



‘समानो मन्त्र समितिः समानी’

UNIVERSITY OF NORTH BENGAL

Accredited by NAAC with grade A

Department of Computer Science and Application



ARDHENDU MANDAL

Dr. Ardhendu Mandal

Associate Professor

B.S.I.T. (Preston University, U.S.A.), B.C.A. (M. S. University), M.C.A.(BPUT), Ph.D (NBU).

Life Member: Computer Society of India (CSI), Indian Society for Technical Education (ISTE), IAENG, Internet Society, CSTA.

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am.csa.nbu@nbu.ac.in, am.csa.nbu@gmail.com

Subject Specialization:

Data Structures, Software Engineering, Object Oriented Analysis and Design, Operating Systems, Parallel Computing (HPC)

Areas of Research Interest:

Software Engineering, Medical Image Processing, Bioinformatics, Steganography, High-Performance Computing (HPC).

Professional Experiences:

• **Research Experiences:**

• 15 years of Research Experience.

• **Teaching Experiences:**

• 15 years of PG Level Teaching Experience.

Research Scholars

Registered (Ongoing)

1. Mr. Kanishka Sarkar (YoR: September, 2017)
2. Mr. Subhro Sarkar (YoR: May, 2017)
3. Mrs. Debashmita Saha (YoR: July, 2018)
4. Mr. Manash Sarkar (YoR: Jan, 2019)

Recognition of Research: Prestigious Honours and Awards of national/international importance or recognized by the international agencies or the departments/ agencies of national/ state governments

International Awards:

1. Significant Contribution Award (2013-2014), Computer Society of India (CSI).

National Awards:

1. Awarded UGC-JRF, June, 2005

ACDEMIC CONTRIBUTIONS/PAPERS TAUGHT :

- Data Structures
- Analysis of Algorithms
- DBMS
- Operating Systems
- Software Engineering
- Parallel Computing
- Parallel Programming
- Programming in C
- Programming in C++

RESEARCH CONTRIBUTIONS

▪ Research Publications in Journals and Periodicals:

