

Bio-Data

Personal Information

Name: Dr. Sanyam Shukla

Designation: Associate Professor

Department: Computer Science & Engineering

Institution: Maulana Azad National Institute of Technology (MANIT), Bhopal – 462003, India

Date of Birth: 17 December 1979

Nationality: Indian

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Academic Qualifications

Degree	Specialization	Institution	Year
Ph.D.	Computer Science & Engineering	MANIT Bhopal	2015
M.Tech	Computer Science & Engineering	MANIT Bhopal	2009
B.E.	Computer Science & Engineering	SGSITS, Indore	2002

Teaching Experience

- Associate Professor, MANIT Bhopal (December 2023 – Present)
- Assistant Professor, MANIT Bhopal (July 2005 – December 2023)
- Lecturer, SVITS Indore (June 2003 – July 2006)

Teaching Interests

- Machine Learning
- Optimization Techniques
- Soft Computing
- Statistical Methods for Data Analysis
- Artificial Intelligence
- Data Science and Analytics

Research Areas

- Machine Learning and Data Mining
- Statistical Methods
- Class Imbalance Learning
- Data Complexity
- Optimization Techniques
- Privacy and Security in Big Data
- Traffic Sign Recognition
- Medical Image Analysis

Supervision of Ph.D. Scholars

Awarded:

- Bhagat Singh Raghuwanshi (2020)
- Roshani Choudhary (2022)

Ongoing:

- Saurabh Shrivastava (Thesis Submitted)
- Manali Chandnani
- ShivShankar Prajapati
- Apeksha Bhargava
- Khushbu Bhardwaj (Co-supervisor)
- Brij Mohan Sharma (Co-supervisor)
- Arvind Pilonia (Co-supervisor)
- Juhi (Co-supervisor)

Sponsored Projects

LSTM Neural Network-based Solar Irradiance Forecasting, Sponsored by MP Council of Science and Technology, Duration: 24 months, Amount: 4.6 Lakhs INR.

Administrative Responsibilities

- Warden Hostel No. 2: 2009-2011
- Assistant Proctor: 2011-2013
- Deputy Controller of Examination: 2015-2018
- Warden Hostel No. 8: 2018-2022
- SPOC NPTEL/SWAYAM Local Chapter: Since 2021
- MOOCs/NPTEL/SWAYAM Coordinator: Since 2022
- Associate Dean (DI) Since 2023

Research Publications

33 Journal Publications and 26 Conference Publications in reputed platforms such as IEEE, Elsevier, Springer.

Journals

1. S. Biswas, K. Tripathi, N. Khare, P. Jain, P. Agrawal, and S. Shukla, "Enhancing Privacy Through Cluster-Based Anonymization of Quasi Identifiers in Correlated Datasets," *Iranian Journal of Science and Technology - Transactions of Electrical Engineering*, in press, 2025.
2. A. Kumar, S. Shukla, and M. Gyanchandani, "A Novel Nonparallel Hyperplane Based Extreme Learning Machine for Classification," *IEEE Access*, vol. 13, pp. 110268–110288, 2025.
3. B. Sowkarthika, M. Gyanchandani, R. Wadhvani, and S. Shukla, "Data complexity measures for classification of a multi-concept dataset," *Multimedia Tools and Applications*, vol. 84, no. 2, pp. 571–602, 2025.
4. M. Chandnani, S. Shukla, and R. Wadhvani, "Multistage traffic sign recognition under harsh environment," *Multimedia Tools and Applications*, vol. 83, pp. 80425–80457, 2024.
5. S. Shrivastava, S. Shukla, and N. Khare, "Support vector machine with eagle loss function," *Expert Systems with Applications*, vol. 238, Art. no. 122168, 2024.
6. S. Shrivastava, S. Shukla, and N. Khare, "A stable variant of linex loss SVM for handling noise with reduced hyperparameters," *Information Sciences*, vol. 646, Art. no. 119402, 2023.
7. B. Sowkarthika, M. Gyanchandani, R. Wadhvani, and S. Shukla, "Data complexity-based dynamic ensembling of SVMs in classification," *Expert Systems with Applications*, vol. 216, Art. no. 119437, 2023.
8. R. Choudhary and S. Shukla, "Reduced-Kernel Weighted Extreme Learning Machine Using Universum Data in Feature Space (RKWELM-UFS) to Handle Binary Class Imbalanced Dataset Classification," *Symmetry*, vol. 14, no. 2, Art. no. 379, 2022.
9. B. S. Raghuwanshi, A. Mangal, and S. Shukla, "Universum based kernelized weighted extreme learning machine for imbalanced datasets," *International Journal of Machine Learning and Cybernetics*, vol. 13, no. 11, pp. 3387–3408, 2022.

