Dr. Udmale Sandeep Sambhaji
Assistant Professor
Dept. of Computer Engineering & IT, VJTI, Mumbai, India
: ssudmale@it.vjti.ac.in
: +91-9967330764 / +91-8779484587

Research Interest

Data Science, Machine Learning, Deep Learning, Optimization, Pattern Analysis, and Quantam Computing

Courses Taught

Artificial Intelligence, Machine Learning, Pattern Recognition, Data Mining, Data Structures and Algorithms, and Operating System

Educational Qualification

- ***Ph.D. (Computer Science and Engineering) (2019)***
  `Indian Institute of Technology (IIT-BHU), Varanasi, Uttar Pradesh, India`
- ***M. Tech. (Computer Engineering) (2009)***
  `Dr. Babasaheb Ambedkar Technological University (DBATU), Lonere, Raigad, Maharashtra, India`
- ***B.E. (Computer Engineering) (2006)***
  `K. J. Somaiya College of Engineering (KJSCE), Vidyavihar, Mumbai, Maharashtra, India`

Experience

Academic

- Working as an Assistant Professor, Department of Computer Engineering and Information Technology, Veermata Jijabai Technological Institute (VJTI), Mumbai, India, since December 2010.

Administrative

Department Level

- Coordinator, National Institutional Ranking Framework (NIRF) for AY 2023-24.
- Member, Department Purchase Committee from December 2023.
- In charge, Artificial Intelligence and Machine Learning Laboratory from October 2023.
- In charge, Laboratory-3 from October 2023 to April 2024.
- Coordinator, Drafting of Technological University of VJTI from September 2023.
- Coordinator, Industry-Institute-Interaction (III) for AY 2022-23.
- Coordinator, Ph.D. Admission Process 2021, 2022, 2023, 2024.
- Coordinator, Internship Process 2021, 2022, 2023.
- Member, Department Academic Committee from July 2020 to July 2022 and October 2023 to till date.
- Coordinator, PhD colloquium 2020, 2022, 2023, 2024.
- Coordinator, B. Tech. Information Technology NBA Team from January 2020 to December 2021.
- Coordinator, Faculty Recruitment (B Tech IT Programme) from January 2016 to March 2016.
- Member, Institute Examination Software Team from June 2011 to June 2013.
- Coordinator, Summer Term for Year 2011, 2012, 2015, 2016.
- Coordinator, Examination Section from January 2011 to December 2012 and August 2014 to May 2017.
- Coordinator, Time Table from January 2011 to June 2011.
- In charge, Open Source Software Laboratory from January 2011 to July 2017.
- Member, Departmental Board of Studies (BoS) from December 2010 to till date

Institute Level

- Single Point of Contact (SPOC), Smart India Hackathon (SIH) 2024, 2025
- Faculty Advisor, Technovanza VJTI for AY 2024-2025.

- Member, Admission Advisory Committee UG and PG 2024-26.
- Member, Vigilance Committee 2023 to till date.
- Coordinator, First Year B. Tech. Admission Process 2023-24.
- Coordinator, Centre of Excellence in Artificial Excellence from April 2023 - till date.
- Member, Post Graduate Academic Audit for AY 2023-24.
- Convener, Institute Innovation Council (IIC) VJTI for AY 2023-2025.
- Coordinator, Smart India Hackathon (SIH) - Software Edition 2023, 2024, 2025.
- Coordinator, Maharashtra Students Innovation Challenge (MSIC) 2023.
- Faculty Advisor, Entrepreneurship Cell (E-Cell) VJTI for AY 2022-2024.
- Advisor, IEEE-VJTI Chapter from July 2022.
- Coordinator, AICTE-CII (The Confederation of Indian Industry) Survey 2017 from January 2017 to May 2017.
- Co-coordinator, B. Tech Admission Process 2013.
- Coordinator, Procurement of IT-related items on Institute level under TEQIP-II from January 2013 to December 2014.
- Member, AICTE web portal for extension of approval from January 2011 to August 2012.
- Member, UGC approval process of autonomy from January 2011 to June 2011.

Outside Institute

- Technical Expert, AICTE New Delhi
- Member, DTE Maharashtra Scrutiny Committee for Intake Variation Approval
- Member, Procurement Committee of Various Government Organization
- Auditor, Academic auditing for various Institute
- Auditor, Exam paper auditing for various Institute
- Member, Board of Studies for for various Institute/University

Memberships

- Institute of Electrical and Electronics Engineering (*IEEE*), *Senior Member*
- Association for Computing Machinery (*ACM*), *Member*
- Computer Society of India (*CSI*), *Life Member*
- Indian Society for Technical Education (*ISTE*), *Life Member*
- The Institution of Engineers (India) (*IEI*), *Life Member*

Achievements

- Mentor of winning team of Smart India Hackathon (SIH) 2023 (Senior Hardware Edition)

Thesis Supervised

• Ph.D.	02 completed	04 in progress
• M. Tech.	30 completed	04 in progress
• B. Tech.	31 completed	03 in progress