- [1] Tanmoy Kanti Halder, Kanishka Sarkar, Ardhendu Mandal & Suvro Sarkar, “A novel histogram feature for brain tumor detection”, [International Journal of Information Technology](https://doi.org/10.1007/s41870-022-00917-w), 14, 1883–1892 (2022), E-ISSN: 2511-2112, P-ISSN: 2511-2104, <https://doi.org/10.1007/s41870-022-00917-w>, Springer (2022).
- [2] Debasmita Saha, Dr. Ardhendu Mandal, “MU Net: Ovarian Follicle Segmentation Using Modified U-Net Architecture”, [International Journal of Engineering and Advanced Technology \(IJEAT\)](https://doi.org/10.1007/s41870-022-00917-w), 11(4), 30-35, ISSN: 2249-8958, April 2022.
- [3] Gobinda Karmakar, Dr. Saroj Kumar Biswas, Dr. Ardhendu Mandal, Arijit Bhattacharya, Akhil Kumar Das, Ekram Alam, “Comparative Review on Efficient Design of Reversible Sequential Circuits based on Optimization Parameters”, [Journal of University of Shanghai for Science and Technology](https://doi.org/10.51201/jusst/21/09690), 23(9), 1313-1325, e-ISSN: 1007-6735, <https://doi.org/10.51201/jusst/21/09690>, 2021.
- [4] Sarkar, K., Halder, T.K. & Mandal, A., “Adaptive power-law and cdf based geometric transformation for low contrast image enhancement”, [Multimedia Tools and Applications](https://doi.org/10.1007/s11042-020-10004-6), 80, 6329–6353, E-ISSN: 1573-7721, P-ISSN: 1380-7501, <https://doi.org/10.1007/s11042-020-10004-6>, Springer (2021).
- [5] Mandal, A., Sarkar, S., & Sarkar, K., “Histogram Peak Least Center Distance Based Threshold to Segment Brain Tumor from T1 Weighted Contrast Enhanced MRI”, [International Journal of Modern Electronics and Communication Engineering \(IJMECE\)](https://doi.org/10.1007/s11042-020-10004-6), 6(4), ISSN: 2321-2152, July, 2018
- [6] Dr. Ardhendu Mandal, Kanishka Sarkar, Tanmoy Kanti Halder, “A Comparative Analysis of Clustering Based Brain Tumor Segmentation Techniques”, [IOSR Journal of Engineering \(IOSR-JEN\)](https://doi.org/10.1007/s11042-020-10004-6), 8(8), V (I), Part-1 (August. 2018), pp- 58-65, 2018, ISSN (e): 2250-3021, ISSN (p): 2278-8719, August. 2018
- [7] Sarkar K., Mandal A., “Clustering of MRI Images of Brain for the Detection of Brain Tumor Using Pixel Density Self Organizing Map (SOM)”, [IOSR Journal of Computer Engineering \(IOSR-JCE\)](https://doi.org/10.1007/s11042-020-10004-6), 19(6), Ver. I, 56-61, e-ISSN: 2278-0661, P-ISSN: 2278-8727, Nov.- Dec. 2017.
- [8] S. Sarkar, A. Mandal and K. Sarkar, “An Automated Skull-Stripping Method by Windowing the Histogram”, [International Journal of Computer Sciences and Engineering](https://doi.org/10.1007/s11042-020-10004-6), 5(3), 45-49, 2017.
- [9] Sarkar K., Mandal R. K., Mandal A., Sarkar S., “Least Centre Distance Based MAXNET Architecture to Obtain Threshold for Brain Tumor Edema Segmentation From FLAIR MRI”, [International Journal of Computer Sciences and Engineering](https://doi.org/10.1007/s11042-020-10004-6), 5(2), 112-120, 2017.
- [10] Probal Dutta, Kanishka Sarkar, and Ardhendu Mandal, “Segmentation of Breast Tumor from Mammographic Images Using Histogram Peak Slicing Threshold”, [International Journal of Computer Sciences and Engineering](https://doi.org/10.1007/s11042-020-10004-6), 4(1) (Special Issue), 85-92, 2016.
- [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](https://doi.org/10.1007/s11042-020-10004-6), 4(1) (Special Issue), 16-24, 2016.
- [12] Debasmita Saha, and Ardhendu Mandal, “Design and performance evaluation of Advanced Priority Based Dynamic Round Robin Scheduling Algorithm (APBDRR)”, [International Journal of Computer Sciences and Engineering](https://doi.org/10.1007/s11042-020-10004-6), 4(1) (Special Issue), 78-84, 2016.
- [13] Ardhendu Mandal and S. C. Pal, “Identifying the Reasons for Software Project Failure and Some of their Proposed Remedial through BRIDGE Process Models”, [International Journal of Computer Sciences and Engineering](https://doi.org/10.1007/s11042-020-10004-6), 3(1) (Special Issue), 118-126, 2015.
- [14] Subhro Sarkar, Ardhendu Mandal, “Comparison of Some Classical Edge Detection Techniques with their Suitability Analysis for Medical Images Processing”, [International Journal of Computer Sciences and Engineering](https://doi.org/10.1007/s11042-020-10004-6), 3(1) (Special Issue), 81-87, 2015.
- [15] Debasmita Saha, Ardhendu Mandal and S. C. Pal, “User Interface Design Issues for Easy

and Efficient Human Computer Interaction: An Explanatory Approach”, [International Journal of Computer Sciences and Engineering](#), 3(1) (Special Issue), 127-135, 2015.

[16] Ardhendu Mandal and S. C. Pal, “A comparative analysis of BRIDGE and some other well known software development process models”, [International Journal of Computer Science & Engineering Technology \(IJCSSET\)](#), 5(3), 196-202, 2014.

[17] Ardhendu Mandal and S. C. Pal, “Achieving Agility through BRIDGE Process Model: An Approach to Combine the Agile and the Disciplined Software Development”, [Innovations in Systems and Software Engineering](#), A NASA Journal,11(1), 1-7, DOI:10.1007/s11334-014-0239-x, (Springer) 2014.

[18] Jayanta Dutta Ardhendu Mandal and S. C. Pal, “A Probabilistic Interval Division Method for Solving Nonlinear Equations”, [International Journal of Advanced Research in Computer Science and Software Engineering](#), 3(8), 304-310, ISSN: 22776451, EISSN: 2277128X, August 2013

[19] Amit Ghosh Roy and Ardhendu Mandal, “RDAT: A tool for DNA Analysis”, [Salesian Journal of Humanities and Social Sciences: Technology and Society](#), IV(1), 55-61, ISSN: 0976-1861, May, 2013.

[20] Ardhendu Mandal and S. C. Pal, “Investigating and analyzing the desired characteristics of software development lifecycle (SDLC) models”, [International Journal of Software Engineering Research & Practices](#), 2(4), 9-15, 2012.

[21] Mandal Ardhendu, Dutta Jayanta and Pal S.C., “A New Efficient Technique to Construct a Minimum Spanning Tree”, [International Journal of Advanced Research in Computer Science and Software Engineering](#), 2(10), 93-97, October 2012.

