt of WB, India	1997-2001	Electrical Engineering
AISSE	DAV Model School, Durgapur, India Central Board of Secondary Education, India	1995-1996	English, Mathematics, Physics, Chemistry, Bengali
AISSCE	DAV Model School, Durgapur, India Central Board of Secondary Education, India	1994	English, Mathematics, Science, Social Science, Bengali

Experience Summary (In chronological order):

Designation	Organization	Date From – Date To
CSIR-Junior Research Fellow	CSIR-IICB, Kolkata, India	2003-2005
CSIR-Senior Research Fellow	CSIR-IICB, Kolkata, India	2005-2006
Lecturer (Research, Contract)	PDSIT, IIEST (BESU), Shibpur, India	2006-2009
Senior Lecturer/Assistant Professor	BCREC, WB, India	2009-2013
Associate Professor	BCREC, WB, India	2013-2019
Professor	BCREC, WB, India	2019-Present

Specialization/Research Interest:

-Specialization:

Artificial Intelligence, Machine Learning, Data Science and Data Mining, Algorithms, Systems Theory (including Complex Systems), Bioinformatics,

-Research Interest:

a) Artificial Intelligence in Molecular Translational Medicine (esp. Pandemic Vaccines and Pandemic Drugs)

b) Metaphilosophy

Awards & Recognitions
Best paper/ scholarship/Position in university exam / awards while at industry/ other organizations etc.

-JNCASR International Junior Research Fellowship, 2001
-GATE 2002 84 All Indian Rank
-TIFR JEST 2001
-CSIR JRF 2003, CSIR SRF 2005
-UGC NET Teaching and Research Methodology 97 percentile

Courses taught:

B.Tech: Specify the name of the subject/s (Theory first and then practical)
-Artificial Intelligence
-Soft Computing
-Data Mining
-Design and Analysis of Algorithms
-Research Methodology
-Signals and Systems
-Data Structures and Algorithms
-Introduction to Computing
-Programming for Problem Solving
-Object Oriented Programming Systems
-Database Management Systems
-Software Engineering
-Internet Technologies
-Electronic Commerce
-Project Management
-Cyber Security
-Object Oriented Programming Lab
-C Programming Lab
-Web programming lab
-Algorithm programming lab
-Artificial Intelligence Programming Lab

M.Tech: specify the name of the Subject/s
-Artificial Intelligence
-Soft Computing
-Advanced Algorithms
-Advanced Software Engineering
-Research Methodology

Online Mode of Teaching:
The Faculty member needs to specify the online teaching/ assessment method adopted. (Link to any faculty created resources for Lecture notes / PPT/ Video Lecture etc. in Google Drive / Weblink etc)

The method adopted for online teaching:

1. Continuous Evaluation and Feedback from students.
2. Each student is asked one question per class which the student has to answer within the same week either through text message or voice recording in Whatsapp.
3. ***Extensive beyond class interaction with the students for questions/answers.***
4. Lecture audio recording of each point per class is sent to all students in the class through whatsapp group.
5. Complex or Critical concepts are illustrated additionally with highly graphical /illustrative images/videos (the best are selected from many images/videos)
6. Each topic in the syllabus is covered point by point in a highly structured way. Typed and formatted notes are sent to all students for each critical point.
7. ***The entire teaching material is covered from the most popular and best material freely available on the web.***
8. Each student is marked based on answers of the weekly questions and the answers in CA.
9. In CAs, open book exams are conducted in assignment mode.
10. Each student is given a different question from the higher order thinking skills (top 3 levels of Blooms Taxonomy/Technical Graduate Attributes) or All students are given the same question of higher order problem solving or definition of terminologies in the syllabus.
11. The students upload the answers to Google Drive or send over whastapp as directed.
12. The teacher tries to ensure that the CA exams are actually learning experiences for students regarding core concepts or advanced/emerging concepts.
13. ***Students are marked based on degree of participation, effort given, and approach taken.***

Publications:

Journal:

Chatterjee, A., Venkateswaran, P., & **Mukherjee, D**. (2017). A unified approach of simultaneous state estimation and anomalous node detection in distributed wireless sensor networks. International Journal of Communication Systems, 30(9), e3191.

