

CURRICULUM VITAE



1. Personal Reference :

Name : **PARAMARTHA DUTTA**

Residential Address : L/C-5 Old Dog Race Course
Govt. Housing Estate,
Behala, West Bengal,
PIN – 700 038

E-mail : paramartha.dutta@gmail.com
paramartha.dutta@visva-bharati.ac.in
paramartha@ieee.org
paramartha@acm.org

Phone No. : +91 (03463)-262985 (*Office*)
+91 (033)-23990075 (*Residence*)
+91 (033)-23972938 (*Residence*)
+919433155116 (*Mobile*)

Date of Birth : **14/06/1966**

Institution Address: Professor,
Department of Computer and System Science,
Visva Bharati, Santiniketan,
District - Birbhum,
West Bengal, India,
PIN – 731235.

Blood Group: B Positive.



2. Academic Qualification:

- Passed *Madhyamik examination* from *West Bengal Board of Secondary Education* in **1983**.
- Passed *Higher Secondary examination* from *West Bengal Council of Higher Secondary Education* in **1985**.
- Passed *B.Stat (Hons.)* from *Indian Statistical Institute, Calcutta* in **1988**.
- Passed *M.Stat* from *Indian Statistical Institute, Calcutta* in **1990**.
- Passed *M.Tech (Computer Science)* from *Indian Statistical Institute, Calcutta* in **1993**.
- Awarded *Ph.D.* from *Bengal Engineering and Science University, Shibpur* in **2005**. (Title: **Evaluating Performance of Evolutionary Algorithms**).

3. Awards :

- **Life Time Achievements Award, 2018**, *National Award*, Awarding Agency: **IRDP Group of Journals**, 30/05/2018.
- **Distinguished Scientist in Computer Science and Engineering, 2018**, *International Award*, Awarding Agency: **Venus International Foundation**, 11/08/2018.
- **Excellence in Science and Technology Award, 2018**, *International Award*, Awarding Agency: **The Indian Science Congress Association (Govt. of India)**, 03/01/2019.
- **INSA Teacher Award, 2019**, *National Award*, Awarding Agency: **Indian National Science Academy (Govt. of India)**, 17/12/2019.
- **Global Faculty Award, 2020**, *International Award*, Awarding Agency: **AKS Education Awards**, 2020.
- **Lifetime Achievement Award, 2020**, *International Award*, Awarding Agency: **VD-GOOD Technology Factory**, 2020.
- **International Scientist Award 2021**, *International Award*, Awarding Agency: **International Research Association, England**, 19/08/2021 (as announced).

4. List of Projects Implemented/Ongoing:

- Executed an AICTE sponsored project on Modernization and Removal of Obsolescence (MODROBS) of amount **Rs.10.00 lakhs** for the Department of Computer Science and Engineering, Kalyani Government Engineering College as the Head of the concerned Department. The project started in **March 2004** and completed in **February 2006**.
- Completed DST funded project entitled “*Development of an Intelligent Recognizer of Component Analysis of Manhole Gas Mixture*” in Collaboration with Bengal Engineering and Science University, Shibpur of amount **Rs. 33.00 lakhs** (approx.) during **October 2010** till **March 2013**.

5. Membership of Scientific and Professional Societies:

- **Life Member** of the Indian Science Congress Association (6799 vide year 1994).
- **Life Fellow** of the Institution of Electronics and Telecommunication Engineers (F 152182 vide year 2002).
- **Life Member** of the Indian Society for Technical Education (LM 33643 vide year 2002).
- **Life Fellow** of the Optical Society of India (L 429 vide year 2004).
- **Life Member** of the Indian Unit of International Association for Pattern Recognition (*Indian Affiliate of International Association for Pattern Recognition*) (L 038 vide year 2005).
- **Life Member (Senior)** of the Computer Society of India (00138036 vide year 2006).
- **Life Member** of the International Association of Engineers (vide 62582 since year 2007).
- **Senior Member** of Association for Computing Machinery (9622185 since year 2007).
- **Life Member** of Advanced Computing and Communication Society (9622185 since year 2009).
- **Senior Member** of IEEE Computer Society (90586806 since year 2009), Computational Intelligence Society (since 2012).
- **Life Member (Senior)** of International Association of Computer Science and Information Technology (80343506 vide year 2011).
- **Life Member** of the System Society of India (LM – 31964 vide year 2012).
- **Life Member** of the World Academy of Science Engineering and Technology (since 2012).
- **Life Member** of the Indian Society of Remote Sensing (since 2012).
- **Life Member** of the Institution of Engineers, India (M 1553881 since 2016) and then **Life Fellow** of the Institution of Engineers, India (F 121919-3 since 2016).
- **Fellow** of the Institution of Engineering and Technology (United Kingdom), 2020.
- **Life Fellow** of Institution of Biomedical Engineers (India) (F-1012 since 2020).

6. Honours of Note:

- **Advisor** to the West Bengal Pollution Control Board for their networking of different branches across West Bengal in **1998**.
- **Member** of the recruitment board for inducting Programmer in the West Bengal Pollution Control Board in the year **1999**.
- **Member** of the recruitment board for inducting IT Officers in the Allahabad Bank in the year **2004**.
- **Member** of the Research Board of Advisors of the American Biographical Institute for distinguished standing since **2004**.

Curriculum Vitae of
Prof.(Dr.)Paramartha Dutta
December, 2022.



- **Member** of Board of Studies in Computer Applications of the University of Kalyani in **2005**.
- **Member** of Board of Studies in Computer Science of the University of Kalyani in **2007**.
- **Member** of Academic Council of Visva Bharati, Santiniketan since November, **2007**.
- **Member** of the Departmental Promotion Committee of Visva Bharati, Santiniketan since **2009**.
- **Reviewer** of various Journals including –
 1. IEEE Transactions on System, Man and Cybernetics, IEEE.
 2. IEEE Transactions on Evolutionary Computation, IEEE.
 3. IEEE Transactions on Cybernetics, IEEE.
 4. Pattern Recognition, Elsevier.
 5. Signal Processing, Elsevier.
 6. IEEE Communication Letters, IEEE.
 7. Journal of Phytopathology.
 8. Applied Soft Computing, Elsevier.
 9. Microprocessors and Microsystems, Springer.
 10. Microelectronics, Elsevier.
 11. Microsystem Technologies, Springer.
 12. INAE Letters.
 13. Pattern Recognition Letters, Elsevier.
- **Member** Expert nominated by the Ministry of Human Resource and Development, Government of India of the Selection Committee for award of Commonwealth Scholarship offered by the Government of United Kingdom, **2010**.
- **Member** of panel of Judges of the Young IT Professional Awards, Eastern Regional Contest, conducted by the Computer Society of India, Kolkata Chapter, held on **16.01.2010**.
- **Member** of Technical Committee of the West Bengal Board of Joint Entrance Examination during **2009 to 2011**.
- **Member** of Board of Undergraduate Studies in Computer Science of Kalyani University since **2011**.
- **Member** of Board of Studies in Computer Science, Information Technology and Computer Application of West Bengal University of Technology since **2011**.
- **Member** of the School Board of Triguna Sen School of Technology of Assam University, Silchar since **2011**.
- **Member** Chairman nominated by the University Grants Commission, Govt. of India of the Review Committee of the Special Assistance Programme in the Department of Computer Science and Automaton, Indian Institute of Science, Bangalore in November **2011**.
- **Member** of Scientific Committee and Editorial Review Board on Engineering and Applied Sciences of World Academy of Science Engineering and Technology.



- **Member** of Board of Studies in Computer Science and Engineering of Narula Institute of Technology, Kolkata since **2012**.
- **Member** of panel of Judges of the Student Research Convention, conducted by the West Bengal University of Technology on **29.01.2013**.
- **Member** of Board of Studies in Post Graduate Studies in Computer Science and Engineering of Tripura University since **2013**.
- **Advisor** to the Central Mechanical Engineering Research Institute, Durgapur funded by the Council of Scientific and Industrial Research (CSIR), Govt. of India for their Research project on “Smart Home Energy Efficient Technology Environment” at Embedded System Laboratory since **2013**.
- **Member** of the Expert Inspection Team appointed by the West Bengal University of Technology in visits during **2013, 2014, 2015, 2016, 2017**.
- **Member** of Expert Committee for Faulty Appraisal of the Asansol Engineering College held on **17.08.2013**.
- **Member** of the Departmental Advisory Board of the Department of Information Technology of the RCC Institute of Information Technology, Kolkata since **2014**.
- **Member** of the Departmental Advisory Board of the Department of Computer Science and Engineering of the Narula Institute of Technology, Kolkata since **2014**.
- **Session Chair** in various Conferences/seminars/seminars –
 1. Technical Session in International Conference on Computational Intelligence and Communication Networks (CICN 2012), Mathura, India, **November 2012**.
 2. Technical Session in International Conference on Computer, Communication, Control and Information Technology (C3IT 2013), Adisaptagram, West Bengal India, **January 2013**.
 3. Technical session in Zonal Seminar on ICT in present Wireless Revolution on **31.08.2013**.
 4. Technical Session in International Conference on Computational Intelligence: Modeling, Techniques and Applications (CIMTA 2012), Kalyani, India, **September 2013**.
 5. Technical Session in International Conference on IEEE International Conference on Computational Intelligence and Communication Networks <http://www.iccicn.in/> (IC-CICN 2014), Kolkata, India, **November 2014**.
 6. Technical Session in International Conference on Emerging Applications in Information Technology (EAIT 2014), Kolkata, India, **December 2014**.
 7. Technical Session in International Conference on Computer, Communication, Control and Information Technology (C3IT 2015), Adisaptagram, West Bengal India, **February 2015**.
 8. Technical Session in Second IEEE International Conference on Recent Trends in Information Systems (ReTIS 2015), Jadavpur University, West Bengal India, **July 2015**.
 9. Technical Session in International Symposium on Advanced Computing and Communications (ISACC 2015), Assam University, Silchar, Assam India, **September 2015**.
 10. Technical Session in International Conference on IEEE International Conference on Research in Computational Intelligence and Communication Networks <http://www.iccicn.in/> (ICRCICN 2015), Kolkata, India, **November 2015**.



11. Technical Session in International Conference on IEEE International Conference on Research in Computational Intelligence and Communication Networks <http://www.iccicn.in/> (ICRCICN 2016), Kolkata, India, **November 2016**.
- **Member** of Selection Board for Faculty recruitment in various Universities/Institutes encompassing –
 1. National Institute of Technology, Arunachal Pradesh.
 2. Assam University, Silchar, Assam.
 3. Sambalpur University, Orissa.
 4. Visva Bharati University, Santiniketan, West Bengal.
 5. Burdwan University, Burdwan, West Bengal.
 6. Bengal Institute of Technology and Management, Santiniketan.
 7. Supreme Knowledge Foundation Group of Institutions, Mankundu.
 8. College of Engineering and Management, Kolghat.
 9. Utkal University, Bhubaneswar.
 10. Academy of Technology, Adisaptagram.
 11. West Bengal Public Service Commission .
 12. University of North Bengal.
 - **External Member** of Doctoral Scrutiny Committee of the Department of Computer Science and Engineering, National Institute of Technology, Patna since **December 2016**.
 - **Member** of Doctoral Research Committee of the Department of Computer and System Sciences, Visva Bharati University since **July 2017**.
 - **Member (Nominee of Vice Chancellor, Maulana Abul Kalam Azad University of Technology, West Bengal)** of Bengal Institute of Engineering and Technology, West Bengal since **July 2017**.

7. Lectures on Invitation:

- Invited lecture in the Department of Science and Technology (Government of India) funded National Instructional Workshop on '*Recent Trends & New Directions of Research in Cybernetics and System Theory*', held in the Institute of Advanced Study in Science and Technology, India during **28/01/2004** to **01/02/2004**.
- Invited lecture in the AICTE-ISTE sponsored two week winter school on '*Multimedia Programming*', in the Department of Information Technology of Kalyani Government Engineering College during **13/12/2004** to **24/12/2004**.
- Invited lecture in the AICTE sponsored two week winter school on '*Soft Computing*', in the Department of Computer Science and Technology of Bengal Engineering and Science University, Shibpur on **05/07/2005**.
- Invited talk in the Department of Computer Science and Engineering of National Institute of Technology, Durgapur on '*Multi Objective Optimization using Soft Computing techniques*', held on **22/12/2005**.



- Invited lecture in the TEQIP sponsored one day seminar on '*Evolutionary and Other Soft Computing Techniques in Engineering Applications*', in the Department of Computer Science and Technology of Kalyani Government Engineering College on **28/02/2006**.
- Invited lecture in the TEQIP sponsored one day seminar on '*Frontiers of Evolutionary Computation & Fuzzy Sets and Systems*', organized by the Department of Computer Science and Engineering in collaboration with the Department of Information Technology of Asansol Engineering College on **28/08/2006**.
- Invited lecture in the AICTE sponsored staff development programme on '*Soft Computing Techniques*', organized jointly by the Department of Computer Science and Engineering and Department of Information Technology of Siliguri Institute of Technology on **28/07/2007**.
- Invited lecture in the UGC sponsored three weeks' Refresher Course on '*Computer Applications*', organized by the Department of Computer Science and Engineering of Kalyani University on **16/01/2008**.
- Invited lecture in the AICTE sponsored Staff Development Programme on '*GIS and GPS – Theory and Practice*' organized by the Department of Computer Application of Kalyani Government Engineering College on **03/03/2009**.
- Invited lecture on '*Multiobjective optimization*' in the AICTE sponsored Staff Development Programme organized by the Department of Information Technology of RCC Institute of Information Technology on **07/03/2009**.
- Invited lecture in the Conference on '*Recent Trends in Computing Technologies*' organized by B. P. Poddar Institute of Management and Technology on **28/03/2009**.
- Invited talk on '*Data Mining – Applications in GIS*' in the AICTE sponsored Staff Development Programme organized by the Department of Computer Applications of RCC Institute of Information Technology on **10/07/2009**.
- Invited lecture on '*Data Mining and Data Warehousing*' organized by the Department of Computer Science of the St. Xavier's College on **31/10/2009**.
- Invited Fullbright guest lecture on '*Genetic Algorithms – Theory and Applications*' organized by the Department of Information Technology of MCKV Institute of Engineering on **25/11/2009**.
- Invited talk in the AICTE sponsored Staff Development Programme organized by the Department of Computer Science and Engineering of the Kalyani Government Engineering College during **07/06/2010 – 19/06/2010**.
- Invited talk on '*FEW-CA Protocol for Mobile Ad hoc Network*' in the Fourth International Conference on "*Recent Trends in Mathematics Technology and Management*" organized by the Bengal Institute of Technology & Management" on **22/01/2012**.
- Invited lecture on "*Development of an Intelligent Gas Recognizer for Analysis of Sewer Gases*" in the TEQIP (Phase – II) sponsored Seminar on "*Advances in Soft Computing*" organized by RCC Institute of Information Technology on **24/07/2012**.
- Invited talk on '*Fuzzy-logic Controlled Cheat-proof Adaptive Demand-driven Routing Protocols For Mobile Ad Hoc Networks*' in the International Workshop organized by B. C. Roy Engineering College, Durgapur on **20/11/2012**.



- Invited lecture on “*Dynamics of Evolutionary Algorithm: An Insight*” in the TEQIP (Phase – II) sponsored Staff Development Programme on “Soft Computing and its Applications” organized by the Department of Information Technology of RCC Institute of Information Technology on **20/03/2013**.
- Invited lecture series on “*System Analysis and Design*” at the Department of Computer Science and Engineering of National Institute of Technology, Agartala during **12/04/2013 - 14/04/2013**.
- Invited lecture on “*An insight into Dynamics of Evolutionary Algorithm*” in the TEQIP (Phase – II) sponsored Staff Development Programme on “*Soft Computing*” organized by the Department of Computer Science and Information Technology of University Institute of Technology, Burdwan on **03/07/2013**.
- Invited lecture on “*Fuzzy Mathematics in Machine Learning*” in the TEQIP (Phase – II) sponsored Staff Development Programme on “*Continuing Educational Programme in Machine Intelligence*” organized by the Department of Computer Science and Engineering of Heritage Institute of Technology, Kolkata on **16/07/2013**.
- Invited lecture on “*Development of an Intelligent Gas Recognizer for Analysis of Sewer Gases*” in the TEQIP (Phase – II) sponsored Staff Development Programme on “*Advances in Computer Science and Information Technology*” organized by the Department of Computer Science and Engineering of North Eastern Regional Institute of Science and Technology, Arunachal Pradesh on **28/08/2013**.
- Invited lecture on “*Introduction to LATEX*” in the UGC sponsored Workshop on “*Computational Tools and Open Source Software*” organized by the UGC Academic Staff College of Burdwan University, Burdwan on **31/08/2013**.
- Invited lecture on “*Fuzzy Mathematics and Machine Learning*” in the TEQIP (Phase – II) sponsored Faculty Development Programme on “*Recent Trends in Information Technology*” organized by the Department of Information Technology of College of Engineering and Management, Kolaghat on **10/11/2013**.
- Invited lecture on “*MujltiObjective Optimization*” in the TEQIP (Phase – II) sponsored Continuing Education Programme on “*Soft Computing and its Application*” organized by the Department of Computer Science and Engineering of Narula Institute of Technology, Kolkata on **13/11/2013**.
- Invited lecture on “*An insight into Dynamics of Evolutionary Algorithm*” in the TEQIP (Phase – II) sponsored Faculty Development Programme on “*Recent Development in Computer Science and Engineering*” organized by the Department of Computer Science and Engineering of Govt. College of Engineering and Textile Technology, Berhampore, West Bengal on **16/11/2013**.
- Invited lecture on “*Fuzzy Rule Guided Image Segmentation*” in the TEQIP (Phase – II) sponsored Faculty Development Programme on “*Recent Advances in Image Processing*” organized by the Department of Computer Science and Engineering of Murshidabad College of Engineering and Technology, Berhampore, West Bengal on **16/11/2013**.
- Invited lecture series on “*Technical features of LATEX - An Insight*” in the TEQIP (Phase – II) sponsored National Workshop on “*Document Preparation using LATEX*” organized by the Department of Computer Science and Information Technology of National Institute of Technology, Patna during **23/12/2013 – 24/12/2013**.



- Invited Plenary lecture on “*Technology beyond CMOS – A Quantum dot Cellular Automata Approach*” in the TEQIP (Phase – II) sponsored International Conference on “*Recent Trends in Science and Technology*” organized by the Department of Computer Science and Engineering of College of Engineering and Management, Kolaghat on **28/12/2013**.
- Invited lecture on “*Fuzzy Mathematics and Machine Learning*” in the UGC Refresher Course in Information Technology organized by A. K. Chaudhury School of Information Technology of the University of Calcutta on **06/01/2014**.
- Invited lecture on “*Insight into the Dynamics of Evolutionary Algorithm*” in the UGC Refresher Course in Information Technology organized by A. K. Chaudhury School of Information Technology of the University of Calcutta on **08/01/2014**.
- Invited lecture on “*LATEX – A Documentation Software*” in the TEQIP (Phase – II) sponsored Faculty Development Programme on “*Recent Trends in Research and Research Methodology*” organized by the Department of Information Technology of the RCC Institute of Information Technology, Kolkata, West Bengal on **09/01/2014**.
- Invited full-day lecture cum laboratory session on “*Scientific Document Processing using LATEX*” organized by the Department of Electrical Engineering of Academy of Technology, Adisaptagram, West Bengal on **31/01/2014**.
- Invited lecture on “*Temporal Characterization in Mobile Ad hoc Environment*” in the TEQIP (Phase – II) sponsored Faculty Development Programme on “*Computational Intelligence*” organized by the Department of Information Technology of the RCC Institute of Information Technology, Kolkata, West Bengal on **12/03/2014**.
- Invited one day lecture on “*LATEX – A documentation software*” in the TEQIP (Phase – II) sponsored Faculty Development Programme organized by the Department of Information Technology of the Assam University, Silchar, Assam on **25/03/2014**.
- Invited lecture on “*Intelligent Clustering of Hierarchical Wireless Sensor Network*” in the TEQIP (Phase – II) sponsored Faculty Development Programme on “*Recent Advancements in Wireless and Mobile Network Technologies*” organized by the Department of Information Technology of the RCC Institute of Information Technology, Kolkata, West Bengal on **24/07/2014**.
- Invited lecture on “*Fuzzy Mathematics in Machine Learning*” in the National Workshop on “*Optimization and Fuzzy Mathematics*” organized by the Vidyasagar University on **11/09/2014**.
- Invited lecture in the National Workshop on “*Recent Advances in Applied Mathematics*” organized by the National Institute of Technology Agartala on **20/09/2014**.
- Invited lecture in the International Conference on Emerging Applications of Information Technology organized by the Computer Society of India at the Indian Statistical Institute Calcutta on **20/12/2014**.
- Invited one day lecture on “*Temporal Characterization in Mobile Ad hoc Environment*” organized by and at the Department of Computer Science and Engineering of the Indian Institute of Technology, Guwahati, Assam on **06/01/2015**.
- Invited lecture on the occasion of the Foundation day of the National Institute of Technology Patna National on “*Multi Objective Optimization Problem*” held on **28/01/2015**.