[22] Ardhendu Mandal, S. C. Pal, “Emergence of Component Based Software Engineering”, [International Journal of Advance Research in Computer science and Software Engineering](#), 2(3), 311-315, 2012.

▪ **Book Chapters authored in different books or in conference/ symposium proceedings:**

• **Book Chapters in International Conferences Proceedings**

[1] Arijit Bhattacharya, Souvik Kumar Parui, Saroj Kr Biswas and Ardhendu Mandal, (2022), “An Empirical Study on Credit Risk Assessment using Ensemble Classifiers”, International Conference on Advances in Data Science and Computing Technologies (ADSC-2022), 23rd – 24th June 2022, Kazi Nazrul University, Asansol, West Bengal, [Lecture Notes in Electrical Engineering](#), (Accepted), (Springer) 2022.

[2] Kanishka Sarkar, Tanmoy Kanti Halder, Ardhendu Mandal, Progyan Biswas, Simran Aryal, Barnali Kundu, Preyasha Chakraborty, “An Analysis on SVM and BPNN for CT Patient Table Detection Using Distance-verses-angle Signature Feature”, Proceeding of the [IEEE International Conference on Innovations in Science, Engineering and Technology 2022 \(ICISSET-2022\)](#), Bangladesh, 25-28 February, 2022), ISBN : 978-984-35-2072-2, (IEEE) 2022.

[3] M. Sarkar and A. Mandal, (December, 2021) "Follicle Segmentation from Ultrasound images of Ovary by using sub-band Entropy-based Wavelet thresholding and object contours," Proceeding of the IEEE 18th India Council International Conference (INDICON-2021), 2021, pp. 1-6, ISBN: 978-1-6654-4175-9, DOI: 10.1109/INDICON52576.2021.9691677. [Publisher: IEEE; Date of Conference: 19-21 Dec. 2021; DOI: [10.1109/INDICON52576.2021.9691677](https://doi.org/10.1109/INDICON52576.2021.9691677)], 2021.

[4] Das A.K., Biswas S.K., Mandal A. (First Online: 11 November 2021, 2021), Transparent Decision Support System for Breast Cancer (TDSSBC) to Determine the Risk Factor, Proceeding of the IEEE International Conference for Innovation in Technology (INOCON-2020), Published in: Bajpai M.K., Kumar Singh K., Giakos G. (eds), Machine Vision and Augmented Intelligence—Theory and Applications. (Springer in Lecture Notes in Electrical Engineering, Series Volume-796), https://doi.org/10.1007/978-981-16-5078-9_23, [Print ISBN: 978-981-16-5077-2; Online ISBN: 978-981-16-5078-9; Publisher Name: Springer, Singapore] [IITDM

