

CV modified on 23/12/2022



Dr. Babita Majhi

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Qualifications :

Ph.D., 2009, National Institute of Technology Rourkela, Odisha, India.

Post Doc.(Boyscast Fellow, DST, GOI) Dec.2011-Dec.2012, University of Sheffield, United Kingdom (UK)

Area of Interest/Specialization :

Machine Learning, Deep Learning, Data Mining, Time series analysis, Adaptive signal processing

Experience : 13 Years

Awards and Honors :

- Received best research paper award for 2019, 2020 and 2021 from IQAC, GGV Bilaspur.
- Received grant from SERB, DST, GOI for conducting National Conference during 19-20 Jan., 2023.
- Research Paper published (Pan evaporation modeling in different agro-climatic zones using Functional link artificial neural network, Information Processing in Agriculture, Elsevier) is linked with UN Sustainable development Goal for solving world's greatest challenge, 2022.
- Editorial board members of Journal of advances in management sciences & information systems, 2021.
- Recognized as Outstanding Reviewer by journal of Data and Knowledge Engineering, Elsevier in August 2018.
- Received grant from SERB, DST GOI for conducting National Conference, 2018,
- Received grant from CCOST, Chhatisgarh for conducting National Conference, 2018.
- Elected as Senior Member IEEE, USA in 2016.
- Received Best Research paper awards in 2015 and 2016.
- Editorial Board Member of Turkish Journal of Forecasting, Turkey 2017.
- Received the **BOYSCAST Fellowship of DST**, GOI for postdoctoral work at University of Sheffield, UK during 2010-11.

- Received the **Indian National Academy of Engineering Fellowship** for doing research work for two months under the faculty mentoring scheme by INAE Fellows in summer 2010.
- Received Grant from DST, GOI for conducting National workshop on Swarm intelligence, 2010.
- Awarded the best Ph. D. thesis award by the IEEE International Conference on Nature and Biologically Inspired Computing (NaBIC 2009), Coimbatore held during 9-11 Dec. 2009.
- Regular Reviewer of IEEE, Elsevier and Springer Journals.

Research Projects : NIL

International Collaboration/Consultancy :

Dec 2011-2012 : Research Collaboration with Prof. Peter J. Fleming, Dept. of Automatic Control and System Engg., University of Sheffield, UK under Boyscast Fellowship of DST, GOI.

List of Publications (All)

• **Journals : 49 Nos.**

1. Babita Majhi, A Modified Artificial Neural Network (ANN)Based Time series Prediction of COVID-19 Cases from Multi-country data, **Journal of The Institution of Engineers (India): Series B, Springer**, Dec. 2022. (Scopus Indexed) (Accepted)
2. Aarti Kashyap and Babita Majhi, Development and assessment of different balancing techniques and deep learning based prediction models for mortality prediction using ICU data, **International Journal of Pharmaceutical Sciences and Research**, Dec. 2022.(Scopus Indexed) (Accepted)
3. P. R. Jena, Babita Majhi, R. Kali and R. Majhi, Prediction of Crop Yield Using Climate Variables in the South-western Province of India: A Functional Artificial Neural Network Modeling (FLANN) Approach, **Environment, Development and Sustainability, Springer**, June. 2022.(**IF: 3.219**) (Accepted)**DOI: 10.1007/s10668-022-02517-x**
4. P. R. Jena, Babita Majhi and R. Majhi, Estimating Long-run Relationship Between Renewable Energy Use and CO2 Emissions: A Radial Basis Function Neural Network (RBFNN) Approach, **Sustainability**, 14(9), 5260; <https://doi.org/10.3390/su14095260>, April 2022.(**IF: 3.251**)
5. P. R. Jena, S. Managi, Babita Majhi, Forecasting the CO₂ emission at the global level: A multilayer artificial neural network modeling, **Energies**, 14(19), 6336, Oct. 2021.. <https://doi.org/10.3390/en14196336> (**IF : 3.004**)
6. P. R. Jena, R. Majhi, R. Kali, S. Managi, Babita Majhi, Assessing the Impact of COVID-19 on GDP of Major Economies in the World: Use of the Artificial Neural Network Forecaster, **Economic analysis and policy, Elsevier**, 69, pp. 324-339, March 2021 (**IF : 2.497**) <https://doi.org/10.1016/j.eap.2020.12.013>
7. A. K. Sahoo, S. K. Mishra, Babita Majhi, G. Panda and S. C. Satpathy, Real-time Identification of Fuzzy-PID controlled Maglev System using TLBO based Functional Link Artificial Neural Network, **Arabian Journal of Science and Engineering, Springer**, 46, 4103–4118, Feb. 2021 (**IF: 2.334**) <https://doi.org/10.1007/s13369-020-05292-x>