- Keynote lecture on “*Some study on Energy issues in Quantum Dot Cellular Automata*” in the National Conference on Computing, Communication and Information Processing (NCCCIP-2015) at North Eastern Regional Institute of Science and Technology, Arunachal Pradesh, India on **03/05/2015**.
- Invited lecture on “*Temporal Characterization in Mobile Ad hoc Environment*” in one week Short Term Course on “*Recent Trends in Opportunistic & Social Networks and its Applications*” sponsored by ITRA and Media Lab Asia, Government of India held at Kalyani Government Engineering College in collaboration with NIT, Durgapur, on **30/06/2015**.
- Invited lecture on “*Introduction to Matlab*” in UGC sponsored State level seminar on “*Matlab and its Application in Soft Computing*” held at Serampore Girls’ College, West Bengal on **08/08/2015**.
- Invited lecture in the International Symposium on “*Advanced Computing and Communication (ISACC 2015)*” organized by the Department of Information Technology of Assam University, Silchar held at Assam University, Silchar on **14/09/2015**.
- Invited lecture entitled “*Neural Network*” in the Faculty Development Programme on “*Computational Intelligence for Optimization Problems*” on **30/03/2016** organized by the Calcutta Business School during **28/03/2016 to 01/04/2016**.
- Invited lecture in the TEQIP – II sponsored One week Faculty Development Programme on “*Pedagogy and Research Methodology*” organized by and at the RCC Institute of Information Technology, Kolkata held during **01/08/2016 to 05/08/2016**.
- Invited lecture in the TEQIP – II sponsored International Workshop on “*Computational Science and Technology*” organized by and at the Department of Computer Science and Engineering of College of Engineering and Management, Kolaghat held during **16/07/2016 to 18/07/2016**.
- Invited lecture in the TEQIP – II sponsored National Level Orientation and Faculty Development Programme on “*Hybrid Intelligence*” organized by and at the Department of Information Technology of RCC Institute of Information Technology, Kolkata held during **18/01/2016 to 22/01/2016**.
- Invited lecture in the TEQIP – II sponsored Three days’ Workshop on “*Big Data and Cloud Computing*” organized by and at the Department of Computer Science and Engineering of College of Engineering and Management, Kolaghat held during **24/09/2016 to 26/09/2016**.
- Invited lecture in the TEQIP – II sponsored Workshop on “*Research Methodology and LATEX*” organized by and at the Department of Computer Science and Engineering of Narula Institute of Technology, Kolkata during **24/10/2016 to 28/10/2016**.
- Invited lecture in the International Seminar on “*Emerging Trends in Information Science and Technology (ISETIST 2017)*” organized by the Department of Computer and Information Science of Raigunj University on **13/01/2017**.
- Invited lecture in the TEQIP – II sponsored Short Term Course on “*Expert Systems and Machine Intelligence Techniques- Applications to Electrical, Electronics and Communication Engineering (ESMIT 2017)*” organized by and at the Department of Electrical Engineering of College of Engineering and Management, Kolaghat held during **24/01/2017 to 29/01/2017**.

- Invited lecture in the TEQIP – II sponsored National Level Orientation and Faculty Development Programme on “*LaTeX: The Art of Technical Writing*” organized by and at the Department of Information Technology of RCC Institute of Information Technology, Kolkata held during **06/02/2017 to 10/02/2017**.
- Invited lecture in the Two days’ Workshop on “*Scientific Document Writing using LaTeX*” organized jointly by the Department of Computer Science of Aliah University, Kolkata and the Computer Society of India, Kolkata Chapter, at the Department of Computer Science of Aliah University, Kolkata during **11/02/2017 to 12/02/2017**.
- Invited lecture entitled “Selected Topics of Artificial Neural Network” in the one day National Symposium on “*Recent Trend of Computational Intelligence*” organized jointly by the Department of Computer Science of University of Gour Banga, Malda, West Bengal in Technical Collaboration with the IEEE Computational Intelligence Society, Kolkata Chapter on **15/06/2017**.
- Invited lecture entitled “*Artificial Neural Network*” in the Five days’ Faculty Development Programme organized jointly by the Brainware University, Kolkata and Beainware Engineering College, Kolkata at the Brainware University, Kolkata on **12/07/2017**.
- Invited lecture entitled “*Hybrid Intelligent Techniques*” on **17/07/2017** in the Two weeks’ Faculty Development Programme on “*Hybrid Computational Intelligence*” organized by and at the Department of Information Technology of RCC Institute of Information Technology, Kolkata under the aegis of Electronics and ICT Academy, National Institute of Technology, Patna held during **17/07/2017 to 27/07/2017**.
- Invited lecture entitled “*Hybrid Intelligence*” on **08/08/2017** in the One day Symposium on “*Computational Intelligence: Theories, Applications and Future Aspects*” organized and at the Department of Computer Science and Engineering of Assam University, Silchar held on **08/08/2017**.
- Invited lecture entitled “*Image Registration*” in the Two days Seminar on “*Image Processing and Pattern Recognition*” during **09/09/2017 to 10/09/2017** organized by the Department of Information Technology of Siliguri Institute of Technology, West Bengal, India on **10/09/2017**.
- Invited lecture entitled “*Energy Characteristics of Quantum Dot Cellular Automata based Circuits*” in the One day Seminar on “*Quantum Computers – The Future of Computing (QCFC 2017)*” organized by the Department of Computer Science and Engineering of Techno India - Batanagar, West Bengal, India on **16/09/2017**.
- Invited lecture entitled “*Introduction to Machine Learning*” in the Two days Seminar on “*Machine Learning*” during 10/11/2017 to 11/11/2017 organized by the Department of Computer Science and Engineering of Siliguri Institute of Technology, West Bengal, India on **10/11/2017**.
- Invited lecture entitled “*Soft computing techniques for cloud computing*” in the Four days Workshop on “*International Workshop on New Innovations in Cloud and Fog Computing*” during 04/05/2018 to 07/05/2018, under TEQIP III, organized by Department of Computer Science and Engineering, Maulana Abul Kalam Azad University of Technology (West Bengal University of Technology), West Bengal, India on **07/05/2018**.
- Invited lecture entitled “*Recent Trends in Intelligent Systems Design (RTISD 2019)*” during 08/01/2019 to 12/01/2019, under TEQIP III, organized by the Department of Electrical Engineering, NIT Durgapur, West Bengal, India on **10/01/2019**.

- Invited lecture entitled "*Machine Intelligence for Big Data Challenges*", during 08/07/2019 to 12/07/2019 at Siliguri Institute of Technology , West Bengal, India on **11/07/2019**.
- Invited lecture entitled "*Machine Intelligence for Big Data Challenges*", during 15/07/2019 to 19/07/2019, organized by the Department of Information Technology, RCC Institute of Information Technology, Kolkata, West Bengal, India on **18/07/2019**.
- Invited lecture entitled "*Handling images and tables on LaTeX*", during 22/07/2019 to 26/07/2019 organized by the Department of Information Technology, RCC Institute of Information Technology, Kolkata, West Bengal, India on **24/07/2019**.
- Invited lecture entitled "*Machine learning and cloud computing*", during 06/08/2019 to 08/08/2019 organized by the Department of Applied Electronics & Instrumentation Engineering, RCC Institute of Information Technology, Kolkata, West Bengal, India on **07/08/2019**.

8. Employment Record:

- Engaged as **Trainee** in a project on Fisheries in the Applied Statistics Unit, erstwhile Computer Science Unit of the Indian Statistical Institute, Calcutta from **01/08/1990 to 30/03/1991**.
- Engaged as **Senior Research Fellow** under the Emeritus Scientist Scheme of the Council of Scientific and Industrial Research (CSIR) in the Electronics and Communication Sciences Unit of the Indian Statistical Institute, Calcutta from **19/08/1993 to 13/08/1996**.
- Served as **Programmer** in the project on '*Developing software package for directional data*', in the Applied Statistics Unit, erstwhile Computer Science Unit of the Indian Statistical Institute, Calcutta from **14/08/1996 to 31/03/1997**.
- Associated to Apt Software Avenues Private Limited from **01/09/1997 to 01/12/1997**.
- Served as **Computer Consultant** in the project on Banking Network Programming in the Network Computer House, Bologna, Italy from **September 1997 to November 1997**.
- Served as **Research Scientist** in the project on Target Tracking sponsored by Defence Research Development Organization (DRDO) in the Department of Computer Science and Technology of Bengal Engineering and Science University, Shibpur, erstwhile Bengal Engineering College (Deemed University), Howrah, West Bengal, India from **11/01/1998 to 23/08/1998**.
- Served as **Assistant Professor & Head** in the Department of Computer Science and Engineering in the College of Engineering and Management, Kolaghat, West Bengal, India from **24/08/1998 to 02/07/2001** prior to changeover to next assignment.
- Served as **Assistant Professor** in the Department of Computer Science and Engineering of Kalyani Government Engineering College, West Bengal, India during **03/07/2001 to 22/02/2007**. Also remained as **Head** in this designation during **28/02/2004 to 22/02/2007**. The list of milestones achieved/ events held during his tenure as the departmental head –

1. Implementation of MODROBS project (textbfMarch 2004 to **January 2006**).

2. Commencement of All India Council for Technical Education (AICTE) approved M. Tech Programme in Computer Science and Engineering in the Department from session **2004**.
 3. Accordance of accreditation from the National Board of Accreditation (NBA) for a span of three years from **September 2004** till **September 2007** for the Department.
 4. Technical Education Quality Improvement Programme (TEQIP) sponsored one-day seminar on '*Information Technology for Rural Development*' organized in association with the Computer Society of India, Kolkata Chapter on **22/01/2006**.
 5. Technical Education Quality Improvement Programme (TEQIP) sponsored one-day seminar on '*Evolutionary and Other Soft Computing Techniques for Engineering Applications*' held on **28/02/2006**.
 6. Technical Education Quality Improvement Programme (TEQIP) sponsored one-day seminar on '*Mobile Technology and Information Management*' held on **03/04/2006**.
 7. Technical Education Quality Improvement Programme (TEQIP) sponsored one-day seminar on '*Internet Security*' held on **28/04/2006**.
 8. Technical Education Quality Improvement Programme (TEQIP) sponsored one-day workshop on '*Cryptography – yesterday, today and tomorrow*' held on **07/06/2006**.
 9. Technical Education Quality Improvement Programme (TEQIP) sponsored National Conference on Recent Trends in Intelligent Computing (RTIC '06) scheduled during **17 – 19 November 2006**.
- Served as **Professor** and **Head** of the Department of Computer Science and Engineering of Kalyani Government Engineering College, West Bengal, India during **23/02/2007 to 31/10/2007**.
 - Engaged at present as **Professor** in the Department of Computer & System Sciences of Visva Bharati University, Santiniketan, West Bengal, India from **01/11/2007** till date.

9. List of Short Term Course(s) Attended:

- CIMPA-UNESCO sponsored two week summer school on '*Object Oriented Programming*', held at Nice, France during **01/07/1996 to 12/07/1996**.
- In-house Programme on '*Educational Technology*' organized by the National Institute of Technical Teachers' Training and Research, Kolkata, erstwhile Technical Teachers' Training Institute, Eastern Region during **13/03/2002 to 15/03/2002**.
- AICTE-ISTE sponsored two week winter school on '*Biomedical Imaging*', held during **10/11/2003 to 21/11/2003** in the Department of Computer Science and Engineering of the North Eastern Regional Institute of Science & Technology, Nirjuli, Arunachal Pradesh, India.
- Winter School on '*Information Theory and Coding*', held during **29/12/2003 to 02/01/2004** in the Applied Statistics Unit of the Indian Statistical Institute, Kolkata, West Bengal, India.
- Winter School on '*Digital Signal Processing & its Applications*', held during **19/01/2004 to 27/01/2004** in the Department of Electronics & Communication Engineering of the Indian Institute of Technology, Guwahati, Assam, India.



- Summer School on ‘*Advanced Algorithms*’, held during **19/07/2004** to **23/07/2004** in the Department of Computer Science & Engineering of the Indian Institute of Technology, Guwahati, Assam, India.
- Short Training programme on ‘*.NET Technology core concepts and its various features*’, organized by ARDENT Collaborations during **08/10/2004** to **10/10/2004**.
- AICTE sponsored short term course on ‘*Application of Virtual Reality in Mineral Industry*’ held during **31/01/2005** to **04/02/2005** in the Department of Mining Engineering of the Indian Institute of Technology, Kharagpur, West Bengal, India.
- Short Term training programme on ‘*Multimedia and Authoring Software*’ held during **06/06/2005** to **10/06/2005** in the Department of Computer Science and Engineering of the National Institute of Technical Teachers’ Training and Research, Kolkata, West Bengal, India.
- Short course on ‘*Genetic Algorithm for Engineering Optimization*’ held during **20/07/2005** to **22/07/2005** in Kanpur GA Laboratory (KanGAL) of the Department of the Mechanical Engineering, Indian Institute of Technology, Kanpur, India.
- Short Term training programme on ‘*Multimedia based Instructional Software Development*’ held during **08/08/2005** to **12/08/2005** in the Department of Computer Science and Engineering of the National Institute of Technical Teachers’ Training and Research, Kolkata, West Bengal, India.

10. List of Short Term Course(s)/Programmes:

- Remained Coordinator AICTE-ISTE sponsored winter school on ‘*Windows Programming: GUI*’ held in the Department of Computer Science & Engineering of Kalyani Government Engineering College, West Bengal, India during **06/01/2003** to **16/01/2003**.
- Acted as Joint Convener of Technical Education Quality Improvement Programme (TEQIP) sponsored one-day seminar on ‘*Information Technology for Rural Development*’ organized in association with the Computer Society of India, Kolkata Chapter held in the Department of Computer Science and Engineering of Kalyani Government Engineering College on **22/01/2006**.
- Acted as Convener of Technical Education Quality Improvement Programme (TEQIP) sponsored one-day seminar on ‘*Internet Security*’ organized by the Department of Computer Science and Engineering of Kalyani Government Engineering College on **28/04/2006**.
- Acted as Coordinator of Technical Education Quality Improvement Programme (TEQIP) sponsored one-day workshop on ‘*Cryptography – yesterday, today and tomorrow*’ organized by the Department of Computer Science and Engineering of Kalyani Government Engineering College on **07/06/2006**.
- Acted as Coordinator of Technical Education Quality Improvement Programme (TEQIP) sponsored National Conference on ‘*Recent Trends in Intelligent Computing*’ organized by the Department of Computer Science and Engineering of Kalyani Government Engineering College scheduled during **17 – 19 November 2006**.
- Coordinated Self financed Three days’ workshop on “*LATEX: The Ultimate in Technical Report Writing*” organized jointly by the Department of Computer Science and Engineering and A. K. Chaudhury School of Information Technology of the University of Calcutta

in technical collaboration with the ACM Professional Chapter, Kolkata during **25 – 27 March 2016**.

- Coordinated **Self financed** One day workshop on “*Technical Content Writing using LaTeX*” organized by the Department of Information Technology and Systems of the Calcutta Business School in technical collaboration with the Computer Society of India, Kolkata Chapter on **29/05/2016**.

11. List of Conference/Seminar/Workshop(s) Attended:

- **Seminar** on “*Problems of Large Scale Sample surveys in India*”, held in the Applied Statistics Unit, erstwhile Computer Science Unit of the Indian Statistical Institute, Calcutta during **26/12/1990 to 27/12/1990**.
- **Seminar** on “*Algebra and its application to Computer Science*”, in the memory of Late Professor S. P. Bandyopadhyaya, held in the Department of Pure Mathematics of the University of Calcutta during **29/05/1995 to 02/06/1995**.
- **National Seminar** on “*Theoretical Computer Science – 5*”, held in the Bhaba Atomic Research Centre, Bombay during **01/08/1995 to 04/08/1995**.
- **Ninth International Conference** on “*VLSI Design*”, held in the Indian Institute of Science, Bangalore in **January 1996**.
- **National Seminar** on “*Theoretical Computer Science – 6*”, held in the Banasthali Vidyapeeth, Rajasthan during **05/08/1996 to 08/08/1996**.
- **One day Seminar** on “*Statistical challenges in observational studies related to chronic diseases*”, held in the Applied Statistics Unit, erstwhile Computer Science Unit of the Indian Statistical Institute, Calcutta on **25/03/1997**.
- **Third International Triennial Symposium** on “*Probability and Statistics*”, held in the Department of Statistics of the University of Calcutta during **26/12/1997 to 28/12/1997**.
- **Regional Conference** on “*Operational Research in the Age of Information Technology*”, held in the National Institute of Management, Calcutta during **27/11/1999 to 28/11/1999**.
- **National Seminar** on “*The Role of Information Technology in the next millennium*”, held in the National Institute of Technology, Durgapur on **18/12/1999**.
- **National Workshop** on “*Industry Institute Partnership under Changing Economic Environment*”, held in the Jadavpur University during **19/09/2000 to 20/09/2000**.
- **Second Workshop** on “*Distributed Computing*”, held in the Jadavpur University during **28/12/2000 to 30/12/2000**.
- **National Workshop** on “*Patent Awareness and Technology Transfer*”, held in the Indian Institute of Technology, Kharagpur on **10/04/2001**.
- **National Workshop** on “*IT & Communication*”, held in the University Institute of Technology, University of Burdwan on **12/08/2001**.
- **Two day International Workshop** on “*Computational Geometry*”, held in the Advanced Computation and Microelectronics Unit of the Indian Statistical Institute, Calcutta during **18/03/2002 to 19/03/2002**.



- **One day IEEE Workshop** on “*Wireless Networking and Mobile Computing*”, held in the Indian Association for Cultivation of Science on **13/03/2004**.
- **Fourth Indian Conference** on “*Computer Vision, Graphics and Image Processing*”, held at Science City Auditorium organized by the Indian Statistical Institute, Calcutta during **16/12/2004 to 18/12/2004**.
- **National Conference** on “*Emerging Technologies in Electronics and Communications (NCETEC ‘2005)*”, held at Bharath Institute of Higher Education and Research, Chennai during **18/03/2005 to 19/03/2005**.
- **International Workshop** on “*Spatial Issues in Language and Vision*”, held in the Indian Institute of Technology, Kanpur on **24/03/2005**.
- **Two day Workshop** on “*Microelectronics and VLSI Design Techniques*”, held in the Department of Electronics and Communication Engineering of the Kalyani Government Engineering College during **17/09/2005 to 18/09/2005**.
- **International Conference** on “*Optics and Optoelectronics*”, held at IRDE, Dehradun during **12/12/2005 to 15/12/2005**.
- **One day Seminar** on “*Mobile Technology and Information Management*”, held in the Department of Computer Science and Engineering of the Kalyani Government Engineering College on **03/04/2006**.
- **One day State level Seminar** on “*Mobile Computing and Network Security*”, organized by the Department of Computer Application of RCC Institute of Information Technology held on **09/03/2007**.
- **Two day National Workshop** on “*Use and Deployment of Web and Video Courses for Enriching Engineering Education*”, organized jointly Indian Institute of Technology, Kharagpur, Indian Institute of Technology, Kanpur and Indian Institute of Technology, Guwahati held at Indian Institute of Technology, Guwahati during **20/05/2007 to 21/05/2007**.
- **Two day National Workshop** on “*Signal Processing and its Application to Software Defined Radio*”, organized by Government College of Engineering and Ceramic Technology held during **11/01/2008 – 12/01/2008**.
- **International Conference** on “*Advances in Computing*”, held at Anuradha Engineering College during **21/02/2008 to 22/02/2008**.
- **Three day Workshop followed by Two day Tutorial** on “*Geographical Information System, Image Processing and GPS*”, organized jointly by the Department of Computer Application and Department of Computer Science and Engineering of Kalyani Government Engineering College during **27/06/2008 to 01/07/2008**.
- **Five day National Workshop** on “*Challenges in VLSI Design: Cutting edge perspective*”, organized by the Department of Information Technology of Bengal Engineering and Science University, Shibpur held during **21/07/2008 – 25/07/2008**.
- **Joint International Conference** on “*Swarm, Evolutionary & Memetic Computing*” (SEMCCO) and “*Fuzzy and Neural Computing Conference*” (FANCCO) organized by the Anil Neerukonda Institute of Technology and Sciences, Visakhapatnam, India held during **19/12/2011 – 21/12/2011**.