Research & Development Project

- **Title:** Financial Data Analysis using Artificial Intelligence
  Sponsored by: HDFC Asset Management Company (AMC), Mumbai
  Amount: Rs. 20.00 Lacs (Rs. 20 Lacs Only)
  Duration: 03 years (Started from January 2026)
  Project members: Dr. Sandeep S. Udmale (PI) and Prof. Krishna V. Kanakgiri (Co-PI)
- **Title:** Real-World Asset Ownership Management through AI and Blockchain based Tokenization for Efficient Transfers and Traceable Provenance

Sponsored by: Collector Crypt lnc. Delaware, USA
Amount: S6,800.00 (USD Six Thousand Eight Hundred Only)
Duration: 13 months (June 2024 to June 2025)
Project members: Dr. Sandeep S. Udmale (PI)

- **Title:** Centre of Excellence in Artificial Intelligence
  Sponsored by: Directorate of Technical Education, Government of Maharashtra, Maharashtra
  Amount: Rs. 5.00 Crore (Rs. Five crore Only)
  Duration: 04 years (Started from July 2023)
  Project members: Dr. Sandeep S. Udmale (PI), Prof. Krishna V. Kanakgiri (Co-PI), Dr. Faruk Kazi (Co-PI), Dr. Sunil G Bhirud (Co-PI), Dr. Rawal Awale, Dr. Arvind Deshpande, Dr. Madhav Chandane, and Dr. Harish Khairnar, Dr. Mahesh Shirole
- **Title:** Trouble-free computing environment
  Sponsored by: Modernization and Removal of Obsolescence (MODROB) scheme, All India Council for Technical Education (AICTE), New Delhi
  Amount: Rs. 12.00 Lacs (Rs. Twelve Lacs Only)
  Duration: 01 years (Started from April 2012)
  Project members: Dr. Sandeep S. Udmale (PI)

Other Financial Assistance

- **Workshop Title:** Use of Artificial Intelligence Tools and Techniques for Effective Teaching and Evaluation
  Sponsored by: All India Council for Technical Education (AICTE), New Delhi: Vibrant Advocacy for Advancement and Nurturing of Indian Languages (VAANI) Scheme
  Amount: Rs. 2.0 Lacs (Rs. Two Lacs Only)
  Duration: 03 Days (June 24 – 26, 2024)
  Members: Dr. Sandeep S. Udmale (Coordinator), Prof. Krishna V. Kanakgiri (Co-Coordinator)

Publication

Patents

1 A patent application is published and under examination with title "A Biometric Based System and Method For Management of Pet Animal," 2020.

Books

1 Sanjay Kumar Singh, Ravi Shankar Singh, Anil Kumar Pandey, **Sandeep S. Udmale**, and Ankit Chaudhary, *IoT-Based Data Analytics for the Healthcare Industry*, Academic Press (Elsevier), 2020.

Dataset

1 Preeti Godabole, Aniket Samudre, **Sandeep S. Udmale**, and Girish Bhole, *Schedule and Overhead Trace of Mixed Critical Applications using LITMUS-RT*, IEEE Dataport, 2024. [*URL*]

2 Amey Bhole, **Sandeep S. Udmale**, Owen Falzon, and Goerge Azzopardi, *Recognition of Holstein Cattle with Thermal and RGB images*, DataverseNL, 2021. [*URL*]

Journals

1 Vinit Sharma, Sandip Shingade, and **Sandeep S. Udmale**, "QBET: Quantum Based Enhanced Transformer for Efficient Language Modelling," *Evolving Systems*, 2026. Springer.

2 Bhagvan Krishna Gupta, Abhishek Kumar Chouhan, Durgesh Singh, **Sandeep S. Udmale**, and Ankur Pandey, "ViT-ConvGDNet: a vision transformer–MobileNet guided decoder network for robust copy-move forgery detection and localization," *Scientific Report*, 2026. Springer.

3 Abhineet Suman, Gunjan, and **Sandeep S. Udmale**, "A novel optimized remaining useful life forecasting model for lithium-ion batteries," *Evolving Systems*, 2026, vol. 17, no. 38, pp. 1−36. Springer.

4 **Sandeep S. Udmale**, Aneesh G Nath, Durgesh Singh, and Sanjay Kumar Singh, "Data-Driven Approach under Varying Operating Conditions for Bearing Fault Diagnosis," *Annals of Operations Research*, 2026. Springer.

5 Abhineet Suman, Gunjan, and **Sandeep S. Udmale**, "Metaheuristic Algorithms: A Benchmark-Driven Functional Taxonomy and Performance Analysis," *Computer Science Review*, 2026, vol. 60, pp. 100884. Elsevier.

6 Preeti Godabole, Aniket Samudre, **Sandeep S. Udmale**, and Girish Bhole, "Clustering-based Task Allocation for Overhead Reduction in Multi-Core Mixed-Critical Systems," *The Journal of Supercomputing*, 2025, vol. 81, no. 16, pp. 1−29. Springer.

7 Seema Yadav, Dhruvanshu Joshi, Soham Muley, Labib Asari, **Sandeep S. Udmale**, and Girish P. Bhole, "CSRBoost: Clustered Sampling With Resampling Boosting for Imbalanced Dataset Pattern Classification," *IEEE Access*, 2025, vol. 13, pp. 175078−175093. IEEE.