8. Babita Majhi and Diwakar Naidu, Differential Evolution based RBF Neural Network model for Reference Evapotranspiration Estimation, **SN Applied Sciences, Springer**, 3(1), 56, Jan.2021. (Scopus) <https://doi.org/10.1007/s42452-020-04069-z>
9. A. Thakur, A.P. Mishra, B. Panda, S. Kumari and Babita Majhi, Detection of disease specific parent cells via distinct population of nano-vesicles by machine learning, **Current Pharmaceutical Design**, Bentham Science, 26(32), pp.3985-3996, 2020, (Impact factor : 3.116) DOI: [10.2174/1381612826666200422091753](https://doi.org/10.2174/1381612826666200422091753) ISSN: 1873-4286 (Online) ISSN: 1381-6128 (Print)
10. A.Thakur, A. P. Mishra, B. Panda,Rodriguez, D. C. S., Gaurav I. and Babita Majhi, Application of Artificial Intelligence in Pharmaceutical and Biomedical Studies, **Current Pharmaceutical Design**, Bentham Science, 26(29), pp. 3569-3578, 2020. (Impact factor : 3.116) doi: 10.2174/1381612826666200515131245
11. Babita Majhi and Diwakar Naidu, Pan evaporation modeling in different agro-climatic zones using Functional link artificial neural network, **Information Processing in Agriculture, Elsevier**, vol.8, issue 1, pp.134-147, 2021. <https://doi.org/10.1016/j.inpa.2020.02.007> (Scopus Indexed)
12. Babita Majhi, D. Naidu, A. P Mishra and S.C. Satapathy, Improved prediction of daily pan evaporation using Deep LSTM network, **Neural Computing and applications, Springer**, vol. 32, issue 12, pp. 7823-7838, June 2020. (Impact Factor :5.606) (Citations : 04) (<https://doi.org/10.1007/s00521-019-04127-7>)
13. D. Naidu and Babita Majhi, Reference evapotranspiration modeling using radial basis function neural network in different agro-climatic zones of Chhattisgarh, **Journal of Agrometeorology**, vol. 21, issue 3, pp. 316-326, Sept. 2019. (impact factor 0.563) (WoS, Scopus & ICI)
14. U. M. Mahapatra, Babita Majhi and Alok Jagdev, On the development of Cat Swarm metaheuristic using distributed learning strategies and the applications, **International journal of intelligent computing and cybernetics**, vol. 12, issue 2, pp. 224-244, May 2019. (Scopus Indexed) (Citation : 01) <https://doi.org/10.1108/IJICC-10-2018-0146>
15. P. Pujari and Babita Majhi, Recognition of Odia Handwritten Digits using Gradient based Feature Extraction Method and Clonal Selection Algorithm, **International Journal of Rough Sets and Data Analysis, IGI Global**, vol. 6, issue 2, pp. 19-33, April-June 2019. DOI: 10.4018/IJRSDA.2019040102
16. Bishnupriya Panda, Babita Majhi and Abhimanyu Thakur, An integrated-OFFT model for the prediction of protein secondary structure, **Current Computer aided drug design, Bentham Science**, vol. 15, issue 1, pp. 45-54, 2019. (Impact Factor : 1.606) Doi: 10.2174/1573409914666180828105228 (Citation: 01)
17. U. M Mahapatra, Babita Majhi and S. C. Satapathy, Financial time series prediction using Distributed Machine learning techniques, **Neural Computing and its applications, Springer**, 31(8), pp. 3369-3384, Oct. 2019. (Impact Factor:5.606). <https://doi.org/10.1007/s00521-017-3283-2>.
18. B. Panda and Babita Majhi, A novel improved prediction of protein structural class using Deep recurrent neural network, **Evolutionary Intelligence, Springer**, vol. 14, issue 2, pp. 253-260, 2021. (Scopus Indexed).(Citations : 03) <https://doi.org/10.1007/s12065-018-0171-3>
19. Babita Majhi, U. M. Mahapatra and S. C. Satapathy, Distributed Machine Learning Strategies for Efficient Development of Direct and Inverse Nonlinear and IIR Models, **Journal of Ambient**

Intelligence and Humanized Computing, Springer, May 2018.(In Press) (Impact Factor : 7.104)
DOI : 10.1007/s12652-018-0839-7

20. Babita Majhi, C.M. Anish and Ritanjali Majhi, On Development of Novel Hybrid and Robust Adaptive models for Net asset value prediction, *Journal of King Saud Univ.-Computer and Information Science, Elsevier*,33, pp.647-657,2021 (April 2018.) DOI: 10.1016/j.jksuci.2018.04.011. **(Impact factor : 13.473) (Citations : 03)**
21. Babita Majhi and P. Pujari, On Development and Performance Evaluation of Novel Odia Handwritten Digit Recognition Methods, **Arabian Journal for Science and Engineering, Springer, vol. 43, Issue 8**, pp 3887–3901, Aug. 2018. DOI 10.1007/s13369-017-2652-6 **(Impact factor :2.334) (Citation -03)**
22. VSS Sameer Chakravarthy Vedula, Chowdary Satish Rama Paladuga, Ganapati Panda, Jaume Anguera, Aurora Andújar and Babita Majhi, On the linear antenna array synthesis techniques for sum and difference patterns using flower pollination algorithm", **Arabian Journal of Science and Engineering, Springer**, vol. 43, issue 8, pp. 3965–3977, August 2018. DOI 10.1007/s13369-017-2750-5 **(Impact factor:2.334) (Citations -16)**
23. Soumya Ranjan Tripathy, G. Panda and Babita Majhi, A constrained LMMSE based object specific reconstruction in compressive sensing, **IET Signal Processing**, 11(9), pp. 1122-1127, 2017. **(Impact Factor : 1.692).**
24. B. Panda and Babita Majhi, ADAMMLP: An Adaptive Moment Based Hybrid Multi-Layer Perceptron for Protein Secondary Structure Prediction, **Journal of Pharmaceutical Science and Research**, Pharmainfo Publication, 9(11), pp. 2023–2028, 2017. ISSN 0975-1459**(Scopus Indexed)**
25. C. M. Anish, Babita Majhi and R. Majhi, Development and evaluation of novel forecasting adaptive ensemble model, **The Journal of Finance and Data Science, Elsevier**, vol. 2, issue 3, pp. 188-201, Sept 2016. (Scopus Indexed) (Citations : 03)
26. S. K. Mishra, G. Panda and Babita Majhi, Prediction based mean-variance Model for Constrained Portfolio Optimization using Multiobjective Particle Swarm Optimization, **Swarm and Evolutionary Computation, Elsevier**, vol.28, pp. 117-130, June 2016. **(Impact factor : 7.177) (Citation:15)**
27. C. M. Anish and Babita Majhi, Hybrid Nonlinear Adaptive Scheme for Stock Market Prediction using Feedback FLANN and Factor Analysis", **Journal of the Korean Statistical Society, Elsevier**, vol. 45, issue 1, pp.64-76, March 2016. **(Impact factor : 0.569) (Citations :31)**
28. Babita Majh and C. M. Anish, "Multiobjective optimization based adaptive model with fuzzy decision making for stock market forecasting", **Neurocomputing, Elsevier**, vol. 167, issue 1, pp. 502-511, November 2015. **(Impact factor :5.719) Citations :28)**
29. P. R. Jena, R. Majhi and Babita Majhi, "Development and Performance Evaluation of a Novel Knowledge Guided Artificial Neural Network (KGANN) Model for Exchange Rate Prediction", *Journal of King Saud University – Computer and Information Sciences, Elsevier*, vol.27, no. 4, pp. 450-457, Oct. 2015. **(Impact factor : 13.473) (Citations :16)**
30. Minakhi Rout and Babita Majhi, "Long range prediction of retails sales volume using Recurrent Radial basis function neural network", **International Journal of Foresight and Innovation Policy, Inderscience Publication**, vol. 10, no. 1, pp.29-47, 2015. **(Scopus Indexed) (Citation:01)**