10. D. Patil, R. Wadhvani, S. Shukla, and M. Gupta, "Adaptive wind data normalization to improve the performance of forecasting models," *Wind Engineering*, vol. 46, no. 5, pp. 1606–1617, 2022.
11. S. Saxena, S. Shukla, and M. Gyanchandani, "Breast cancer histopathology image classification using kernelized weighted extreme learning machine," *International Journal of Imaging Systems and Technology*, vol. 31, no. 1, pp. 168–179, 2021.
12. B. Brahma, R. Wadhvani, and S. Shukla, "Attention mechanism for developing wind speed and solar irradiance forecasting models," *Wind Engineering*, vol. 45, no. 6, pp. 1422–1432, 2021.
13. B. S. Raghuwanshi and S. Shukla, "Minimum class variance class-specific extreme learning machine for imbalanced classification," *Expert Systems with Applications*, vol. 178, Art. no. 114994, 2021.
14. B. S. Raghuwanshi and S. Shukla, "Classifying multiclass imbalanced data using generalized class-specific extreme learning machine," *Progress in Artificial Intelligence*, vol. 10, no. 3, pp. 259–281, 2021.
15. B. S. Raghuwanshi and S. Shukla, "Classifying imbalanced data using SMOTE based class-specific kernelized ELM," *International Journal of Machine Learning and Cybernetics*, vol. 12, no. 5, pp. 1255–1280, 2021.
16. R. Choudhary and S. Shukla, "A clustering based ensemble of weighted kernelized extreme learning machine for class imbalance learning," *Expert Systems with Applications*, vol. 164, Art. no. 114041, 2021.
17. B. S. Raghuwanshi and S. Shukla, "Minimum variance-embedded kernelized extension of extreme learning machine for imbalance learning," *Pattern Recognition*, vol. 119, Art. no. 108069, 2021.
18. B. S. Raghuwanshi and S. Shukla, "SMOTE based class-specific extreme learning machine for imbalanced learning," *Knowledge-Based Systems*, vol. 187, Art. no. 104814, 2020.
19. S. Saxena, S. Shukla, and M. Gyanchandani, "Pre-trained convolutional neural networks as feature extractors for diagnosis of breast cancer using histopathology," *International Journal of Imaging Systems and Technology*, vol. 30, no. 3, pp. 577–591, 2020.
20. B. S. Raghuwanshi and S. Shukla, "Classifying imbalanced data using BalanceCascade-based kernelized extreme learning machine," *Pattern Analysis and Applications*, vol. 23, no. 3, pp. 1157–1182, 2020.
21. B. S. Raghuwanshi and S. Shukla, "Classifying imbalanced data using ensemble of reduced kernelized weighted extreme learning machine," *International Journal of Machine Learning and Cybernetics*, vol. 10, no. 11, pp. 3071–3097, 2019.
22. S. Jain, S. Shukla, and M. Singhal, "Comments on 'Traffic Sign Recognition Using Kernel Extreme Learning Machines with Deep Perceptual Features'," *IEEE Transactions on Intelligent Transportation Systems*, vol. 20, no. 10, pp. 3759–3761, 2019.
23. T. Chandak, S. Shukla, and R. Wadhvani, "An analysis of 'A feature reduced intrusion detection system using ANN classifier'," *Expert Systems with Applications*, vol. 130, pp. 79–83, 2019.

