



ENLIGHTENMENT TO ERECTION

UNIVERSITY OF NORTH BENGAL

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Raja Rammohunpur, Dist- Darjeeling, West Bengal, Pin-734013, India.



Department of Computer Science and Technology



RAKESH KUMAR MANDAL

Dr. Rakesh Kumar Mandal

B.Sc. (Non Medical), DCCTM, MCA, Ph.D

Associate Professor

Members of Learned Societies: Computer Society of India (CSI), IAENG



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Subject specialization: Artificial Neural Networks (ANN), Medical Image Processing and Cloud Computing

Areas of Research Interest: Artificial Neural Networks (ANN) and Pattern Recognition

No. of Ph.D. Scholars: (a)Supervised: 01 (b) Ongoing: 03

No. of Publications: (a) **International Journals: 35** (b) **National/International Seminar/Conferences: 24** (c) **Books/Chapters: 02**

Achievement & Awards:

Achievements:

- Qualified UGC-NET in Computer Science & Applications, 2004
- Qualified **Territorial Army Infantry Officers 2015** written exam and faced PIB
- Brown Kyu Belt (1st Kyu) in Kyokushin kaikan Karate, Affiliated to IKO Seishin Kyokushinkaikan, HONBU, BADALANA, SPAIN

Awards:

- Computer Society of India (CSI) Innovation Award (Honourable Mention, 2014)
- Computer Society of India (CSI) Active Participation Award (Young member, 2014)
- Bharat Vikas Award (2017)

Professional Experiences:

- 2 Years' experience in IT administration as an EDP Officer, JMGS Scale-I, Oriental Bank of Commerce
- 12 Years of teaching and research experience as an Assistant Professor, Department of Computer Science & Application, University of North Bengal
- 3 Years of teaching and research experience as an Associate Professor, Department of Computer Science & Application, University of North Bengal

Administrative Experiences:

- 6 Years' experience as a Person-In-Charge, NBU Reporting Centre, West Bengal Joint Entrance Examination Board, (e-Counseling)
- Head, Department of Computer Science & Application, NBU, 2016-2018
- Chairman, Board of UG Studies in BCA, NBU
- Chairman, Board of UG Studies in B.Sc. (Computer Science), NBU
- Chairman, Carrier Oriented Program (COP), NBU
- Program Officer, NSS Unit III, NBU
- Observer of different entrance examinations conducted by West Bengal Joint Entrance Examination Board
- Member, Ethical Committee, North Bengal Medical College & Hospital

Ongoing Major/Minor Projects:

- An ANN Based Expert System to Stop Animal Casualties on Roads using Geophone Sensors, University of North Bengal, 1,50,000/-, Principal Investigator. (Minor) (2021)
- An ANN Based Model for Moving Vehicles to minimize Animal Casualties on Highways, University of North Bengal, 1,50,000/-, Principal Investigator. (Minor) (2019)

Completed Major/Minor Projects:

- A Lie Detection Expert System based on Artificial Neural Network (ANN), University of North Bengal, 75000/-, Principal Investigator. (Minor) (2015)
- Design and Development of an Artificial Neural Network (ANN) Based Expert System to Diagnose Human Brain Tumor from CT scan and MRI Images, XII Plan UGC Assistance under Innovative Research Activities Scheme for Research Proposal, 10 Lakhs 10 Thousand, Co-Investigator (Major) (2015-2017)
- Elephant Detection System based on Artificial Neural Network (ANN), University of North Bengal, 75000/-, Principal Investigator. (Minor) (2017)

Attended Training Courses, Teaching-Learning-Evaluation Technology Programmes, Faculty Development Programmes:

1. 62nd Orientation Programme, 28 days, UGC, Academic Staff College (ASC), Jawaharlal Nehru University (JNU)
2. Refresher Course, 21 days, UGC Academic Staff College (ASC), Jadavpur University (JU)
3. Refresher Course, 21 days, UGC Academic Staff College (ASC), University of North Bengal (NBU)
4. One Week Orientation Program for NSS Program Officer.
5. One Week NSS course in Collaboration with British Council

Chaired Session:

1. Mathematics, Statistics, Computational Science & IT (Session Chair), 22nd West Bengal State Science & Technology Congress-2015, Department of Science & Technology, Govt. of West Bengal and University of North Bengal.
2. Technical Session Chair, Fourth International Springer LNNS Conference on Advanced Computational and Communication Paradigms (ICACCP-2023) held at Sikkim Manipal Institute of Technology, Sikkim, India during 16 to 18 Feb 2023.