8 Amey Bhatuse, Ankit Khandelwal, **Sandeep S. Udmale**, M Girish Chandra, and Sopan Kolte, "On resolving the Out of Vocabulary problem in DisCoCat-based Quantum Natural Language Processing," *Evolving Systems*, 2025, vol. 16, no. 86, pp. 1−15. Springer.

9 Seema Yadav, Dhruvanshu Joshi, Soham Muley, **Sandeep S. Udmale**, and Girish P. Bhole, "SMOTE-HashBoost: Ensemble Algorithm for Imbalanced Dataset Pattern Classification," *IEEE Access*, 2025, vol. 13, pp. 58092−58107. IEEE.

10 Anviti Pandey, Sanjay Kumar Singh, **Sandeep S. Udmale**, and K. K. Shukla, "Enhancing Electroencephalogram Signal Quality in Epileptic Patients using Bidirectional Stochastic Long Short-Term Memory Network," *Neural Computing and Applications*, 2025, vol. 37, pp. 7339−7361. Springer.

11 Sandeep Kumar Gautam, Vinayak Shrivastava, and **Sandeep S. Udmale**, "Enhanced Electricity Forecasting for Smart Buildings Using a TCN-Bi-LSTM Deep Learning Model," *Expert Systems*, 2025, vol. 43, no. 3, pp. e70000. Wiley.

12 Sandeep Kumar Gautam, Vinayak Shrivastava, **Sandeep S. Udmale**, Amit Kumar Singh, and Sanjay Kumar Singh, "Modern Machine Learning Solution for Electricity Consumption Management in Smart Buildings," *IEEE Engineering Management Review*, 2025, vol. 53, no. 1, pp. 54−62. IEEE.

13 **Sandeep S. Udmale**, Aneesh G Nath, Durgesh Singh, Aman Singh, Xiaochun Cheng, Divya Anand, and Sanjay Kumar Singh, "An optimized extreme learning machine-based novel model for bearing fault classification," *Expert Systems*, 2024, vol. 41, no. 2, pp. e13432. Wiley.

14 Rachana Chaudhari, Dhwani Agarwal, Kritika Ravishankar, Nikita Masand, Vijay K. Sambhe, and **Sandeep S. Udmale**, "Multi-Output Incremental Back-Propagation," *Neural Computing and Applications*, 2023, vol. 35, pp. 14897−14910. Springer.

15 Anviti Pandey, Sanjay Kumar Singh, **Sandeep S. Udmale**, and K. K. Shukla, "An Intelligent Optimized Deep Learning Model to Achieve Early Prediction of Epileptic Seizures," *Biomedical Signal Processing and Control*, 2023, vol. 84, pp. 104798. Elsevier.

16 Durgesh Singh, Sanjay Kumar Singh, and **Sandeep S. Udmale**, "An Efficient self-embedding fragile watermarking scheme for image authentication with two chances for recovery capability," *Multimedia Tools and Applications*, 2023, vol. 82, pp. 1045–1066. Springer.

17 Durgesh Singh, **Sandeep S. Udmale**, and Sanjay Kumar Singh, "Integer wavelet transform based an effective fragile watermarking scheme for exact authentication and restoration," *Journal of Ambient Intelligence and Humanized Computing*, 2023, vol. 14, no. 5, pp. 4841−4852. Springer.

18 Anviti Pandey, Sanjay Kumar Singh, **Sandeep S. Udmale**, and K. K. Shukla, "Epileptic Seizure Classification using Battle Royale Search and Rescue optimization-based Deep LSTM," *IEEE Journal of Biomedical and Health Informatics*, 2022, vol. 26, no. 11, pp. 5494−5505. IEEE.

19 Amey Bhole, **Sandeep S. Udmale**, Owen Falzon, and Goerge Azzopardi, "CORF3D contour maps with application to Holstein cattle recognition from RGB and thermal images," *Expert Systems with Applications*, 2022, vol. 192, pp. 116354. Elsevier.

20 Atif Mahmood, Amod Kumar Tiwari, Sanjay Kumar Singh, and **Sandeep S. Udmale**, "Contemporary machine learning applications in agriculture: Quo Vadis?," *Concurrency and Computation: Practice and Experience*, 2022, vol. 34, no. 15 pp. e6940. Wiley.

21 Aneesh G Nath, **Sandeep S. Udmale**, Divyanshu Raghuwanshi, and Sanjay Kumar Singh, "Structural Rotor Fault Diagnosis using Attention based Sensor Fusion and Transformers," *IEEE Sensors Journal*, 2022, vol. 22, no. 1, pp. 707−719. IEEE.

22 Aneesh G Nath, **Sandeep S. Udmale**, Divyanshu Raghuwanshi, and Sanjay Kumar Singh, "Improved Structural Rotor Fault Diagnosis using Multi-sensor Fuzzy Recurrence Plots and Classifier Fusion," *IEEE Sensors Journal*, 2021. vol. 21, no. 19, pp. 21705−21717. IEEE.

23 Aneesh G Nath, Anshul Sharma, **Sandeep S. Udmale**, and Sanjay Kumar Singh, "An early classification approach for improving structural rotor fault diagnosis," *IEEE Transactions on Instrumentation and Measurement*, 2021, vol. 70, pp. 1−13. IEEE.