31. Babita Majhi, Minakhi Rout and Vikas Bhagel, "On the Development of Multiobjective based RBF Prediction model for Efficient Forecasting of Stock Indices", Journal of King Saud university- **Computer and Information Sciences, Elsevier**, Vol. 26, issue 3, pp. 319-331, Nov. 2014. **(Citation-21) ((Impact factor : 8.473)**
32. U. K. Sahoo, G. Panda, B. Mulgrew and Babita Majhi, "Development of robust distributed learning strategies for wireless sensor networks using rank based norms", **Signal Processing, Elsevier**, vol. 101, pp. 218-228, Aug. 2014 **(Impact factor : 4.662) (Citation-08)**
33. U. K. Sahoo, G. Panda, B. Mulgrew and Babita Majhi, "Robust Incremental Adaptive Strategies for Distributed Networks to Handle Outliers in both Input and Desired Data", **Signal Processing, Elsevier**, vol. 96, part B, pp. 300-309, March 2014. **(impact factor : 4.662) (Citation-06) (citation-2)**
34. Minakhi Rout, Babita Majhi, R. Majhi, G. Panda, "Forecasting of currency exchange rates using an adaptive ARMA model with differential evolution based training", Journal of King Saud university- **Computer and Information Sciences, Elsevier**, vol. 26, Issue 1, pp. 7-18, January 2014, ISSN : 1319-1578.**(Citations-71) (Impact factor : 8.473)**
35. Babita Majhi and Ganapati Panda, "Distributed and Robust Parameter Estimation of IIR Systems using Incremental Particle Swarm Optimization", **Digital Signal Processing : A Review Journal, Elsevier**, vol. 23, issue 4, pp.1303-1313, July 2013. **(Impact factor :3.381). (Citation-15)**
36. T. Panigrahi, G. Panda, B. Mulgrew and Babita Majhi, "Distributed DOA estimation using clustering of sensor nodes and diffusion PSO algorithm", **Swarm and Evolutionary Computation, Elsevier**, vol.9, pp.47-57, April 2013, ISSN : 2210-6502 **(Impact factor :7.177) (Citation-27).**
37. T. Panigrahi, G. Panda and Babita Majhi, "Maximum Likelihood Source Localization in Wireless Sensor Network Using Particle Swarm Optimization", **International Journal of Signal and Imaging Systems Engineering**, Inderscience Publication, vol. 6, issue 2, pp.83-90, 2013.**(Citations-09) (Scopus Indexed)**
38. Babita Majhi, Minakhi Rout, R. Majhi, G. Panda and P. J. Fleming, "New robust forecasting models for exchange rates prediction", **Expert systems with applications**, Elsevier, vol. 39, issue 16, pp. 12658-12670, Nov. 2012. **(Impact factor: 6.954). (Citations-48).**
39. U. K. Sahoo, G. Panda, B. Mulgrew and Babita Majhi, "QR-based incremental minimum-Wilcoxon-norm strategies for distributed wireless sensor networks", **Signal Processing, Elsevier**, vol. 92, issue 11, pp.2657-2667, Nov. 2012. **(Impact factor :4.662). (Citation-06)**
40. R. Majhi, Babita Majhi and G. Panda, "Development and performance evaluation of Neural network classifiers for Indian internet shoppers", **Expert Systems with Applications, Elsevier**, vol. 39, issue 2, pp.2112-2118, February 2012.**(Impact factor: 6.954). (Citation-09)**
41. G. Panda, P. M. Pradhan and Babita Majhi, "IIR System Identification using Cat Swarm Optimization", **Expert Systems with Applications**, vol. 38, issue 10, pp. 12671-12683, September 2011. **(Impact factor: 6.954) (Citations – 188)**
42. Babita Majhi and G. Panda, "Robust Identification of Nonlinear Complex Systems using Low Complexity ANN and Particle Swarm Optimization Technique", **Expert Systems with Applications**, Elsevier, vol. 38, issue 1, pp.321-333, January 2011. **(Impact factor: 6.954) (Citations:43)**

43. S. J. Nanda, G. Panda and Babita Majhi, "Improved Identification of Hammerstein Plants using new CPSO and IPSO algorithms", **Expert Systems with Applications**, Elsevier, vol. 37, issue 10, Pages 6818-6831, October 2010. (Impact factor: 6.954). (Citations -42)
44. Babita Majhi and G. Panda, "Development of Efficient identification Scheme for Nonlinear Dynamic Systems using Swarm Intelligence techniques", **Expert Systems with Applications**, Elsevier, vol. 37, issue 1, pp. 556-566, January 2010. (Impact factor: 6.954) (Citations -46)
45. R. Majhi, G. Panda, Babita Majhi and G. Sahoo, "Efficient prediction of stock market indices using adaptive bacterial foraging optimization (ABFO) and BFO based techniques", **Expert Systems with Applications**, Elsevier, vol. 36, issue 6, pp. 10097-10104, August 2009. (Impact factor: 6.954) (Citations-149)
46. Babita Majhi, G. Panda and B. Mulgrew, "Robust identification using New Wilcoxon Least Mean Square (WLMS) Algorithm", **Electronics Letters**, vol. 45, issue 6, pp. 334-335, 12th March 2009.(Impact factor:1.316). (Citations-29)
47. Babita Majhi and G. Panda, "Cascaded Functional Link Artificial Neural Network Model for Nonlinear Dynamic System Identification", **International Journal of Artificial Intelligence and Soft Computing**, Inderscience Publication, vol. 1, Nos. 2/3/4, pp. 223 – 237, 2009.ISSN online: 1755-4969 ISSN print: 1755-4950. (Indexed in ACM Digital library) (Citation-02)
48. Babita Majhi, G. Panda, "Identification of IIR Systems using Comprehensive Learning Particle Swarm Optimization", **International Journal of Power and Energy Conversion**, Inderscience Publication, vol. 1, no. 1, pp.105-124, 2009, ISSN online: 1757-1162 ISSN print: 1757-1154. (Scopus Indexed) (Citations-08)
49. Babita Majhi and G. Panda, "A Hybrid Functional Link Neural Network and Bacterial Foraging Approach for Efficient Identification of Dynamic Systems", **International Journal of Applied Artificial Intelligence in Engineering Systems**, Serial Publication, vol. 1, no. 1, pp. 91-104, January-June 2009, ISSN : 0975-3176.