- **First International Symposium** on “*Physics and Technology of Sensors*” (ISPTS - 1) held at Pune, India during **08/03/2012 – 10/03/2012**.
- **International Conference** on “*Computational Intelligence and Communications Networks*” (CICN 2012) held at GLA University Mathura, India during **03/11/2012 – 05/11/2012**.

12. Other Professional Experience:

- Undertook teaching assignments in the Regional Police Computer Centre, Calcutta in **1994, 1995**.
- Undertook teaching assignment in one year evening course in the Indian Statistical Institute, Calcutta in **1995**.
- Undertook teaching assignments in the M. Phil. Course in Computer Applications in the Department of Statistics, University of Calcutta in the sessions **1996 – 1997, 1997 – 1998** and **1998 – 1999**.
- Undertook teaching assignment in the Department of Electronics and Telecommunication Engineering of the Bengal Engineering and Science University, Shibpur, erstwhile Bengal Engineering College (Deemed University) in the session **1997 - 1998**.
- Undertook teaching assignment as a **Guest Faculty** in the MCA programme in the National Institute of Management, Calcutta during –
 1. **10/01/2000 – 01/04/2000** (Term III) for *Systems Programming*.
 2. **04/04/2000 – 17/06/2000** (Term IV) for *Operating Systems*.
 3. **24/09/2001 – 14/12/2001** (Term VI) for *Windows Programming: GUI*.
- Undertook teaching assignment as a **Guest Faculty** in the School of Information Technology, West Bengal University of Technology, erstwhile Indian Institute of Information Technology, Calcutta in **2004**.
- Undertook teaching assignment as a **Guest Faculty** in the Department of Computer Science and Technology, Bengal Engineering and Science University, Shibpur in **2008, 2009**.
- Undertook teaching assignment as a **Guest Faculty** in the Department of Computer Science and Engineering, Kalyani University in **2009, 2010**.
- Undertook teaching assignment as a **Guest/Visiting Faculty/Fellow** in both Department of Computer Science and Engineering and/or Department of Information Technology, Tripura University in **2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017**.
- Undertook teaching assignment as a **Guest Faculty** in the Department of Computer Science and Engineering, National Institute of Technology, Arunachal Pradesh in **2013**.
- Undertook teaching assignment as a **Guest Faculty** in the Department of Computer Science and Engineering, National Institute of Technology, Agartala in **2013**.
- Undertook teaching assignment as a **Guest Faculty** in the Department of Management Studies of the West Bengal University of Technology Kolkata in **2015, 2016**.
- Undertook teaching assignment as a **Guest Faculty** organized by the Ph.D. Cell of the Maulana Abul Kalam Azad University of Technology, West Bengal in **2016**.



13. List of M. Tech Projects Supervised:

Submitted in 2006:

- ‘*Generalized Simulator for Quantum Network*’ submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- ‘*Customized Desktop Environment*’ submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- ‘*Study on some Temporal Characteristics of Entropy in an Ad Hoc Mobile Environment*’ submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- ‘*Study on influence of density of nodes on entropy in an Ad Hoc mobile environment*’ submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- ‘*Design of Data Logger using Embedded Micro-controller and Interprocessor Communication*’ submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- ‘*Development of Spoken Bangla Sandhi Generator*’ submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- ‘*Defining Pulse Sequences for NMR based Quantum Computation*’ submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- ‘*Gray Scale Object Extraction*’ submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- ‘*Ponzo and related Illusion*’ submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- ‘*Image Clustering and Retrieval using Wavelet*’ submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- ‘*Study on Poggendorf and Related Illusion*’ submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- ‘*Segmentation of Color Images*’ submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.

Submitted in 2007:

- ‘*Design of e-nose for vapour identification using multilayer perceptron*’ submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- ‘*Quantum Circuit Synthesis using Genetic Algorithm*’ submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.

- *'Analysis of Self Adjusted Non-backpropagative Neural Network (SANBNN) using various Activation Functions for Individual Vapour Identification in e-nose Design'* submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- *'Quantum Circuit Optimization applying Genetic Algorithm'* submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- *'Evaluation Framework for Indian Language Information Retrieval'* submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- *'Study and Analysis of Hering and Wundt Illusion'* submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- *'Study and Analysis of Zollner Illusion'* submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- *'3D surface detection and object extraction'* *'Study and Analysis of Hering and Wundt Illusion'* submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.

Submitted in 2008:

- *'A type Safe Intel X86-64 assembler'* submitted to the Department of Computer Science and Engineering of Kalyani Government Engineering College.
- *'Fuzzy Rule based Image Extraction Technique'* submitted to the Department of Information Technology of University of Calcutta.

14. List of Ph.D. Supervision:

Degree awarded :

- Supervised **Dr. Anuradha Banerjee** for her Ph.D. entitled *'Design and Performance Evaluation Of a Fuzzy Logic Controlled Cheat-proof Demand Adaptive Routing Protocol For Mobile Ad-Hoc Networks'*, registered as a part time scholar with the Department of Computer Science and Engineering of the West Bengal University of Technology vide Notification No. 27.02.2004/Regis/Ph.D/2008 dated 27.02.2008. **(Degree awarded in 2013)**
- Supervised **Dr. Koushik Mondal** for his Ph.D. entitled *'Fuzzy Rule Guided Intelligent Image Segmentation'*, registered as a full time Scholar with the Department of Computer and System Sciences of the Visva Bharati vide Memo No. G/R-6.7/223/2008-2009 dated 15/07/2008. He worked as a Junior Research Fellow under the World Bank sponsored Technical Education Quality Improvement Programme (TEQIP) during August 2006 to July 2008. **(Degree Awarded in 2013)**
- Supervised **Dr. Jyoti Prakash Singh** for his Ph.D. entitled *'Temporal Characterization in Mobile Ad Hoc Network Environment'*, registered as a part time scholar with A. K. Choudhury School of Information Technology of the University of Calcutta with effect from 25.04.2015 vide Intimation No. 2774/PhD dated 28.04.2015. **(Degree awarded in 2015)**

2015) [Jointly supervised with Prof. (Dr.) Amlan Chakraborty, A. K. Chaudhury School of Information Technology, University of Calcutta, West Bengal, India]

- Supervised **Dr. Kousik Dasgupta** for his Ph.D. entitled “*Design and Implementation of Steganographic Engine for Secret Data Sharing and Authentication of Videos: An Over-ture*”, registered as a part time scholar with the Department of Computer Science and Engineering of the University of Kalyani vide Notification No. Ph.D/Regn./N.Rgl./Eg-14/Com.Sc./KD/2011 dated 25.11.2011. (**Degree awarded in 2017**) [Jointly supervised with Prof. (Dr.) J. K. Mandal, Department of Computer Science and Engineering, University of Kalyani, West Bengal, India]
- Supervised **Dr. Debarka Mukhopadhyay** for his Ph.D. registered “*Study on Quantum-Dot Cellular Automata Based Circuit Design, Testing and Analysis*” as a part time scholar of the Department of Computer Science and Engineering of the Maulana Abul Kalam Azad University of Technology, West Bengal with effect from 17.07.2013 bearing No. PhD/Tech/CSEIT016/2013. (**Degree awarded in 2017**).
- Supervised **Dr. Varun Kumar Ojha** for his Ph.D. enrolled “*DESIGN OF AN INTELLIGENT SYSTEM FOR DETECTION OF MANHOLE GASES TO AVOID HUMAN FATALITY*” as a part time scholar of the Department of Computer Science and Engineering of the Jadavpur University, Kolkata with effect from 07.01.2013 vide notification No. D-7/E/15/13 dated 3.01.2013. (**Degree awarded in January 2018**) [Jointly supervised with Prof. (Dr.) Atal Chaudhuri, Department of Computer Science and Engineering, Jadavpur University, West Bengal, India]
- Supervised **Dr. Kakali Datta** for her Ph.D. entitled “*Some studies on the performance of Quantum Cellular Automata based circuits*”, registered as a part time scholar of the Department of Computer & System Sciences of Visva Bharati University vide Notification No. VB-1604 of 2010-11 with effect from 27.09.2010. (**Degree awarded in August 2018**).
- Supervised **Dr. Dipankar Dutta** for his Ph.D. entitled “*Supervised Classification to Unsupervised Clustering: A Genetic Paradigms*” enrolled as a part time scholar with the Department of Computer Science and Technology of Indian Institute of Engineering Science and Technology, Shibpur with effect from 01.07.2011 vide notification No. 132011E2 dated 13.07.2011. Dr. Dutta is registered vide No. PhD/R/2012/0029 dated 25.07.2012. (**Degree awarded in October 2019**). [Jointly supervised with Prof. (Dr.) Jaya Sil, Department of Computer Science and Technolog, Indian Institute of Engineering Science and Technology, Shibpur, West Bengal, India]
- Supervised **Dr. Mili Ghosh** for her Ph.D. entitled “*Some studies and Analysis of 2 Dot 1 Electron Quantum Dot Cellular Automata Circuits*”, registered as a full time scholar (DST INSPIRE Fellow) of the Department of Computer & System Sciences of Visva Bharati vide Notification No. Aca/G/R-6.7/188/2015-2016 dated 08.06.2015 with effect from 28.11.2013.
- Supervised **Dr. Sudakshina Dasgupta** for her Ph.D. registered entitled “*Energy Aware Intelligent Clustering of Hierarchical Wireless Sensor Network*” as a part time scholar of the Department of Computer Science and Engineering of the Maulana Abul Kalam Azad University of Technology, West Bengal with effect from 29.01.2015 bearing No. PhD/Tech/CSEIT013/2015.



- Supervised **Dr. Abu Sufian** for his Ph.D. entitled as "*Performance Enhancement in Mobile Ad-hoc Network using Fuzzy Control*", registered as a part time scholar at the Department of Computer & System Sciences of Visva-Bharati bearing Registration No. VB-1029 of 2017-18 with effect from 29.07.2017.

Registered and Thesis submitted :

- Supervising **Mr. Arindrajit Pal** for his Ph.D. registered entitled "*Temporal Characterization of mobile Ad-hoc Network in multivariate framework*" as a part time scholar of the Department of Computer Science and Engineering of the Calcutta University, West Bengal with effect from 12.02.2018 bearing Registration No. 090-1111-0017-17.
- Supervising **Mr. Asit Barman** for his Ph.D. entitled as "*Some studies on human emotion recognition from face images*", registered as a part time scholar at A. K. Choudhury School of Information Technology (A.K.C.S.I.T) bearing Ph.D. Registration No. 088199/Ph.D.(Tech.)Proceed/2018 with effect from 05.12.2018.[Jointly supervising with Dr. Sankhayan Choudhury, Professor, Department of Computer Science and Engineering, University of Calcutta, West Bengal, India]
- Supervising **Mr. Md Nasir** for his Ph.D. entitled as "*Recognition of change of human emotion from face image sequence*", registered as a full time scholar (DST INSPIRE Fellow) with the Department of Computer & System Sciences of Visva-Bharati bearing Registration No. VB-312 of 2010-11 with effect from 22.07.2016.

Registered and Thesis yet to be submitted :

- Supervising **Mr. Avishek Nandi** for his Ph.D. entitled as "*Some Studies on Reversible Neural Network*", registered as a full time scholar (NET-JRF Fellow 2017-2022) at the Department of Computer & System Sciences of Visva-Bharati bearing Registration No. VB-1348 of 2012-13 with effect from 28.08.2015.
- Supervising **Mr. Arindam Karmakar** for his Ph.D. entitled as "*Detection of mixed response from human face expressions*", registered as a part time scholar at the Department of Computer & System Sciences of Visva-Bharati bearing Registration No. VB-1200 of 2018-19 with effect from 20.08.2018.[Jointly supervising with Dr. Kakali Datta , Department of Computer & System Sciences, Visva-Bharati, West Bengal, India]
- Supervising **Mr. Ajaharul Hoque** for his Ph.D. entitled as "*Large-Scale multidimensional Social-Network-Sourced data analytics: An intelligent approach*", registered as a part time scholar at the Department of Computer & System Sciences of Visva-Bharati bearing Registration No. VB-1199 of 2018-19 with effect from 20.08.2018.

15. List of Patents:

Filed(Publication pending):

- **S. Bhattacharyya, S. S. Mukherjee, P. Dutta and S. Chakraborty**, "*Low Cost Intelligent Colorimeter Using Color LEDs*", Indian Patent No. 886/KOL/2015 dated 14/08/2015.



Published:

- **S. Bhattacharyya, S. S. Mukherjee, P. Dutta, S. Chakraborty, B. Roy, B. Chakraborty, I. Pan, H. Bhaumik and A. Mukherjee**, “*A LED based Colorimeter Device*”, International Patent No. PCT/IN2016/000206 dated 11/08/2016, International Publication No.: WO 2017/029681 A1, International Publication Date: 23/02/2017.
- **S. Roy, P. Dutta, D. Mukhopadhyay and S. Bhattacharyya**, “*A portable molecular quantum dot cellular automata X-Ray system and Method of its operation thereof*”, Indian Patent No. 201631033793 dated 03/10/2016. Publication Number: 201631033793 Publication Date: 24/03/2017.
- **S. Roy, P. Dutta, D. Mukhopadhyay and S. Mondal**, “*Quantum Dot Cellular Automata based Portable Cancer Cell Demolition System and Method of its operation thereof*”, Indian Patent No. 201631041316 dated 02/12/2016, Publication Number: 201631041316 Publication Date: 07/04/2017.
- **S. Roy, P. Dutta, D. Mukhopadhyay and M. Ghosh**, “*Quantum Dot Cellular Automata based Food Irradiation System and Method of its working*”, Indian Patent No. 201631045060 dated 30/12/2016, Publication Number: 201631045060 Publication Date: 07/04/2017.
- **S. Roy, P. Dutta, D. Mukhopadhyay and K. Datta**, “*Quantum Dot Cellular Automata based Radiation Knife for Radiosurgery and Method of its working*”, Indian Patent No. 201631045061 dated 30/12/2016, Publication Date: 07/04/2017.
- **S. Roy, P. Dutta and D. Mukhopadhyay**, “*Quantum Dot Cellular Automata based Portable Industrial Radiography System*”, Indian Patent No. 201731000500 dated 05/01/2017, Publication Date: 07/04/2017.
- **S. Roy, P. Dutta, D. Mukhopadhyay and S. Bhattacharyya**, “*A Portable X-RAY System Based on the Molecular Quantum Dot Cellular Automata (QCA)*”, PCT Application No. PCT/IB2017/050329 dated 23/01/2017, International publication no WO/2018/065828, International publication date: 12/04/2018 .
- **S. Roy, P. Dutta, D. Mukhopadhyay and S. Mondal**, “*Quantum Dot Cellular Automata based Portable Cancer Cell Demolition System and Method of its operation thereof*”, PCT Application No. PCT/IB2017/050622 dated 04/02/2017, International publication No WO/2018/100438, International publication date: 07/06/2018.
- **P. Dutta, D. Mukhopadhyay and S. Bhattacharyya**, “*A Molecular QCA based Bug Zapper System*”, Indian Patent No. 201731011403 dated 30/09/2017, Publication Date 15/06/2018.
- **P. Dutta, D. Mukhopadhyay, S. Bhattacharyya and P. Bhattacharyya**, “*A Molecular QCA based CT Scan System*”, Indian Patent No. 201731011402 dated 30/09/2017, Publication date 15/06/2018.
- **Paramartha Dutta, Debarka Mukhopadhyay, Siddhartha Bhattacharyya**, “*Molecular QCA based Ultraviolet ray generating unit for light Therapy*”, IPO Number with Filing date 201731011398; 30/09/2017. Date of publication 15/06/2018.
- **P. Dutta, D. Mukhopadhyay and S. Bhattacharyya**, “*A Molecular QCA based UV Lamp for Water Purification*”, Indian Patent No. 201731011405 dated 30/09/2017. Date of publication 15/06/2018.



- **S. Roy, P. Dutta, D. Mukhopadhyay and M. Ghosh**, “*Quantum Dot Cellular Automata based Portable Food Irradiation System and Method of its working*”, PCT Application No. PCT/IB2017/050660 dated 08/02/2017, International Publication No WO/2018/122622, International publication date: 05/07/2018.
- **S. Roy, P. Dutta, D. Mukhopadhyay and K. Datta**, “*Quantum Dot Cellular Automata based Radiation Knife for Radiosurgery and Method of its working*”, PCT Application No. PCT/IB2017/051596 dated 20/03/2017, International Publication No WO/2018/122624, International publication date: 05/07/2018.
- **S. Roy, P. Dutta and D. Mukhopadhyay**, “*Quantum Dot Cellular Automata based Portable Industrial Radiography System*”, PCT Application No. PCT/IB2017/051624 dated 21/03/2017, International Publication No WO/2018/127742, International publication date: 12/07/2018.
- **Anuradha Banerjee, Paramartha Dutta and Abu Sufian**, “*Design of An Energy Efficient Low Radiation HELLO Devoid Mobile Device*”, Indian Patent (Filed vide no. 201831042449), 12/11/2018, Publication date 14/12/2018.

16. List of Publications:

Papers:

Journals:

- **P. Dutta and D. DuttaMajumder**, “*Performance evaluation of evolutionary class of algorithms – An application to 0-1 Knapsack problem*”, in **International Journal on Mathematical Computer Modeling**, vol. 27, no. 7, pp. 57 – 72, DOI: [https://doi.org/10.1016/S0895-7177\(98\)00036-3](https://doi.org/10.1016/S0895-7177(98)00036-3), **1998**. [SCOPUS indexed]
- **S. Bhattacharyya and P. Dutta**, “*Designing pruned neighborhood neural networks for object extraction from noisy background*”, **Foundation of Computing and Decision Sciences**, Vol. 31, No. 2, pp. 105 - 134 **2006**. [Web of Science - Emerging Sources Citation Indexed, SCOPUS indexed]
- **S. Bhattacharyya, P. Dutta, U. Maulik and P. K. Nandi**, “*Multilevel Activation Functions for True Color Image Segmentation Using a Self Supervised Parallel Self Organizing Neural Network (PSOINN) Architecture: A Comparative Study*”, **International Journal of Computer and Information Engineering**, Vol. 1, No. 8, pp. 2446 – 2458, **2007**. [SCOPUS indexed]
- **S. Bhattacharyya, P. Dutta and U. Maulik**, “*Binary object extraction using bi-directional self-organizing neural network (BDSONN) architecture with fuzzy context sensitive thresholding*”, **Pattern Analysis and Applications**, Vol. 10, No. 4, pp. 345 – 360, DOI: <https://doi.org/10.1007/s10044-007-0072-z>, **2007**. [SCIE indexed, Impact factor: 2.58]
- **S. Bhattacharyya, P. Dutta, U. Maulik and P. K. Nandi**, “*A Self Supervised Bi-Directional Neural Network (BDSONN) Architecture for Object Extraction Guided by Beta Activation Function and Adaptive Fuzzy Context Sensitive Thresholding*”, **International Journal of Computer, Electrical, Automation, Control and Information Engineering**, Vol. 2, No. 4, pp. 1309 – 1329, **2008**.



