

Suhas Kakade

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Work Experience

Teaching Experience: Thirteen years, Eleven months

Assistant Professor, Department of Electrical Engineering, College of Engineering, Pune (22 February 2010 - till 15 January 2024).

Assistant Professor, Department of Computer Science and Engineering, Sardar Patel Institute of Technology, Mumbai (23 January 2024 - till date).

Research Experience: Seven years, Six months

Research Scholar, Department of Electrical Engineering, I.I.T. Bombay, Mumbai (July 2016 - till date).

Subjects Taught

Machine Learning, Probability and Statistics, Solid State Devices and Linear Circuits, Signals and Systems, Digital Signal Processing, Image Processing, Wavelet Transform, Embedded Systems, Embedded Systems Design, Microcontrollers, Digital Electronics, Object Oriented Programming and Data Structures, Computer Networking, Basic Electronics Engineering.

Additional Teaching Interest

Data Analytics, Network Theory, Analog and Digital Communication, Linear Algebra, Wavelet, Adaptive Signal Processing.

Research Interest

Computational Haptics, Deep Learning, Machine Learning, Image Processing, Embedded System.

Skill Set

Software - Scilab, MATLAB, R, Octave, Python, C, C++, Embedded C, Embedded Linux, LabVIEW, $\text{\LaTeX}$, Multisim, PROTEUS, KEIL.

DSP programming- TMS 302LF2407, 28335, C6 series.

Microprocessors and Microcontrollers programming - TIVA (ARM Cortex M4), Beaglebone Black (ARM Cortex A8), ARM 7TDMI, 8085, 8086, 8051, AVR, PIC.

Dissertations/Project

Ph. D. (ongoing)

Kinesthetic Haptic Perception

- Kinesthetic Haptic Perception involves cognizance of forces through muscles, tendons, and joints in the body.
- Estimation and comparison of Weber's threshold in retrospective and prospective paradigm
An experiment involving the perception of kinesthetic forces was performed on 102 subjects. Obtained results show that Weber's thresholds are different in both scenarios.

- Estimation of Weber's threshold based on the adaptive sampling of force signal
An experiment involving bidirectional communication of haptic data based on haptics over internet protocol (HoIP) between the operator and teleoperator was carried out to estimate the Weber's threshold. Performance matrices such as the number of packets transmitted and signal-to-noise ratio were also defined.
- Bi-manual Haptic Perception
An experiment involving the determination of perceptual threshold for bi-manual asynchronous perception of force signal for dominant and non-dominant hand and its comparison with uni-manual threshold for a discriminative task is carried out. It showed that uni-manual dominant hand perception is better.

M. Tech.

Multi-spectral Random Field Image Models for Textures

- Study of texture analysis and the development of texture synthesis techniques.
- Investigation of the neighbor set selection method.
- Suitable for data compression, agriculture, and gaming animation applications.

B. E.

Handwriting and Signature Recognition

- Implementation of wavelet decomposition, feature vector extraction, and decision-making algorithm to verify the uniqueness of an individual's handwritten signature based on behavioral bio-metrics.
- Development of GUI for the analysis of signature and handwriting specimen.
- Effective for banking and security systems applications.

Academic Honors

- Stood First in M. Tech. (Electronics - Computers) in College of Engineering, Pune.
- Received best paper award at "IRMAS 2023", Vellore, India, May 4-6, 2023.

Publications

International Journal

1. **Suhas Kakade**, Subhasis Chaudhuri, and Abhishek Gupta, "Bi-manual Sensory Discrimination: A Kinesthetic Study", *IEEE Transactions on Haptics*, vol. 17, no. 1, pp. 116-121, Jan. - March 2024, doi: 10.1109/TOH.2024.3362352. Also, the same paper was presented at IEEE Haptics Symposium 2024 held at Long Beach, USA during 7-10 April 2024.
2. Rohan Kulkarni, **Suhas Kakade**, Shamli Mawande, and Ranjit Sadakale, "Estimation of Solar PV Plant output using Polynomial Regression and ANN Algorithm" In *Journal of Physics: Conference Series*, vol. 2601, no. 1, p. 012017, IOP Publishing, 2023, DOI 10.1088/1742-6596/2601/1/012017.
3. **Suhas Kakade**, Rohan Kulkarni, Somesh Dhawale, and Muhammed Fasil C, "The Utilization of Machine Learning Algorithms for Precision Agriculture: Enhancing Crop Selection", *Green Intelligent Systems and Applications*, 3(2), 2023, p. 86-97, DOI 10.53623/gisa.v3i2.313