24. B. S. Raghuwanshi and S. Shukla, "Generalized class-specific kernelized extreme learning machine for multiclass imbalanced learning," *Expert Systems with Applications*, vol. 121, pp. 244–255, 2019.
25. B. S. Raghuwanshi and S. Shukla, "Class-specific cost-sensitive boosting weighted ELM for class imbalance learning," *Memetic Computing*, vol. 11, no. 3, pp. 263–283, 2019.
26. S. Shukla and B. S. Raghuwanshi, "Online sequential class-specific extreme learning machine for binary imbalanced learning," *Neural Networks*, vol. 119, pp. 235–248, 2019.
27. R. Wadhvani and S. Shukla, "Analysis of parametric and non-parametric regression techniques to model the wind turbine power curve," *Wind Engineering*, vol. 43, no. 3, pp. 225–232, 2019.
28. B. S. Raghuwanshi and S. Shukla, "Class imbalance learning using UnderBagging based kernelized extreme learning machine," *Neurocomputing*, vol. 329, pp. 172–187, 2019.
29. B. S. Raghuwanshi and S. Shukla, "Class-specific kernelized extreme learning machine for binary class imbalance learning," *Applied Soft Computing*, vol. 73, pp. 1026–1038, 2018.
30. S. Jain, S. Shukla, and R. Wadhvani, "Dynamic selection of normalization techniques using data complexity measures," *Expert Systems with Applications*, vol. 106, pp. 252–262, 2018.
31. B. S. Raghuwanshi and S. Shukla, "UnderBagging based reduced Kernelized weighted extreme learning machine for class imbalance learning," *Engineering Applications of Artificial Intelligence*, vol. 74, pp. 252–270, 2018.
32. B. S. Raghuwanshi and S. Shukla, "Class-specific extreme learning machine for handling binary class imbalance problem," *Neural Networks*, vol. 105, pp. 206–217, 2018.
33. S. Shukla and R. N. Yadav, "Regularized weighted circular complex-valued extreme learning machine for imbalanced learning," *IEEE Access*, vol. 3, pp. 3048–3057, 2015.

Conferences

1. A. C. Jain, M. Gyanchandani, S. Shukla, and D. Ram, "Advancing Financial Forecasting in Algorithmic Trading Using Machine Learning Techniques," in *Lecture Notes in Networks and Systems*, vol. 1276, pp. 621–633, 2025.
2. A. C. Jain, M. Gyanchandani, S. Shukla, and D. Ram, "A Comparative Analysis of the Robustness to Noise of Machine Learning Classifiers," in *Communications in Computer and Information Science*, vol. 2413, pp. 182–192, 2025.
3. V. Jain, S. Shukla, and N. Khare, "Analysis of various data imputation techniques for diabetes classification on PIMA dataset," in *2024 IEEE International Students' Conference on Electrical, Electronics and Computer Science (SCEECS)*, 2024.
4. L. Kumar, S. Shukla, and R. Wadhvani, "Analysis of Feature Noise on Standard SVM With Linear Kernel," in *2024 IEEE International Students' Conference on Electrical, Electronics and Computer Science (SCEECS)*, 2024.