- **S. Bhattacharyya, P. Dutta and U. Maulik**, “*Self Organizing Neural Network (SONN) Based Gray Scale Object Extarctor with a Multilevel Sigmoidal (MUSIG) Activation Functions*”, **Foundation of Computing and Decision Sciences**, Vol. 33, No. 2, pp. 131 – 165, **2008**. [Web of Science - Emerging Sources Citation Indexed, SCOPUS indexed]
- **S. Bhattacharyya, U. Maulik and P. Dutta**, “*A Pruning Algorithm for Efficient Image Segmentation with Neighborhood Neural Networks*”, **IAENG International Journal of Computer Science**, Vol. 35, No. 2, **2008**. [SCOPUS indexed]
- **S. Roychoudhury and P. Dutta**, “*Birth and death modeling of mobility uncertainty in mobile ad-hoc network*”, **International Journal on Computer Science and Applications**, vol.1(3), **2008**. [SCOPUS indexed]
- **S. Roychoudhury and P. Dutta**, “*Statistical Modeling of Mobility of Nodes in a Mobile Ad-hoc Network (MANET) using β Distribution*”, **IAENG Engineering Letters**, **2008**. [SCOPUS/ESCI indexed]
- **A. Banerjee and P. Dutta**, “*Fuzzy Controlled Adaptive Geocasting in Mobile Ad-hoc Network*”, **International Journal of Information Technology**, Vol. 14, No. 2, pp. 109 - 131, **2008**.
- **A. Banerjee and P. Dutta**, “*Fuzzy-Controlled Intelligent and Robust Multicast (FIRM) Routing in Mobile Ad Hoc Networks*”, **International Journal on Communications of Systemics and Informatics World Network**, Vol. 4, pp. 45 – 50, **2008**.
- **S. Bhattacharyya, U. Maulik and P. Dutta**, “*High speed target tracking by fuzzy hostility induced segmentation of optical flow fields*”, **Applied Soft Computing**, Elsevier, Vol. 9, No. 1, pp. 126 – 134, DOI: <https://doi.org/10.1016/j.asoc.2008.03.012>, **2009**. [Science Citation Index Expanded (SCIE), Impact Factor: 8.263]
- **A. Banerjee and P. Dutta**, “*Fuzzy-Controlled Intelligent and Robust Broadcasting (FIRB) in Ad Hoc*”, **International Transactions on Systems Science and Applications**, Vol. 5, No. 1, pp. 44 - 59, **2009**.
- **J. P. Singh and P. Dutta**, “*Temporal Modelling of Node Mobility in Mobile Adhoc Network*”, **International Journal of Computing and Information Technology**, Vol. 18 No. 1, pp. 19 – 29, DOI: 10.2498/cit.1001412, **2010**. [SCOPUS indexed]
- **A. Banerjee, P. Dutta**, “*Binary Location Search-based Scalable Routing Protocol For Ad Hoc Networks*”, **International Journal of Computer Networks and Communications (IJCNC)**, Vol. 2 No. 5, DOI : 10.5121/ijcnc.2010.2509 , **September 2010**. [SCOPUS indexed]
- **A. Banerjee, P. Dutta**, “*Reputation-based Attack Resistant Cooperation Stimulation (RACS) for Mobile Ad Hoc Networks*”, **International Journal of Artificial Intelligence and Applications**, Vol. 1 Vo. 3, DOI: 10.5121/ijaia.2010.1306, **2010**.
- **A. Banerjee, P. Dutta**, “*Fuzzy-controlled power-aware routing protocol (FPRP) for mobile ad hoc networks*”, **International Journal of Computer Applications**, Vol. 11, Pp. 39–43, DOI:10.5120/1592-2133, **2010**.
- **A. Banerjee, P. Dutta**, “*Fuzzy Controlled Route Discovery For Mobile Ad Hoc Networks*”, **International Journal of Engineering, Science and Technology**, Vol. 2 No. 6, pp. 2347-2353, **June 2010**.

- **A. Banerjee, P. Dutta**, “Fuzzy Controlled Adaptive and Intelligent Route (FAIR) Selection in Mobile Ad Hoc Networks”, **European Journal of Scientific Research**, Vol. 45 No. 3, September 2010.
- **A. Banerjee, P. Dutta**, “Fuzzy Controlled Localized Route-Repair (FLRR) for On-demand Routing Protocols in Ad Hoc Networks”, **International Journal of Computer Applications**, Vol. 7, No. 6, pp. 5-10, DOI:10.5120/1169-1444, September 2010. [SCOPUS indexed]
- **A. Banerjee, P. Dutta**, “Link Stability and Node Energy Conscious Local Route-Repair Scheme for Mobile Ad Hoc Networks”, **American Journal of Applied Sciences**, Vol. 7(8), pp. 1139-1147, DOI: 10.3844/ajassp.2010.1139.1147, 2010.
- **A. Banerjee, P. Dutta**, “A Survey of Unicast Routing Protocols in Ad Hoc Networks”, **International Journal of Advances in Science and Technology**, Vol. 1 No. 3, 2010.
- **S. De, S. Bhattacharyya and P. Dutta**, “Efficient Gray Level Image Segmentation Using An Optimized MUSIG (OptiMUSIG) Activation Function”, **International Journal of Parallel, Emergent and Distributed Systems**, vol. 26, No. 1, pp. 1-39, 2010, <http://dx.doi.org/10.1080/17445760903546618>. [SCOPUS indexed]
- **K. Dasgupta, S. Bhattacharyya and P. Dutta**, “Three-Dimensional Object Extraction Using A Three-Dimensional Self-Organizing Neural Network (3DSOINN) and its Two-Dimensional Counterpart: A Comparative Study”, **HETC Journal of Computer Engineering and Applications**, 2010.
- **S. Bhattacharyya, U. Maulik and P. Dutta**, “Multilevel image segmentation with adaptive image context based thresholding”, **Applied Soft Computing**, vol. 11, No. 1, pp. 946-962, 2011. [Science Citation Index Expanded (SCIE), Impact Factor: 8.263]
- **A. Banerjee and P. Dutta**, “Limited Area Route Discovery For Mobile Ad Hoc Networks”, **Journal Of Scientific And Industrial Research**, vol. 70, No. 4, pp. 264 – 269, 2011. [SCOPUS indexed, Impact Factor: 0.555]
- **A. Banerjee and P. Dutta**, “An Efficient Method for Tracking Nodes (EMTN) in Mobile Adhoc Networks”, **International Journal of Computer Applications**, vol. 11, No. 2, pp. 38 – 41, DOI:10.5120/1552-2069, 2011. [SCOPUS indexed]
- **D. Mukhopadhyay, S. Dinda and P. Dutta**, “Designing and Implementation of Quantum Cellular Automata 2:1 Multiplexer Circuit”, **International Journal of Computer Applications**, vol. 25, No. 1, pp. 21 – 24, DOI: 10.5120/2996-4026, 2011. [SCOPUS indexed]
- **J. P. Singh and P. Dutta**, “Temporal modeling of link characteristic in mobile ad hoc network”, **International Journal of Computing and Information Technology**, vol. 19, No. 3, pp. 143 – 154, DOI: 10.2498/cit.1001734, 2011. [SCOPUS indexed]
- **J. P. Singh and P. Dutta**, “The Temporal Effect of Mobility on Path Length in MANET”, **International Journal of Wireless Information Networks**, vol. 19, No. 1, pp. 38 – 48, Springer, 2012, DOI: 10.1007/s10776-011-0163-z [Emerging Sources Citation Index (ESCI), SCOPUS indexed]
- **A. Banerjee and P. Dutta**, “Fuzzy controlled multi-hop adaptive clustering (FMAC) mobile ad hoc networks”, **Scientific Research and Essays**, vol. 7, No. 2, pp. 114 – 127, 2012.



- **S. Dasgupta and P. Dutta**, “*An Energy Efficient Genetic Approach for Clustering of Wireless Sensor Network*”, **International Journal of Information Engineering**, vol. 2, Issue. 2, pp. 54 - 58, **2012**.
- **K. Dasgupta, J. K. Mandal, P. Dutta**, “*Hash Based Least Significant Bit technique for Video Steganography (HLSB)*”, **International Journal of Security, Privacy and Trust Management (IJSPTM)**, ISSN 2277-5498, Academy & Industry Research Collaboration Center (AIRCC), vol. 1, No. 2, pp 1-11, **April 2012** DOI: 10.5151/ijsptm.2012.2201.
- **K. Mondal, P. Dutta and S. Bhattacharyya**, “*Fuzzy Logic Based Gray Image Extraction and Segmentation*”, **International Journal of Scientific and Engineering Research**, vol. 3, No. 4, pp. 1 – 14, **2012**.
- **S. Bhattacharyya, U. Maulik and P. Dutta**, “*A Parallel Bi-Directional Self Organizing Neural Network (PBDSONN) Architecture For Color Image Extraction and Segmentation*”, **Neurocomputing**, vol. 86, pp. 1 – 23, DOI: <https://doi.org/10.1016/j.neucom.2011.11.025>, **2012**. [SCI indexed, Impact Factor: 5.779]
- **S. Dasgupta and P. Dutta**, “*An Energy Efficient Genetic Approach for Clustering of Wireless Sensor Network*”, **International Journal of Information Engineering (IJIE)**, Vol. 2, No. 2, pp. 54-58, **2012**.
- **V. K. Ojha, P. Dutta, and H. Saha**, “*Performance Analysis Of Neuro Genetic Algorithm Applied On Detecting Proportion Of Components In Manhole Gas Mixture*”, **International Journal of Artificial Intelligence & Application**, vol. 3, No. 4, pp. 83-98. **2012**. DOI : 10.5121/IJAIA.2012.3406
- **S. Dasgupta and P. Dutta**, “*A Democratic Head Election Strategy for Clustering in Wireless Sensor Network*”, **International Journal of Computer Applications** (0975 – 8887) vol. 54, No.16, pp. 32 – 36, DOI: 10.5120/8652-2529, **2012**. [SCOPUS indexed]
- **V. K. Ojha and P. Dutta**, “*Performance Analysis of Neuro Swarm Optimization Algorithm Applied on Detecting Proportion of Components in Manhole Gas Mixture*”, **Artificial Intelligence Research**, vol. 1, pp. 31 – 46, DOI: 10.5430/air.v1n1p31, **2012**. [SCOPUS indexed]
- **D. Mukhopadhyay and P. Dutta**, “*Quantum Cellular Automata Based Novel Unit Reversible Multiplexer*”, **Advanced Science Letters**, vol. 16, No. 1, pp. 163 - 168, **2012**. [SCOPUS indexed]
- **D. Mukhopadhyay and P. Dutta**, “*Quantum Cellular Automata Based Novel Unit 2:1 Multiplexer*”, **International Journal of Computer Applications**, vol. 43, No. 2, pp. 22-25, DOI:10.5120/6077-8196, **2012**. [SCOPUS indexed]
- **A. Banerjee, P. Dutta and S. Ghosh**, “*Fuzzy Controlled Energy Efficient Routing Protocol (FE2RP) for Mobile Ad Hoc Networks*”, **International Journal of Computer Applications**, vol. 61, No. 7, pp. 9 – 16, DOI: 10.5120/9938-4587, **2013**. [SCOPUS indexed]
- **S. Dasgupta and P. Dutta**, “*A Novel Game Theoretic Approach for Cluster Head Selection in Wireless Sensor Network*”, **International Journal of Innovative Technology and Exploring Engineering**, vol. 2, No. 3, pp. 40-43, **February 2013**. [SCOPUS indexed]

- **S. Dasgupta and P. Dutta**, “*CIAC: Cluster Head Induced Affinity based Clustering for prolonging the Lifetime of Wireless Sensor Network*”, **International Journal of Computer Application**, vol. 75, No. 10, pp. 18-23, DOI: 10.5120/13147-0565, **August 2013**. [SCOPUS indexed]
- **A. Banerjee, P. Dutta and S. Ghosh**, “*Experience Based Energy efficient Reactive Routing Protocol (EXERP) for Mobile Ad-hoc Networks*”, **Arabian Journal for Science and Engineering**, Springer, vol. 39, issue. 2, pp. 891 – 901, **2013**, ISSN 1319-8025, DOI 10.1007/s13369-013-0813-9 [Science Citation Index Expanded (SCIE), Impact factor: 2.334]
- **J. Hazra, A. Roy Chowdhury and P. Dutta**, “*An approach for determining angle of rotation of a gray image using weighted statistical regression*”, **International Journal of Scientific and Engineering Research**, vol. 4, issue 8, pp. 1006 – 1013, **2013**.
- **D. Bandyopadhyay, K. Dasgupta, J. K. Mandal and P. Dutta**, “*A Novel Secure Image Steganography Method Based on Chaos Theory in Spatial Domain*”, **International Journal of Security, Privacy and Trust Management (IJSPTM)** , vol. 13, No.1, pp. 11 – 22, DOI: 10.5121/ijspmt.2014.3102, **2014**.
- **D. Dutta, P. Dutta, and J. Sil**, “*Simultaneous Feature Selection and Clustering with Mixed Features by Multi Objective Genetic Algorithm*”, **International Journal on Hybrid Intelligence Systems**, IOS Press, vol. 11, pp. 41 – 54, DOI: 10.3233/HIS-130182, **2014**.
- **J. P. Singh ,P. Dutta,A. Chakrabarti**, “*Weighted Delay Prediction in Mobile Ad hoc Network using Fuzzy Time Series*”, **Egyptian Informatics Journal**, Elsevier, Vol. 15, Issue 2, pp. 105 – 114, DOI: <https://doi.org/10.1016/j.eij.2014.03.001>, ISSN: 1110 – 8665, **2014**. [Science Citation Index Expanded (SCIE), Impact Factor: 4.195]
- **A. Banerjee and P. Dutta**, “*Alternative Node Based Energy Depletion and Expected Residual Lifetime Balancing Method for Mobile Ad hoc Networks*”, **International Journal of Advanced Networking and Applications**, vol. 5, Issue. 2, pp. 1886 – 1892, ISSN: 0975 – 0290, **2014**.
- **A. Banerjee and P. Dutta**, “*Delay Efficient Energy and Velocity Conscious Non-Preemptive Scheduler (DEV – NS) for Mobile Ad hoc Networks*”, **International Journal of Advanced Networking and Applications**, vol. 5, Issue. 4, pp. 2002 – 2010, **2014**, ISSN: 0975 – 0290.
- **J. Hazra, A.i Roy Chowdhury and P. Dutta**, “*Statistical Regression based Rotation Estimation Technique of Color Image*”, **International Journal of Computer Applications** , Vol. 102, No. 15, pp.1-4, DOI: 10.5120/17888-8903, **2014**.
- **A. Pal, J. P. Singh and P. Dutta**, “*Path length prediction in MANET under AODV routing: Comparative Analysis of ARIMA and MLP Model*”, **Egyptian Informatics Journal**, Elsevier, Vol. 16, Issue 1, pp. 103 – 111, DOI: <https://doi.org/10.1016/j.eij.2015.01.001> , ISSN: 1110 – 8665, **2015**. [Science Citation Index Expanded (SCIE), Impact Factor: 4.195]
- **D. Mukhopadhyay and P. Dutta**, “*A Study on Energy Optimized 4 Dot 2 Electron Two Dimensional Quantum Dot Cellular Automata Logical Reversible Flip-Flops*”, **Microelectronics Journal**, vol. 46, issue 6, pp. 519 – 530, Elsevier DOI: 10.1016/j.mejo.2015.03.001, **2015**. [Science Citation Index Expanded (SCIE), Impact Factor: 1.992]



- V. K. Ojha, P. Dutta, A. Chaudhuri and H. Saha, “A multi-agent concurrent neurosimulated annealing algorithm: A case study on intelligent sensing of manhole gases”, **International Journal of Hybrid Intelligent Systems**, vol. 12, no. 4, pp. 203 - 217, IOS Press, DOI: 10.3233/HIS-160216, **2015**.
- V. K. Ojha, P. Dutta, A. Chaudhuri and H. Saha, “Understating continuous ant colony optimization for neural network training: A case study on intelligent sensing of manhole gas components”, **International Journal of Hybrid Intelligent Systems**, vol. 12, no. 4, pp. 185 - 202, IOS Press, DOI: 10.3233/HIS-160215, **2016**.
- S. De, S. Bhattacharyya and P. Dutta, “Automatic magnetic resonance image segmentation by fuzzy intercluster hostility index based genetic algorithm: An application”, **Applied Soft Computing**, vol. 47, pp. 669 – 683, **October 2016**. Elsevier DOI: .1016/j.asoc.2016.05.042 [Science Citation Index Expanded (SCIE), Impact Factor: 8.263]
- V. K. Ojha, P. Dutta and A. Chaudhuri, “Identifying Hazardousness of Sewer-Pipeline Gas-Mixture using Classification Methods:a comparative study”, **Neural Computing and Application**, (WoS, IF 1.49). vol. 28, issue. 6, pp. 1343 – 1354, DOI: 10.1007/s00521-016-2443-0 , **2016**. [Science Citation Index Expanded (SCIE), Impact Factor: 5.606]
- A. Banerjee, P. Dutta and A. Sufian, “Fuzzy-controlled Scheduling of Real Time Data Packets (FSRP) in Mobile Ad Hoc Networks”, **International Journal of Computer Science and Mobile Computing**, vol. 5, no. 5, pp 507 – 513, **2016**. ISSN 2320–088X. [ISI Indexed Journal , Impact Factor: 7.056]
- M. Ghosh, D. Mukhopadhyay and P. Dutta, “A Study on 2 Dimensional 2 Dot 1 Electron Quantum Dot Cellular Automata based Reversible 2:1 MUX Design: An Energy Analytical Approach”, **International Journal of Computers and Applications**, Taylor and Francis, Vol.38, pp.82-95, ISSN: 1925-7074, DOI: 10.1080/1206212X.2016.121829, **2016**. [SCOPUS indexed]
- A. Banerjee, P Dutta and A. Sufian, “Fuzzy Route Switching for Energy Preservation (FEP) in Ad hoc Networks”, **Indian Journal of Science and Technology**, vol. 9(43), DOI: 10.17485/ijst/2016/v9i43/104383, **2016**.
- Abu Sufian, Anuradha Banerjee and Paramartha Dutta, “Fuzzy-controlled Scheduling of Route-Request Packets (FSRR) in Mobile Ad Hoc Networks”, **Indian Journal of Science and Technology(UGC- 122, Thomson Reuter WoS, Scopus)**, Vol. 9(43),. DOI: 10.17485/ijst/2016/v9i43/104384, **2016**.
- D. Bhowmik, A. K. Saha and P. Dutta, “A Novel Design and Implementation of Binary to Gray Code Converters up to 4-Bit by Quantum Dot Cellular Automata”, **International Journal of Computer Technology and Applications**, vol. 9(41), pp. 697 – 707, International Science Press, ISSN: 0974-5572, **2016** .
- A. Banerjee, A. Sufian and P. Dutta, “EMR-PL: Energy-efficient Multipath Routing Based on Link Life Prediction”, **Journal of Information and Optimization Science**, vol. 39, No. 1, pp. 285 – 301, Taylor and Francis, DOI: 10.1080/02522667.2017.1374733 **2017**. [ESCI indexed]
- K. Datta, D. Mukhopadhyay and P. Dutta, “Design and analysis of an energy efficient and compact two-dimensional two-dot one-electron quantum-dot cellular automata-based ripple carry adder”, **International Journal of Convergence Computing**, vol.



2, no. 2, pp. 161 – 182, Inder Science Publishers, ISSN online: 2048-9137 ISSN print: 2048-9129, DOI: 10.1504/IJCONVC.2016.082034, **2017**.