Saha, B., Mahato, S., & **Mukherjee, D**. (2016) Optimization of Geometry, Processes, Signals and Systems in Real World Engineering Problems by Cuckoo Search-A Survey of Recent Literature. International Journal of Emerging Trends in Computer Science - 2016

RoyChoudhury, S., & **Mukherjee, D**. (2013). Complex codon usage pattern and compositional features of retroviruses. Computational and mathematical methods in medicine, 2013.

RoyChoudhury, S., Pan, A., & **Mukherjee, D**. (2011). Genus specific evolution of codon usage and nucleotide compositional traits of poxviruses. Virus genes, 42(2), 189-199.

RoyChoudhury, S., & **Mukherjee, D**. (2010). A detailed comparative analysis on the overall codon usage pattern in herpesviruses. Virus research, 148(1-2), 31-43.

Ramachandran, Srinivasan & Katiyar, Dr. Amit & Sinha, Amit & Bharadwaj, Anshu & Dutta, Anirban & Raman, Ayush & Pan, Archana & Kishen Malik, Balwant & Singh, Balvinder & Pillai, Beena & Dutta, Bharati & Priyamwada Sinha, Bhanot & Taneja, Bhupesh & Mandal, Chhabinath & Kapil, Charu & Dutta, Chitra & Dash, Debasis & **Mukherjee, Debaprasad** & Paul, Debdas & Singh, Yogendra. (2008). Mycobacterium tuberculosis systems biology data in R. CSIR-Biobytes. 5.

Conference:

Chattopadhyay, C., Sarkar, B., & **Mukherjee, D.** (2015). Encoding by DNA relations and randomization through chaotic sequences for image encryption. arXiv preprint arXiv:1505.01795.

Saha, B., Mandal, A., Tripathy, S. B., & **Mukherjee, D**. (2015). Complex networks, communities and clustering: A survey. arXiv preprint arXiv:1503.06277

Chakraborty, S., Dalal, J., Sarkar, B., & **Mukherjee, D**. (2015). Neural Synchronization based secret key exchange over public channels: A Survey. arXiv preprint arXiv:1502.05153.

Ghosh, A., Ghosh, R., & **Mukherjee, D**. (2014). A novel highly scalable clustering algorithm based on hyper edges and successive merging with randomization for complex data sets. In 2014 International Conference on Circuits, Power and Computing Technologies [ICCPCT-2014] (pp. 1507-1511). IEEE.

Dalai, J., Hasan, S. Z., Sarkar, B., & **Mukherjee, D**. (2014). Adaptive operator switching and solution space probability structure based genetic algorithm for information retrieval through pattern recognition. In 2014 International Conference on Circuits, Power and Computing Technologies [ICCPCT-2014] (pp. 1624-1629). IEEE.

Chatterjee, A., & **Mukherjee, D**. (2014). Reliable multipath wireless sensor network routing protocol scheme for network lifetime maximization. In 2014 2nd International Conference on Business and Information Management (ICBIM) (pp. 64-68). IEEE.

Mukherjee, A., Sengupta, A., & **Mukherjee, D**. (2013). Filter design for tracking of ballistic target missile using seeker measurements with time lag. In 2013 International Conference on Signal Processing, Image Processing & Pattern Recognition (pp. 351-355). IEEE.

Mukherjee, A., & **Mukherjee, D**. (2013). Distributed probability density function estimation of environmental function from sensor network data. In 2013 International Conference on Signal Processing, Image Processing & Pattern Recognition (pp. 346-350). IEEE. 3

Chatterjee, A., & **Mukherjee, D**. (2013). Variety event detection in Wireless Sensor Networks through single hop cluster topology. In 2013 Tenth International Conference on Wireless and Optical Communications Networks (WOCN) (pp. 1-5). IEEE.

Chatterjee, A., Mukhopadhyay, A. K., & **Mukherjee, D**. (2012). A transport protocol for congestion avoidance in Wireless Sensor Networks using cluster-based single-hop-tree topology. In 2012 Third International Conference on Emerging Applications of Information Technology (pp. 389-393). IEEE.