24 Aneesh G Nath, **Sandeep S. Udmale**, and Sanjay Kumar Singh, "Role of artificial intelligence in rotor fault diagnosis: a comprehensive review," *Artificial Intelligence Review*, 2021, vol. 54, pp. 2609–2668. Springer.

25 Anshul Sharma, Sanjay Kumar Singh, **Sandeep S. Udmale**, Amit Kumar Singh, and Rishav Singh, "Early transportation mode detection using smartphone sensing data," *IEEE Sensors Journal*, 2021, vol. 21, no. 14, pp. 15651−15659. IEEE.

26 **Sandeep S. Udmale**, Sanjay Kumar Singh, Rishav Singh, and Arun Kumar Sangaiah, "Multi-fault bearing classification using sensors and ConvNet-based transfer learning approach," *IEEE Sensors Journal*, 2020, vol. 20, no. 3, pp. 1433−1444. IEEE.

27 **Sandeep S. Udmale** and Sanjay Kumar Singh, "A mechanical data analysis using kurtogram and extreme learning machine," *Neural Computing and Applications*, 2020, vol. 32, pp. 3789−3801. Springer.

28 **Sandeep S. Udmale**, Sanjay Kumar Singh and Sunil G. Bhirud, "A bearing data analysis based on kurtogram and deep learning sequence models," *Measurement*, 2019, vol. 145, pp. 665−677. Elsevier.

29 **Sandeep S. Udmale** and Sanjay Kumar Singh, "Application of spectral kurtosis and improved extreme learning machine for bearing fault classification," *IEEE Transactions on Instrumentation and Measurement*, 2019, vol. 68, no. 11, pp. 4222−4233. IEEE.

30 **Sandeep S. Udmale**, Sangram S. Patil, Vikas M. Phalle and Sanjay Kumar Singh, "A bearing vibration data analysis based on spectral kurtosis and ConvNet," *Soft Computing*, 2019, vol. 23, no. 19 pp. 9341−9359. Springer.

Conferences

1 Tanmayi Samant, Girish Bhole, and **Sandeep S. Udmale**, "Automating Exam Evaluation Using Generative AI (GenAI)," in *Proceeding of the 17th annual meeting of the Forum for Information Retrieval Evaluation (FIRE)*, 2025, pp. 65−70. ACM.

2 Labib Asari, Dhruvanshu Joshi, Soham Mulye, Viraj Shah, **Sandeep S. Udmale**, and Girish P Bhole, "AMEST: Adaptive Morphologically Enhanced Subword Tokenization for Improved Language Model Perplexity," in *Proceeding of the 21th International Conference on Computer Analysis of Images and Patterns (CAIP)*, 2025, pp. 184−194. Springer.

3 Shweta Kharat, **Sandeep S. Udmale**, Aneesh G. Nath, Girish P. Bhole, and Sunil G. Bhirud, "Classification of Impacted Teeth from Panoramic Radiography Using Deep Learning," in *Proceeding of the 21st International Conference on Distributed Computing and Internet Technology (ICDCIT)*, 2025, pp. 257−270. Springer.

4 Almira Asif Khan, Muhammed, Asher Mathews Shaji, Devika Sujith, Aneesh G. Nath, and **Sandeep S. Udmale**, "InVideo Search: Scene Description Clustering and Integrating Image and Audio Captioning for Enhanced Video Search," in *Proceeding of the 21st International Conference on Distributed Computing and Internet Technology (ICDCIT)*, 2025, pp. 195−208. Springer.

5 Anviti Pandey, **Sandeep S. Udmale**, and Sanjay Kumar Singh, "Detecting Attention-Deficit/Hyperactivity Disorder in Game-Based Electroencephalography Using Long Short-Term Memory Networks," in *Proceeding of the 19th EAI International Conference on Body Area Networks (BODYNETS)*, 2024. Springer.

6 Akshay Bakshi, Sudhanshu Gulhane, Tanish Sawant, **Sandeep S. Udmale**, and Vijay Sambhe, "ALPR - An Intelligent Approach Towards Detection and Recognition of License Plates in Uncontrolled Environments," in *Proceeding of the 19th International Conference on Distributed Computing and Internet Technology (ICDCIT)*, 2023, pp. 253−269. Springer.

7 Akshay Bakshi, and **Sandeep S. Udmale**, "ALPR: A Method for Identifying License Plates Using Sequential Information," in *Proceeding of the 20th International Conference on Computer Analysis of Images and Patterns (CAIP)*, 2023, pp. 284−294. Springer.

8 Bhavya Mehta, Vijay Kharche, and **Sandeep S. Udmale**, "Accelerating the Search for Stable Full Heusler Compounds through Machine Learning," in *Proceeding of the 24th International Conference on Information Reuse and Integration for Data Science (IRI)*, 2023. IEEE.

9 Akshay Bakshi, Sudhanshu Gulhane, Tanish Sawant, **Sandeep S. Udmale**, and Vijay Sambhe, "ALPR - An Intelligent Approach Towards Detection and Recognition of License Plates in Uncontrolled Environments," in *Proceeding of the 19th International Conference on Distributed Computing and Internet Technology (ICDCIT)*, 2023, pp. 253−269. Springer.