International Conferences

1. Vedashree Ayachit, Naresh Gandhi, and **Suhas Kakade**, "Unified Diagnostics Off-board Tool Development Testing", SAE Technical Paper, No. 2024-01-5041, 2024.
2. Neha Rathod, **Suhas Kakade**, Asesh Ray, and Rohan Kulkarni, "Advanced Automotive Quality Assurance: A Comprehensive Approach to Power Window Functionality Testing through Software Test Automation", *Proc. IEEE sponsored 7th International Conference on Computer Applications in Electrical Engineering - Recent Advances (CERA) 2023*, IIT Roorkee, India, October 27-29, 2023.
3. Diksha Sorte, **Suhas Kakade**, and Rohan Kulkarni, "Output Estimation of the Solar PV Plant Using System Identification", *Proc. 3rd Asian Conference on Innovation in Technology (ASIANCON)*, Pune, India, August 25-27, 2023.

4. Neha Rathod, **Suhas Kakade**, Asesh Ray, and Rohan Kulkarni, "Software Test Automation of Power Window Functionality", *Proc. 3rd Asian Conference on Innovation in Technology (ASIANCON)*, Pune, India, August 25-27, 2023.
5. Nikita Anil Khond, Naresh Gandhi, and **Suhas Kakade**, "Development and Testing of End-of-Line (EOL) Tester for Diesel Engine", SAE Technical Paper, No. 2023-01-5058, August 25th, 2023.
6. Pragati Narote, Ameya Srivastava, Shreeniket Fatangare, **Suhas Kakade**, and Rohan Kulkarni, "Automatic Number Plate Detection System for Indian Vehicles using YOLOv5 and EasyOCR", *Proc. International Conference on Soft Computing for Problem Solving - SocProS 2023*, IIT Roorkee, India, August 11-13, 2023.
7. Shamli Mawande, Rohan Kulkarni, **Suhas Kakade**, and Ranjit Sadakale, "Estimation of Solar PV Plant Output using LSTM - CNN Algorithm", *Proc. International Conference on Digital Applications, Transformation, and Economy (ICDATE) 2023*, Miri, Malaysia, July 14-16, 2023.
8. Somesh Dhawale, **Suhas Kakade**, Rohan Kulkarni, and Muhammad Fasil C, "Application of ML in Crop Selection for Precision Agriculture", *Proc. International Conference on Digital Applications, Transformation, and Economy (ICDATE) 2023*, Miri, Malaysia, July 14-16, 2023.
9. Mohit Shakya, Vijay Pande, Rohan Kulkarni, and **Suhas Kakade**, "Estimation of Solar PV Power Plant Output using Machine Learning Algorithms", *Proc. International Conference on Digital Applications, Transformation, and Economy (ICDATE) 2023*, Miri, Malaysia, July 14-16, 2023.
10. Atharvraj Patil, Jayesh Ingale, Aditya Upadhye, Sakshi Jaiswal, **Suhas Kakade**, and Abhishek Bhatt, "Deep Learning-based approach for Indian License Plate Recognition using Optical Character Recognition", *Proc. IEEE-GCON 2023*, IIT Guwahati, India, June 23-25, 2023.
11. Rohan Kulkarni, Sanjay Dambhare, Dhanajay Talange, and **Suhas Kakade**, "Simulation Study of Solar Photovoltaic-Thermal System" *Proc. IEEE-GCON 2023*, IIT Guwahati, India, June 23-25, 2023.
12. Rohan Kulkarni, **Suhas Kakade**, and Vijay Marathe, "Modeling and Simulation of Photovoltaic Module with Electrothermal devices", *Proc. IEEE-GCON 2023*, IIT Guwahati, India, June 23-25, 2023.
13. Sameer Pathan, Rohan Kulkarni, and **Suhas Kakade**, "Modeling and Estimation of Solar Photovoltaic Thermal Panel System", *Proc. International Conference on Wireless Technologies, Networks and Science*, virtual (online), October 6-7, 2022
14. Mayuri Kale, Rohan Kulkarni, **Suhas Kakade**, and Vijay Marathe "Mathematical Modeling of Dust Particles Deposition on Solar Panel", *Proc. International Conference on Wireless Technologies, Networks and Science*, virtual (online), October 6-7, 2022
15. Preeti Bankar, **Suhas Kakade**, Milind Bagewadi, Abhishek Gupta, Piyush Shukla, and Rohan Kulkarni, "Audio Based Detection of Saw Blade Sharpness using Machine Learning", *Proc. 2nd International Conference on Signal and Information Processing*, Pune, India, August 26-27, 2022.
16. Sakshi Kulkarni, Kshitij Duraphe, Laveen Chandwani, Sakshi Jaiswal, **Suhas Kakade**, and Rohan Kulkarni, "Optimizing Solar Panel Tilt Angle using Machine Learning Techniques", *Proc. 3rd Global Power, Energy and Communication Conference- GPECOM2021*, Nevsehir, Turkey, October 5-8, 2021.
17. Shubham Thombare, V. N. Pande, R.S. Kulkarni, and **Suhas Kakade**, "Prediction of Solar Power using Linear Regression", *Proc. 1st International Symposium on Sustainable Energy and Technological Advancements (ISSETA 2021)*, National Institute of Technology Meghalaya, India, September 24-25, 2021, pp 1-11.
18. **Suhas Kakade** and Subhasis Chaudhuri, "Perceptually Compressive Communication of Interactive Telehaptic Signal", *Proc. International Conference on Human Haptic Sensing and Touch Enabled Computer Applications, Eurohaptics*, Leiden, September 6-9, 2020, pp 480-488.
19. Vineet Gokhale, Jaykrishnan Nair, Subhasis Chaudhuri and **Suhas Kakade**, "Network Aware Adaptive Sampling for Low Bit-rate Telehaptic Communication", *Proc. Eurohaptics*, Pisa, June 13-16, 2018, pp 660-672.
20. Devendrakumar H. Pal and **Suhas Kakade**, "Dynamic hand Gesture Recognition using Kinect Sensor" *Proc. International Conference on Global Trends in Signal Processing, Information Computing and Communication*, Jalgaon, December 22-24, 2016, pp 448- 453.
21. Devendrakumar H. Pal and **Suhas Kakade**, "Control of Robotic Arm using Hand Gesture Recognition", *Proc. International Conference on Advancements in Automation, Robotics and Sensing*, Coimbatore, June 23-24, 2016.
22. Sharvin Rane, Sunil Adsol, Apekshit Chandekar, Rohan Shinde and **Suhas Kakade**, "Automated Irrigation System using Xbee and Labview", *Proc. 3rd International Conference on Electrical, Electronics, Engineering Trends, Communication, Optimization and Sciences*, Tadepalligudem, June 1-2, 2016.