Mukherjee, D. (2009). Complexity, biocomplexity, the connectionist conjecture and ontology of complexity. Available at SSRN 3075414.

Anusua Paul and **Debaprasad Mukherjee**, Comparative analysis of amino acid usage of the Connexin super family in human and mouse, International Conference on Systems Biology, ICSB (Springer-nature) 2007, CalTech

Book:
NONE

Book Chapter:
NONE

Supervision of Ph.D/M.Tech / B.Tech Projects:

For Ph.D

NONE

Projects:

1. **Name of the student/s (with university roll number), Name of the supervisor, " Title of the Project / thesis" , Year (only final year 8th Sem Project for B.Tech and Thesis for M.Tech)**

   All BTech projects (about 35 in total till date in BTech and about 20 in MTech) were in the domain of 1) **Emerging Technologies** in Computer Science and Information Technology and 2) Using Information Technology for developing **products or services of Urgent social need**.

Invited Lectures:
NONE

Participation in seminar/conference/symposium/workshop/discussion meeting

Name of the event	Duration	Year	Organized by
Participated as paper presenter in around 6 conferences (**listed under conference publications**), and as audience participant in around 100 seminars, conferences, symposiums, workshops meetings on Research Methodology, Artificial Intelligence, Machine Learning, Data Science, Data Mining, Systems Theory, Complex Systems, Bioinformatics, Accreditation, organized within India by national and regional level institutes/organizations, from the year 2000 and till date. (**documents NOT available**) (*Participate as audience in 4 webinars/seminars per semester on the average*)			

Participation in faculty development programmes
Areas: Artificial Intelligence, Machine Learning, Research Methodology, NBA, Accreditation, OBE, Educational Leadership.

Sl no.	Name of the faculty development programmes	Online / Face-to-face	From Date – To Date	Duration	Year	Organized by
1.	Outcome Based Education and Teaching Learning Process	Online	27th Oct-29thOctober, 2021	3 days	2021	BCRCP, DGP, WB
2.	Data Science using AI and Soft Computing Techniques	Online	18th Sept-27thSept, 2021	5 days	2021	NITW, TS
3	Modern Applications of Artificial Intelligence in Machine Learning in Hardware and Software	Online	14th Sept to 18th Sept 2021	5 Days	2021	BCREC, DGP, WB
4	Foundations and Practical Aspects of Cyber Security	Online	15th December to 19th December, 2020	5 Days	2021	BCREC, DGP, WB

5	3D printing and Design	Online	17th August to 21st August, 2020	5 days	2020	BCREC, DGP, WB
6	Educational Leadership	Online with Proctored Exam	Jul-Sept 2019	8 Weeks	2019	IITM, NPTEL-AICTE
7	Accreditation and Outcome Based Learning	Online with Proctored Exam	August to Oct 2019	8 weeks	2019	IIT-KGP, NPTEL
8	Industrial Research in IOT	Online	23rd July2021	1 day	2021	TCS
9	Mentoring Pedagogy and Teaching for Higher Education	Online	5th June to 8th June, 2021	3 days	2020	BCRCP, DGP, WB

5 more SWAYAM FDPs on (2 on AI/ML, 1 on OBE, 2 on Accreditation) were completed in 2017-2019, but documents of those are NOT available now.

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

Name of the event, Date, Year

-IEEE Conference on CSIT 2012,
-NBA Seminars 2013-15,
-Alumni Seminars (1 per semester) 2015-2019,
-AI-ML Faculty Development Programme Sept. 2021

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

-Project Coordinator (Dept of IT, 2009- till present, except 3 to 4 semesters in between),

-Research & PostGraduate Studies Coordinator (Dept of CSE & IT, 2013-2018),

-NBA Advisor & Coordinator (2012-till present) (Dept of CSE & IT),

-NAAC Advisor (Dept of IT, 2019-till present),

-NIRF Advisor and Coordinator (Dept of IT, 2019-till present),

-HoD CSE (2015-2016)

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

Research Ideas under preparation & execution: Theoretical Methods for Universal Pandemic Vaccine Design

Membership of professional bodies: IEEE, IETE, IEI, CSI, MGMI etc.

-ISFP