Delivered Lectures:

1. Open Office Impress & Making Presentation, Workshop on Open Source Software on Linux Platform, Centre for Remote Sensing & Application (CRSA), University of North Bengal
2. Scilab, Training Programme on Application of Open Source Software, University Science Instrumentation Centre (USIC), University of North Bengal
3. Ubuntu 9.1, Batch I-VI, Training Program of School Teachers, University of North Bengal in Collaboration with Institute for Open Technology and Applications (IOTA), A Society under Dept of IT, Govt. of West Bengal, 2010.
4. Open Source Software, Students Workshop on Open Source Software, Salesian College Sonada, 2015
5. Cyber Security, Workshop on Cyber Security, University of North Bengal.
6. As a Resource Person in National Seminar on Recent and Innovative Trends in Machine Learning, Govt Engineering College Jalpaiguri, 2017
7. As a Resource Person in Seminar for College Students at Siliguri College, 2017.

8. As a Resource Person USIC, NBU Workshop for Research Scholars in Flash, 2018
9. Open Source Software, Students Workshop on Open Source Software, Salesian College Sonada, 2015
10. Cyber Security, Workshop on Cyber Security, University of North Bengal.
11. Resource Person, "Artificial Neural Networks (ANN)", International level webinar entitled "The future and promises of Computer Systems" organized by the Department of Computer Science in collaboration with the IQAC, Sukanta Mahavidyalaya on 2 September, 2020.
12. Session Co-Chair for Computer Science & Engineering Track, Virtual International Conference on Emerging Technologies on 16/10/2020 and 17/10/2020.
13. Resource Person , "Artificial Neural Network and Pattern Recognition", Diamond Jubilee Commemorative Nationallevel webinar on "THEORETICAL COMPUTATIONAL SCIENCE AND APPLICATIONS" Organized by Department of Computer Science, Ramakrishna Mission Residential College, Narendrapur on 16th December, 2020.
14. Resource Person, Refresher Course in Mathematics (**RC-MATHEMATICS**) held in digital platform (**GOOGLE MEET**) at the UGC – Human Resource Development Centre, University of North Bengal from **08.01.2021 to 21.01.2021**.
15. Keynote Speaker, Artificial Neural Networks and Pattern Recognition, Webinar conducted by Centre for Innovative Studies, University of North Bengal
16. Plenary Speaker, Machine Learning and its Applications, National Conference –“Trends in Science and Technology - 2023” , 28th February 2023 at Salesian College, Siliguri Campus.

List of Publications:

Books/Chapter Published:

- Computer Networks for Students, Rakesh Kumar Mandal, SPD, 2018
- **Rakesh Kumar Mandal** and D D Bhutia, "A Proposed Artificial Neural Network (ANN) Model Using Geophone Sensors to Detect Elephants Near Railway Tracks", Advanced Computational and Communications Paradigms, Springer link, AISC Series, pp 1-6, 2017

Publications in Peer Reviewed Journals:

1. **Rakesh Kumar Mandal** and N R Manna, “Hand Written English Character Recognition using Row-wise Segmentation Technique (RST)”, International Symposium on Devices MEMS, Intelligent Systems & Communication (ISDMISC) 2011, Proceedings, published by International Journal of Computer Applications (IJCA), ISSN 0975-8887, ISBN 978-93-80747-80-2, pp 5-9, “Available Online : www.ijcaonline.org/isdmisc/number2/isdm023.pdf”.
2. **Rakesh Kumar Mandal** and N R Manna , “Hand Written English Character Recognition using Column-wise Segmentation of Image Matrix (CSIM)”, Published in International Journal, WSEAS TRANSACTIONS on COMPUTERS, Issue 5, Volume 11, May 2012, E-ISSN: 2224-2872, pp 148-158, “Available Online : www.wseas.org/multimedia/journals/computers/2012/54-953.pdf”
3. **Rakesh Kumar Mandal** and N R Manna, “Hand Written English Character Recognition using Input Pattern Segmentation Technique (IPST)”, Published in International Journal, AMSE, Advances in Modelling, Series B: Signal Processing and Pattern Recognition, Vol 56, Issue 2, 2013, pp 68.
4. **Rakesh Kumar Mandal** and N R Manna, “Handwritten English Character Recognition using Pixel Density Gradient Method”, International Journal of Computer Science and Engineering, Open Access, Vol 2, Issue 3, E-ISSN:2347-2693, March 2014, pp 1-8, “Available Online : www.ijcseonline.org/pub_paper/1-IJCSE-000881.pdf”.
5. **Rakesh Kumar Mandal** and N R Manna, “Handwritten English Character Recognition using Arrow Segmentation of Image Matrix (ASIM)”, Accepted to be published in International Journal, AMSE, 2014.
6. **Rakesh Kumar Mandal** and N R Manna, “Handwritten English Character Recognition using Hoof Segmentation of Image Matrix (HSIM)”, AMSE JOURNALS –2014-Series: Advances B; Vol. 57; N° 1; pp 88-108, Submitted Dec. 2013; Revised July 7, 2014; Accepted July 20, 2014.
7. **Rakesh Kumar Mandal** and N R Manna, “Handwritten English Character Segmentation by Baseline Pixel Burst Method (BPBM)”, AMSE JOURNALS – 2014- Series: Advances B; Vol. 57; N°1; pp 31-46, Submitted Oct. 2013; Revised June 30, 2014; Accepted July 20, 2014.
8. **Rakesh Kumar Mandal** and N R Manna, “Loan Customer Analysis System using Column-wise Segmentation of Behavioural Matrix (CSBM)”, International Journal of Computer Sciences and Engineering, Volume-3, Special Issue-1 E-ISSN: 2347-2693, pp 18-22, February, 2015 Available Online: http://www.ijcseonline.org/pdf_spl_paper_view.php?paper_id=3&PID%203.pdf
9. Rishav Upadhyay, Prasenjit Biswas, Partha Protim Poddar and **Rakesh Kumar Mandal**, “Pattern Recognition using Modified Compression Algorithm with Mexican Hat (MCAMH)”, International Journal of Computer Sciences and Engineering, Volume-3, Special Issue-1 E-ISSN: 2347-2693, pp 30-35, February, 2015. Available Online: http://www.ijcseonline.org/pdf_spl_paper_view.php?paper_id=5&PID%205.pdf.
10. **Rakesh Kumar Mandal** and N R Manna, “Extraction of English alphabets from words and sentences using Slider Drifting Method (SDM)”, Published in International Journal, AMSE, Advances in Modelling, Series B: Signal Processing and Pattern Recognition, Vol 58, N°1, March, 2015, pp 1-13.