- **K. Datta, D. Mukhopadhyay and P. Dutta**, “*Comprehensive study on the performance comparison for logically reversible and irreversible parity generator and checker designs using two-dimensional two-dot one-electron QCA*”, **Microsystem Technologies**, Springer Berlin Heidelberg, Vol.25, pp. 1659 - 1667, DOI: 10.1007/s00542-017-3445-2, Print ISSN 0946-7076, Online ISSN 1432-1858, **2017**. [SCI indexed, Impact factor: 2.276]
- **M. Ghosh, D. Mukhopadhyay and P. Dutta**, “*Design of an arithmetic circuit using non-reversible adders in 2 dot 1 electron QCA*”, **Microsystem Technologies**, Springer Berlin Heidelberg GmbH, pp. 1719 -1729, DOI: <https://doi.org/10.1007/s00542-017-3526-2>, Print ISSN 0946-7076, Online ISSN 1432-1858, **2017**. [SCI indexed, Impact factor: 2.276]
- **A. Barman and P Dutta**, “*Facial expression recognition using distance and shape signature features*”, **Pattern Recognition Letters**, Elsevier, **23/07/2017**, DOI: 10.1016/j.patrec.2017.06.018 [SCI indexed, Impact factor: 4.757]
- **K. Datta, D. Mukhopadhyay and P. Dutta**, “*Comprehensive Design and Analysis of Gray Code Counters using 2-dimensional 2-dot 1-electron QCA*”, **Microsystem Technologies**, Springer Berlin Heidelberg, pp.1-19, DOI: <https://doi.org/10.1007/s00542-018-3818-1>, Print ISSN 0946-7076, Online ISSN 1432-1858, **2018**. (In Press) [SCI indexed, Impact factor: 2.276]
- **M. Ghosh, D. Mukhopadhyay and P. Dutta**, “*Influence of structure of 2 dimensional 2 dot 1 electron QCA cells in design of a pipelined subtractor*”, **Microsystem Technologies**, Springer Berlin Heidelberg GmbH, pp. 1 - 9, **2018** DOI: <https://doi.org/10.1007/s00542-018-3826-1>, Print ISSN 0946-7076, Online ISSN 1432-1858. [SCI indexed, Impact factor: 2.276]
- **A. Banerjee, A. Sufian and P. Dutta**, “*Fuzzy-controlled Energy-efficient Single Hop Clustering Scheme (FESC) in Ad Hoc Networks*”, **International Journal of Information Technology**, Vol.10(3), pp.313-327, Springer Singapore, DOI: <https://doi.org/10.1007/s41870-018-0133-0>, **01/09/2018**. [SCOPUS indexed, UGC-CARE List (India)]
- **Abu Sufian, Anuradha Banerjee and Paramartha Dutta**, “*Cheat-Proof Communication through Cluster Head (C3H) in Mobile Ad Hoc Network*”, **Pertanika Journal of Science and Technology (Thomson Reuter WoS, Scopus)**, Vol. 26(3), pp. 1513-1526, **01/07/2018**.
- **S. Mondal, M. Ghosh, K. Datta, D. Mukhopadhyay, P. Dutta**, “*A QCA design and energy analysis of binary semaphore with a comprehensive case study*”, **Innovations in Systems and Software Engineering**, vol.15, pp.343-354, Springer London, DOI: doi.org/10.1007/s11334-019-00338-2, **2019**. [Emerging Sources Citation Index, UGC-CARE List (India)]
- **A. Pal, P. Dutta, A. Chakrabarti, J. P. Singh and S. Sadhu**, “*Biogeographic-based temporal prediction of link stability in mobile ad hoc networks*”, **Wireless Personal Communication**, Springer US, Vol.104(1), pp.217-233, DOI: <https://doi.org/10.1007/s11277-018-6016-7>, **15/01/2019**. [Science Citation Index Expanded (SCIE), Impact factor: 1.671]
- **Mrinal Kanti Bhowmik, Priya Saha, Anu Singha, Debotosh Bhattacharjee, Paramartha Dutta**, “*Enhancement of Robustness of Face Recognition System through*



Reduced Gaussianity in Log-ICA", **Expert Systems with Applications**, Vol.116 ,pp.96-107, Pergamon, DOI: <https://doi.org/10.1016/j.eswa.2018.08.047>, **01/02/2019**. (Elsevier) [Science Citation Index Expanded (SCIE), Impact factor: 8.665]

- **A.Banerjee, A. Sufian and P. Dutta**, "*Movement guided management of topology (MGMT) with balanced load in mobile ad hoc networks*", **International Journal of Information Technology**, Vol.11(1), pp.149-158, Springer Singapore, DOI: <https://doi.org/10.1007/s41018-0143-y>, **12/03/2019**. [SCOPUS indexed, UGC-CARE List (India)]
- **Paramartha Dutta and Debarka Mukhopadhyay**, "*An Ultra Low Power Molecular Quantum Dot Cellular Automata Based X-ray (QX-ray) Generating System Using Renewable Energy Source*", **Encyclopedia of Renewable and Sustainable Materials (2019)**.doi:10.1016/B978-0-12-803581-8.11035-5.(Elsevier).
- **A. Sufian,A. Banerjee, and P. Dutta**, "*Energy and Velocity Based Tree Multicast Routing in Mobile Ad-Hoc Networks*", **Wireless Personal Communications**, Vol 107, pp.2191–2209, DOI:10.1007/s11277-019-06378-y, **April 2019**. [Science Citation Index Expanded (SCIE), Impact factor: 1.671]
- **A.Barman and P.Dutta**, "*Influence of Shape and Texture features in Facial Expression Recognition*", **IET Image Processing**, Vol.13, pp. 1349-1363, **April 2019**, DOI:10.1049/iet-ipr.2018.5481. (IET).
- **M.K.Bhowmik,T.Debnath,D.Bhattacharjee,P.Dutta**, "*EF-index:Determining numbers of clusters(K) to estimate number of segments(S) in an image*", **Image and Vision computing**, Vol. 88, pp. 29-40, DOI:10.1016/j.imavis.2019.04.009. **April 2019**. [Science Citation Index, Impact Factor: 3.860]
- **A. Barman and P. Dutta**, "*Facial expression recognition using distance and texture signature relevant features*", **Applied Soft Computing**, Vol.77, pp.88-105 , DOI: <https://doi.org/10.1016/j.asoc.2019.01.011>, **01/04/2019**. (Elsevier). [Science Citation Index Expanded (SCIE), Impact Factor: 8.263]
- **Dipankar Dutta, Jaya Sil, Paramartha Dutta**, "*Automatic Clustering by Multi-Objective Genetic Algorithm with Numeric and Categorical Features*", **Expert Systems With Applications**, Vol. 137 , pp. 357-379 , **Elsevier**, DOI: <https://doi.org/10.1016/j.eswa.2019.06.056>, **2019**. [Science Citation Index Expanded (SCIE), Impact Factor: 8.665]
- **A. Pal, P. Dutta, A. Chakrabarti and J. P. Singh**, "*An efficient load balanced stable multi-path routing for mobile ad-hoc network*", **Microsystem Technologies**, DOI: <https://doi.org/10.1007/s00542-019-04723-6>, **2020**. [Science Citation Index, Impact Factor: 2.276]
- **Farhana Sultana, Abu Sufian, Paramartha Dutta**, "*Evolution of Image Segmentation using Deep Convolutional Neural Network:A Survey*", **Knowledge-Based System**, Vol.201-202, pp.106062, **Elsevier**, DOI: <https://doi.org/10.1016/j.knosys.2020.106062>, **2020**. [Science Citation Index, Impact Factor: 8.139]
- **Dipankar Dutta, Jaya Sil, Paramartha Dutta**, "*A bi-phased multi-objective genetic algorithm based classifier*", **Expert Systems With Applications**, Vol.146,pp.113163, **Elsevier**, DOI: <https://doi.org/10.1016/j.eswa.2019.113163>, **2020**. [Science Citation Index Expanded (SCIE), Impact Factor: 8.665]

- **Paramartha Dutta and Debarka Mukhopadhyay**, “Eco-Sustainable Molecular Quantum Dot Cellular Automata Based Radiography in Defect Identification of Industrial Product Using Renewable Energy Source”, *Encyclopedia of Renewable and Sustainable Materials*, Vol. 3, pp. 437 - 446, doi:10.1016/B978-0-12-803581-8.11028-8.(Elsevier) , **2020**.
- **A. Pal, P. Dutta, A. Chakrabarti and J. P. Singh** , “An efficient load balanced stable multi-path routing for mobile ad-hoc network”, **Microsystem Technologies**, DOI: <https://doi.org/10.1007/s00542-019-04723-6>, **2020**. [Science Citation Index, Impact Factor: 2.276]
- **A. Nandi, P. Dutta and Md. Nasir**, “Face Expression Recognition using Shape Factors Induced by Landmark Triangulation”, **TIU Transactions on Intelligent Computing (TTIC)**, Vol.4, pp.1-9, **2020**.
- **Md. Nasir, P. Dutta and A. Nandi**, “Fuzzy triangulation signature for detection of change in human emotion from face video image sequence”, **Multimedia Tools and Applications** , DOI:<https://doi.org/10.1007/s11042-021-11196-1> **2021**. [Science Citation Index Expanded (SCIE), Impact Factor: 2.757]
- **R.K. Basak, R. Chatterjee, P. Dutta and K. Dasgupta**, “Steganography in Color Animated Image Sequence for Secret Data Sharing Using Secure Hash Algorithm”, **Wireless Personal Communications**, DOI: <https://doi.org/10.1007/s11277-021-08973-4>, **2021**. [Science Citation Index Expanded (SCIE), Impact Factor: 1.671]
- **A. Nandi, P. Dutta and Md Nasir**, “Automatic Facial Expression Recognition—A Circumcenter–Incenter–Centroid (CIC) Trio Feature-Induced Approach”, **SN Computer Science**, Vol.3, DOI: <https://doi.org/10.1007/s42979-021-00868-2>, **2021**. [SCOPUS Indexed]
- **Md Nasir, P. Dutta and A. Nandi**, “Landmark triangulation induced Altitude Signature for change detection of human emotion from face image sequence”, **Innovations in Systems and Software Engineering**, **2021**. [Emerging Sources Citation Index, UGC-CARE List (India)]
- **A. Roy Chowdhury, J. Hazra, K. Dasgupta and P. Dutta**, “Fuzzy rule-based hyperspectral band selection algorithm with ant colony optimization”, **Innovations in Systems and Software Engineering** , DOI: <https://doi.org/10.1007/s11334-021-00432-4> , **2022**. [Emerging Sources Citation Index, UGC-CARE List (India)]
- **E. Alam, A. Sufian, P. Dutta and M. Leo**, “Vision-based human fall detection systems using deep learning: A review”, **Computers in Biology and Medicine** , DOI: <https://doi.org/10.1016/j.compbimed.2022.105626> , **2022**. [Science Citation Index, Impact Factor: 6.698]
- **Md Sarfaraz Momin, Abu Sufian, Debaditya Barman, Paramartha Dutta, Mi-anxiong Dong, and Marco Leo.**, “In-Home Older Adults’ Activity Pattern Monitoring Using Depth Sensors: A Review.”, DOI: <https://doi.org/10.3390/s22239067>, **2022**. [Science Citation Index Expanded (SCIE), Impact Factor: 3.8]

Invited Papers :

- **P. Dutta and D. DuttaMajumder**, ‘A comprehensive study on Pattern Classification Problem (with a case study on application of Genetic Algorithms on Point Classification Problem)’, in the Book on Pattern Directed Information Analysis edited by D. DuttaMajumder and B. Chanda, pp. 174 – 212, **2005**.

- **P. Dutta**, ‘*A theoretical study on measuring performance of binary encodable evolutionary class of algorithms*’, in Proceedings of the National Conference on Computing and Communication Systems (Cocosys '09), pp. 15 – 25, **2009**.
- **P. Dutta and A. Banerjee**, “*Fuzzy-controlled Power-aware Multicast Routing (FPMR) For Mobile Ad Hoc Networks*”, in Proceedings of the second International Conference on Computer, Communication, Control and Information Technology (C3IT – 2012), Procedia Technology, Volume 4, 2012, Pages 38-49, **2012**.

Book Chapters:

- **S. Bhattacharyya and P. Dutta**, (eds. Md. A. Khan and A. Q. Ansari), “*Fuzzy logic: concepts, system design and applications to industrial informatics*”, in Handbook of Research on Industrial Informatics and Manufacturing Intelligence: Innovations and Solutions, Chapter 3, pp. 33 – 71, **IGI Global**, Hershey PA, USA, DOI: 10.4018/978-1-4666-0294-6.ch003, ISBN 978-1-4666-0294-6 (hardcover) – ISBN 978-1-4666-0295-3 (e-book) – ISBN 978-1-4666-0296-0 (print & perpetual access), **2012**.
- **P. Dutta, P. Bhattacharya and S. Bhattacharyya**, (eds. Md. A. Khan and A. Q. Ansari), “*Evolutionary computing: principles and applications to portfolio optimization*”, in Handbook of Research on Industrial Informatics and Manufacturing Intelligence: Innovations and Solutions, Chapter 12, pp. 271 – 295, **IGI Global**, Hershey PA, USA, DOI: 10.4018/978-1-4666-0294-6.ch012, ISBN 978-1-4666-0294-6 (hardcover) – ISBN 978-1-4666-0295-3 (e-book) – ISBN 978-1-4666-0296-0 (print & perpetual access), **2012**.
- **B. Chakraborty, S. Bhattacharyya and P. Dutta**, (eds. S. K. Pal, A. Petrosino and L. Maddalena), “*An unsupervised video shot boundary detection technique using fuzzy entropy estimation of video content*”, in Handbook on Soft Computing for Video Surveillance, Chapter 9, pp. 237 – 253, Taylor & Francis, CRC Press, **2012**.
- **D. Dutta, P. Dutta, and J. Sil**, (eds. Marina L. Gavrilova C. J. Kenneth Tan Ajith Abraham), “*Categorical Feature Reduction Using Multi Objective Genetic Algorithm in Cluster Analysis*”, in Transactions on Computational Science XXI, pp. 164 – 189, **2013**.
- **V. K. Ojha and P. Dutta**, (eds. B. K. Tripathy and D. P. Acharjya), “*Conjugate Gradient Trained Neural Network for Intelligent Sensing of Manhole Gases to Avoid Human Fatality*”, in Advances in Secure Computing, Internet Services, and Applications, Chapter 13, pp. 257 – 280, **IGI Global**, USA, DOI: 10.4018/978-1-4666-4940-8.ch013, ISBN 978-1-4666-4940-8 (hardcover) – ISBN 978-1-4666-4942-2 (print & perpetual access) – ISBN 978-1-4666-4941-5 (e-book), **2014**.
- **J. Hazra, A. Roy Chowdhury and P. Dutta**, (eds. S. Bhattacharyya, P. Dutta and S. Chakraborty), “*Immune-Based Feature Selection in Rigid Medical Image Registration Using Supervised Neural Network*”, in Hybrid Soft Computing Approaches: Research and Applications, (Part II), pp. 429-456, Springer India, DOI : 10.1007/978 – 81 – 322 – 2544 – 7.15, Print ISBN: 978-81-322-2543-0, Online ISBN: 978-81-322-2544-7, Series Title: Studies in Computational Intelligence, Series Volume: 611, Series ISSN: 1860-949X **2016**.
- **J. Hazra, A. Roy Chowdhury and P. Dutta**, (eds. S. Bhattacharyya, P. Banerjee, D. Majumdar and P. Dutta), “*Cluster Based Medical Image Registration Using Optimized Neural Network*”, in Medical Imaging: Concepts, Methodologies, Tools, and Applications, Chapter 61, pp. 1437-1467, IGI Global, USA, ISBN 978-1-4666-9474-3 (hardcover) – ISBN 978-1-4666-9475-0 (e-Book), **2016**.

- **V. K. Ojha, P. Dutta, A. Chaudhuri and H. Saha**, (eds. S. Bhattacharyya, P. Dutta and S. Chakraborty), “*Convergence Analysis of Backpropagation Algorithm for Designing an Intelligent System for Sensing Manhole Gases*”, in Hybrid Soft Computing Approaches: Research and Applications, (Part II), pp. 215-236, Springer India, DOI: 10.1007/978 – 81 – 322 – 2544 – 7_15, Print ISBN: 978-81-322-2543-0, Online ISBN: 978-81-322-2544-7, Series Title: Studies in Computational Intelligence, Series Volume: 611, Series ISSN: 1860-949X **2016**.
- **J. P. Singh and P. Dutta**, (eds. J. K. Mandal, S. Mukhopadhyay, and T. Pal), “*Source Location Privacy Using Ant Colony Optimization in Wireless Sensor Networks*”, in Handbook of Research on Natural Computing for Optimization Problems, Chapter 10, pp. 227-245, IGI Global, USA, DOI: 10.4018/978-1-5225-0058-2.ch010, ISBN 9781522500582 (hardcover) — ISBN: 9781522500599 (e-book), **2016**.
- **A. Sufian, A Banerjee and P. Dutta**, “*Survey of Various Real and Non-real-time Scheduling Algorithms in Mobile Ad hoc Networks*”, pp. 121 – 133, Industry Interactive Innovations in Science, Engineering and Technology, Springer Lecture Notes in Networks and Systems Book Series (LNNS, Vol. 11) **2017**.
- **S. De, S. Das, S. Bhattacharyya and P. Dutta**, (eds. S. Bhattacharyya, I. Pan, A. Mukherjee and P. Dutta), “*Multilevel Image Segmentation using Modified Genetic Algorithm (MfGA)-based Fuzzy C-Means*”, in Hybrid Intelligence for Image Analysis and Understanding, Chapter 1, pp. 1-22, John Wiley, UK, ISBN: 978-1-1192-4292-5, **2017**.
- **A. Roy Chowdhury, J. Hazra and P. Dutta**, (eds. S. Bhattacharyya, I. Pan, A. Mukherjee and P. Dutta), “*A Hybrid Approach for Band Selection of Hyperspectral Images*”, in Hybrid Intelligence for Image Analysis and Understanding, Chapter 11, pp. 263-281, John Wiley, UK, ISBN: 978-1-1192-4292-5, **2017**.
- **Md Nasir, Paramartha Dutta and Avishek Nandi**, (eds. J.K. Mandal, S. Mukhopadhyay, P. Dutta, K. Dasgupta), “*Tracking changing human emotions from facial image sequence by landmark triangulation: A incircle-circumcircle duo approach*”, in Algorithms in Machine Learning Paradigms in Studies in Computational Intelligence series (Series eds Janusz.Kacprzyk), pp.129-146, Springer Nature, ISSN: 1860-949X, **2019**.
- **Avishek Nandi, Paramartha Dutta and Md Nasir**, (eds. J.K. Mandal, S. Mukhopadhyay, P. Dutta, K. Dasgupta), “*Recognizing Human Emotions from Facial Images by Landmark Triangulation: A Combined Circumcenter-Incenter-Centroid Trio Feature Based Method*”, in Algorithms in Machine Learning Paradigms in Studies in Computational Intelligence series (Series eds Janusz.Kacprzyk), pp.147-164, Springer Nature, ISSN: 1860-949X, **2019**.
- **Md Nasir, Paramartha Dutta and Avishek Nandi**, (eds. Sourav De, Paramartha Dutta), “*A Study on the Influence of Angular Signature of Landmark Induced Triangulation in Recognizing Changes in Human Emotion*”, in Computational Intelligence for Human Action Recognition, Chapter 4, CRC Press, Taylor and Francis, eBook ISBN: 9780429061486, **2020**.
- **Avishek Nandi, Paramartha Dutta and Md Nasir**, (eds. Sourav De, Paramartha Dutta), “*Face Expression Recognition using Side Length Features Induced by Landmark Triangulation*”, in Computational Intelligence for Human Action Recognition, Chapter 3, CRC Press, Taylor and Francis, eBook ISBN: 9780429061486, **2020**.



- **Asit Barman, Sankhayan Choudhury and Paramartha Dutta**, (eds. Sourav De, Paramartha Dutta), “*Distance-shape-texture signature trio for facial expression recognition*”, in Computational Intelligence for Human Action Recognition, Chapter 2, **CRC Press, Taylor and Francis**, eBook ISBN: 9780429061486, **2020**.
- **G. Mandal, S.Dam, K. Dasgupta and P. Dutta**, (eds. J. K. Mandal, S. Mukhopadhyay, P. Dutta and K. Dasgupta), “*A Linear Regression-Based Resource Utilization Prediction Policy for Live Migration in Cloud Computing*”, in Algorithms in Machine Learning Paradigms, pp.109-128, **Springer, Singapore**, Print ISBN:978-981-15-1040-3, Online ISBN:978-981-15-1041-0, DOI: <https://doi.org/10.1007/978-981-15-1041-0.7>, **2020**.
- **Farhana Sultana, Abu Sufian, Paramartha Dutta**, (eds. J.K. Mandal and s. Banerjee), “*A Review of Object Detection Models Based on Convolutional Neural Network*”, in Intelligent Computing: Image Processing Based Applications, Chapter 1, pp.1-16, **Springer, Singapore**, Print ISBN:978-981-15-4287-9, Online ISBN:978-981-15-4288-6, **2020**.
- **Arindrajit Pal, Paramartha Dutta, Amlan Chakrabarti and yoti Prakash Singh**, (eds. J.K. Mandal, S.Mukhopadhyay, P. Dutta, K.Dasgupta), “*Stable Neighbor-Node Prediction with Multivariate Analysis in Mobile Ad Hoc Network Using RNN Model*”, in Algorithms in Machine Learning Paradigms in Studies in Computational Intelligence series (Series eds Janusz.Kacprzyk), pp.165-179, **Springer Nature**, Print ISBN: 978-981-15-1040-3, Online ISBN: 978-981-15-1041-0, DOI:<https://doi.org/10.1007/978-981-15-1041-0.10>, **2020**.
- **S. Dasgupta , P. Dutta**, (eds. J.K. Mandal,Devadutta Sinha), “*A Study on Collapse Time Analysis of Behaviorally Changing Nodes in Static Wireless Sensor Network*”, in Intelligent Computing Paradigm: Recent Trends, pp.11-20, **Springer, Singapore**, Print ISBN: 978-981-13-7333-6, Online ISBN: 978-981-13-7334-3, **2020**.
- **A. Roy Chowdhury, J. Hazra, K. Dasgupta, P. Dutta**, (eds. P. Dutta, J.K. Mandal, S. Mukhopadhyay), “*A Novel Equilibrium Optimization Technique for Band Selection of Hyperspectral Images*”, in Computational Intelligence in Communications and Business Analytics. CICBA 2021, pp.77-90, **Springer, Cham**, Print ISBN: 978-3-030-75528-7, Online ISBN: 978-3-030-75529-4, DOI: <https://doi.org/10.1007/978-3-030-75529-4.7>, **2021**.
- **G. Mohindru, K. Mondal, P. Dutta and H. Banka**, (eds. S. De, S. Dey, S. Bhattacharyya and S. Bhatia), “*Mining challenges in large-scale IoT data framework – a machine learning perspective*”, in Advanced Data Mining Tools and Methods for Social Computing, Hybrid Computational Intelligence for Pattern Analysis, Chapter 12, pp. 239-259, **Academic Press**, ISBN :9780323857086, DOI: <https://doi.org/10.1016/B978-0-32-385708-6.00019-9>, **2022**.