10 **Sandeep S. Udmale**, Aneesh G. Nath, and Sanjay Kumar Singh, "Application of Industry 4.0 and Meta Learning for Bearing Fault Classification," in *Proceeding of the 25th International Conference on Computer Supported Cooperative Work in Design (CSCWD)*, 2022, pp. 1455−1460. IEEE.

11 Vipul Shah, **Sandeep S. Udmale**, Vijay Sambhe, and Amey Bhole, "A Deep Multi-Kernel Uniform Capsule Approach For Hate Speech Detection," in *Proceeding of the 18th International Conference on Distributed Computing and Internet Technology (ICDCIT)*, 2022, pp. 265−271. Springer.

12 Vipul Shah, **Sandeep S. Udmale**, Vijay Sambhe, and Amey Bhole, "A Deep Hybrid Approach For Hate Speech Analysis," in *Proceeding of the 19th International Conference on Computer Analysis of Images and Patterns (CAIP)*, 2021, pp. 424−436. Springer.

13 Yash S. Jain, Atharva D. Veer, Gaurav S. Sawant, Yash R. Sawant, and **Sandeep S. Udmale**, "Novel Statistical Analysis Approach for Remaining Useful Life Prediction of Lithium Ion Battery," in *Proceeding of the 12th International Conference on Computing, Communication and Networking Technologies (ICCCNT)*, 2021, pp. 1−6. IEEE.

14 **Sandeep S. Udmale**, and Sanjay Kumar Singh, "Bearing Fault Classification using Wavelet Energy and Autoencoder," in *Proceeding of the 16th International Conference on Distributed Computing and Internet Technology (ICDCIT)*, 2020, pp. 227−238. Springer.

15 **Sandeep S. Udmale**, and Sanjay Kumar Singh, "Intra-inter feature ranking based feature selection method for bearing fault classification," in *Proceeding of the 10th International Conference on Computing, Communication and Networking Technologies (ICCCNT)*, 2019, pp. 1−6. IEEE.

16 **Sandeep S. Udmale**, and Sanjay Kumar Singh, "Analysis of statistical features for bearing fault classification using ensemble technique," in *Proceeding of the 10th International Conference on Computing, Communication and Networking Technologies (ICCCNT)*, 2019, pp. 1−6. IEEE.

17 Chanchal Khemani, Jay Doshi, Juhi Duseja, Krapi Shah, **Sandeep S. Udmale**, and Vijay Sambhe, "Solving Rubik's Cube Using Graph Theory," in *Proceeding of the 2nd International Conference on Computational Intelligence: Theories, Applications and Future Directions (ICCI)*, 2018, vol. 1, pp. 301−317. Springer.

18 Rahul S. Gaikwad, **Sandeep S. Udmale**, and Vijay Sambhe, "E-commerce Recommendation System Using Improved Probabilistic Model," in *Proceeding of the 2nd International Conference on Information and Communication Technology for Sustainable Development (ICT4SD)*, 2018, vol. 2, pp. 277−284. Springer.

19 Akash Agrawal, **Sandeep S. Udmale**, and Vijay Sambhe, "Extended Four-Step Travel Demand Forecasting Model for Urban Planning," in *Proceeding of the 2nd International Conference on Information and Communication Technology for Sustainable Development (ICT4SD)*, 2018, vol. 2, pp. 191−198. Springer.

20 Mohit Gurnani, Yogesh Korke, Prachi Shah, **Sandeep S. Udmale**, Vijay Sambhe, and Sunil Bhirud, "Forecasting of sales by using fusion of machine learning techniques," in *Proceeding of the International Conference on Data Management, Analytics and Innovation (ICDMAI)*, 2017, pp. 93−101. IEEE.

21 Dharmendra Hingnu, Deep Shah, and **Sandeep S. Udmale**, "Automatic Text Summarization of Wikipedia Articles," in *Proceeding of the International Conference on Communication, Information & Computing Technology (ICCICT)*, 2015, pp. 1−4. IEEE.

22 **Sandeep S. Udmale**, Vijay K. Sambhe, Rupali Tajanpure, and Archana Wasule, "A BHP saving mechanisms-An approach to improve performance of Optical Burst Switched Network," in *Proceeding of the International Multi-Conference on Automation, Computing, Communication, Control and Compressed Sensing (iMac4s)*, 2013, pp. 630−635. IEEE.

23 Laxman D. Netak, **Sandeep S. Udmale**, Girish V. Chowdhary, and Rupali Tajanpure, "Analysis of Effect of Different Factors on Burst Dropping Probability in Optical Burst Switching Network," in *Proceeding of the 2nd International Conference on Future Generation Information Technology (FGIT)*, 2010, vol. 6485, pp. 99−113. Springer.

Book Chapters

1 **Sandeep S. Udmale**, Anil Kumar Pandey, Ravi Shankar Singh and Sanjay Kumar Singh, "Internet of things in the healthcare industry," in *IoT-Based Data Analytics for the Healthcare Industry*, ch. 01, pp. 3−8, Academic Press (Elsevier), 2020.

2 M. Jayashankara, **Sandeep S. Udmale**, Anil Kumar Pandey, and Ravi Shankar Singh, "IoT healthcare architecture," in *IoT-Based Data Analytics for the Healthcare Industry*, ch. 02, pp. 9−30, Academic Press (Elsevier), 2020.