11. Kanishka Sarkar , Ardhendu Mandal and **Rakesh Kumar Mandal**, “Histogram Peak Normalization Based Threshold to Detect Brain Tumor from T1 Weighted MRI”, International Journal of Computer Sciences and Engineering, Vol. 4, Issue 1, pp 16- 24, 2016. Available Online:http://www.ijcseonline.org/pdf_spl_paper_view.php?paper_id=28&3-IJCSE-NCCT-2016-5.pdf
12. Shantanu Chakraborty and **Rakesh Kumar Mandal**, “Pattern Variation Method to Detect Lie Using Artificial Neural Network (PVMANN)”, International Journal of Computer Sciences and Engineering, Vol. 4, Issue 1, pp 57-60, 2016. Available Online: http://www.ijcseonline.org/pdf_spl_paper_view.php?paper_id=33&8-IJCSE-NCCT-2016-12.pdf
13. **Rakesh Kumar Mandal**, “Pattern Variation Method with Modified Weights to Detect Lie Using Artificial Neural Network (PVMMWANN)”, AMSE Journals Series: Modelling C, Vol. 77, No1, pp 41-52, 2016.
14. **Rakesh Kumar Mandal**, “Design of Basic Logic Gates using CMOS and Artificial Neural Networks (ANN)”, AMSE Journals Series: Modelling D, Vol. 21, No1, pp 38- 49, 2016.
15. **Rakesh Kumar Mandal**, “Design of CMOS OR Gate using Artificial Neural Networks (ANNs)”, AMSE Journals Series: Modelling D, Vol. 21, No1, pp 50-61, 2016.
16. Dipanjan Moitra and **Rakesh Kumar Mandal**, “Review of Brain Tumor Detection using Pattern Recognition Techniques”, International Journal of Computer Sciences and Engineering, E-ISSN:23472693, Volume-5, Issue-3, 2017.
17. Payel Saha and **Rakesh Kumar Mandal**, “Detection of Dengue Disease Using Artificial Neural Networks”, International Journal of Computer Sciences and Engineering, E-ISSN:2347-2693, Volume5, Issue-3, 2017.
18. **Rakesh Kumar Mandal**, “Least Centre Distance Based MAXNET Architecture to Obtain Threshold for Brain Tumor Edema Segmentation From FLAIR MRI”, International Journal of Computer Sciences and Engineering, E-ISSN:2347-2693, Volume5,Special Issue-2, 2017.
19. Dipanjan Moitra and **Rakesh Kumar Mandal**, “Segmentation Strategy of PET Brain Tumor Image”, Indian Journal of Computer Science and Engineering, Vol. 08, Issue 05, 2017.
20. Dipanjan Moitra and **Rakesh Kumar Mandal**, “Clustering of MRI Images of Brain for the Detection of Brain Tumor using Pixel Density Self Organizing Map (SOM)”, IOSR-JCE, E-ISSN:2278-0661, Volume-19, Issue-06, 2017.
21. **Rakesh Kumar Mandal**, “Hand Written English Character Recognition using Pattern Sampling Recognition Technique (PSRT)”, International Journal of Computer Sciences and Engineering, E-ISSN:2347-2693, Volume-6, Issue-10, 2018.

22. **Rakesh Kumar Mandal**, “Loan Customer Analysis System using Row-wise Segmentation of Behavioural Matrix (RSBM)”, International Journal of Computer Sciences and Engineering, E-ISSN:2347-2693, Volume-6, Issue-10, 2018.
23. Payel Saha and **Rakesh Kumar Mandal**, “Suspecting Lupus by analysing rashes using Artificial Neural Networks (ANN)”, International Journal of Computer Sciences and Engineering, E-ISSN:23472693, Volume-6, Issue-10, 2018.
24. Susreeti Sur and **Rakesh Kumar Mandal**, “A Comparative Study on Various Virtual Assistance Technologies over Newly Proposed Intelligent Hologram”, International Journal for Research in Engineering Application & Management (IJREAM), ISSN : 2454-9150 Special Issue - ICFPI – 2018.
25. Dipanjan Moitra and **Rakesh Kumar Mandal**, “Classification of Non-small Cell Lung Cancer using one Dimensional Convolutional Neural Network”, Expert Systems with Applications (Elsevier), Volume 159 (2020), ISSN : 0957-4174, <https://doi.org/10.1016/j.eswa.2020.113564>.
(Impact Factor: 8.66)(SCI Indexed). [SCI]
26. Dipanjan Moitra and **Rakesh Kumar Mandal**, “Prediction of Non-small Cell Lung Cancer Histology by a deep Ensemble of Convolutional and Bidirectional Recurrent Neural Network”, Journal of Digital Imaging (2020) (Springer), <https://doi.org/10.1007/s10278-020-00337-x> ,
(Impact Factor: 4.98)(SCI and Medline Indexed). [SCI]
27. Dipanjan Moitra and **Rakesh Kumar Mandal**, “Automated grading of Non-small Cell Lung Cancer by Fuzzy Rough Nearest Neighbour Method”, Network Modeling Analysis in Health Informatics and Bioinformatics (Springer), 8, 24 (2019). <https://doi.org/10.1007/s13721-019-0204-6> ,
(Impact Factor: 2.05)(SCI and Scopus Indexed) [SCI]
28. Dipanjan Moitra and **Rakesh Kumar Mandal**, “Automated AJCC (7th edition) Staging of Non-Small Cell Lung Cancer (NSCLC) using deep Convolutional Neural Network (CNN) and Recurrent Neural Network (RNN)”, Health Information Science and Systems (Springer), 7, 14 (2019).
<https://doi.org/10.1007/s13755-019-0077-1>. (Impact Factor: 5.0) (Pubmed Central Indexed). [SCI]
29. **Rakesh Kumar Mandal**, “A Prototype Model to Detect Elephants near the Railway Tracks”, Advances in Modelling and Analysis B Vol. 63, No. 1-4, December, 2020, pp. 7-9 Journal homepage: http://iieta.org/journals/ama_b, https://doi.org/10.18280/ama_b.631-402. (Scopus Indexed)
30. Dipanjan Moitra and **Rakesh Kumar Mandal**, “Comparison of Multimodal Tumor Image Segmentation Techniques”, International Journal of Advanced Research in Computer Science, Vol. 9 No. 3, ISSN 0976-5697, May-June 2018.
31. Dipanjan Moitra and **Rakesh Kumar Mandal**, “Classification of Malignant Tumors by a Non-Sequential Recurrent Ensemble of Deep Neural Network Model”, Multimedia Tools and Applications (January 2022) (Springer).
(Impact Factor: 2.98). [SCI]