	<p>JABALPUR], (https://www.springerprofessional.de/en/transparent-decision-support-system-for-breast-cancer-tdssbc-to-/19853094), 2021.</p> <p>[5] Gobinda Karmakar, Arijit Bhattacharya, Saroj Kr. Biswas, Ardhendu Mandal, Akhil Kumar Das, Ekram Alam, Debasmita Saha, Shib Charan Chowdhuri, Realization of Combinational Circuits Using A Proposed Reversible Gate, Proceedings of the 3rd IEEE International Conference on Advances in Computing, Communication Control and Networking (ICAC3N-21), pp. 1018-1022, ISBN: 978-1-6654-3811-7, Publisher: IEEE, DOI: 10.1109/ICAC3N53548.2021.9725516, 2021.</p> <p>[6] A. K. Das, S. K. Biswas, A. Mandal and M. Chakraborty (Conf. Date: November 06th - 08th, 2020, First Online: 11 November 2021, 2020), A Neural Expert System to Identify Major Risk Factors of Breast Cancer, Proceeding of the IEEE International Conference for Innovation in Technology (INOCON-2020), November 06th-08th, 2020, pp. 1-4, DOI: 10.1109/INOCON50539.2020.9298261 [Print ISBN: 978-981-16-5077-2; Online ISBN: 978-981-16-5078-9; Publisher: IEEE] (Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 796)), 2020.</p> <p>[7] Mandal A., Saha D., Sarkar M. (First Online: 24 November 2020), Follicle Segmentation Using K-Means Clustering from Ultrasound Image of Ovary, In: Bhattacharjee D., Kole D.K., Dey N., Basu S., Plewczynski D. (eds), Proceedings of International Conference on Frontiers in Computing and Systems, Advances in Intelligent Systems and Computing, vol 1255. Springer, Singapore. https://doi.org/10.1007/978-981-15-7834-2_51 [Print ISBN: 978-981-15-7833-5; Online ISBN: 978-981-15-7834-2; Publisher Name: Springer, Singapore], 2020.</p> <p>[8] Mandal A., Sarkar M., Saha D. (First Online: 24 November 2020, COMSYS 2020), Follicle Segmentation from Ovarian USG Image Using Horizontal Window Filtering and Filled Convex Hull Technique, In: Bhattacharjee D., Kole D.K., Dey N., Basu S., Plewczynski D. (eds) Proceedings of International Conference on Frontiers in Computing and Systems, Advances in Intelligent Systems and Computing, vol 1255. Springer, Singapore. https://doi.org/10.1007/978-981-15-7834-2_52 [Print ISBN: 978-981-15-7833-5; Online ISBN: 978-981-15-7834-2; Publisher Name: Springer, Singapore], 2020.</p> <p>[9] Ardhendu Mandal and Subhas Chandra Pal, An empirical study and analysis of the dynamic load balancing techniques used in parallel computing systems, Proceedings of the International Conference on Computing And Systems- 2010 (ICCS-2010), ISBN: 93-80813-01-5, Burdwan University, 313-318, Nov.19-20, 2010.</p> <p>[10] Ardhendu Mandal, BRIDGE: A model for Modern Software Development Process to cater the present Software Crisis, Proceedings of the IEEE International Advance Computing Conference (IACC-2009), Patiala, India, 494-500, ISBN: 9781424429271 [Also available at IEEE Xplore DOI: 10.1109/IADCC.2009.4809259], March 2009</p>
	<p>• Book Chapters in National Conferences Proceedings</p>
	<p>[1] 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 and Application (NCRTCSA-2015), ISBN: 978-93-85477-34-8, held on Nov. 07, 2015 at Siliguri Institute of Technology, Siliguri, 32-37, 2015.</p> <p>[2] Soumendra Nath Lahiri, Supratim Dawn, Rakesh Kumar Mandal, and Ardhendu Mandal, Steganography based on Image Border Manipulation Technique (IBMT), Proceedings of the National Conference on Computational Technologies-2015 (NCCT'15), pp. 231-236, 2015.</p> <p>[3] Ardhendu Mandal, SRS BUILDER 1.0: An Upper Type CASE Tool for Requirement Specification, Proceedings of the 4th National Conference on Computing for National Development (INDIACom-2010), ISBN: 978-81-904526-9-4, ISSN: 0973-7529, pp. 419-423, New Delhi, February 25-26, 2010.</p>

	<p>[4] Sarkar Tamal, Das Chandra Samir, Mandal Ardhendu, A Study of Computer-Based Simulations for Nano-Systems and their types, Proceedings of the NATCOM NAMTECH-2009, ISBN: 978-93-80043-61-6, Lucknow University, India, 2009.</p>
<p>▪ Presentations in Conference/ Symposium/ Seminar/Webinar/Workshop:</p>	
<p>Research Paper Presentations in International Conferences:</p>	
	<ol style="list-style-type: none"> 1. Presented a paper entitled "Transparent Decision Support System for Breast Cancer (TDSSBC) to Determine the Risk Factor" in International Conference on Machine Vision and Augmented Intelligence, 11-14 February, 2022, PDPM IITDM Jabalpur, India. 2. Presented a paper entitled "Follicle Segmentation from Ultrasound images of Ovary by using subband entropy-based wavelet thresholding and object contours" in 18th IEEE India Council Annual International Conference (INDICON-2021), 19th – 21st December 2021 at Indian Institute of Technology Guwahati. 3. Presented a paper entitled "An empirical study and analysis of the dynamic load balancing techniques used in parallel computing systems" in the International Conference on Computing and Systems -2010 (ICCS-2010), Burdwan University, Nov.19-20, 2010. 4. Presented a paper entitled "BRIDGE: A model for Modern Software Development Process to cater the present Software Crisis" in the IEEE International Advance Computing Conference (IACC 2009), Patiala, India, March 2009.
<p>Research Paper Presentations in National Conferences:</p>	
	<ol style="list-style-type: none"> 1. Presented a paper entitled "Higher Education and ICT: The Perspectives" in the One-Day National Seminar "Higher Education: Inclusive and Qualitative Growth Vis-a-Vis Officers", North Bengal University Officers Association (NBUOA), at NBU held on September 10, 2016. 2. Presented a paper entitled "High Performance Computing" in One-Day National Seminar on Recent Trends in Computer Science, Raiganj University, 1st April, 2016. 3. Presented a paper entitled "Identifying the Reasons for Software Project Failure and Some of their Proposed Remedial through BRIDGE Process Model" in the National Conference on Computational Technologies-2015 (NCCT'15), February 20, 2015. 4. Presented a paper entitled "Comparison of Some Classical Edge Detection Techniques with their Suitability Analysis for Medical Images Processing" in the National Conference on Computational Technologies-2015 (NCCT'15), February 20, 2015. 5. Presented a paper entitled "Steganography based on Image Border Manipulation Technique (IBMT)" in the National Conference on Computational Technologies-2015 (NCCT'15), February 20, 2015. 6. Presented a paper entitled "User Interface Design Issues for Easy and Efficient Human Computer Interaction: An Explanatory Approach" in the National Conference on Computational Technologies-2015 (NCCT'15), February 20, 2015. 7. Presented a paper entitled "GPGPU Computing: Utilizing the GPU of a Computer as General Computational Purpose" in the Workshop on Application of Information Technology in the Modern Civilization, St. Joseph's College, Darjeeling, 15th May, 2013. 8. Presented a paper entitled "Drivers for Processor Evolution: From Singlecore Towards Multicore" in the Research Scholars' Workshop on Computer Science and Application (RSWCSA-2012), Salesian College-Siliguri Campus, Organised by CSI, Siliguri Chapter and Salesian College, Siliguri, September 11, 2012. 9. Presented a paper entitled "An Approach for Image Based Steganography and Cryptography Technique" in the Research Scholars' Workshop on Computer Science and Application (RSWCSA-2012), Salesian College-Siliguri Campus, Organised by CSI, Siliguri Chapter and Salesian College, Siliguri, September 11, 2012. 10. Presented a paper entitled "Role of Fuzzy Logic in Computer" in the UGC-National Seminar on Advances in Mathematics-2012, Department of Mathematics, University of North Bengal, India, 19-20th March, 2012. 11. Presented a paper entitled "Fuzzy Logic and Its Industrial Application" in the NSAMGT-2012, Department of Mathematics, University of Kalyani, India, 21-22 March, 2012.