23. P. P. Bartakke, **Suhas Kakade** and M. S. Sutaone, “Non-Causal Simultaneous Autoregression Model based Texture Synthesis”, *Proc. International Conference on Electronic Design and Signal Processing*, Manipal, December 10-12, 2009.
24. M. S. Sutaone, **Suhas Kakade** and P. P. Bartakke, “Automatic Neighborhood Selection for SAR models applied to Gray Textures”, *Proc. TENCON*, Singapore, November 23-26, 2009, pp 1-5.

National Conferences

1. M. S. Sutaone, P. P. Bartakke and **Suhas Kakade**, “Multispectral Random Field Model Based Color Image Analysis and Synthesis”, *Proc. National Conference on Machine Vision and Image Processing*, Pune, December 7-9, 2011, pp. 16-20.
2. **Suhas Kakade** and P. P. Bartakke, “Handwriting and Signature Recognition”, *Proc. National Conference on Signal and Image Processing Applications*, Pune, September 19-20, 2009, pp 1-4.

Research Projects

1. PI for “A day ahead output power estimation of solar photovoltaic (PV) plant using machine learning (ML) algorithms” with R&D grant of Rs. 5 Lakh from College of Engineering Pune for the period 2020-2022.
2. PI for “Machine learning assisted protective relays for power system” with R&D grant of Rs. 5 Lakh from College of Engineering Pune for the period 2020-2022.