32. Praveen Mukhia Titimus and **Rakesh Kumar Mandal**, “An Application of Artificial Neural Network (ANN) for Landslide Hazard Mapping, Susceptibility and Early Warning System: A Review”, International Journal of Computer and Communication Technology, Vol 8 Issue 3 (2022), Available at: <https://www.interscience.in/ijct/vol8/iss3/4>
33. Debanil Chanda and **Rakesh Kumar Mandal**, “A Comparative Analysis of Existing Lie Detection Techniques Over Newly Proposed Approach”, International Journal for Research in Engineering Application & Management (IJREAM), ISSN : 2454-9150 Vol-08, Issue-04, pp 157-160, July 2022, DOI : 10.35291/2454-9150.2022.0398. [UGC Care]
34. Saurav Bhaumik and **Rakesh Kumar Mandal**, “A Survey on Elephant - Train Collision in India”, Indian Journal of Natural Sciences, International Bimonthly (Print), Vol.13 / Issue 71 / April / 2022, ISSN: 0976 – 0997, www.insroindia.org.in ©IJONS, pp 40817-40825. [Web of Science]
35. Dechen Doma Bhutia, Swarup Das and **Rakesh Kumar Mandal**, A Detailed Review Work on the Existing Animal Detection System, “International Journal of Computer and Communication Technology”, Vol 8, Issue 3, pp 69-75, Available at: <https://www.interscience.in/ijct/vol8/iss3/6>

Publications in National/International Seminar/Conferences:

- Sweety Datta, Arpita Das, **Rakesh Kumar Mandal** and S.C. Pal , “English Alphabet Recognition using Neural Networks with the help of 26 Neurons” , Proceedings of National Conference on Computing and Systems 2010, NACCS 2010, Dept. of Computer Science, The University of Burdwan, West Bengal, India, 29th January, 2010, pp 52-55, ISBN 819077417-4.
- **Rakesh Kumar Mandal** and N R Manna, “Hand Written English Character Recognition using Pattern Sampling Recognition Technique (PSRT)”, Proceedings of International conference ICCS-2010, The University of Burdwan, Burdwan, West Bengal, India, Published Abstract Only, November, 19-20, 2010, pp 336, ISBN 93- 80813-01-5.
- Susreeti Sur, Debanil Chanda, **Rakesh Kumar Mandal**, “Recognition of Bengali Characters using Neural Networks”, Proceedings of International conference ICCS-2010, The University of Burdwan, Burdwan, West Bengal, India, November, 19-20, 2010, pp 54-57, ISBN 93-80813-01-5.
- **Rakesh Kumar Mandal** and N R Manna, “English Alphabet Recognition using Neural Networks with the help of very few Neurons”, Proceedings of 4th International Conference of IMBIC on Mathematical Sciences for Advancement of Science and Technology, MSAST 2010, Kolkata, West Bengal, India, pp 108-113.
- **Rakesh Kumar Mandal** and N R Manna, “Hand Written English Character Recognition using Row-wise Segmentation Technique (RST)”, Proceedings of International Symposium on Devices MEMS, Intelligent Systems & Communication (ISDMISC) 2011, Majitar, Sikkim, India, 12th to 14th, April, 2011, pp 5-9, ISBN 978- 93-80747-80-2
- **Rakesh Kumar Mandal** and N R Manna, “Row-wise Segmentation of Hand-written English Characters using Adaptive Resonance Theory ART1