3 Ritesh Sharma, **Sandeep S. Udmale**, Anil Kumar Pandey, and Ravi Shankar Singh, "Characteristics of IoT health data," in *IoT-Based Data Analytics for the Healthcare Industry*, ch. 03, pp. 31−46, Academic Press (Elsevier), 2020.

4 Vishakha Singh, **Sandeep S. Udmale**, Anil Kumar Pandey, and Sanjay Kumar Singh, "Health data analytics using Internet of things," in *IoT-Based Data Analytics for the Healthcare Industry*, ch. 04, pp. 47−56, Academic Press (Elsevier), 2020.

5 Vishakha Singh, **Sandeep S. Udmale**, Anil Kumar Pandey, and Sanjay Kumar Singh, "IoT for health insurance companies," in *IoT-Based Data Analytics for the Healthcare Industry*, ch. 09, pp. 139−148, Academic Press (Elsevier), 2020.

Professional Activities

Editorial Board Member

- Associate Editor, Applied Artificial Intelligence Letters (AAIL), Wiley.

Reviewer

- IEEE Transactions on Industrial Electronics (IEEE TIE), IEEE Transactions on Industrial Informatics (IEEE TII), IEEE Transactions on Instrumentation and Measurement (IEEE TIM), IEEE Transactions on Artificial Intelligence (IEEE TAI), IEEE Transactions on Sustainable Energy (IEEE TSTE), IEEE Sensors Journal, IEEE Access, Measurement (Elsevier), ISA Transactions (Elsevier), Reliability Engineering and System Safety (Elsevier), Advanced Engineering Informatics (Elsevier), Engineering Failure Analysis (Elsevier), Knowledge-Based Systems (Elsevier), Engineering Applications of Artificial Intelligence (Elsevier), Expert Systems With Applications (Elsevier), Information Fusion (Elsevier), Computers and Electronics in Agriculture (Elsevier), Soft Computing (Springer), International Journal of Machine Learning and Cybernetics (Springer).

Board of Studies

- Member, Board of Studies for B. Tech. in Information Technology at Shri Guru Gobind Singhji Institute of Engineering and Technology (SGGSIE&T), Nanded, Maharashtra from AY 2026.
- Member, Board of Studies for B. Tech. in Artificial Intelligence and Machine Learning (AIML) at Walchand College of Engineering, Sangli, Maharashtra from AY 2025.
- Member, Board of Studies for B. Tech. in Artificial Intelligence and Machine Learning (AIML) at School of Engineering and Technology, Sanjivani University, Kopargaon, Kopargaon, Near Shirdi, Ahmednagar (Ahilyanagar), Maharashtra from AY 2024.
- Member, Board of Studies for Diploma Program in Information Technology at Shivajirao S. Jondhle, Asangaon, Maharashtra from AY 2024 – 2029.
- Member, Board of Studies for B. Tech. in Information Technology at St. Francis Institute of Technology Mumbai, Maharashtra from AY 2024.
- Member, Board of Studies (Matser in Computer Application (MCA)), University of Mumbai, Mumbai, from AY 2023 – 2027.
- Member, Board of Studies for B. Tech. in Computer Engineering at Sardar Patel Institute of Technology Mumbai, Maharashtra from AY 2023.
- Member, Board of Studies for Diploma Program in Artificial Intelligence & Machine Learning (AI-ML) at Government Polytechnic Mumbai, Maharashtra from AY 2022 – 2025.
- Member, Board of Studies for B. Tech. in Computer Science & Engineering (Data Science) at D. Y. Patil College of Engineering & Technology, Kasaba Bawada, Kolhapur, Maharashtra from AY 2021 – 2024.

Conferences

- Session chair, International Conference on International Conference on Communication, Image Processing, and Computing (ICCIPC-2025), 10^{th} March, 2025, by Walchand College of Engineering, Sangli, Maharashtra, India.
- Session chair (Artificial Intelligence and Machine Learning), International Conference on Communication Information and Computing Technology (ICCICT-2021), 26^{th} June, 2021, by Sardar Patel Institute of Technology , Mumbai, Maharashtra, India.
- Track chair (Artificial Intelligence and Machine Learning), International Conference on Communication Information and Computing Technology (ICCICT-2021), 25^{th} to 27^{th} June, 2021, by Sardar Patel Institute of Technology , Mumbai, Maharashtra, India.
- Program committee member and reviewer, International Conference on Computational Intelligence and Emerging Power System (ICCIPS-2021), 9^{th} and 10^{th} March, 2021, by Government Engineering College, Ajmer, Rajastan, India.

Invited Talks

1 Delivered a lecture on *''Securing the Industrial System by Digital Monitoring''*, 19^{th} July 2026, at Two Week FDP on "Securing the Digital World: Recent Advances in Cybersecurity and Computer Vision," Organized by Electronics & ICT Academy, Pandit Dwarka Prasad Mishra Indian Institute of Information Technology, Design and Manufacturing, Jabalpur in Association with Atal Bihari Vajpayee Indian Institute of Information Technology and Management, Gwalior sponsored by Ministry of Electronics and Information Technology (MeitY), Government of India.