Academic Contributions

- Session Chair at 16th International Conference on Machine Learning and Computing 2024 held in Shenzhen, China.
- Reviewer at various Conferences like ICMLC 2023, 2023 IEEE Pune Section International Conference, IEEE IConSIP 2022 etc.
- Participated as a resource person in **seven** FDPs/CEPs/workshops, delivered **five** invited lectures.
- Coordinated **eleven** FDPs/CEPs/workshops and participated in **twenty two** FDPs/CEPs/workshops.
- Laboratory in charge of Solid State Devices and Linear Circuits, Digital Electronics, Microcontroller and Digital Signal Processing laboratories, Embedded Systems, and Machine Learning. Instrumental in carrying out MoU with Texas Instruments India Ltd., NVIDIA for laboratory development.
- Developed **five** laboratories and **six** laboratory manuals.
- Supervised **seventeen** M. Tech. dissertations and **eighteen** B. Tech. projects.

Administrative Responsibilities

- Department timetable coordinator
- Department coordinator for LinkedIn learning
- Faculty coordinator for T. Y. B. Tech. students.
- Mentor for Wadhwani training program for T. Y. B. Tech. students
- Department AICTE data coordinator
- Department data management committee member 2011-16 and 2019 onwards
- Department Moodle coordinator
- F. Y. B. Tech. and S. Y. B. Tech. lateral entry admission committee member 2011-2016
- M. Tech. Admission Committee member 2011-12
- Gymkhana member, Gathering, ‘Zest’, ‘Mindspark’ management committee member 2011-2015
- Annual Gathering sports coordinator 2014-16
- Worked as District Sub Liaisoning Officer for MTCET 2013

Miscellaneous

- Selected as Scientist 'B' grade at NTRO in 2014.
- Participated in QEEE courses.
 1. Object Oriented Concepts - Classes and Data Abstraction - Operator Overloading - Inheritance by Prof. Rahul Nasre I.I.T, Madras in 2016.
 2. Solid State Device by Prof. Prof.Shreepad Karmalkar I.I.T, Madras in 2015.
- 2nd prize to the supervised project in the Technocraft Booth Competition organized by Alumni Association, CoEP in 2014-15.
- Best innovative UG project award to supervised B. Tech. group in 2014-15.

References

Subhasis Chaudhuri
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Annexure

Resource Person in FDPs/CEPs/Workshops

1. “Introduction to Renewable Energy Resources” in the webinar on “Renewable Energy Resources and their Future Aspects in India” at Himalayan Institute of Engineering and Technology, Kala-Amb on May 12, 2023.
2. “Applications of Machine Learning” in AICTE – MRSPTU sponsored 6 days FDP on “IoT & Artificial Intelligence in Industry 4.0” at Baba Farid College of Engineering and Technology, Bhatinda in virtual mode on January 17, 2022.
3. “OPAMP & its Applications in Power Electronics” in training to industrial engineers at Greeves Cotton Limited, Mumbai in virtual mode on December 10, 2020.
4. “Machine Learning & its Applications” in two days workshop on “Applications of Artificial Intelligence & IoT in Electrical Systems” at K. J. College of Engineering and Management Research, Pune on January 24, 2020.
5. “MSP 430 Architecture ” in two-week faculty development program on “Embedded Product Development”, at College of Engineering, Pune during July 4-15, 2016.
6. “Microcontroller and DSP” in “CEP on BLDC Technology and its Application in Defence” at Research and Development Establishment, Dighi, Pune on December 17, 2014.
7. “Application of MATLAB in Wireless Communication” in two days National workshop on “Hands-on Practice and Implementation of Wireless Communication using MATLAB” at D. Y. Patil School of Engineering and Technology, Lohegaon, Pune on March 13, 2013.

Invited Lectures

1. “Introduction to Machine Learning” at K. J. College of Engineering & Management Research, Pune on October 25, 2023.
2. “Network Analysis” at K. J. College of Engineering & Management Research, Pune on June 3, 2022.
3. “Microprocessor and its Applications” at Vidarbha Institute of Technology, Nagpur on February 13, 2016.
4. “PIC and Embedded Systems” at K. J. College of Engineering, Pune on September 12, 2015.
5. “Tips and Tricks for mini projects related to Digital Image Processing” at AISSMS Institute of Technology, Pune on February 27, 2013.