Proceedings of Conference/Workshop/Symposium:

- **P. Dutta, S. Maitra, K. Dutta and D. DuttaMajumder**, “*An Evolutionary algorithm for 0-1 Knapsack problem*”, in Proceedings of Recent Trends in Computer Applications in Engineering (ReTCA’96) held in Bhatinda during **March 8-9, 1995**.
- **P. Dutta and D. DuttaMajumder**, “*Performance Comparison of Two Evolutionary Schemes*”, in Proceedings of the 13th International Conference on Pattern Recognition (ICPR ’96), pp. 659 - 663, **1996**.
- **P. Dutta and D. DuttaMajumder**, “*Convergence of an Evolutionary Algorithm*”, in proceedings of the 4th International Conference on Soft Computing (IIZUKA ’96), pp. 515 – 518, **1996**.

- **P. Dutta, S. Maitra and D. DuttaMajumder**, “*Convergence of an evolutionary heuristic and its application to 0-1 KNAPSACK problem*”, in Proceedings of the 6th National Seminar on Theoretical Computer Science (NSTCS – 6), p. 119, **1996**.
- **P. Dutta**, “*An Evolutionary heuristic for knowledge base partitioning problem*”, in Proceedings of the IEEE International Conference on Evolutionary Computation (ICEC’ 97), pp. 657 – 662, held in Indianapolis, **April 14-17, 1997**.
- **P. Dutta**, “*Problems of estimation of performance parameters of an evolutionary algorithm*”, in Proceedings of the 7th International Fuzzy System Association World Congress held in Prague during **June 25-29, 1997**.
- **P. Dutta and D. DuttaMajumder**, “*An improved genetic scheme for 2D point classification problem*”, in Proceedings of the 4th Joint Conference in Information Sciences, **1998**.
- **D. P. Mukherjee, P. Dutta and D. Dutta Majumder**, “*Entropy Theoretic Fusion of Multimodal Medical Images*”, in Proceedings of the Indian Conference on Vision, Graphics and Image Processing (ICVGIP ’98), **1998**.
- **P. Dutta**, “*Solving Y2K problem: An integrated approach*”, accepted for presentation in the Indian Science Congress Association Young Scientists’ Award Programme in the Computer Sciences section in the 86th Indian Science Congress at Chennai in **January, 1999**.
- **P. Dutta**, “*Facing the Y2K Challenge*”, in Proceedings of the Regional Conference held in the National Institute of Management, Calcutta, **1999**.
- **K. Paul, P. Dutta, D. RoyChowdhury, P. K. Nandi and P. PalChaudhuri**, “*A VLSI Architecture for On-Line Image Decompression using GF(28) cellular Automata*”, in Proceedings of the 12th International Conference on VLSI Design held at Goa, India, pp. 532 - 537, held in **January, 1999**.
- **P. Dutta and D. DuttaMajumder**, “*Performance characteristic of an evolutionary algorithm*”, in Proceedings of the 4th International Conference on Advances in Pattern Recognition and Digital Techniques (ICAPRDT ’99), held in the Indian Statistical Institute, Calcutta during **December 27 – 29, 1999**.
- **S. Bhattacharyya, P. Dutta and U. Maulik**, “*Multiple Target Tracking Using Self-Organizing Neural Network Based Segmentation Of Optical Flow Field*”, in Proceedings of the Conference On Recent Trends In Manufacturing (CARTM ’03), pp. 369 – 376 held during **November 14-15, 2003**.
- **S. Bhattacharyya, P. Dutta and U. Maulik**, “*Multi-Scale Object Extraction Using Self Organizing Neural Network With A Multi-Level Sigmoidal Activation Function*”, in Proceedings of the International Conference on Advances in Pattern Recognition (ICAPR ’03), pp. 435 – 438 held in **December, 2003**.
- **P. Dutta, S. Bhattacharyya and K. Dasgupta**, “*Multi-Scale Object Extraction Using Self Organizing Neural Network With A Multi-Level Beta Activation Function*”, in Proceedings of IEEE International Conference on Intelligent Sensing and Information Processing (ICISIP ’04), pp. 139 – 142 held in Chennai, India in **January, 2004**.



- **S. Bhattacharyya and P. Dutta**, “*A parallel self-organizing neural network architecture for extraction of graded color objects*”, in Proceedings of the International Conference on Recent Trends and New Directions of Research in Cybernetics & Systems Theory (ICCST ‘04) held in **January, 2004**.
- **P. Dutta and D. DuttaMajumder**, “*An evolutionary heuristic for 0-1 Knapsack problem*”, in Proceedings of the International Conference on Recent Trends and New Directions of Research in Cybernetics & Systems Theory (ICCST ‘04) held in **January, 2004**.
- **S. Bhattacharyya, P. Dutta and D. DuttaMajumder**, “*Multiscale object extraction using a self-organizing neural network with multilevel beta activation function and its sigmoidal counterpart: A Comparative study*”, in Proceedings of the International Conference on Recent Trends and New Directions of Research in Cybernetics & Systems Theory (ICCST ‘04) held in **January, 2004**.
- **A. Banerjee, K. Majumder, P. Dutta and K. Mondal**, “*A birth and death based mathematical model for tracking mobile nodes in a multihop environment*”, in Proceedings of the National Conference on IT-Enabled Governance held in Calcutta during **12-13 June, 2004**.
- **A. Banerjee, K. Majumder, P. Dutta and K. Mondal**, “*Implementation of the behaviour and structure of the multi-hop mobile environment as a pushdown automata and a birth and death based statistical model*”, in Proceedings of the National Conference on Mobile Computing and Networking (MobiComNet- ‘2004) pp. 45 -51 held in the Vellore Institute of Technology during **September 30 - October 02, 2004** (conferred the **Best Paper Award** of the Conference).
- **S. Bhattacharyya and P. Dutta**, “*Multiscale Object Extraction with MUSIG and MUBET with CONSENT: A Comparative Study*”, in Proceedings of the International Conference on Knowledge Based Computer System (KBCS 2004), pp. 100 – 109 held in Hyderabad, India during **December, 2004**.
- **K. Dasgupta, S. Bhattacharyya and P. Dutta**, “*Pure Color Object Extraction: A Distributed Approach*” in Proceedings of the Asia Pacific Conference on Parallel and Distributed Computing Technologies (ObComAPC ‘2004), pp. 556 - 565 held in Vellore, India in **December, 2004**.
- **S. Bhattacharyya and P. Dutta**, “*XMUBET with CONSENT: A Pixel Hostility Induced Multiscale Object Extractor*”, in Proceedings of the IEEE International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP ‘04), pp. 277 – 282 held in Melbourne, Australia in **December, 2004**.
- **S. Bhattacharyya and P. Dutta**, “*XMUSIG with CONSENT: A Pixel Hostility Induced Multiscale Object Extractor*”, in Proceedings of the IEEE International Conference on Intelligent Sensing and Information Processing (ICISIP ‘05), held in Chennai, India in **January, 2005**.
- **S. Bhattacharyya and P. Dutta**, “*Designing pruned multilayer self organizing neural network (MLSONN) for object extraction from a noisy background*”, in the Book of Abstracts of SOOP 05, pp. 131 – 132, **2005**.
- **S. Bhattacharyya, P. Dutta, K. Dasgupta and A. Basu**, “*Multiple target tracking using pixel hostility based segmentation of optical flow field*”, in the Book of Abstracts of SOOP 05, pp. 56 – 58, **2005**.



- **A. Banerjee and P. Dutta**, “*Simulation of a multihop distributed mobile environment with round robin scheduling*”, in Proceedings of the National Conference on Emerging Technologies in Electronics and Communications (NCETEC ‘2005), held in Bharath Institute of Higher Education and Research, Chennai, pp. 19-24, on **March 18, 2005**.
- **S. Bhattacharyya, P. Dutta and U. Maulik**, “*Designing Structural Elements of Optimum size for Morphological Operations on Geometrical Primitives using Fuzzy Rule Base*”, in Proceedings of the International Workshop on Spatial Issues in Language and Vision (SILV ‘2005), pp. 55 - 61 held during **March, 2005**.
- **A. Banerjee, P. Dutta, K. Majumder and K. Mondal**, “*Implementation of The Mobile Adhoc Network As A Statistical Model With Round Robin Scheduling Approach*”, in Proceedings of the National Conference on High Performance Computing (VISION ‘2005), pp. 596-599 held on **08 April, 2005**.
- **S. Bhattacharyya, P. Dutta and U. Maulik**, “*Graded color object extraction by a Parallel Self-Organizing Neural Network (PSOINN) architecture guided by a MUBET activation function*”, in Proceedings of the International Conference on Information Systems (ICIS ‘2005), during December, **2005**.
- **A. Banerjee and P. Dutta**, “*Fuzzy Controlled Tracking and Communication in a Mobile Environment*”, in Proceedings of the International Conference on Information Systems (ICIS ‘2005), during **December, 2005**.
- **S. Bhattacharyya, P. Dutta and U. Maulik**, “*A bi-directional self organizing neural network architecture for object extraction from a noisy background*”, in Proceedings of the International Conference on Optics and Optoelectronics (ICOL ‘2005), during **December, 2005**.
- **S. Bhattacharyya, P. Dutta and U. Maulik**, “*MUSIG and MUBET guided PSOINN based color object extraction: A comparative study*”, in Proceedings of the International Conference on Information Technology (CIT ‘2005), during **December, 2005**.
- **S. Bhattacharyya, P. Dutta and P. K. Nandi**, “*True Color Object Extraction by a Parallel Self Organizing Neural Network (PSOINN) Architecture Guided by XMUBET with CONSENT*”, in Proceedings of the International Conference on Emerging Applications of Information Technology (EAIT ‘2006), pp. 295-299 during **February, 2006**.
- **A. Banerjee and P. Dutta**, “*Fuzzy rule based cost effective communication in a mobile environment*”, in Proceedings of the International Conference on Emerging Applications of Information Technology (EAIT ‘2006), pp. 49-53 during **February, 2006**.
- **P. Dutta and J. P. Singh**, “*An Efficient Distributed Clustering Algorithm for Mobile Ad-hoc Networks*”, in Proceedings of the National Conference on Recent Trends in Intelligent Systems (ReTIS – 06), **2006**.
- **A. Banerjee and P. Dutta**, “*Adaptive Power Aware Routing in Mobile Ad-hoc Network*”, in Proceedings of the International Conference on Industrial and Information Systems (ICIIS 2006), **2006**.
- **S. Bhattacharyya, P. Dutta, U. Maulik and P. K. Nandi**, *Pure Color Object Extraction using a Parallel Bi-directional Self-Organizing Neural Network (BDSONN) architecture*, in Proceedings of the National Conference on Recent Trends in Intelligent Computing (RTIC 06), pp. 79 – 85, **November 2006**.

- **S. De, P. De, S. Bhattacharyya and P. Dutta**, “*Shape factor based Classification of similar shaped Bangla Printed Consonant character*”, in Proceedings of the National Conference on Recent Trends in Intelligent Computing (RTIC 06), pp. 101 – 106, **November 2006**.
- **J. P. Singh and P. Dutta**, “*Defending against Sybil Attacks in Sensor Networks using Pre-distributed Key*”, in Proceedings of the National Conference on Recent Trends in Intelligent Computing (RTIC 06), pp. 172 – 177, **November 2006**.
- **S. Bhattacharyya and P. Dutta and U. Maulik**, “*Fuzzy Context Sensitive Thresholding Guided Bidirectional Self Organizing Neural Network (BDSONN): A Gray Scale Object Extractor*” in Proceedings of the IEEE International Conference on Intelligent Sensing and Information Processing (ICISIP – 2006), pp. 165 - 168, **December 2006**.
- **S. Bhattacharyya, P. Dutta and D. DuttaMajumder**, “*A parallel Self-Organizing Neural Network (SONN) based Color Object Extractor using MUSIG Activation Function with CONSENT*”, in Proceedings of the Fuzzy Logic and its Application in Technology and Management (FLATeM), **2007**.
- **K. Mondal, P. Dutta and S. Bhattacharyya**, “*An Efficient Fuzzy Rule based Binary Image Segmentation*”, in Proceedings of the IEEE International Conference on Recent Applications of Soft Computing in Engineering and Technology (RASJET 07), pp. 622 – 634, **December 2007**.
- **K. Dasgupta, S. Bhattacharyya and P. Dutta**, “*A neuro-fuzzy approach for 3D object detection and extraction*”, in Proceedings of the IEEE Conference in SPIT, **2008**.
- **S. De, S. Bhattacharyya and P. Dutta**, “*OptiMUSIG: An Optimized Gray Level Image Segmentor*”, in Proceedings of the IEEE Conference ADCOM’08, pp. 78 – 87, **2008**.
- **S. De, S. Bhattacharyya and P. Dutta**, “*Multilevel Image Segmentation using variable threshold based OptiMUSIG activation function*”, in Proceedings of the National Conference on Nanotechnology and its Application in Quantum Computing (NAQC ’08), pp. 44 – 51, **2008**.
- **K. Mondal, P. Dutta, S. Bhattacharyya and B. Maiti**, “*A Noise Immune Binary Image Segmentation using Enhanced Fuzzy Rule Base*”, in Proceedings of the National Conference on Nanotechnology and its Application in Quantum Computing (NAQC ’08), pp. 131 – 137, **2008**.
- **S. De, S. Bhattacharyya and P. Dutta**, “*Multilevel based segmentation using OptiMUSIG activation function with fixed and variable thresholding: A comparative study*”, in Proceedings of the World Online Conference on Soft Computing (WSC 2008), pp. 53 – 62, **2008**.
- **S. Roychoudhury, P. Dutta and B. Maiti**, “*Enhancing efficiency towards handling mobility uncertainty in mobile ad-hoc networks (MANET)*”, in Proceedings of the IEEE International Conference on Information Technology, **2008**.
- **J. P. Singh and P. Dutta**, “*Temporal modelling of node mobility in mobile ad-hoc network*”, in proceedings of the International Conference on Advances in Communication Technology, (ICACT ’08), **2008**.
- **J. P. Singh and P. Dutta**, “*Symmetric key based security protocol for sensor networks*”, in Proceedings of the National Conference on Computing and Communication Systems (Cocosys ’08), pp. 100 – 104, **2009**.

- **J. P. Singh and P. Dutta**, “Temporal behavior analysis of mobile adhoc network with different mobility patterns”, in Proceedings of the International ACM Conference on Computing, Communication and Control, pp. 696 – 702, **2009**.
- **S. Roychoudhury and P. Dutta**, “An evidence theoretic approach towards handling mobility uncertainty in mobile ad-hoc network (MANET)”, in Proceedings of the National conference on Computing and Communication Systems (Cocosys '09), pp. 50 – 55, **2009**.
- **S. De, S. Bhattacharyya and P. Dutta**, “Optimized multilevel image segmentation: A comparative study”, in Proceedings of the National Conference on Computing and Communication Systems (Cocosys '09), pp. 200 – 205, **2009**.
- **K. Mondal, P. Dutta and S. Bhattacharyya**, “An enhanced FRB-based noise-immune binary image segmentation technique”, in Proceedings of the National conference on Computing and Communication Systems (Cocosys '09), pp. 147 – 152, **2009**.
- **P. Bhattacharya, S. Bhattacharyya and P. Dutta**, “Evolving Optimized portfolio asset allocations using Value-at-Risk”, in Proceedings of the National Conference on Modern Management Practices and Information Technology Trends, pp. 147 – 152, **2009**.
- **S. De, S. Bhattacharyya and P. Dutta**, “Automatic Image Clustering by Genetic Algorithm Validated by Fuzzy Intercluster Hostility Index and Classical DE: A Comparative Study”, in Proceedings of the National Conference on Ubiquitous Computing, (ICAC '09), pp. 18 – 23, **2009**.
- **S. De, S. Bhattacharyya and P. Dutta**, “A Differential Evolution Algorithm Based Automatic Determination of Optimal Number of Clusters Validated by Fuzzy Intercluster Hostility Index”, in Proceedings of the IEEE International Conference on Advanced Computing, pp. 105 - 111, **2009**.
- **K. Dasgupta, S. Bhattacharyya and P. Dutta**, “A Three-Dimensional Self-Organizing Neural Network Architecture For Three-Dimensional Object Extraction From A Noisy Perspective”, in Proceedings of the IEEE International Conference on Advanced Computing, pp. 141 – 147, **2009**.
- **D. Dutta and P. Dutta**, “Discovering Classification Rules by Real Coded MOGA”, in Proceedings of the International Conference on Recent Trends in Computing and Communications, pp. 52 – 57, **2009**.
- **D. Dutta and P. Dutta**, “Optimized Classification Rule Set Generation using Pareto based binary coded elitist Multi objective Genetic Algorithm”, in Proceedings of the International Conference on Intelligent System and Nanotechnology (IISN '09), pp. 270 – 275, **2010**.
- **P. Bhattacharya, S. Bhattacharyya and P. Dutta**, “Portfolio Selection Based Multiobjective Optimization of The Risk-Return Paradigm”, in Proceedings of the National Conference on Global Management Cultural Challenges, **2010**.
- **S. De, S. Bhattacharyya and P. Dutta**, “Automatic Clustering by DE Algorithm Validated by Fuzzy Intercluster Hostility Index” in Proceedings of International Conference on Emerging Trends in Computer Science, Communication and Information Technology (CSCIT'10), Nanded, India, **2010**.
- **A. Banerjee and P. Dutta**, “Fuzzy-Controlled Source-Initiated Multicasting FSIM in Ad Hoc Networks”, in Proceedings of the ICDCIT 2010, pp. 55 – 71, **2010**.