	<p>12. Presented a paper entitled "Prospects of Parallel Computing" in the IT Seminar, St. Joseph's College, Darjeeling, 24th September 2010.</p> <p>13. Presented a paper entitled "SRS BUILDER 1.0: An Upper Type CASE Tool for Requirement Specification" in the 4th National Conference; INDIACom-2010, Computing for National Development, February 25-26, pp. 419-423, 2010, New Delhi.</p> <p>14. Presented a paper entitled "Operating System as Process Manager" in the National Level Technical Paper Presentation Competition-2005, SVICS-Kadi, 8-9 January 2005.</p>
	<p>Research Paper Presentations in Regional/State level Conferences:</p> <p>1. Presented a paper entitled "Use of e-Resources in Education and Research" in the UGC (ERO) Sponsored State Level Seminar on Promoting NMEICT-INFLIBNET e-Resources in North Bengal & Sikkim, 25th Feb, 2011.</p>
	<p>Invited Talks/ Resource Person in different Academic/Research/Administrative Events:</p>
	<p>• National Level</p>
	<p>1. Delivered an invited talk titled "Fundamental of High Performance Computing", at Cosmic Ray Group of Astronomy (CRAGA) Online Colloquium Series (4, September, 2021), organised by High Energy & Cosmic Ray Research Centre (HECRRC), University of North Bengal</p> <p>2. Delivered a talk as resource person at 2- Day workshop on "ICT in Education for Teachers" at Sukanta Mahavidyalaya organized by Dept. of Computer Science and IQAC of Sukanta Mahavidyalaya during 31/03/2021- 01/04/2021</p> <p>3. Delivered a talk as resource person titled "Fundamentals of Medical Image Processing" at Foundation of machine learning for data science & image processing, held on 7th August, 2020, organised by Department of Computer Science and Application, Gour Mahavidyalaya, Malda.</p> <p>4. Delivered an invited lecture entitled "MOOCS: Introduction and Motivation (Lecture -1 & Lecture-2)" (01.02.2019 at 2:30 -4:00 PM and 4:00 -5:30) at Workshop on MOOCS, e-content development and Open Learning Educational Resources, organised by UGC HRDC, NBU</p> <p>5. Delivered an invited lecture entitled "Introduction to Computer and its General Maintenance" (14.09.2019 at 4:00 -5:30 PM) at Orientation Programme (OP-NBU-39) organised by UGC HRDC, NBU</p> <p>6. Delivered an invited lecture entitled "Introduction to Computer and its Maintenance" (18.07.2019 at 12:00 -1:30 PM) at Orientation Programme (OP-NBU-38) organised by UGC HRDC, NBU</p> <p>7. Delivered an invited lecture entitled "Introduction to Computer" (08.03.2019 at 2:30 -4:00 PM) at Orientation Programme (OP-NBU-37) organised by UGC HRDC, NBU</p> <p>8. Delivered an invited lecture as Guest Faculty, Dept. of Library and Information Sc., NBU 2017.</p> <p>9. Delivered a Talk as resource person, "R for Data Analytics", at STC on Statistical Computing Techniques for quantitative and qualitative data, NBU-HRDC, 14-20th Dec, 2016</p> <p>10. Delivered a talk as resource person at MHRD approved TEQIP Phase-I sponsored five day Technical Workshop on "Applications of ANN in Modern VLSI - Embedded System Design & Parallel Computing" under FDP held on July 23-27, 2016 at Murshidabad College of Engineering and Technology, MAKAUT, WB, 2016.</p> <p>11. Delivered a Talk as resource person on "High Performance Computing", at Technical Workshop on "Applications of ANN in Modern VLSI-Embedded system designing & Parallel Computing", under TEQIP Phase-II, Faculty Staff Development Program, Organized by Murshidabad College of Engineering & Technology, Berhampore, 23rd - 27th July, 2016</p> <p>12. Delivered a talk as resource person titled "Parallel Computing for Bioinformatics", in the National Workshop on Bioinformatics, at Bioinformatics Facility, NBU, March 12- 14, 2015.</p> <p>13. Delivered a lecture entitled (Two Lectures) on Web 2.0 at the Refresher Course in Library</p>