(RSA)", Proceedings of National Conference on Emerging Trends in Computer Science (ETCS 2012), Dept. of Computer Science, Barrackpore Rastraguru Surendranath College, Barrackpore, West Bengal, India, pp 26-29, ISBN 978-81-921808-2-3.

- Susreeti Sur, Debanil Chanda and **Rakesh Kumar Mandal**, "Analysis on Learning Performance of English Characters by Changing the Value of the Vigilance Parameter in Adaptive Resonance Theory", Proceedings of second National Conference on Computing and Systems (NaCCS – 2012) – March 15-16, 2012, Burdwan University, West Bengal, India, ISBN: 93-80813-18-X.
- Debanil Chanda, Susreeti Sur and **Rakesh Kumar Mandal**, "A Comparative Study on Learning Performance of English Characters by Altering the Order of English Characters Based on ART1", Proceedings of second National Conference on Computing and Systems (NaCCS – 2012) – March 15-16, 2012, Burdwan University, West Bengal, India, ISBN: 93-80813-18-X.
- Gouravmay Banerjee, Sanway Sarkar and **Rakesh Kumar Mandal**, "Emergence and Future Opportunities in Cloud Computing", Proceedings of UGC sponsored National Level Seminar on Artificial Intelligence (AI) and IT's Impact on Modern IT world, Department of Computer Science & Application, Gour Mahavidyalaya, Malda, West Bengal, 6th and 7th December, 2013.
- Debarati Mitra and **Rakesh Kumar Mandal**, "A Review Work on Pattern Segmentation Based ANN Methods to Recognize Handwritten Alphabets", Proceedings of National Conference on Computational Technologies-2015 (NCCT'2015) , Dept. of Computer Science & Application, University of North Bengal, Feb-2015, pp 223-225.
- Soumendra Nath Lahiri, Supratim Dawn, **Rakesh Kumar Mandal** and Ardhendu Mandal, "Steganography based on Image Border Manipulation Technique (IBMT)", Proceedings of National Conference on Computational Technologies-2015 (NCCT'2015) , Dept. of Computer Science & Application, University of North Bengal, Feb-2015, pp 231-236.
- Pranita Mukhia and **Rakesh Kumar Mandal**, "An Approach Towards Setting up of a Private Cloud", Proceedings of National Conference on Computational Technologies- 2015 (NCCT'2015) , Dept. of Computer Science & Application, University of North Bengal, Feb-2015, pp 237-240.
- Paromita Goswami, Susmita Kundu and **Rakesh Kumar Mandal**, "A Step Towards Establishing a Small Pvt. Cloud using Ubuntu", Proceedings of National Conference on Computational Technologies-2015 (NCCT'2015) , Dept. of Computer Science & Application, University of North Bengal, Feb2015, pp 241-245.
- Rinku Sarkar and **Rakesh Kumar Mandal**, "Bottlenecks of using Cloud Computing Infrastructure in Library Science", Proceedings of National Conference on Computational Technologies-2015 (NCCT'2015) , Dept. of Computer Science & Application, University of North Bengal, Feb-2015, pp 246-249.
- Debarati Mitra and **Rakesh Kumar Mandal**, "Eighteen Directional Feature Extractions for Handwritten English Character Recognition", Proceedings of National Conference on Research Trends in Computer Science & Application - 2015 (NCRTCSA'2015), Dept. of Computer Application, Silguri Institute

of Technology, Nov-2015, pp 13 – 15, ISBN 9789385477348.