2 Delivered a lecture on *''Large Language Models & Retrieval-Augmented Generation''*, 17^{th} July 2026, at One Week FDP on "Machine Learning for Materials and Metallurgical Engineering," Organized by Indian Institute of Technology (IIT-BHU), Varanasi, Uttar Pradesh, India.

3 Delivered a lecture on *''Random Forest, Decision Trees & Ensemble Learning''*, 15^{th} July 2026, at One Week FDP on "Machine Learning for Materials and Metallurgical Engineering," Organized by Indian Institute of Technology (IIT-BHU), Varanasi, Uttar Pradesh, India.

4 Delivered a lecture on *''Use of AI in Education and Research''*, 16^{th} June 2026, at One Week FDP on "NextGen AI Technologies for Smart Teaching and Interdisciplinary Research," Organized by Mar Baselios College of Engineering and Technology, Thiruvanathapuram, Kerala, India.

5 Delivered a lecture on *''AI-Driven Innovation for Sustainable Development ''*, 7^{th} January 2026, at International Conference on "AI-Driven Innovation for Sustainable Development in Education and Industry," Organized by Sheth N.K.T.T. College of Commerce & Sheth J.T.T. College of Arts (Autonomous), Thane, Maharashtra, India.

6 Delivered a lecture on *''Use of AI in Education and Research''*, 7^{th} October 2025, at One Week AICTE ATAL FDP on "AI-Driven Technologies for Innovation, Research, Education, Healthcare and Business Applications," Organized by Sanjeevan Group of Institutions, Panhala, Kolhapur, Maharashtra, India.

7 Delivered a lecture on *''Modern Machine Learning Solution for Electricity Consumption Management in Smart Buildings''*, 26^{th} June 2025, at Two Weeks ISTE FDP on "Role of AI in the Next Generation," organized by Vidyalankar Polytechnic, Mumbai, Maharashtra.

8 Delivered a lecture on *''Literature Review and Knowledge Exploration with AI''*, 24^{th} June 2025, at One Week FDP on "AI Research tools: A Multidisciplinary Perspective," organized by Centre for Development of Imaging Technology (C-DIT), Department of Electronics and IT, Government of Kerala in Association with Thangal Kunju Musaliar College of Engineering (TKMCE), Kollam, Kerala.

9 Delivered a lecture on *''Use of AI in Education and Research''*, 2^{nd} May 2025, at One Week FDP on "Use of AI in Education and Research," Organized by Indian Institute of Information Technology, Design & Manufacturing, Kurnool & Electronics & ICT Academy, National Institute of Technology, Warangal in Association with Walchand College of Engineering, Sangli sponsored by Ministry of Electronics and Information Technology (MeitY), Government of India.

10 Delivered a lecture on *''Modern Machine Learning Solution for Electricity Consumption Management in Smart Buildings''*, 4^{th} October 2024, at One Week AICTE-ISTE FDP on "Applications of Artificial Intelligence in Engineering," organized by Anjuman-I-Islam's M.H. Saboo Siddik Polytechnic, Mumbai, Maharashtra.

11 Delivered a lecture on *''Use of AI in Research''*, 28^{th} September 2024, at National Seminar on "Research Methodology," organized by Shri Sant Savta Mali Gramin Mahavidyalaya, Phulambri, Aurangabad, Maharashtra.

12 Expert panelist for discussion on *''Indigenous Efforts in Securing Critical Infrastructure''*, 1^{st} February 2024, at one-day workshop on "Cybersecurity of Critical Infrastructure," organized by Indian Institute of Technology Bombay (IITB), Maharashtra.

13 Delivered a lecture on *''LangChain''*, 3^{rd} January 2024, at One Week AICTE ATAL FDP on "Generative AI: Concerns and Solutions," organized by Sardar Patel Institute of Technology (SPIT), Andheri, Mumbai, Maharashtra.

14 Delivered a lecture on *''Technical Writing and Familiarization of Open Source Tools for Research''*, 24^{th} March 2023, organized by Thangal Kunju Musaliar College of Engineering (TKMCE), Kollam, Kerala.

15 Delivered a lecture on *''Analysis of Multi-Sensor Data with FDPM Scenario''*, 27^{th} January 2023, at One Week APJ Abdul Kalam Technological University, Kerala Sponsored on "Data Analytics for the New Industrial Era," organized by Thangal Kunju Musaliar College of Engineering (TKMCE), Kollam, Kerala.

16 Delivered a lecture on *''Role of AI in Manufacturing Industry''*, 24^{th} September 2022, at "International AI Summit 2022," organized by G. H. Raisoni Institute of Engineering and Business Management, Jalgaon, Maharashtra.

17 Delivered a lecture on *''Vibration Data Analysis''*, 23^{rd} March 2022, at One Week ISTE STTP on "Machine Learning and AI," organized by SVKM's Shri Bhagubhai Mafatlal Polytechnic, Mumbai, Maharashtra.

18 Delivered a lecture on *''Industrial Data Analysis using Single Feed Forward Neural Network''*, 12^{th} February 2022, at One Week Workshop on "Innovations in IoT for Emerging Applications," organized under Technology Incubation and Development of Entrepreneurs (TIDE) 2.0 by Technology Innovation and Incubation Center (TIIC), ABV-Indian Institute of Information Technology and Management (ABV-IIITM), Gwalior, Madhya Pradesh.