	and Information Science at the HRDEC-NBU, 07/12/2015.
	<ul style="list-style-type: none"> • State Level
	<ol style="list-style-type: none"> 1. Delivered a talk as resource person titled "Website designing using html/php including creation of dropdown menu", at Training Program on Webpage Design, USIC, 10th April, 2018 2. Delivered three talks as resource person for M.Phil & Ph.D. coursework in the Dept. of Bengali, NBU, 2014. 3. Delivered a talk titled "Cyber Threats" at the Half day Workshop on Cyber Security held at the Department of Computer Science and Application, University of North Bengal, on 25th March, 2013. 4. Delivered a talk at the Workshop on Application of IT in Modern Civilization, St. Joseph's College, Darjeeling, 15th May, 2013 5. Delivered a talk as resource person at Dept. of Library and Information Sc., NBU 2012. 6. Delivered invited lectures on C Programming at the Dept. of Mathematics, Univ. of North Bengal, August 15, 2011. 7. Delivered an invited talk entitled "Open Source Software Movement" at Training Programme on Application of Open Source Software, USIC, Univ. of North Bengal, March 28-30, 2011 8. Delivered talks as resource person at the Dept. of Mathematics, to teach C Programming course, 2011-12 session 9. Delivered a talk as resource person in the "Workshop in Computing and Informatics, USIC, Univ. of North Bengal, March 15-18, 2010
RESEARCH PROJECT:	
	<ul style="list-style-type: none"> ▪ Sponsored Projects:
	Ongoing
	<ul style="list-style-type: none"> • Principal Investigator of project titled "Design and Development of an Artificial Neural Network (ANN) Based Expert System to diagnose Human Brain Tumor from CT Scan and MRI Images", funded by UGC(Under Innovative Research Project Scheme, 2015-17)
	Carried Out (Completed)
	<ul style="list-style-type: none"> • Investigator of project titled "Design and Development of a Secure Stegosystem", funded by University of North Bengal (N.B.U.)(2014-15).
ACADEMIC / TRAINING COURSES COMPLETED & CONFERENCE/SEMINAR/WORKSHOP ATTENDED:	
	<ul style="list-style-type: none"> ▪ Professional Development activities Completion or Participation in Refresher Courses/ Orientation Courses Methodology Workshops, Training, Teaching-Learning Evaluation Technology Programmes, Soft Skill Development Programme, Faculty Development Programmes, seminars, conferences, short term, training courses, dissemination and general articles:
	<ul style="list-style-type: none"> • Not less than two weeks duration
	<ol style="list-style-type: none"> 1. Online Course "Object oriented analysis and design" [Online Verification], by NPTEL, MHRD, Govt. of India, (IIT KGP, 8 Week Course) Jul-Sep, 2017. 2. Online Course "Introduction to operating systems" [Online Verification] by NPTEL, MHRD, Govt. of India, (IIT M, 8 Week Course) Jul-Sep, 2017. 3. UGC Orientation Programme, UGC-HRDEC, NBU 07/04 - 04/05, 2010. 4. UGC Refresher Course on Computer Applications, Univ. of Kalyani, 8-28 January, 2008.
	<ul style="list-style-type: none"> • One week duration
	<ol style="list-style-type: none"> 1. Online Training on Image Processing Using OpenCV Python , Finland Labs (A Unit of Revert Technology Pvt. Ltd., New Delhi), 06-10 December, 2021 2. STC on High Performance Computer Architecture, IIT Kharagpur, 11-16 July, 2009