•**International Conference proceedings : 70 Nos.**

1. Babita Majhi and Aarti Kashyap, Heart disease detection using phonocardiogram (PCG) signals, 2nd Emergent Converging Technologies and Biomedical Systems (ETBS 2022), Jaypee University of Information Technology, Waknaghat, 23-24 September 2022. Springer proc.
2. Babita Majhi and Aarti Kashyap, Development of a Hybrid Model using Deep Neural Network and XGBOOST for Mortality Prediction of ICU Patients, *11th IEEE International Conference on Communication Systems and Network Technologies, SGSITS, Indore 23-24 April,2022.* pp. 324-328, ISSN: 2329-7182. DOI: [10.1109/CSNT54456.2022.9787564](https://doi.org/10.1109/CSNT54456.2022.9787564)
3. Babita Majhi and Prastavana, An Improved intrusion detection system for BoT-IoT Dataset, *11th IEEE International Conference on Communication Systems and Network Technologies, SGSITS, Indore 23-24 April,2022.*pp. 488-492, DOI: [10.1109/CSNT54456.2022.9787639](https://doi.org/10.1109/CSNT54456.2022.9787639)
4. Vikas Bhatnagar, Babita Majhi and Ritanjali Majhi, Estimating the impact of news on Indian government decisions to contain the spread of COVID-19 in India, AMMLAC 11-12 March, 2022, NIT Raipur.(Accepted)

5. Babita Majhi and Aarti Kashyap, Feature reduction and classification techniques for healthcare data, International Conference on recent trends in mathematical, physical & computational Sciences, Sagar Univ., MP, 12-14 December, 2019. (Presented)
6. Diwakar Naidu and Babita Majhi, Application of machine learning techniques for reference evapo-transpiration modeling, International Symposium on advances in agrometeorology for managing climatic risks of farmers” (INAGMET-2019) 11-13 February 2019, JNU, New Delhi.(Presented)
7. Sidharth Behera, Ayush Pradhan and Babita Majhi, A Novel Clustering Based Fuzzy Approach for Character Segmentation in Handwritten Odia Scripts, 4th IEEE International Conference on Image Information Processing, 21-23, Dec. 2017, Shimla. DOI: [10.1109/ICIIP.2017.8313728](https://doi.org/10.1109/ICIIP.2017.8313728)
8. Venkata Sasank Pagolu, Kamal Nayan Reddy Challa, Ganapati Panda and Babita Majhi, Sentiment Analysis of Twitter Data for Predicting Stock Market Movements, SCOPES 2016, Paralakhemundi, 3-5 Oct 2016, pp1345-1350. DOI: [10.1109/SCOPES.2016.7955659](https://doi.org/10.1109/SCOPES.2016.7955659) (Citations : 103)
9. Kamal Nayan Reddy Challa, Venkata Sasank Pagolu, Ganapati Panda and Babita Majhi, An Improved Approach for Prediction of Parkinson’s Disease using Machine Learning Techniques, IEEE Scopes 2016, Paralakhemundi 3-5 Oct. 2016, pp.1446 - 1451, DOI: [10.1109/SCOPES.2016.7955679](https://doi.org/10.1109/SCOPES.2016.7955679) (Received Best Paper Award)
10. Ayush Pradhan, Sidharth Behera, Ganapati Panda and Babita Majhi Comparative Performance Study of Word Segmentation Techniques for Handwritten Odia Documents, IEEE Scopes 2016, Paralakhemundi 3-5 Oct. 2016., pp.1592 - 1597, DOI: [10.1109/SCOPES.2016.7955708](https://doi.org/10.1109/SCOPES.2016.7955708)
11. C. M. Anish and Babita Majhi, Prediction of Mutual Fund Net Asset Value using low complexity Feedback Neural Network, **IEEE International conference on Current Trends in advanced Computing (ICCTC 2016), Bangalore**, pp. 1-5, 10-11, March 2016. DOI: [10.1109/ICCTAC.2016.7567345](https://doi.org/10.1109/ICCTAC.2016.7567345)
12. P. Pujari and Babita Majhi, Genetic Algorithm based hybrid model for recognition of Odia vowels using FLANN and Wavelet transform, IEEE conference on Electrical. Electronics and Optimization Techniques, Chennai, 3-5 March 2016.(presented)
13. P. Pujari and Babita Majhi, “Performance Comparison of Ensemble Models for Recognition of Offline Handwritten Odia Numerals”, **IEEE International conference on Power, Communication and Information Technology, Bhubaneswar**, 15-17 Oct. 2015, pp.29-35. Doi: [10.1109/PCITC.2015.7438187](https://doi.org/10.1109/PCITC.2015.7438187)
14. C. M. Anish and Babita Majhi, “ An ensemble based model for Net asset value prediction”, **IEEE International conference on Power, Communication and Information Technology, Bhubaneswar**, 15-17 Oct. 2015, pp.392-396. Doi: [10.1109/PCITC.2015.7438197](https://doi.org/10.1109/PCITC.2015.7438197)
15. C. M. Anish and Babita Majhi, A PSO based RBF model for net asset value prediction, **International Conference on advanced research applications in engineering and technology (Shaastrarth 2015), Bhilai**, 29-30 June 2015.(Presented)
16. P. Pujari and Babita Majhi, An efficient technique for recognition of Odia numerals using particle swarm optimized based FLANN model with gradient feature, **International Conference on advanced research applications in engineering and technology (Shaastrarth 2015), Bhilai**, 29-30 June 2015.(Presented)