5. K. Tripathi, S. Biswas, N. Khare, and S. Shukla, "Tackling Privacy Concerns in Correlated Big Data: A Comprehensive Review with Machine Learning Insights," in *2024 IEEE International Students' Conference on Electrical, Electronics and Computer Science (SCEECS)*, 2024.
6. V. Kumar, S. Shukla, and M. Gyanchandani, "An In-Depth Analysis of Robustness to Noise in Soft Margin Support Vector Machines," in *2024 IEEE International Students' Conference on Electrical, Electronics and Computer Science (SCEECS)*, 2024.
7. A. Gour, M. Gupta, R. Wadhvani, and S. Shukla, "ECG Based Heart Disease Classification: Advancement and Review of Techniques," in *Procedia Computer Science*, vol. 235, pp. 1634–1648, 2024.
8. A. Gour, M. Gupta, R. Wadhvani, and S. Shukla, "A Comprehensive Review of Heart Disease Classification Techniques Utilizing ECG Signal Analysis," in *IEEE International Conference on Electrical, Electronics, Communication and Computers (ELEXCOM)*, 2023.
9. V. K. Patidar, R. Wadhvani, S. Shukla, M. Gupta, and M. Gyanchandani, "Quantile Regression Comprehensive in Machine Learning: A Review," in *2023 IEEE International Students' Conference on Electrical, Electronics and Computer Science (SCEECS)*, 2023.
10. V. Malpani, S. Shukla, M. Gyanchandani, and S. Shrivastava, "Customized CNN for Traffic Sign Recognition Using Keras Pre-Trained Models," in *Lecture Notes in Networks and Systems*, vol. 537, pp. 91–98, 2023.
11. U. Pandey, S. Shukla, and R. Wadhvani, "OCSK-SMOTE: An improved minority oversampling technique for unbalanced dataset using One-Class SVM and K-means," in *2022 2nd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE)*, 2022.
12. V. Patel, S. Shukla, and M. Gyanchandani, "Analysis of Different Loss Function for Designing Custom CNN for Traffic Sign Recognition," in *CEUR Workshop Proceedings*, vol. 3269, pp. 31–38, 2022.
13. V. Patel, S. Shukla, S. Shrivastava, and M. Gyanchandani, "Regularized CNN for Traffic Sign Recognition," in *1st IEEE International Conference on Smart Technologies and Systems for Next Generation Computing (ICSTSN)*, 2022.
14. R. Choudhary, J. K. Kashyap, S. Shukla, and M. Gyanchandani, "Feature Selection in Under bagging Based Kernel ELM for Handling Class Imbalance Dataset Classification," in *CEUR Workshop Proceedings*, vol. 3314, pp. 23–30, 2022.
15. T. Chandak, C. Ghorpade, and S. Shukla, "Effective Analysis of Feature Selection Algorithms for Network based Intrusion Detection System," in *2019 IEEE Bombay Section Signature Conference (IBSSC)*, 2019.

16. S. Umbarkar and S. Shukla, "Analysis of Heuristic based Feature Reduction method in Intrusion Detection System," in *2018 5th International Conference on Signal Processing and Integrated Networks (SPIN)*, 2018.
17. S. Jain and S. Shukla, "A Reduced KELM model using DBSCAN Clustering algorithm for centroid selection," in *2018 5th International Conference on Signal Processing and Integrated Networks (SPIN)*, 2018.
18. M. Singhal and S. Shukla, "Centroid Selection in Kernel Extreme Learning Machine using K-means," in *2018 5th International Conference on Signal Processing and Integrated Networks (SPIN)*, 2018.
19. M. Singhal, S. Shukla, and B. S. Raghuwanshi, "Voting based Extreme Learning Machine with Spectral Coefficient Pruning for Binary Classification," in *2018 IEEE International Students' Conference on Electrical, Electronics and Computer Science (SCEECS)*, 2018.
20. S. Jain, S. Shukla, and B. S. Raghuwanshi, "Analysis of ordering-based ensemble pruning techniques for Voting based Extreme Learning Machine," in *2018 IEEE International Students' Conference on Electrical, Electronics and Computer Science (SCEECS)*, 2018.
21. S. Samdani and S. Shukla, "A novel technique for converting nominal attributes to numeric attributes for intrusion detection," in *2017 8th International Conference on Computing, Communications and Networking Technologies (ICCCNT)*, 2017.
22. S. Shukla, R. N. Yadav, and L. Naktode, "Correlation Based Extreme Learning Machine," in *Proceedings - 2016 9th International Conference on Developments in eSystems Engineering (DeSE)*, 2016.
23. S. Yadav and S. Shukla, "Analysis of k-Fold Cross-Validation over Hold-Out Validation on Colossal Datasets for Quality Classification," in *Proceedings - 6th International Advanced Computing Conference (IACC)*, 2016.
24. S. Shukla, R. N. Yadav, J. Sharma, and S. Khare, "Analysis of statistical features for fault detection in ball bearing," in *2015 IEEE International Conference on Computational Intelligence and Computing Research (ICCIC)*, 2015.
25. S. Shukla, J. Sharma, S. Khare, S. Kochkar, and V. Dharni, "A novel sparse ensemble pruning algorithm using a new diversity measure," in *2015 IEEE International Conference on Computational Intelligence and Computing Research (ICCIC)*, 2015.
26. S. Shukla and R. N. Yadav, "Voting based Extreme learning machine with entropy-based ensemble pruning," in *2015 International Conference on Cognitive Computing and Information Processing (CCIP)*, 2015.