19 Delivered a lecture on *''Extreme learning machine and convolutional neural network for vibration data analysis''*, 7^{th} December 2021, at One Week AICTE ATAL FDP on "Intelligent Data Analytics for Critical Infrastructure Security," organized by Rashtriya Raksha University (RRU), Dehgam, Gandhinagar, Gujarat.

20 Delivered a lecture on *''Extreme learning machine and convolutional neural network for vibration data analysis''*, 30^{th} July 2021, at One Week FDP on "AI & Data Science the Future of Tomorrow," organized by Rajiv Gandhi Institute of Technology (RGIT), Mumbai, Maharashtra.

21 Delivered a lecture on *''Basics of Python for Machine Learning and Data Science''*, 29^{th} May 2021, at K. J. Somaiya College of Engineering, Vidyavihar, Mumbai, Maharashtra.

22 Delivered a lecture on *''Reading excel sheet and doing data analysis''*, 30^{th} April 2021, at One Week AICTE STTP on "Automation / Application of Python Programming," organized by M. H. Saboo Siddik Polytechnic, Mumbai, Maharashtra.

23 Delivered a lecture on *''Python Regular Expressions & Exception Handling''*, 8^{th} April 2021, at One Week AICTE STTP on "Advanced Python programming," organized by M. H. Saboo Siddik Polytechnic, Mumbai, Maharashtra.

24 Delivered a lecture on *''Introduction & basics of python programming''*, 14^{th} December 2020, at One Week AICTE STTP on "Python programming," organized by M. H. Saboo Siddik Polytechnic, Mumbai, Maharashtra.

25 Delivered a lecture on *''Extreme learning machine and convolutional neural network for vibration data analysis''*, 03^{rd} November 2020, at One Week AICTE STTP on "Research Avenues in Machine Learning for Pattern Recognition," organized by Mahatma Gandhi Institute of Technology (MGIT), Hyderabad, Telangana.

26 Delivered a webinar on *''A systematic approach to prepare technical paper''*, 23^{rd} May 2020, organized by Shri Bhagubhai Mafatlal Polytechnic, Mumbai.

27 Delivered a 1-Day Seminar on *''Latex''*, 9^{th} March 2013, at Ramarao Adik Institute of Technology, Nerul, Navi Mumbai.

28 Delivered a 1-Day Seminar on *''Latex''*, 8^{th} April 2011, at A. C. Patil College of Engineering, Kharghar, Navi Mumbai.

Organization of Faculty Development or Training Activities Programme

1 Coordinated 1-Week workshop on *''Digital & Tech Policy Workshop''*, during 18^{th} December to 23^{rd} December 2025, jointly organized by COEP Technological University, Pune and Veermata Jijabai Technological Institute (VJTI), Mumbai, at COEP Technological University, Pune.

2 Coordinated 1-Week IEEE workshop on *''Global Challenges for Data Security''*, during 24^{th} December to 28^{th} December 2024, at Veermata Jijabai Technological Institute (VJTI), Mumbai.

3 Coordinated 3-Days AICTE-VAANI workshop on *''Use of Artificial Intelligence Tools and Techniques for Effective Teaching and Evaluation''*, during 24^{th} June to 26^{th} June 2024, at Veermata Jijabai Technological Institute (VJTI), Mumbai.

4 Coordinated 1-Week workshop on *''Quality Assurance through NAAC Accreditation Process ''*, during 21^{st} February to 25^{th} February 2023, at Veermata Jijabai Technological Institute (VJTI), Mumbai.

5 Member of organizing committee for 1-Week TEQIP-II workshop on *''Internet of Things''*, during 15^{th} March to 20^{th} March 2017, at Veermata Jijabai Technological Institute (VJTI), Mumbai.

6 Coordinated 2-Weeks TEQIP-II workshop on *''Mathematical and Statistical Foundations in Engineering Applications''*, during 16^{th} September to 19^{th} September 2016 and 12^{th} October to 17^{th} October 2016, at Veermata Jijabai Technological Institute (VJTI), Mumbai.

7 Coordinated for 4-Weeks AICTE approved workshop on *''Use of ICT in Education for Online and Blended Learning''*, under the National Mission on Education through ICT (MHRD, Govt. of India), during 2^{nd} May to 10^{th} July 2016, organized by Indian Institute of Technology (IIT), Bombay, at Veermata Jijabai Technological Institute (VJTI), Mumbai.

8 Member of organizing committee for 1-Day TEQIP-II workshop on *''Skill India''*, 25^{th} February 2016, at Veermata Jijabai Technological Institute (VJTI), Mumbai.

9 Member of organizing committee for 1-Day TEQIP-II workshop on *''Digital Transformation''*, 2^{nd} February 2016, at Veermata Jijabai Technological Institute (VJTI), Mumbai.

10 Member of organizing committee for 2-Days TEQIP-II workshop on *''Internet of Things (IoT)''*, during 23^{rd} January to 24^{th} January 2016, at Veermata Jijabai Technological Institute (VJTI), Mumbai.

11 Member of organizing committee for 1-Day TEQIP-II workshop on *''Internet of Things (IoT)''*, 8^{th} January 2016, at Veermata Jijabai Technological Institute (VJTI), Mumbai.