17. P. Pujari and Babita Majhi, "Ensemble of Weak Learners on Recognition of Odia Numeric Digits", **International Seminar on Non-Conventional Energy Sources for Sustainable Development of Rural Areas, 21-22, March 2015, Bhillai. (Received best paper award)**
18. P. Pujari and Babita Majhi, "A comparative study of classifiers on recognition of offline handwritten Odia numerals", **IEEE International Conference on Electrical, electronics, signals, communication and optimization (EESCO), Vishakhapatnam**, pp. 1-5, 24-25, Jan 2015.
19. Aninditta Dutta, M. Rout and Babita Majhi, "TLBO Based Hybrid Forecasting Model for Prediction of Exchange Rates" **SEMCCO and FANCCO 2014, Bhubaneswar, LNCS 8947, Springer, pp. 1-11**, 18-20 Dec. 2014. Doi:10.1007/978-3-319-20294-54
20. C. M. Anish, Babita Majhi and H. S. Tonde, "A Novel Hybrid Nonlinear Adaptive Model For Prediction of Stock Indices", **International Conference on Communication and Computing (ICC-2014), Bangalore**, pp.18-25,12-14 June 2014.
http://www.elsevierst.com/conference_book_download_chapter.php?cbid=86#chapter3
21. B. Panda, A. P. Mishra, Babita Majhi and M. Rout, "Performance evaluation of Protein structural class prediction using Artificial Neural networks", **IEEE International Conference on human computer interactions (ichci'13), Chennai, Tamilnadu, pp.1-5**, 23-24 August 2013. DOI: [10.1109/ICHCI-IEEE.2013.6887792](https://doi.org/10.1109/ICHCI-IEEE.2013.6887792)
22. B. Panda, A. P. Mishra, Babita Majhi and M. Rout, "Protein Structural Class Prediction Using Hybrid Feature Extraction Method and Low Complexity Neural Network", **SEMCCO and FANCCO 2013, SRM University, Chennai, Part II, LNCS 8298, pp. 298–307, 2013**,19-21 December 2013. DOI: 10.1007/978-3-319-03756-1
23. B.Panda, A. P. Mishra, Babita Majhi and M. Rout, "Development and performance evaluation of FLANN based model for protein structural class prediction", **Second International Conference on Advances in Electronics Electrical and Computer Engineering – EEC 2013**, pp. 230-234, **Dehradun**, 22-23 June 2013. DOI: 10.3850/ 978-981-07-6935-2_46
24. M. Rout, Babita Majhi, U. M. Mahapatra and R. Mahapatra, "Stock index prediction using radial basis function neural network", **SEMCCO and FANCCO 2012, Bhubaneswar**, Springer LNCS 7677, pp. 285–293, 20-22 Dec., 2012. DOI: 10.1007/978-3-642-35380-2_34.(Citation : 2)
25. M. Rout, Babita Majhi and Rosalin Mahapatra, "An Artificial Bee Colony algorithm based Efficient Prediction Model for Stock Market Indices", **IEEE 2nd World Congress on Information and Communication Technologies(WICT 2012), IIITM, Trivandrum**, pp. 750-754, 30th Oct. – 2nd Nov. 2012. DOI: [10.1109/WICT.2012.6409174](https://doi.org/10.1109/WICT.2012.6409174) (Citation:1)
26. R. Mahapatra, Babita Majhi and Minakhi Rout, "Reduced feature based efficient cancer classification using single layer neural network", **2nd International Conf. on Communication, Computing & Security, NIT Rourkela**, Procedia Technology, Elsevier, vol. 6, pp.180-187, 6-8 October 2012. DOI : 10.1016/j.protcy.2012.10.022 (Citation:5)
27. P. M. Pradhan, G. Panda and Babita Majhi, "Multi-objective Cooperative Spectrum Sensing in Cognitive Radio using Cat Swarm Optimization", **IEEE 2012 Wireless Advanced, King's College, London**, pp. 44-48, 25-27, June 2012. DOI : [10.1109/WiAd.2012.6296565](https://doi.org/10.1109/WiAd.2012.6296565) (Citation-01)