FDPs/CEPs/Workshops Coordinated

1. A two-month training workshop on 'Future Skill Development - Artificial Intelligence' organized by the Department of Electrical Engineering, College of Engineering, Pune under TEQIP III during February - March 2021.
2. A two-day “DrishTI Online Contest 2019” organized jointly by the Department of Electrical Engineering, College of Engineering, Pune, and TI India Pvt. Ltd. during September 13 - 14, 2019.
3. A two-week FDP on “Embedded Product Development” organized by the Department of Electrical Engineering, College of Engineering, Pune under TEQIP II during July 4-15, 2016.
4. A one day “Texas Instruments India Analog Campaign 2015” organized jointly by the Department of Electrical Engineering, College of Engineering, Pune, and TI India Pvt. Ltd. on October 17, 2015.
5. A one-day workshop on “UPS Technology and Battery Maintenance” organized jointly by the Department of Electrical Engineering, College of Engineering, Pune, and Legrand Numeric UPS, Chennai on September 19, 2015.
6. A one day “Texas Instruments India Analog Maker Competition 2014” organized jointly by the Department of Electrical Engineering, College of Engineering, Pune, and TI India Pvt. Ltd. on December 03, 2014.
7. A two-day workshop on “Do it Yourself Embedded Systems” organized by the Department of Electrical Engineering, College of Engineering, Pune under TEQIP II during July 4-15, 2016.
8. A one-day workshop on “Introduction to Advanced Analog Electronics Boards and DSP Boards” organized by the Department of Electrical Engineering, College of Engineering, Pune under TEQIP II on December 05, 2013.

9. A two-week ISTE sponsored 'Main Workshop on Analog Electronics' organized by I.I.T. Kharagpur under the National Mission on Education through ICT by MHRD during June 4-14, 2013.
10. A two-day workshop on "Spice" organized by the Department of Electrical Engineering, College of Engineering, Pune during March 2-3, 2011.
11. A three-day workshop on "Linux" organized by the Department of Electrical Engineering, College of Engineering, Pune during February 22-25, 2011.

FDPs/CEPs/Workshops Participated

1. A three-day Winter School on "Advances in Deep Learning for Multimedia Signal Processing" organized by IEEE Signal Processing Society GS, IEEE Computer Society GS, and IEEE Geoscience & Remote Sensing Society GS during March 3-5, 2022.
2. A three-day AICTE ATAL Academy sponsored Faculty Workshop on "Embedded Systems - An Application Driven Approach" organized by ST Microelectronics and Arm Education during August 25-27 2021.
3. A two-week TEQIP-III sponsored e-training Faculty Development Program (FDP) on "Artificial Intelligence and Machine Learning" organized by IIT Indore during December 7-17 2020.
4. A one-day NBA, New Delhi sponsored "Awareness Webinar on Outcome Based Education and Accreditation" in association with Directorate of Technical Education, Maharashtra State and College of Engineering Pune on 27th November 2020.
5. AICTE Sponsored Online one week STTP on "GPU Computing" organized by ENTC Department, VIT Pune during October 26 - 31, 2020.
6. A one-week certificate course on "Digital Teaching Techniques" organized by ICT Academy during July 27 - August 1, 2020.
7. A one-week CEP course on "Scientific Computing using Python" organized by IIT Bombay during December 16 - 19, 2019.
8. A one-week CEP course on "Linear Algebra" organized by IIT Bombay during January 2 - 6, 2020.
9. MHRD - TEQIP - KITE sponsored one day "TEQIP III Pedagogical Resource Creation Workshop on Digital Signal Processing" organized by the Department of Electrical Engineering and CDEEP, I.I.T. Bombay on April 07, 2018.
10. MHRD - TEQIP - KITE sponsored a three-day workshop on "TEQIP III Preparation and Collaborative Faculty-Student Pedagogical Initiatives" organized by the Department of Electrical Engineering and CDEEP, I.I.T. Bombay during March 17-19, 2017.
11. A two-week AICTE-sponsored FDP on "Select Topics in Signal Processing and Machine Intelligence with Hands-On" organized by the Department of Electronics and Telecommunication Engineering, College of Engineering, Pune during May 23-June3, 2016.
12. A one-week ISTE and IEEE PES Pune section approved FDP on "Power System Operation with Distributed Generation" organized by the Department of Electrical Engineering, College of Engineering, Pune under TEQIP II during May 2-6, 2016.
13. A one-week ISTE approved FDP on "Fractional Order Modeling, Control and Applications" organized by the Department of Electrical Engineering, College of Engineering, Pune under TEQIP II during February 29-March 4, 2016.
14. An online learning initiative course on "ET601Tx: Educational Technology for Engineering Teachers" offered by I.I.T. BombayX and conducted by CDEEP, I.I.T. Bombay during January 07-March 07, 2016.
15. A one-day workshop on "Sustainable and Clean Energy Technologies and Management" organized by the Department of Electrical Engineering, College of Engineering, Pune under TEQIP II on February 14, 2015.
16. A one-week FDP on "LabVIEW for Engineers and Scientists" organized by the Department of Instrumentation and Control Engineering, College of Engineering, Pune under TEQIP II during July 7-11, 2014.
17. A one-week AICTE-sponsored FDP on "Embedded System Development using DSPs" organized by the Department of Instrumentation and Control Engineering, College of Engineering, Pune during May 20-31, 2013.
18. A one-week ISTE sponsored "Coordinators' Workshop on Analog Electronics" organized by I.I.T. Kharagpur under the National Mission on Education through ICT by MHRD during April 1-5, 2013.