- **A. Banerjee, P. Dutta**, “*Fuzzy Controlled Rebroadcasting in Mobile Ad Hoc networks*”, in Proceedings of World Congress of Engineering, **30th June-2nd July, London, 2010**.
- **S. Bhattacharyya, P. Dutta, S. Chakraborty, R. Chakraborty and S. Dey**, “*Determination of Optimal Threshold of a Gray-level Image Using a Quantum Inspired Genetic Algorithm with Interference Based on a Random Map Model*”, in Proceedings of 2010 IEEE International Conference on Computational Intelligence and Computing Research (ICCIC 2010), pp. 422-425, Coimbatore, India. **2010**.
- **K. Dasgupta, S. Bhattacharyya, P. Dutta and J. K. Mandal**, “*A Three Dimensional Bi-directional Self-Organizing Neural Network (3-DBDSONN) Architecture for Three Dimensional Object Extraction From A Noisy Perspective*”, in Proceedings of the Second International Conference on Emerging Applications of Information Technology (EAIT), pp. 309 - 312, DOI: 10.1109/EAIT.2011. 29, **2011**.
- **S. Dasgupta and P. Dutta**, “*An improved Leach approach for Head selection Strategy in a Fuzzy-C Means induced clustering of a Wireless Sensor Network*”, in proceedings of the IEEE International Conference on Scientific Paradigm Shift in Information Technology & Management (SPSITM 2011), Kolkata, India, **2011**.
- **D. Dutta and P. Dutta**, “*A real coded MOGA for mining classification rules with missing attribute values*”, in proceedings of the International Conference on Communication, Computing and Security, pp. 355 – 358, **2011**.
- **A. Pal, J. P. Singh, P. Dutta**, ‘*A Study on the Effect of Traffic Patterns in Mobile Ad Hoc Network*’ in proceedings of the International Conference on Advances in Computing and Communications (ACC-2011), Kochi, India, pp 83-90, Springer, **July 2011**.
- **A. Pal, J. P. Singh, P. Dutta, P. Basu and D. Basu**, ‘*A Study on the Effect of Traffic Patterns on Routing protocols in Ad-hoc Network Following RPGM Mobility Model*’ in proceedings of the IEEE International Conference on Signal Processing Communication, Computing and Networking Technologies (ICSCCN 2011), Kanyakumari, India, pp.233 - 237 , **July 2011**.
- **A. Banerjee, P. Dutta and S. Ghosh**, “*Fuzzy-Controlled Energy-Efficient Weight-Based Two Hop Clustering for Multicast Communication in Mobile Ad Hoc Networks*”, in proceedings of the SEMCCO 2011, Vizag, India, Part – I, LNCS 7076, pp. 520 – 529, **2012**.
- **K. Mondal, P. Dutta and S. Bhattacharyya**, “*Gray Image Extraction using Fuzzy Logic*”, in proceedings of the Second International Conference on Advanced Computing and Communication Technologies (ACCT – 2012), pp. 289 – 296, Rohtak, India, **January 2012**, IEEE.
- **A. Pal, J. P. Singh and P. Dutta**, “*The Effect of Speed Variation on Traffic Patterns in Mobile Ad Hoc Network*” in proceedings of the Second International Conference on Computer, Communication, Control and Information Technology (C3IT - 2012), Academy of Technology, India, Procedia Technology, Volume 4, 2012, Pages 743 - 748, Elsevier, **February 2012**.
- **J. P. Singh, P. Dutta and A. Pal**, “*Delay Prediction in Mobile Ad Hoc Network using Artificial Neural Network*” in proceedings of the Second International Conference on Computer, Communication, Control and Information Technology (C3IT - 2012), Academy of Technology, India, Procedia Technology, Volume 4, Pages 201-206, Elsevier, **February 2012**.

- **B. Mondal, K. Dasgupta and P. Dutta**, “*Load Balancing in Cloud Computing using Stochastic Hill Climbing – A Soft Computing Approach*” in proceedings of the Second International Conference on Computer, Communication, Control and Information Technology (C3IT - 2012), Academy of Technology, India, Procedia Technology, Volume 4, 2012, Pages 783-789, Elsevier, **February 2012**.
- **D. Dutta, P. Dutta and J. Sil**, “*Clustering by Multi Objective Genetic Algorithm*”, in proceedings of the IEEE International Conference on Recent Advances in Information Technology (RAIT 2012), Dhanbad, India, pp. 548-553, **March 2012**.
- **V. K. Ojha, P. Dutta, H. Saha, and S. Ghosh**, “*Linear Regression Based Statistical Approach For Detecting Proportion Of Component Gases In Manhole Gas Mixture*”, in International Symposium on Physics and Technology of Sensors (IEEE – 2012), Pune, India, pp. 17 – 20, 978-1-4673-1040-6, DOI:10.1109/ISPTS.2012.6260865, **March 2012**.
- **S. Ghosh, A. Roy, S. Singh, V. K. Ojha, P. Dutta, H. Saha**, “*Sensor Array for Manhole Gas Analysis*”. in International Symposium on Physics and Technology of Sensors (IEEE – 2012), Pune, India, pp. 9 – 12, 978-1-4673-1040-6, DOI:10.1109/ISPTS.2012.6260863, **March 2012**.
- **V. K. Ojha, P. Dutta, H. Saha, and S Ghosh**, “*Detection of proportion of different gas components present in manhole gas mixture using backpropagation neural network*”, in proceedings of **Intentional Conference on Information & Network Technology (ICINT 2011)**, Chennai, India,. IACSIT – 2012, Vol-37 pp 11-15, April 2012 ISBN 978-981-07-2068-1
- **S. Ghosh, H. Saha, C. Roychaudhury, V. K. Ojha, P. Dutta**, “*Portable sensor array system for intelligent recognizer of manhole gas*”, in Proceedings of the IEEE International Conference on Sensing Technology, pp. 589-594, **2012**.
- **V. K. Ojha, P. Dutta, H. Saha, and S. Ghosh**, “*A Neuro-Swarm Technique for the Detection of Proportion of Components in Manhole Gas Mixture*”, in proceedings of International Conference On Modeling, Optimization And Computing (ICMOC 2012), Kanyakumari, India, Vol-2, pp. 1211-1218, **April 2012**.
- **V. K. Ojha, P. Dutta, H. Saha, and S. Ghosh**, “*Application of Real Valued Neuro Genetic Algorithm in Detection of Components Present in Manhole Gas Mixture*”, in proceedings of the Second International Conference On Computer Science, Engineering And Application (Springer 2012), Delhi, India, Vol-1, pp.333–340, ISSN 1867–5662, **May 2012**.
- **D. Dutta, P. Dutta and J. Sil**, “*Clustering Data Set with Categorical Feature Using Multi Objective Genetic Algorithm*”, in proceedings of the IEEE International Conference on Data Science and Engineering (ICDSE 2012), Cochin India, pp. 103-108, **July 2012**.
- **V. K. Ojha, P. Dutta, H. Saha, and S. Ghosh**, “*A Novel Neuro Simulated Annealing Algorithm for Detecting Proportion of Component Gases in Manhole Gas Mixture*”, in Proceedings of International Conference On Advances In Computing And Communications (ICACC 2012) IEEE, pp. 238-241, DOI 10.1109/ICACC.2012.54, **August 2012**.
- **V. K. Ojha and P. Dutta**, “*Training Of A Neural Network Using Conjugate Gradient Method For Intelligent Sensing Of Gases In Manhole Gas Mixture*”, in National Conference On Research And Development In Computational And Information Technology, **2012**.

- **K. Mondal, P. Dutta, S. Bhattacharyya**, “Efficient fuzzy rule base design using image features for image extraction and segmentation”, in proceedings of the IEEE International Conference on Computational Intelligence and Communication Networks (CICN2012), Mathura, India, pp.793 - 799, DOI: 10.1109/CICN.2012.105 , **November 2012**.
- **D. Dutta, P. Dutta and J. Sil**, “Simultaneous Feature Selection and Clustering for Categorical Features Using Multi Objective Genetic Algorithm”, in proceedings of the IEEE International Conference on Hybrid Intelligence System (HIS 2012), Machine Intelligence Laboratories (MIR Labs), Pune, India, pp. 191–196, DOI: 10.1109/HIS.2012.6421332, **2012**.
- **D. Dutta, P. Dutta, and J. Sil**, “Data clustering with mixed features by multi objective genetic algorithm”, in proceedings. of the 12th International Conference on Hybrid Intelligent Systems (HIS 2012), IEEE Press, Pune, Maharashtra, India, pp. 336–341, DOI: 10.1109/HIS.2012.6421357, **2012**.
- **S. Ghosh, C. Roychaudhuri, H. Saha, V. K. Ojha and P. Dutta**, “Portable Sensor Array System For Intelligent Recognizer Of Manhole Gas”, in proceedings of International Conference on Sensing Technology (ICST), 2012, IEEE, Kolkata, pp 589 – 594, 978-1-4673-2246-1, DOI:10.1109/ICSensT.2012.6461748, **December 2012**.
- **A. Banerjee, P. Dutta, S. Ghosh**, “Fuzzy-controlled cache management (FCM) in Experience-based Energy-efficient Routing Protocol in ad hoc networks”, in proceedings of 3rd IEEE International Advance Computing Conference (IACC), 2013, IEEE, DOI:10.1109/IAdCC.2013.6514235, **2013**.
- **V. K. Ojha, P. Dutta, A. Chaudhuri, H. Saha**, “Study of various conjugate gradient based ANN training methods for designing intelligent manhole gas detection system”, in proceedings of IEEE International Symposium on Computational and Business Intelligence, pp. 83 – 87, **2013**.
- **D. Dutta, P. Dutta, and J. Sil**, “Simultaneous continuous feature selection and K clustering by multi objective genetic algorithm”, in proceedings of the 3rd IEEE International Advance Computing Conference (IACC 2013), IEEE Press, Ghaziabad, UP, India, pp. 928–933, DOI: 10.1109/ IAdCC.2013. 6514352, **February 2013**.
- **K. Dasgupta, J. K. Mandal and P. Dutta**, “Optimized Video Steganography using Genetic Algorithm (GA)”, in proceedings of the First International Conference on Computational Intelligence, Modeling Techniques and Applications (CIMTA2013), Procedia Technology, Elsevier, Vol.10, pp. 131 – 137, ISSN: 2212 – 0173, **2013**.
- **K. Dasgupta, B. Mandal, P. Dutta, J. K. Mandal and S. Dam**, “A Genetic Algorithm (GA) based Load Balancing Strategy for Cloud Computing”, in proceedings of the First International Conference on Computational Intelligence, Modeling Techniques and Applications (CIMTA2013), Procedia Technology, Elsevier, Vol.10, pp. 340 – 347, ISSN: 2212 – 0173, **2013**.
- **A. Pal, J. P. Singh and P. Dutta**, “The Path Length Prediction of MNET using Moving Average Model”, in proceedings of the First International Conference on Computational Intelligence, Modeling Techniques and Applications (CIMTA2013),, Procedia Technology, Elsevier, Vol.10, pp. 882 – 889, ISSN: 2212 – 0173, **2013**.
- **P. Dutta and D. Mukhopadhyay**, “New Architecture for Flip Flops using Quantum-Dot Cellular Automata”, in proceedings of the 48th Annual Convention (CSI – 2013),

Special Session on Computational Intelligence – Tools and Techniques for IT excellence, Springer Verlag, vol. 249, pp. 707 – 714, **2013**.

- **D. Dutta, P. Dutta and J. Sil**, “Feature Weighted Clustering of Mixed Data Sets by Hybrid Evolutionary Algorithm”, in proceedings of annual IEEE India Conference (INDICON) , IEEE, 2013./
- **A. Pal, J. P. Singh, P. Dutta, P. Basu and D. Basu**, “*A Study on the Effect of Traffic Patterns on Routing Protocols in Ad-hoc Network Following RPGM Mobility Model*”, in proceedings of IEEE International Conference on Signal Processing, Communication, Computing and Networking Technologies (ICSCCN 2011), pp. 233-237, **2013**.
- **A. Pal, J. P. Singh and P. Dutta**, “*A Study on the Effect of the Traffic Pattern in Mobile Ad-hoc Network*”, A. Abraham et. al. (eds.) ACC 2011 Part – I, CCIS 190 pp. 83-90, Springer-Verlag Berlin Hiedelberg, **2013**.
- **D. Dutta, P. Dutta and J. Sil**, “*Simultaneous Continuous Feature Selection and K Clustering by Multi Objective Genetic Algorithm*”, in proceedings of IEEE 3rd International Advanced Computing Conference (IACC), pp. 937-942, **2013**.
- **M. Ghosh, D. Mukhopadhyay and P. Dutta**, “*A 2 Dot 1 Electron Quantum Cellular Automata Based Parallel Memory*”, in proceedings of Second International Conference on Information Systems Design and Intelligent Applications (INDIA 2015), Vol. 1, pp. 627-636, Springer AISC Series, **2015**.
- **K. Mondal and P. Dutta**, “*Big Data Parallelism: Challenges in Different Computational Paradigm*”, in proceedings of the Third International Conference on Computer, Communication, Control and Information Technology (C3IT - 2015), **2015**.
- **S. Dam, G. Mondal, K. Dasgupta and P. Dutta**, “*Genetic Algorithm and Gravitational Emulation Based Hybrid Load Balancing Strategy in Cloud Computing*”, in proceedings of the Third International Conference on Computer, Communication, Control and Information Technology (C3IT - 2015), **2015**.
- **K. Datta, D. Mukhopadhyay and P. Dutta**, “*Design of n-to-2n Decoders using 2-Dimensional 2-Dot 1-Electron Quantum Dot Cellular Automata*”, in proceedings of National Conference on Computing, Communication and Information Processing (NCCCIP 2015), Vol. 1, pp. 77 - 91, ISBN: 978-93-84935-27-6, **2015**.
- **S. Mondal, D. Mukhopadhyay and P. Dutta**, “*A Novel Design of a Logically Reversible Half Adder using 4-Dot 2-Electron QCA*”, in proceedings of National Conference on Computing, Communication and Information Processing (NCCCIP 2015), Vol. 1, pp. 123 - 130, **2015**.
- **M. Ghosh, D. Mukhopadhyay and P. Dutta**, “*A Novel Parallel Memory Design using 2 Dot 1 Electron QCA*”, in proceedings of IEEE Second International Conference on Recent Trends in Information Systems (ReTIS 2015), pp. 485 - 490, July **2015**.
- **K. Datta, D. Mukhopadhyay and P. Dutta**, “*Design of a 2-Dot 1- Electron QCA Full Adder using Logically Reversible Half Adders*”, in proceedings of IEEE International Symposium on Advanced Computing and Communication (ISACC 2015), pp. 278-284, ISBN: 978-1-4673-6708-0, **September 2015**.



- **M. Ghosh, D. Mukhopadhyay and P. Dutta**, “*Design and Analysis of two dot one electron QCA Ex-OR gate in logically reversible gate design*”, in proceedings of IEEE International Symposium on Advanced Computing and Communication (ISACC 2015), pp. 272-277, ISBN: 978-1-4673-6708-0, **September 2015**.
- **M. Ghosh, D. Mukhopadhyay and P. Dutta**, “*2 Dimensional 2 Dot 1 Electron Quantum Cellular Automata Based Dynamic Memory Design*”, in proceedings of Frontiers in Intelligent Computing: Theory and Applications (FICTA 2015), Springer AISC Series, pp. –, 978-81-322-2695-6-32, **November 2015**.
- **K. Datta, D. Mukhopadhyay and P. Dutta**, “*Design of a Logically Reversible Half Adder using 2D 2-Dot 1- Electron QCA*”, in proceedings of Frontiers in Intelligent Computing: Theory and Applications (FICTA 2015), Springer AISC Series, pp. 379-389, ISBN: 978-81-322-2695-6-32, **November 2015**.
- **M. Ghosh, D. Mukhopadhyay and P. Dutta**, “*A 2D 2 Dot 1 Electron Quantum Dot Cellular Automata Based Logically Reversible 2:1 Multiplexer*”, in proceedings of IEEE International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN 2015), at RCC Institute of Information Technology, Kolkata, India, pp. 300-305, DOI: 10.1109/ICRCICN.2015.7434254, **2015**.
- **K. Datta, D. Mukhopadhyay and P. Dutta**, “*Design of a Binary to BCD Converter using 2-Dimensional 2-Dot 1-Electron Quantum Dot Cellular Automata*”, in proceedings of Fourth International Conference on Eco-friendly Computing and Communication (ICECCS 2015), pp.153-159, 978-81-322-2753-3, Elsevier, **December 2015**.
- **K. Datta, D. Mukhopadhyay and P. Dutta**, “*Design of a Ripple Carry Adder using 2-Dimensional 2-Dot 1-Electron Quantum Dot Cellular Automata*”, in proceedings of Third International Conference on Information System Design and Intelligent Applications (INDIA 2016) at Anil Neerukonda Institute of Technology & Sciences, Sangivalasa, Visakhapatnam, India, pp. 263-270, ISBN: 978-81-322-2755-5, **2016**.
- **K. Datta, D. Mukhopadhyay and P. Dutta**, “*Design of Parity Generator and Checker using 2-Dimensional 2-Dot 1-Electron Quantum-dot Cellular Automata*”, in proceedings of IEEE Sponsored Third International Conference on Microelectronics, Circuits and Systems (Micro – 2016), Science City, Kolkata, India, pp. 10-15, ISBN: 978-93-80813-45-5, **July 2016**.
- **M. Ghosh, D. Mukhopadhyay and P. Dutta**, “*Design of an Efficient 2-Dot 1 Electron QCA based Non-reversible Adder*”, in proceedings of Third International Conference on Microelectronic Circuit and System (Micro-2016), Science City, Kolkata, India, pp. 106-112, 2015, ISBN : 978-93- 80813-45- 5, **July 2016**.
- **D. Bhowmik, A. K. Saha and P. Dutta**, “*A Novel Design to Obtain Fault Tolerant Majority Gate for Five Input Majority Gate by Quantum Cellular Automata*”, in proceedings of International Conference on Micro-Electronic and Telecommunication Engineering (ICMETE 2016), SRM University, Gaziabad, India, pp. 429 - 433, ISBN ISBN-13: 978-1-5090-3411-6, **September 2016**.
- **A. Sufian, A. Banerjee, P. Dutta**, “*Survey of Various Real time and Non Real time Scheduling Algorithms in Mobile Ad-hoc Networks*”, in proceedings of the International Conference on Industry Interactive Innovations in Science, Engineering and Technology (I3SET-2K16), vol. 11, chapter 13, pp. 121 – 133, Springer LNNS, **2016**.

- **S. Mondal, D. Mukhopadhyay and P. Dutta**, “*A Design of a 4 Dot 2 Electron QCA Full Adder Using Two Reversible Half Adders*”, in proceedings of First International Conference on Intelligent Computing and Communication (ICIC2 2016), University of Kalyani, India, Springer Advances in Intelligent Systems and Computing Series, no. 458, pp. 327 - 335, **2017**, DOI: 10.1007/978 – 981 – 10 – 2035 – 3_33.
- **A. Barman and P. Dutta**, “*Texture Signature based Facial Expression Recognition using NARX*”, in proceedings of the International Conference on IEEE Calcutta Conference (CALCON 2017), (pp. 6-10) IEEE, **2017**.
- **K. Datta, D. Mukhopadhyay and P. Dutta**, “*Design of a BCD Adder using 2-Dimensional Two-Dot One-Electron Quantum Dot Cellular Automata*”, in proceedings of First International Conference on Intelligent Computing and Communication (ICIC2 2016), University of Kalyani, India, Springer Advances in Intelligent Systems and Computing Series, no. 458, pp. 345 - 354, **2017**, DOI: 10.1007/978 – 981 – 10 – 2035 – 3_33.
- **A. Barman and P. Dutta**, “*Facial Expression Recognition using Shape Signature Feature*”, in proceedings of the Third International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN 2017), pp. 174 – 179, IEEE, **2017**.
- **A. Sufian, A. Banerjee and P. Dutta**, “*FSNRP: Fuzzy-controlled Priority Scheduling of Non-Real Time Data Packets in Mobile Ad-hoc Networks*”, in proceedings of the 11th IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS) (pp. 1-5). IEEE **2017**.
- **M. Ghosh, D. Mukhopadhyay and P. Dutta**, “*A Study on Structural Benefits of Square Cells over Rectangular Cells in Case of 2Dot 1Electron QCA Cells*”, Proceedings of International Conference on Computational Intelligence, Communications and Business Analysis (CICBA-2017), Computational Intelligence, Communications, and Business Analytics, pp 85-96, **2017**.
- **K. Datta, D. Mukhopadhyay and P. Dutta**, “*Design of Two-Bit Gray Code Counter Using Two-Dimensional Two-Dot One-Electron QCA*”, Proceedings of International Conference on Computational Intelligence, Communications and Business Analysis (CICBA-2017), Computational Intelligence, Communications, and Business Analytics, pp 75-84, **2017**.
- **J. Pal, P. Dutta andf A. K.Saha**, “*Realization of Basic Gates Using Universal Gates Using Quantum-Dot Cellular Automata*”, Proceedings of the International Conference on Computing and Communication Systems, Computational Intelligence, Communications, and Business Analytics, pp 541-549, **2018**.
- **A. Barman and P. Dutta**, “*Facial expression recognition using distance signature feature*”, in proceedings of the International Conference on Advanced Computational and Communication Paradigms (ICACCP 2017), Advanced Computational and Communication Paradigms. 155-163 Springer, Singapore, **2018**.
- **S. Mondal, M. Ghosh, K. Datta, D. Mukhopadhyay and P. Dutta**, “*A design and application case study of binary semaphore using 2 Dimensional 2 dot 1 electron Quantum Dot Cellular Automata*”, in proceedings of the 52nd Annual Convention of the Computer Society of India (CSI 2017), In Annual Convention of the Computer Society of India, pp. 428-448. Springer, Singapore, **2018**.