28. S. Mishra, G. Panda, Babita Majhi and R. Majhi, "Improved portfolio optimization combining multi-objective evolutionary computing algorithms prediction strategy", **World Congress on Engineering(WCE 2012), International Conference of Financial Engineering, London, UK**, pp. 470-474, 4-6 July 2012. DOI: www.iaeng.org/publication/WCE2012/WCE2012_pp470-474.pdf (Citation:5)
29. A. K. Sahoo, G. Panda and Babita Majhi, "A technique for pulse radar detection using RRBF neural network", **World Congress on Engineering(WCE 2012), International Conference of Computational Intelligence and Intelligent Systems, London, UK**, pp. 684-689, 4-6 July 2012. DOI: www.iaeng.org/publication/WCE2012/WCE2012_pp684-689.pdf (Citation:3)
30. U.M. Mohapatra, Babita Majhi and M. Rout, "A Robust Technique for Exchange Rate Prediction using Wilcoxon Norm", **IEEE International Conference on Advances in Engineering, Science and Management (IEEE-ICAESM 2012), Nagapattinam**, pp. 536-541, 30-31 March 2012. DOI: ieeexplore.ieee.org/iel5/6204370/6215562/06215902.pdf (Citation:1)
31. R. Mahapatra, Babita Majhi and M. Rout, "Development and Performance Evaluation of Improved Classifiers of Microarray Data", **IEEE International Conference on Advances in Engineering, Science and Management (IEEE-ICAESM 2012), Nagapattinam**, pp.519-523, 30-31 March 2012. DOI: ieeexplore.ieee.org/iel5/6204370/6215562/06215899.pdf (Citation :1)
32. M. Rout, Babita Majhi and U. M Mahapatra, "Efficient Long Range Prediction of Exchange Rates using Radial Basis Function Neural Network Models", **IEEE International Conference on Advances in Engineering, Science and Management (IEEE-ICAESM 2012), Nagapattinam**, pp.530-535, 30-31 March 2012. DOI: ieeexplore.ieee.org/iel5/6204370/6215562/06215901.pdf (Citation :1)
33. T. Panigrahi, B. Mulgrew and Babita Majhi, "Robust Distributed Linear Parameter Estimation in Wireless Sensor Network", **IEEE International Conference on Energy, Automation and Signal(ICEAS 2011), Bhubaneswar**, pp.1-5, , 28-30 Dec. 2011. DOI:10.1109/ICEAS.2011.6147136 (Citation-1)
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35. M. Rout, Babita Majhi and U. M. Mahapatra, "Development and performance evaluation of DE based time series prediction model", **IEEE International Conference on Energy, Automation and Signal(ICEAS 2011), Bhubaneswar**, pp.1-5, 28-30 Dec. 2011. DOI:10.1109/ICEAS.2011.6147091 (Citation-1)
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37. H Pal Thethi, S. Mondal, S. S. Roy, Babita Majhi and G. Panda, "Identification of Complex nonlinear dynamic systems using FLANN and differential evolution", **International Conference on Machine Intelligence Application to Power, Signal Processing, Communication and Control, Rajam**, pp.127-133, 7-9 April 2011.
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40. C. Bihari, Babita Majhi and G. Panda, "A critical review on offline handwritten odia character recognition techniques", **International Conference on Emerging trends in soft computing and ICT, GG Central University, Bilaspur**, pp. 89-92, 16-17 March 2011.
41. M. Rout, Babita Majhi, R. Majhi and G. Panda, "Novel Stock Market Prediction using a Hybrid Model of Adaptive Linear Combiner and Differential Evolution", **2nd International Conference on Recent Trends in Information, Telecommunication and Computing (ITC 2011), Bangalore**, pp. 187-191, 10-11 March 2011. DOI: 10.1007/978-3-642-19542-6_30 (Citation:3)
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43. T. Panigrahi, G. Panda, B. Mulgrew and Babita Majhi, "Maximum likelihood source localization in wireless sensor network using particle swarm optimization", **International conference on electronics systems, NIT Rourkela**, pp111-115, 7-9 January 2011.
44. T. Panigrahi, G. Panda, B. Mulgrew and Babita Majhi, "Robust Incremental LMS over Wireless Sensor Network in Impulsive Noise", **IEEE International Conference on Computational Intelligence Communication Networks (CICN200), Bhopal**, pp.205-209,26-28 Nov. 2010.DOI:10.1109/CICN.2010.50. (Citation-02)
45. R. Majhi, B. Panda, Babita Majhi and G. Panda, "Development and performance evaluation of PSO based single layer nonlinear ANN classifiers of Indian online shoppers", **4th International conference on Advanced Engineering Computing and Applications in Sciences, Florence, Italy**, pp.118-123, 25-30 October 2010. DOI:advcomp_2010_6_30_20049
46. H Pal Thethi, Babita Majhi and G. Panda, "Development of efficient robust inverse models using Bacterial foraging optimization", **ACEEE International Conference on Control, Communication and Power Engineering(CCPE 2010), Chennai**, pp. 24-29, 28-29 July 2010. DOI: 01.IJCSI.02.02.44
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48. R. Majhi, Babita Majhi, M. K. Mishra and G. Panda, "Retail Sales forecasting using differential evolution", **IEEE International Conference on Nature and Biologically Inspired Computing (NaBIC 09), Coimbatore**, pp. 1343-1348,9-11 December 2009. DOI:10.1109/NABIC.2009.5393740
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58. S. J. Nanda, G. Panda, **Babita Majhi** and Prakash Tah, "Development of a new optimization algorithm based on Artificial Immune System and its application", **IEEE ICIT 2008, Bhubaneswar**, pp. 45-48, 17-20, December 2008. DOI:10.1109/ICIT.2008.20 (**Citation :2**)
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 65. **Babita Majhi** and G. Panda, "Bacterial Foraging based Identification of Nonlinear Dynamics System", Proc. of **IEEE Congress on Evolutionary Computation(CEC-2007), Singapore, 25-28, September, 2007, pp.1636-1641.DOI:10.1109/CEC.2007.4424669 (Citation : 37)**
 66. G. Panda, D. Mohanty, **Babita Majhi** and G. Sahoo, "Identification of Nonlinear Systems using Particle Swarm Optimization Technique", Proc. of **IEEE Congress on Evolutionary Computation(CEC-2007), Singapore, 25-28, September, 2007, pp.3253-3257. DOI: 10.1109/CEC.2007.4424889 (Citation : 44)**
 67. **Babita Majhi** and G. Panda, "Recovery of Digital Information using Bacterial Foraging Optimization based Nonlinear Channel Equalizers", Proc. of **IEEE 1st International Conference on Digital Information Management (ICDIM-2006),Bangalore, India, 6-8th December, 2006, pp. 367-372. DOI : 10.1109/ICDIM.2007.369224 (Citation : 12)**
 68. G. Panda, **Babita Majhi** and S. Mishra, "Nonlinear System Identification using Bacterial Foraging based Learning", Proc. of **IET 3rd International Conference on Artificial Intelligence in Engineering Technology (ICAJET-2006), Malaysia, 22-24, November, 2006, pp. 120-125. (Citation:5)**
 69. **Babita Majhi**, G. Panda and A. Choubey, "On The Development of a new Adaptive Channel Equalizer using Bacterial Foraging Optimization Technique", Proc. of **IEEE Annual India Conference (INDICON-2006), New Delhi, India, 15th-17th September, 2006, pp. 1-6.DOI: 10.1109/INDCON.2006.302761 (Citation : 27)**
 70. G. Panda, **Babita Majhi**, D. Mohanty and A. Choubey, "Development of GA Based Adaptive Techniques for Nonlinear System Identification", Proc. of **International Conference on Information Technology (ICIT-2005), Bhubaneswar, India, 20-23, December, 2005, pp. 198-204.**

National Conferences(15 Nos.)

Published

1. Diwakar Naidu, Babita Majhi and S.K. Chandniha, Development of radial basis function neural network model for monthly rainfall prediction for Chhattisgarh state in east central India, National Seminar on "Agrometeorological Interventions for Enhancing Farmers Income (AGMET-

2020)", College of Horticulture, Kerala Agricultural University, Vellanikkara, Thrissur, 20-22 Jan. 2020.(presented)