- Antara Parai and **Rakesh Kumar Mandal**, “Handwritten English Character Recognition using Diagonal Segmentation of Image Matrix (DSIM)”, Proceedings of National Conference on Research Trends in Computer Science & Application - 2015 (NCRTCSA’2015) , Dept. of Computer Application, Silguri Institute of Technology, Nov-2015, pp 16 – 20, ISBN 9789385477348.
- Kanishka Sarkar, Ardhendu Mandal and **Rakesh Kumar Mandal**, “Brain Tumor Detection from T1 Weighted MRI using Histogram Peak Difference Threshold”, Proceedings of National Conference on Research Trends in Computer Science & Application - 2015 (NCRTCSA’2015) , Dept. of Computer Application, Silguri Institute of Technology, Nov-2015, pp 32 – 37, ISBN 9789385477348.
- Shantanu Chakraborty and **Rakesh Kumar Mandal**, “Double Bit Error Correction using Hamming Code (DBECH)”, Proceedings of National Conference on Research Trends in Computer Science & Application - 2015 (NCRTCSA’2015) , Dept. of Computer Application, Silguri Institute of Technology, Nov2015, pp 38 – 40, ISBN 9789385477348.
- Shantanu Chakraborty and **Rakesh Kumar Mandal**, “Pattern Variation Method to Detect Lie Using Artificial Neural Network (PVMANN)”, Proceedings of National Conference on Computational Technologies-2016 (NCCT’2016) , Dept. of Computer Science & Application, University of North Bengal, Feb2016.
- Kanishka Sarkar, Ardhendu Mandal and **Rakesh Kumar Mandal**, “Histogram Peak Normalization Based Threshold to Detect Brain Tumor from T1 Weighted MRI”, Proceedings of National Conference on Computational Technologies-2016 (NCCT’2016) , Dept. of Computer Science & Application, University of North Bengal, Feb-2016.
- **Rakesh Kumar Mandal** and D D Bhutia, “A Proposed Artificial Neural Network (ANN) Model Using Geophone Sensors to Detect Elephants Near Railway Tracks”, Advanced Computational and Communications Paradigms, Springer link, AISC Series, pp 1-6, ICCP-2017, SMIT
- Debanil Chanda and **Rakesh Kumar Mandal**, “Implementation of Fuzzy Logic to Determine the Degree of Truthfulness”, 2nd National Seminar (IRES-2020) on Comprehending Inter Disciplinary Series in the Digital Age, Inspiria Knowledge Campus, February 6th and 7th, 2020.
- Susreeti Sur and **Rakesh Kumar Mandal**, “Development of Rule Based system to Diagnose Heart and Respiratory Disease”, 2nd National Seminar (IRES-2020) on Comprehending Inter Disciplinary Series in the Digital Age, Inspiria Knowledge Campus, February 6th and 7th, 2020.
- Santanu Chakraborty and **Rakesh Kumar Mandal**, “A REVIEW ON THE PANDEMIC CREATORS LIKE COVID”, 4TH INTERNATIONAL CONFERENCE ON COVID-19 STUDIES, April 17-19, 2021 / Istanbul, Turkey.

Presented Papers in International/National Level Conferences/Seminars/Webinars/Workshops:

- **Rakesh Kumar Mandal**, “English Alphabet Recognition using Neural Networks with the help of 26 Neurons”, National Conference on Computing and Systems – 2010, NACCS-2010, 29th January 2010, Department of Computer Science, The University of Burdwan, Burdwan, West Bengal.
- **Rakesh Kumar Mandal**, “Hand Written English Character Recognition using Pattern Sampling Recognition Technique (PSRT)”, International Conference on Computing and Systems – 2010, ICCS-2010, 19th and 20th November 2010, Department of Computer Science, The University of Burdwan, Burdwan, West Bengal.
- **Rakesh Kumar Mandal**, “Recognition of Bengali Characters using Neural Networks”, International Conference on Computing and Systems – 2010, ICCS-2010, 19th and 20th November 2010, Department of Computer Science, The University of Burdwan, Burdwan, West Bengal.
- **Rakesh Kumar Mandal**, “Electronic Resource Management a Gift to Modern Education”, UGC(ERO) sponsored State Level Seminar on Promoting NMEICT-INFLIBNET e-Resources in North Bengal & Sikkim, Organized by Salesian College in collaboration with ABN Seal College, Coochbehar, 25th February, 2011 at Salesian College, Siliguri Campus, West Bengal.
- **Rakesh Kumar Mandal**, “Handwritten English Character Recognition using Row-wise Segmentation Technique (RST) ”, International Symposium on Devices Memos Intelligent Systems And Communication – 2011, ISDMISC-2011, 12th - 14th April 2011, Sikkim Manipal University, Majitar, Sikkim. 6.
- **Rakesh Kumar Mandal**, “Row-wise Segmentation of Hand-written English Characters using Adaptive Resonance Theory ART1 (RSA)”, UGC sponsored National Symposium on Emerging Trends in Computer Science (ETCS 2012), Organized by Department of Computer Science, Barrackpore Rastraguru Surendranath College in Collaboration with Department of Computer Science & Engineering, University of Kalyani & Department of Computer Science & Engineering, University of Calcutta, 20th and 21st January, 2012 at Rastraguru Surendranath College, Barrackpore, West Bengal.
- **Rakesh Kumar Mandal**, “Character Recognition with Neural Networks”, Research Scholar’s Workshop on Computer Science and Application, Organized by Salesian College and Computer Society of India, Siliguri Chapter, 11th September, 2012 at Salesian College, Siliguri Campus, West Bengal.
- **Rakesh Kumar Mandal**, “Intelligent Computing using Free Software”, Workshop on Application of Information Technology in the Modern Civilization, Organized by St. Joseph College Darjeeling and Computer Society of India (CSI), Siliguri Chapter, 15th May, 2013 at St. Joseph College Darjeeling, West Bengal.
- **Rakesh Kumar Mandal**, Artificial Neural Networks (ANN), National Seminar on Recent Trends in Computer Science, Organized by Department of Computer Applications, Raiganj University, 1st April, 2016.
- **Rakesh Kumar Mandal**, CMOS Implementation of Logic Gates using Artificial Neural Networks (ANN), MHRD approved TEQIP Phase-II sponsored 5 day Technical Workshop on “Applications of ANN in Modern VLSI-Embedded System Designing & Parallel Computing” under faculty staff development

program, organized by Murshidabad College of Engineering & Technology, MAKAUT, West Bengal, 23th July 2016 to 27th July 2016.

- **Rakesh Kumar Mandal**, “Future of Intelligent Holograms in Modern Day Higher Education”, National Seminar entitled “Higher Education: Inclusive and Qualitative Growth vis a vis Officers”, Organized by NBUOA, University of North Bengal, 10th September 2016.
- **Rakesh Kumar Mandal**, “A Proposed Artificial Neural Network (ANN) Model Using Geophone Sensors to Detect Elephants Near Railway Tracks”, ICCP-2017, SMIT
- **Rakesh Kumar Mandal**, “Implementation of Fuzzy Logic to Determine the Degree of Truthfulness”, 2nd National Seminar (IRES-2020) on Comprehending Inter Disciplinary Series in the Digital Age, Inspiria Knowledge Campus, February 6th and 7th, 2020.
- **Rakesh Kumar Mandal**, “Development of Rule Based system to Diagnose Heart and Respiratory Disease”, 2nd National Seminar (IRES-2020) on Comprehending Inter Disciplinary Series in the Digital Age, Inspiria Knowledge Campus, February 6th and 7th, 2020.
- **Rakesh Kumar Mandal**, “A REVIEW ON THE PANDEMIC CREATORS LIKE COVID”, 4TH INTERNATIONAL CONFERENCE ON COVID-19 STUDIES, April 17-19, 2021 / Istanbul, Turkey.

Participated in International/National Level Conferences/Seminars/Workshops:

- One day user awareness programme on “Access to E-resources under N-LIST Programme”, organized by University Library, University of North Bengal in collaboration with the INFLIBNET centre Ahmedabad (An Inter-University Centre of UGC), 10th February 2012, University of North Bengal, Distt: Darjeeling, West Bengal.
- Workshop on “Intellectual Property and Innovation Management in Knowledge Era” organized by National Research Development Corporation, New Delhi and University of North Bengal, 12th February, 2013, University of North Bengal, Distt : Darjeeling, West Bengal.
- National Seminar on Recent Trends in Information and Knowledge Management, Organized by Department of Library & Information Science, 27th-28th May, 2014 University of North Bengal, Distt : Darjeeling, West Bengal