- **S. Dasgupta and P. Dutta**, “A theoretical framework of lifetime prediction of Wireless Sensor Networks”, in Annual Convention of the Computer Society of India (CSI 2018), Social Transformation – Digital Way, pp. 50-57, Springer, Singapore **2018**.
- **Farhana Sultana, Abu Sufian, Paramartha Dutta**, “Advancements in Image Classification using Convolutional Neural Network”, Fourth International Conference on Research in Computational Intelligence and Communication Networks (**ICRCICN-2018**), pp.122-129, IEEE XPLORE, **2018**.
- **Abu Sufian, Farhana Sultana and Paramartha Dutta**, “Data Load Balancing In Mobile Ad Hoc Network Using Fuzzy Logic (DBMF)”, Proceeding of National Conference on Recent Advances in Computer Science and IT (NCRACIT), BGSB University, Rajouri, J&K, Vol. 4(1), pp- 77-84, **2018**.
- **M.Ghosh,D.Mukhopadhyay and P.Dutta**, “Energy efficient designing approach of flip-flops using 2-dot 1-electron QCA” , Proceedings of the second International Conference on Computational Intelligence, Communications and Business Analysis (CICBA-2018) during **July 27-28,2018** at Kalyani Government Engineering College ,West Bengal, India, Computational Intelligence, Communications, and Business Analytics, pp 477-490 , **2018**.
- **G. Mandal, S. Dam, K. Dasgupta and P. Dutta**, “Load Balancing Strategy in Cloud Computing Using Simulated Annealing” , Proceedings of the second International Conference on Computational Intelligence, Communications and Business Analysis (CICBA-2018) at Kalyani Government Engineering College ,West Bengal, India, Computational Intelligence, Communications, and Business Analytics, pp 67-81 , **2018**.
- **R.Kr. Basak, K. Dasgupta and P. Dutta**, “Steganography in Grey Scale Animated GIF using Hash based Pixel Value Differencing”, Fourth International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN), IEEE,Kolkata, India, India , **2018**.
- **Abu Sufian, Anuradha Banerjee, Paramartha Dutta**, “NC2H: Cooperation among nodes through Cluster Head in ad-hoc network”, 2nd International Conference on Communication, Devices and Computing (**ICCDC 2019**), Proceeding in Lecture Notes in Electrical Engineering book series, pp 139-147, Springer, Singapore, **2019**.
- **Arindrajit Pal, Paramartha Dutta, Amlan Chakrabarti and Jyoti Prakash Singh**, ”A Multipath Load Balancing Routing Protocol in Mobile Ad Hoc Network Using Recurrent Neural Network”, in proceedings of International Conference on Computational Intelligence, Communications, and Business Analytics (CICBA 2018) , Kalyani Government Engineering College ,West Bengal, India.CCIS 1030, pp. 458–464, **2019**, DOI:https://doi.org/10.1007/978-981-13-8578-0_36.
- **Avishek Nandi, Paramartha Dutta and Md Nasir**, “Automatic Facial Expression Recognition using Histogram oriented Gradients (HoG) of Shape Information Matrix”, in proceedings of 3rd International Conference on Intelligent Computing and Communication (ICICC - 2019), Dayananda Sagar University, School of Engineering, Bangalore, India, Intelligent Computing and Communication, pp 343-351, Springer, Singapore, **2019**.
- **Jayanta Pal, Shiboprosad Bhattacharjee, Apu Kumar Saha and Paramartha Dutta**, “Study on Temperature Stability and Fault Tolerance of Adder in Quantum-dot Cellular Automata”, Proceeding of 5th International Conference on Signal Processing, Computing and Control (ISPCC), IEEE, DOI: 10.1109/ISPCC48220.2019.8988491, **2019**.

- **Md Nasir, Paramartha Dutta and Avishek Nandi**, “*Recognition of change in facial expressions from video sequence using incenter-circumcenter pair gradient Signature*”, in proceedings of 6th International Conference on Information System Design and Intelligent Applications (INDIA 2019) , Lendi Institute of Engineering & Technology, Visakhapatnam, AP, India, Intelligent System Design, pp 771-779, Springer, Singapore, **2020**.
- **A. Sufian, A. Banerjee and P. Dutta**, “*A Tree Multicast Routing Based on Fuzzy Mathematics in Mobile Ad-Hoc Networks*”, in proceedings of ICCCIOT 2020, Applications of Internet of Things, pp 107-117, Springer, **2020**.
- **Md Nasir, Paramartha Dutta and Avishek Nandi**, “*Recognition of Changes in Human Emotion from Face Image Sequence using Triangulation Induced Barycentre-Orthocentre Paired Distance Signature*”, in proceedings of International Conference on Computational Performance Evaluation (ComPE),2020, IEEE, pp.101-106, DOI:10.1109/ComPE49325.2020.9200068, **2020**.
- **Avishek Nandi, Paramartha Dutta and Md Nasir**, “*Human Emotion Classification: An Expression Specific Geometric Approach*”, in proceedings of International Conference on Computational Performance Evaluation (ComPE),2020, IEEE, pp.217-221, DOI:10.1109/ComPE49325.2020.9200086, **2020**.

Books:

Authored/Co-authored -

- **P. Dutta, K. Dasgupta and K. P. Banerjee**, Authored Book entitled “*Complete Reference for System Programming and Administration*”, published by Matrix Educare
 1. First Edition in **May 2006**.
 2. Second Edition in **April 2007**.
 3. Third Edition **April 2008**.
 4. Fourth Edition **March 2009**.
 5. Fifth Edition in **February 2010**.
 6. Sixth Edition in **January 2011**.
 7. Seventh Edition in **December 2011** .
- **P. Dutta, K. Dasgupta and S. Bhattacharyya**, Authored Book entitled “*Complete Reference for Inter Networking*”, published by Matrix Educare
 1. First Edition in **October 2006**.
 2. Second Edition in **October 2007**.
 3. Third Edition in **October 2008**.
 4. Fourth Edition in **September 2009**.
 5. Fifth Edition in **October 2010**.
 6. Sixth Edition in **June 2011**.
 7. Seventh Edition in **June 2012**.
- **P. Dutta and A. Pal**, Authored Book entitled “*Complete Reference for Design and Analysis of Algorithms*”, (for Computer Science and Engineering) published by Matrix Educare

1. First Edition in **October 2006**.
 2. Second Edition in **September 2007**.
 3. Third Edition in **September 2008**.
 4. Fourth Edition in **August 2009**.
 5. Fifth Edition in **October 2010**.
 6. Sixth Edition in **June 2011**.
 7. Seventh Edition in **July 2012**.
 8. Eighth Edition in **June 2013**.
 9. Ninth Edition in **June 2014**.
 10. Tenth Edition in **July 2015**.
 11. Eleventh Edition in **July 2016**.
 12. Twelfth Edition in **July 2017**.
- **P. Dutta and A. Pal**, Authored Book entitled “*Complete Reference for Design and Analysis of Algorithms*”, (for Information Technology) published by Matrix Educare
 1. First Edition in **February 2007**.
 2. Second Edition in **January 2014**.
 3. Third Edition in **January 2015**.
 4. Fourth Edition in **January 2016**.
 5. Fifth Edition in **January 2017**.
 - **P. Dutta and A. Pal**, Authored Book entitled “*Complete Reference for Advanced Computer Architecture*”, published by Matrix Educare
 1. First Edition in **April 2007**.
 2. Second Edition in **March 2008**.
 3. Third Edition in **March 2009**.
 4. Fourth Edition in **February 2010**.
 5. Fifth Edition in **January 2011**.
 6. Sixth Edition in **April 2012**.
 7. Seventh Edition in **January 2013**.
 8. Eighth Edition in **January 2014**.
 9. Ninth Edition in **January 2015**.
 10. Tenth Edition in **January 2016**.
 11. Eleventh Edition in **January 2017**.
 - **P. Dutta, K. Dasgupta, S. Bhattacharyya and M Biswas**, Authored Book entitled “*Complete Reference for Internet Technology*”, published by Matrix Educare
 1. First Edition in **August 2014**.
 2. Second Edition in **August 2015**.
 3. Third Edition in **August 2016**.
 4. Fourth Edition in **July 2017**.

- **J. P. Singh, P. Dutta and A. Nag**, Authored Book entitled “*Operating System*”, Published by Tata McGraw Hill, New Delhi, India, **2011**.
- **V. K. Ojha and P. Dutta**, Authored Book entitled “*Intelligent Gas Recognition System: Analysis and Design Issues*”, published by Lambert Academic Publishing, Saarbrücken, Germany, **2012**, ISBN: 978-3-659-21734-0.
- **P. Dutta and D. DuttaMajumder**, Authored Book entitled “*Performance Analysis of Evolutionary Algorithms*”, published by Lambert Academic Publishing, Saarbrücken, Germany, **2012**, ISBN: 3659183490, 978-3-659-18349-2.
- **S. Bhattacharyya and P. Dutta**, Authored Book entitled, “*Multimedia Programming: A Practical Approach*”, published by Vikas Publishing House Pvt. Ltd., New Delhi, India, **2015**, ISBN-10: 9789325984479, ISBN-13: 978-9325984479.
- **S. De, S. Bhattacharyya, S. Chakraborty and P. Dutta**, Authored Book entitled “*Hybrid Soft Computing for Multilevel Image and Data Segmentation*”, published by Springer International Publishing AG, Switzerland, DOI: 10.1007/978-3-319-47524-0, ISBN: 978-3-319-47523-3, **2016**.
- **S. Bhattacharyya, A. Mukherjee, I. Pan, P. Dutta and A. K. Bhaumik**, Authored Book entitled “*Hybrid Intelligent Techniques for Pattern Analysis and Understanding*” Publisher: Chapman and Hall/CRC, first edition (**16 November 2017**), ISBN-10: 1498769357, ISBN-13: 978-1498769358.
- **J. P. Singh, P. Dutta and A. Chakrabarti**, Authored Book entitled “*Ad Hoc Networks – A Statistical Perspective*”, published by Springer Nature in Lecture Notes in Networks and Systems, ISBN 978-981-10-8770-7, **2018**.
- **P. Dutta and A. Barman**, Authored Book entitled “*Human Emotion Recognition from Face Images*”, published by Springer Nature, Hardcover ISBN: 978-981-15-3882-7, Softcover ISBN: 978-981-15-3885-8, DOI: 10.1007/978-981-15-3883-4, **2020**.

Edited/Co-edited –

- **P. Dutta and M. K. Pakhira**, Edited Book entitled “*Recent Trends in Intelligent Computing*”, published in **November 2006**.
- **S. Bhattacharyya and P. Dutta**, Edited Book entitled “*Handbook of Research on Computational Intelligence for Engineering, Science, and Business*” (2 Volumes) by IGI Global, USA, ISBN13: 9781466625181, ISBN10: 146662518X, EISBN13: 9781466625198, DOI: 10.4018/978-1-4666-2518-1, **November 2012**.
- **S. Bhattacharyya and P. Dutta**, Edited Book entitled “*Handbook of Research on Swarm Intelligence in Engineering*”, published by IGI Global, USA, ISBN13: 9781466682917, ISBN10: 1466682914, EISBN13: 9781466682924, DOI: 10.4018/978-1-4666-8291-7, **2015**.
- **S. Bhattacharyya, P. Banerjee, D. Majumdar and P. Dutta**, Edited Book entitled “*Handbook of Research on Advanced Hybrid Intelligent Techniques and Applications*” published by IGI Global, USA, ISBN13: 9781466694743, ISBN10: 1466694742, EISBN13: 9781466694750, DOI: 10.4018/978-1-4666-9474-3, **2015**.
- **S. Bhattacharyya, P. Dutta and S. Chakraborty**, Edited Book entitled “*Hybrid Soft Computing Approaches: Research and Applications*”, Springer India, DOI: 10.1007/978 –

81 – 322 – 2544 – 7_15, Print ISBN: 978-81-322-2543-0, Online ISBN: 978-81-322-2544-7, Series Title: Studies in Computational Intelligence, Series Volume: 611, Series ISSN: 1860-949X ,**2016**.

- **S. Bhattacharyya, U. Maulik and P. Dutta**, Edited Book entitled “*Quantum Inspired Computational Intelligence: Research and Applications*”, First Edition, Morgan Kaufmann an Imprint of Elsevier, ISBN: 9780128044094, **2016**.
- **S. Bhattacharyya, S. De, I. Pan and P. Dutta**, Edited Book entitled “*Intelligent Multidimensional Data Clustering and Analysis*”, published by IGI Global, USA, ISBN13: 9781522517764, ISBN10: 1522517766, EISBN13: 9781522517771, DOI: 10.4018/978-1-5225-1776-4 , **2017**.
- **S. Bhattacharyya, P. Dutta, S. De and G. Klepac**, Edited Book entitled “*Hybrid Soft Computing for Image Segmentation*”, published by Springer International Publishing AG, Cham, Switzerland, ISBN-10: 3319472224, ISBN-13: 978-3319472225, **2017**.
- **S. Bhattacharyya, I. Pan, A. Mukherjee and P. Dutta**, Edited Book entitled “*Hybrid Intelligence for Image Analysis and Understanding*”, published by John Wiley, UK, ISSN: 9781119242925, **2017**.
- **J. K. Mandal, P. Dutta and S. Mokhopadhyay**, Edited Book entitled “*Computational Intelligence, Communications and Business Analytics*” (Proceedings of the First International Conference on Computational Intelligence, Communications and Business Analytics), published by Springer Nature, Singapore, DOI: 10.1007/978-981-10-6427-2, eBook ISBN: 978-981-10-6427-2, **2017**.
- **S. De, S. Bhattacharyya, and P. Dutta**, Edited Book entitled “*Intelligent Multidimensional Data and Image Processing*”, to be published by IGI Global, USA, ISBN13: 9781522552468, ISBN10: 1522552464, EISBN13: 9781522552475, DOI: 10.4018/978-1-5225-5246-8, **2018**.
- **J. K. Mandal, P. Dutta and S. Mokhopadhyay**, Edited Book entitled “*Advances in Intelligent Computing*”, to be published by Springer Verlag, Heidelberg Germany, eBook ISBN: 978-981-10-8974-9, Hardcover ISBN: 978-981-10-8973-2, Softcover ISBN: 978-981-13-4286-8, Series ISSN: 1860-949X 2018, DOI: 10.1007/978-981-10-8974-9, **2018** .
- **J. K. Mandal, S. Mokhopadhyay and P. Dutta**, Edited Book entitled “*Multi-Objective Optimization: Evolutionary to Hybrid Framework*”, to be published by Springer Singapore, eBook ISBN: 978-981-13-1471-1, Hardcover ISBN: 978-981-13-1470-4, Softcover ISBN: 978-981-13-4639-2, DOI:10.1007/978-981-13-1471-1, **2018**.
- **J. K. Mandal, S. Mokhopadhyay, P. Dutta and K. Dasgupta**, Edited Book entitled “*Methodologies and Application Issues of Contemporary Computing Framework*”, to be published by Springer Singapore, eBook ISBN:978-981-13-2345-4, Hardcover ISBN: 978-981-13-2344-7, DOI:10.1007/978-981-13-2345-4, **2018**.
- **A. Abraham, P. Dutta, J.K. Mandal, A. Bhattacharya, S. Dutta**, Edited Book entitled “*Emerging Technologies in Data Mining and Information Security: Proceedings of IEMIS 2018, Volume 1*”, to be published by Springer Singapore, eBook ISBN:978-981-13-1951-8, Softcover ISBN: 978-981-13-1950-1, DOI:10.1007/978-981-13-1951-8, **2018**.
- **A. Abraham, P. Dutta, J.K. Mandal, A. Bhattacharya, S. Dutta**, Edited Book entitled “*Emerging Technologies in Data Mining and Information Security: Proceedings*

of *IEMIS 2018, Volume 2*”, to be published by Springer Singapore, eBook ISBN: 978-981-13-1498-8, Softcover ISBN: 978-981-13-1497-1, DOI:10.1007/978-981-13-1498-8, **2019**.

- **A. Abraham, P. Dutta, J.K. Mandal, A. Bhattacharya, S. Dutta**, Edited Book entitled “*Emerging Technologies in Data Mining and Information Security: Proceedings of IEMIS 2018, Volume 3*”, to be published by Springer Singapore, eBook ISBN: 978-981-13-1501-5, Softcover ISBN: 978-981-13-1500-8, DOI: 10.1007/978-981-13-1501-5, **2019**.
- **J. K. Mandal, S. Mokhopadhyay, P. Dutta and K. Dasgupta**, Edited Book entitled “*Computational Intelligence, Communications and Business Analytics*”, (Proceedings of the Second International Conference on Computational Intelligence, Communications and Business Analytics), published by Springer Nature, Singapore, DOI:10.1007/978-981-13-8578-0, ISSN:1865-0929, eISSN:1865-0937, ISBN 978-981-13-8577-3, eBook ISBN:978-981-13-8578-0, **2019**.
- **S. De and P. Dutta**, Edited Book entitled “*Computational Intelligence for Human Action Recognition*”, Taylor and Francis, eBook ISBN:9780429061486, DOI: <https://doi.org/10.1201/9780429061486>, **2020**.
- **J. K. Mandal, S. Mokhopadhyay, P. Dutta and K. Dasgupta**, Edited Book entitled “*Algorithms in Machine Learning Paradigms*”, published by Springer Singapore, eBook ISBN:978-981-15-1041-0, Hardcover ISBN:978-981-15-1040-3 , DOI: 10.1007/978-981-15-1041-0, **2020**.
- **S. Bhattacharyya, S. Mitra, P. Dutta** , Edited Book entitled “*Intelligence Enabled Research: DoSIER 2019*”, published by Springer Singapore, eBook ISBN: 978-981-15-2021-1, Softcover ISBN: 978-981-15-2020-4 , DOI:10.1007/978-981-15-2021-1, **2020**.
- **S. Bhattacharyya, P. Dutta, K. Datta** , Edited Book entitled “*Intelligence Enabled Research: DoSIER 2020*”, published by Springer Singapore, Print ISBN: 978-981-15-9289-8, Online ISBN: 978-981-15-9290-4 , DOI:<https://doi.org/10.1007/978-981-15-9290-4>, **2021**.
- **P. Dutta, J. K. Mandal, S. Mukhopadhyay** , Edited Book entitled “*Computational Intelligence in Communications and Business Analytics*”, published by Springer International Publishing, Softcover ISBN: 978-3-030-75528-7, eBook ISBN: 978-3-030-75529-4 DOI:10.1007/978-3-030-75529-4, **2021**.
- **S. Bhattacharyya, P. Dutta, D. Samanta, A. Mukherjee, I. Pan** , Edited Book entitled “*Recent Trends in Computational Intelligence Enabled Research*”, published by Elsevier, Paperback ISBN: 9780128228449, eBook ISBN: 9780323851794, **2021**.
- **João Manuel R. S. Tavares, Paramartha Dutta, Soumi Dutta and Debabrata Samanta** , Edited Book entitled “*Cyber Intelligence and Information Retrieval*”, published by Springer Singapore, eBook ISBN: 978-981-16-4284-5, Softcover ISBN: 978-981-16-4283-8 , DOI: <https://doi.org/10.1007/978-981-16-4284-5>, **2021**.
- **Somnath Mukhopadhyay, Sunita Sarkar, Paramartha Dutta, Jyotsna Kumar Mandal, Sudipta Roy**, Edited Book entitled “*Computational Intelligence in Communications and Business Analytics*”, published by Springer International Publishing, Softcover ISBN: 978-3-031-10765-8, eBook ISBN: 978-3-031-10766-5 DOI: <https://doi.org/10.1007/978-3-031-10766-5>, **2022**.



- **Paramartha Dutta , Satyajit Chakrabarti, Abhishek Bhattacharya, Soumi Dutta, Vincenzo Piuri**, Edited Book entitled "*Emerging Technologies in Data Mining and Information Security*", Proceedings of IEMIS 2022, Volume 1, published by Springer Nature Singapore, ISBN:978-981-19-4192-4, ISSN: 2367-3370, **2022**.
- **Paramartha Dutta, Satyajit Chakrabarti, Abhishek Bhattacharya, Soumi Dutta, and Celia Shahnaz.**, Edited Book entitled "*Emerging Technologies in Data Mining and Information Security*", Proceedings of IEMIS 2022, Volume 2, published by Springer Nature Singapore, ISBN:978-981-19-4051-4, ISSN: 2367-3370, **2022**.
- **Paramartha Dutta, Abhishek Bhattacharya, Soumi Dutta, Wen-Cheng Lai**, Edited Book entitled "*Emerging Technologies in Data Mining and Information Security*", Proceedings of IEMIS 2022, Volume 3, published by Springer Nature Singapore, ISBN: 978-981-19-4675-2, ISSN: 2194-5357, DOI: <https://doi.org/10.1007/978-981-19-4676-9>, **2022**.

(Dr. Paramartha Dutta)