2. C. M. Anish, Babita Majhi and Harendra Bikrol, An adaptive RFLANN model with PSO based training for Forex prediction, National conference on Data analytics, machine learning and security (NCDAMLS 2018), 14-15 Feb., 2018, GGV Bilaspur. ISBN : 978-93-5291-457-9.
3. Diwakar Naidu and Babita Majhi, Evaporation estimation using recurrent artificial neural network – A case study for Chhattisgarh plains region of east central India, National conference on Data analytics, machine learning and security (NCDAMLS 2018), 14-15 Feb., 2018, GGV Bilaspur. ISBN : 978-93-5291-457-9.
4. P. Pujari and Babita Majhi, Recognition of Odia vowels using clonal selection algorithm based FLANN model, National conference on Data analytics, machine learning and security (NCDAMLS 2018), 14-15 Feb., 2018, GGV Bilaspur. ISBN : 978-93-5291-457-9.
5. Babita Majhi and Usha manasi Mahapatra, Distributed inverse modeling using Incremental and diffusion LMS, National conference on Data analytics, machine learning and security (NCDAMLS 2018), 14-15 Feb., 2018, GGV Bilaspur. ISBN : 978-93-5291-457-9.
6. P. Pujari and Babita Majhi, Recognition of Vowels using Curvature Features and Genetic algorithm based FLANN model, AICON 2017, Durg, April 2017.
7. P. Pujari and Babita Majhi, Odia Handwritten Vowel Recognition System by using Discrete Cosine Transform and C5.0 Decision Tree Classifier", All India National Conference AICON'16., Durg, 22-23, pp.1-6, April, 2016. ISBN: 978-81-923288-4-3.
8. P. Pujari and Babita Majhi, "Recognition of Handwritten Odia Numerals by using Prune Neural Network Model", All Indian Conference on sustainable product development (AICON 2015), Durg, 24-25 April, 2015.
9. C. M. Anish and Babita Majhi, "Net Asset Value Prediction using RBF Model", All Indian Conference on sustainable product development (AICON 2015), Durg, 24-25 April, 2015.
10. C. M. Anish and Babita Majhi, "Predicting Net asset value of Mutual fund using RFLANN model", National seminar on Innovation and research in science, management and technology(IRSMT - 2015), Bilaspur University, Bilaspur, 29-30 March, 2015. **(Received best paper award)**
11. P. Pujari and Babita Majhi, "Read coded genetic algorithm based neural network model for Odia numerals recognition", National seminar on Innovation and research in science, management and technology(IRSMT -2015), Bilaspur University, Bilaspur, 29-30 March, 2015.
12. R. Mahapatra, Babita Majhi and M. Rout, "Efficient classification of cancer patient using artificial neural network", 35th National Systems Conference, IIT Bhubaneswar, Dec. 9-11, 2011, pp.138-143.
13. R. Majhi, G. Panda and Babita Majhi, "Robust forecasting of foreign exchange rates using low complexity Wilcoxon norm based artificial neural network model", Proc. of National conference on Forecasting Financial Markets in India (FFMI 2008), IIT Kharagpur, 29-31 December, 2008.
14. G. Panda, D. Mohanty and Babita Majhi, "An Adaptive Genetic Algorithm for System Identification : a faster approach", Proc. of National Conference on Soft Computing Techniques for Engineering Applications (SCT-2006), NIT Rourkela, India, 24-26, March, 2006, pp. 329-336.

15. G. Panda, Babita Majhi, D. Mohanty, A. Choubey and S. Mishra, "Development of Novel Digital Channel Equalisers using Genetic Algorithms", Proc. of National Conference on Communication (NCC-2006), IIT Delhi, India, 27-29, January, 2006, pp.117-121.

Recent Books, Book Chapters/Monographs etc.

Books

1. Sujata Dash, S. K. Pani, Joel Jose P. Coelho Rodrigues and Babita Majhi, Deep Learning, Machine Learning and IOT in Biomedical and Health Informatics: Techniques and Applications, CRC Press, Taylor & Francis. Pages 1-382, ISBN 9780367544256, Feb. 2022.
2. Babita Majhi and P. Pujari, (Edited ebook) Proceeding of Conference of National Conference on Data Analytics, Machine learning and Security, 2018. ISBN : 978-93-5291-457-9.
3. Babita Majhi, Computational Intelligence techniques to direct and inverse modeling, LAMBERT Academic Publication, Germany, 2016, ISBN : 978-3-659-90736-4
4. Harpal Thethi and Babita Majhi, Application of Bio-inspired techniques to telecommunication problems, LAMBERT Academic Publication, Germany, 2012.(Available at www.amazon.com) ISBN : 9783659223235.

Book Chapters

1. Babita Majhi, Rahul Thadenga and R. Majhi, A review on detection of covid-19 patients using deep learning techniques, Assessing Covid 19 and pandemics and epidemics using computational modeling and data analysis, pp. 59-74, Springer, Nov. 2021. eBook ISBN 978-3-030-79753-9, DOI10.1007/978-3-030-79753-9.
2. Babita Majhi and Aarti Kashyap, Early prediction of Parkinson's disease using non-motor features and machine learning techniques, ch. 9, Deep learning, machine learning and IOT in biomedical and health informatics techniques and applications, ch-9, pp. 139-155, CRC Press, Taylor & Francis, USA, ISBN 9780367544256, Feb. 2022.
3. Babita Majhi, Aarti Kashyap and R. Majhi, Mortality prediction of ICU patients using machine learning techniques, Information retrieval models for biomedical and health informatics, Wiley, Chapter 1, pp. 1-19, August 2021. Print ISBN:9781119711247 Online ISBN:9781119711278 . <https://doi.org/10.1002/9781119711278.ch1>
4. Diwakar Naidu, Babita Majhi and Surendra Chandniha, Rainfall projections using machine learning techniques in different agroclimatic zones, Chapter 7, Automated Feature Engineering and Advanced Applications in Data Science, IGI Global, USA, ISBN13: 9781799866596 ISBN10: 1799866599 EISBN13: 9781799866619 DOI: 10.4018/978-1-7998-6659-6, Jan. 2021.(Scopus)
5. Babita Majhi, Sachin Singh Rajput and R. Majhi, Performance evaluation of Machine learning techniques for customer churn prediction in telecommunication sector, Chapter 15, Automated Feature Engineering and Advanced Applications in Data Science, IGI Global, USA, ISBN13: 9781799866596 ISBN10: 1799866599 EISBN13: 9781799866619 DOI: 10.4018/978-1-7998-6659-6, Jan. 2021. (Scopus)