	<ol style="list-style-type: none"> 3. STC on Selected Topics in Software Engineering, IIT Khaagpur, 23-28 November, 2008. 4. STC on Embedded System Technology, IIT Kharagpur, 25-30 June, 2007.
	<ul style="list-style-type: none"> • Less than one week duration
	<ol style="list-style-type: none"> 1. Online Course "Computer Science 101", by Stanford Online, April 12, 2017. 2. Online Course "Operating Systems - Understanding Hardware and Software Interrupts", Alison, 26 March 2017. 3. Participated in one day user awareness programme on "Access to E0resources under N-LIST programme", organized by University Library, NBU in collaboration with the INFLIBNET Centre, February 10, 2012. 4. Participated in three day Seminar cum Workshop on Bioinformatics organized by Bioinformatics Faculty, N.B.U., during 12-14 Feb, 2009. 5. Participated in 16th International Conference on High Performance Computing (HiPC'09), Kochi, India, 16-19 December, 2009. 6. Participate in the Seminar cum workshop on Bioinformatics, Bioinformatics Faculty, N.B.U., 12-14 Feb, 2009. 7. STC on Bioinformatics in Genomics and Proteomics, IIT Khaagpur, 26-27 September, 2008
CO-CURRICULAR, EXTENSION AND PROFESSIONAL DEVELOPMENT RELATED ACTIVITIES	
1. Student related co-curricular/extension / field based activities (such as extension work through NSS/NCC / other channels/ cultural activities/subject related events/ advisement and counselling/ exhibition/ educational/ industrial tour, etc.):	
	<ol style="list-style-type: none"> 1. State Student Coordinator, Region-II, (NE States), CSI, 2012-13.
2. Contribution to Corporate life and management of the department and institution through participation in academic and administrative committees and responsibilities:	
	<ol style="list-style-type: none"> 1. Nodal Coordinator, Virtual Labs Nodal Centre, NBU by Outreach Coordinator, Virtual Labs III, IIT Kharagpur, 2021. 2. Course Coordinator, Refresher Course in Computer Science, during 04.01.2019-24.01.2019 at UGC HRDC, NBU. 3. Member, University Central Visiting Team (UCVT) for UG 1st and 3rd Semester Examination, NBU on 12.12.2019. 4. Nodal Officer for mapping of the AICTE approved institution with SAGY villages, w.e.f. 6th Feb, 2018. 5. Observer for WBJEE-2017. 6. Joint Nodal Officer for university e-Governance, 13.04.2017. 7. Member of Central Visiting Team (UCVT) for UG examination, NBU, 2017. 8. Chairman, Expert Committee in BCA, w.e.f. 07.06.2017. 9. Chairman, Expert Committee on Computer Application (COP), w.e.f. 26.02.2017. 10. Chairman, BoS in Under Graduate studies in Computer Science, w.e.f. 17.01.2017. 11. Member, Purchase Committee, NBU, 2017. 12. Member, Committee constituted for MPLAD scheme, NBU, 04.01.2017. 13. Member, Committee constituted for setting up of Virtual Classroom, NBU, 04.01.2017. 14. Member, Tender Committee, NBU, 2017. 15. Experts in Departmental Committee for extension of fellowship at the Dept. of Physics, NBU, 2017. 16. Member of Refreshment Sub-Committee for 46th Annual Convocation of Univ. of North Bengal, 18th Feb, 2016. 17. Member of University Court as Head, Dept. of CSA, Univ. of North Bengal, 2016. 18. VC Nominee, Member, Selection Committee for Secretarial Assistant of UGC SAP DRS III, Dept. of Philosophy, NBU, 26.12.2016. 19. University Nominee, Selection Committee, Appointment of Lab Assistant, 09.11.2016 20. Subject Experts for Computer Proficiency Test of Group-C employees under compassionate