6. Babita Majhi and Aarti Kashyap, Applications of soft computing techniques in heart sound classification – A review for a decade, Soft computing applications and techniques in healthcare, CRC Press, Taylor & Francis Group, USA, Oct. 2020. <https://doi.org/10.1201/9781003003496>, ISBN: 9780367423872, ebook ISBN : 9781003003496, ch 7, pp. 113-136
7. C. M. Anish, Babita Majhi and R. Majhi, A novel hybrid model using RBF and PSO for net asset value prediction, Modeling, Analysis, and Application of Nature-Inspired Metaheuristic Algorithms, IGI, Publication, pp.54-72, 2017. (ISBN : 9781522528579) (Scopus Indexed)
8. P. Pujari and Babita Majhi, Application of Nature Inspired Technique to Odia Handwritten Numeral Recognition, Modeling, Analysis, and Application of Nature-Inspired Metaheuristic Algorithms, IGI, Publication, pp. 377-399, 2017.(ISBN : 9781522528586)
9. U. M. Mahapatra and Babita Majhi, “Distributed parameter estimation using Incremental and Diffusion Differential Evolution”, Handbook of Research on Wireless Sensor Network Trends, Technologies, and Applications, IGI Publication, pp. 58-79. (ISSN: 2327-3305; eISSN: 2327-3313), DOI: 10.4018/978-1-5225-0501-3.ch003
10. B. Panda, Babita Majhi, “Development of Novel Multi-Objective based Model for Protein Structural Class Prediction,” Handbook of Research on Computational Intelligence Applications in Bioinformatics, IGI Publication, Section-2, Chapter-5, June 2016, ISBN13: 9781522504276, DOI: 10.4018/978-1-5225-0427-6. (Scopus Indexed)
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11. R. Majhi, Babita Majhi and G. Panda, “Efficient prediction of retail sales using differential evolution based adaptive model”, Integration of Swarm Intelligence and Artificial Neural Networks, pp. 213-238, World Scientific Press, 2011, ISBN : 9789814280143.(Scopus)
12. G. Panda, P. M. Pradhan and Babita Majhi “Direct and Inverse modeling of plants using Cat Swarm Optimization”, Hand Book on Swarm Intelligence, Adaptation, Learning and Optimization, Springer series, vol. 8, Part 4, pp. 469-485, 2011. DOI: 10.1007/978-3-642-17390-5_20, ISBN: 9783642173899. (Citation : 10)

Research Supervision : Awarded -05 Nos., Continuing – 03

Sl. No.	Name of the student	Broad area/Title of the thesis	Name of supervisor	Name of Co-Supervisor	Remark
Ph. D. Theses					
1	H Pal Thethi	Application of Bio-Inspired techniques for direct and inverse modeling	Babita Majhi	G. Panda	Awarded in 2011(KIITS Univ., BBSR)
2	Minakhi Rout	Development of Novel Intelligent Methods for Prediction of Financial Data	Babita Majhi	NIL	Awarded in 2015(SOA Univ., BBSR)
3	C. M. Anish	Development of novel methods for prediction of financial time series	Babita Majhi	NIL	Awarded in Oct. 2018(GGV)
4	Pushpalata Pujari	Development of novel methods for Odia language processing	Babita Majhi	NIL	Awarded in Dec. 2019 (GGV)

5	Diwakar Naidu	On applications of machine learning techniques for analysis of agrometeorological data	Babita Majhi	NIL	Awarded 15/09/2021 (GGV)
6	Aarti Kashyap	Analysis and interpretation of healthcare data using machine learning techniques	Babita Majhi	NIL	Continuing (GGV, May 2019)
7	Prastawana	Development and performance evaluation of novel Intrusion detection systems using ML techniques	Babita Majhi	NIL	Continuing (GGV, Sept. 2020)
8	Rupesh Naik	Development of novel methods using machine learning techniques for Smart agriculture	Babita Majhi	NIL	Continuing (GGV, Dec 2021)

Administrative Responsibilities

- Computer Lab-in-charge during 1/1/2013-30/06/2013.
- Member of the Doctoral Research Committee(DRC) during 1/1/2013 – 2022
- Member of the Departmental purchase committee during 1/1/2013 – till date.
- Departmental Examination Coordinator during 1/07/2013-30/06/2014, 1/07/2018 -30/6/2019.
- Departmental Coordinator of Integrated UG/PG Course during 1/07/2013-30/6/2014.
- Faculty advisor for B.Sc. First semester students for the academic session 2013-14.
- Member of Admission Committee during July 2014-15, July 2015-16, July 2016-17, July 2017-18 and 2018-19.
- Faculty-in-charge students' attendance for July 2014-June 2015 session and July 2015 –June 2016..
- Lab-in-charge of Digital electronics for 2014-15 and 2015-16 sessions.
- Question setter of VET 2015(MCA) and VERT 2015(Ph. D.)
- Member Skill development cell, GGV from 2016-2018.
- Question setter and examiner for Bilaspur University, Bilaspur
- Question setter for Sundarlal open university, Bilaspur
- Faculty-in-charge IUMS, 2016-17
- Member of technical verification committee(PC), 2016.
- NIRF data verification coordinator, 2016.
- Member of Flying-squad July –Dec.2016.
- Faculty in charge Training and Placement(Departmental) July 2017-June 2018.
- Faculty-in-charge Exam(Unit Tests) from July 2018 to June 2019.
- Member of student feedback, 2018-19..
- Member of Smart Class room, UTD
- Member of UGC-Care journal list of GGV
- Member of overall data validation for NIRF 2019.
- Question setter for Sagar University, MP.
- Faculty-in-charge Time Table July 2019 –June 2020.
- Member of overall data validation for NIRF 2020.
- Member of student feedback, 2019-20.

- Faculty-in-charge Time Table July 2020 –June 2021.
- Member of overall data validation for NIRF 2021.
- Online MCA admission in charge 2020-21
- PhD Co-coordinator 2020-21
- Faculty-in-charge Time Table July 2021 –June 2022.
- Member of IQAC 2021-23
- Subcommittee Member of NEP 2020 taskforce.
- Member of canteen monitoring committee, 2021
- Member of NIRF 2022(Research) committee, 2021-22
- Member of NIRF 2022 overall data verification committee, 2021-22.
- Faculty Coordinator of School e-Magazine ‘MathematiCom’
- Member of Antiragging Committee for the session 2021-22
- Course Coordinator of MSc.for the session 2022-23.
- Member of recruitment scrutiny committee (social Work), 2022,
- Member of Verification Committee(Social work) 2022.
- Member of committee for Promotion of University Research and Scientific Excellence 2022 (PURSE)
- Proposed Co-Investigator for FIST 2022.
- Member of committee for Sophisticated Analytical and Technical Help Institutes (SATHI) Programme 2022.
- Warden of Bilasa Devi Girl’s Hostel from 27/10/2022 to till date.

Additional Information

- Citations in Scopus :1537, h-index :21
- Citations in Google scholar :2424, h-index : 24, i10index : 49
- Visited University of Sheffield, UK (2011-2012), University of Warwick, UK (2012), University of Edinburgh, Scotland (2008-2010), Norway(2010), Singapore(2007) and Malysia (2006), for academic and research purpose.