	<p>ground, 02.11.2016</p> <ol style="list-style-type: none"> 21. Member of ICT Committee (by NAAC monitoring committee, NBU), 28.10.2016. 22. Member of LAN Wi-Fi Committee, NBU, 28.10.2016. 23. Member of High Power Technical Committee (for NAAC Cycle-3 preparation, NBU), 24.10.2016. 24. Member of Anti-Ragging Squad, 2016. 25. Observer for WBJEE-2015. 26. Member, BoS in BCA, Raiganj University, 2015. 27. Head, Department of Computer Science & Application (01.09.2014 to 31.08.2016). 28. Member, BoS in Computer Sc, University of Gourbanga, 2014. 29. Subject Experts in the selection committee for App. of Asstt. Professor in CS, North Bengal St. Xavier's College, 2013. 30. External Subject Experts in the selection committee for App. of Addl. Asstt. Teacher in Comp. Sc., Rajibpur St. Joseph High School, 2013. 31. Confidential Work for West Bengal Regional School Service Commission, 2013. 32. State Student Coordinator, Region-II, Computer Society of India (CSI), during 2012-13 33. Member, BoS in Under Graduate studies in Computer Science, NBU w.e.f. 11.10.2012. 34. Member, Selection Board for selection of Project Staff, Dept. of History, NBU, 2012. 35. External Examiner for WBUT Practical Examination, 2012. 36. Secretary, Computer Society of India (CSI), Region-II, Siliguri Chapter. 37. Present Chairman, Computer Society of India (CSI), Region-II, Siliguri Chapter. 38. Member of Central Visiting Team (UCVT) for UG examination, NBU, 2011. 39. Head Examiner in COMS/COMA, HS Examination, 2011. 40. Observer, Term-End Examination (TEE) , Study Centre-2819, IGNOU, December 2011. 41. Observer, Term-End Examination (TEE) , Study Centre-2819, IGNOU, June 2011. 42. Observer, Term-End Examination (TEE) , Study Centre-2819, IGNOU, December 2010. 43. Observer, Term-End Examination (TEE) , Study Centre-2819, IGNOU, June 2010. 44. External Examiner, COP-Computer Application, Salesian College, Sonada, 2009.
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3. Professional Development activities (such as participation in seminars, conferences, short term, training courses, talks, lectures, membership of associations, dissemination and general articles):

	<ul style="list-style-type: none"> ▪ Membership of Associations
	<ol style="list-style-type: none"> 1. Life Member of Computer Society of India (CSI). 2. Life Member of Indian Society for Technical Education (ISTE), 2010. 3. Life Member of IAENG, 2011. 4. Life Member of Internet Society. 5. Member of ACM, June 2013. 6. Associate Member (UACEE) of the IRED (Institute of Research Engineers and Doctors) (August 21, 2014 - August 21, 2017) 7. Member, CSTA (Computer Science Teachers Association)
	<ul style="list-style-type: none"> ▪ Member of Board of Editors of Journals/Periodicals:
	<ul style="list-style-type: none"> • Emperor International Journal of Finance and Management Research (EIJFMR) (Reviewer) • International Journal of Computers & Technology (Reviewer) • Open Computer Science (Reviewer)
	<ul style="list-style-type: none"> ▪ Organizing Events or chairing the session i.e. conferences / seminars /symposia/ webinar/ workshops/ academic courses, etc.)
	<ol style="list-style-type: none"> 1. Working President, International Webinar on Emerging Trends in Computational Technologies (IWETCT) organized by Dept. of Computer Science and Application, University of North Bengal, In collaboration with IEEE CIS Kolkata Chapter & Computer Society of India, Siliguri Chapter, during October 01-03, 2021. 2. Members of Organizing Committee, , International Webinar on Emerging Trends in Computational Technologies (IWETCT) organized by Dept. of Computer Science and

	<p>Application, University of North Bengal, In collaboration with IEEE CIS Kolkata Chapter & Computer Society of India, Siliguri Chapter, during October 01-03, 2021.</p> <ol style="list-style-type: none"> 3. Program Secretary, NCCT'17 at the Dept. of Computer Sc. and Application, University of North Bengal, 2017. 4. Organization Secretary, NCCT'16 at the Dept. of Computer Sc. and Application, University of North Bengal, 2016. 5. Organization Secretary, NCCT'15 at the Dept. of Computer Sc. and Application, University of North Bengal, 2015. 6. Session-Chair at 22nd West Bengal State Science & Technology Congress-2015 (WBSSTC-2015), University of North Bengal, February 28-March 01, 2015. 7. Organizing Secretary, Research Scholars' Workshop on Computer Science and Application (RSWCSA-2012), Salesian College-Siliguri Campus, Organised by CSI, Siliguri Chapter and Salesian College, Siliguri, September 11, 2012.
<p>• Recognition of Research: Prestigious Honours and Awards of national/international importance or recognized by the international agencies or the departments/ agencies of national/ state governments</p>	
<p>International:</p>	<p>1. Significant Contribution Award (2013-2014), Computer Society of India (CSI).</p>
<p>National:</p>	<p>1. Awarded UGC-JRF, June, 2005</p>