19. A two days workshop on “Development Program on Embedded Systems Design Flow using ZedBoard Evaluation, Development Board and Xilinx Embedded Development Board” organized by the Department of Instrumentation and Control Engineering, College of Engineering, Pune during January 10-11, 2013.
20. A two-week faculty development training program on “Hands-on with ARM: Programming Embedded Systems” organized by CDAC, Hyderabad during December 12-23, 2011.
21. A two days CEP workshop on “Introduction to Robotics” organized by I.I.T. Bombay during October 01-02, 2011.
22. A one-week workshop on “Learning L^AT_EX for Technical Report Writing” organized by the Department of Electrical Engineering, College of Engineering, Pune during December 6-10, 2010.

Development of Laboratories and Laboratory Manuals

- Laboratories developed
 1. AI-ML Laboratory
 2. Solid State Devices and Linear Circuits
 3. Digital Electronics
 4. Microcontroller
 5. Digital Signal Processing
 6. Artificial Intelligence - Machine Learning
- Laboratory manuals developed
 1. Machine Learning for T. Y. B. Tech. Electrical Engineering
 2. Solid State Devices and Linear Circuits for S. Y. B. Tech. Electrical Engineering
 3. Data Structures and Computer Programming for S. Y. B. Tech. Electrical Engineering
 4. Digital Electronics for S. Y. B. Tech. Electrical Engineering
 5. Digital Signal Processing for T. Y. B. Tech. Electrical Engineering
 6. Microcontroller for T. Y. B. Tech. Electrical Engineering
 7. Microcontroller and Digital Signal Processor for F. Y. M. Tech. Control Systems and Power Systems
 8. Embedded System Design for F. Y. M. Tech. Embedded Control Systems
 9. Embedded System for F. Y. M. Tech.

Supervised M. Tech. Dissertations

- 2022-23:
 1. “Automated Testing on Power Window Anti-pinch Functionality” by Neha Rathod jointly with Brose India Automotive Systems Private Limited, Pune.
 2. “Solar based Smart Irrigation System” by Somesh Dhawale.
 3. “Output Estimation of Solar PV Plant by using Kalman Filter and System Identification” by Diksha Sorte.
 4. “Estimation of Solar PV Power Plant Output Using Machine Learning Algorithms by Shamali Mawande.
- 2021-22:
 5. “Development and Testing of END OF LINE (EOL) Tester for Diesel Engine” completed by Nikita Khond jointly with Kirloskar Oil Engines Limited, Pune.
 6. “Development and Testing of Diagnostics Service Tool for Diesel Engines” completed by Vedashree Ayachit jointly with Kirloskar Oil Engines Limited, Pune.
- 2020-21:
 7. “Development of Flash Bootloader for RH850” completed by Sayali Lomte jointly with Varroc, Pune.
 8. “Sound based fault diagnosis using AI” completed by Preeti Bankar jointly with HELLA India Automotive Pvt. Ltd., Pune.

9. "COVID 19 Pandemic from Machine Learning perspective" completed by Nilesh Patil.
- 2015-16:
 10. "DSP based Complex Network Analyzer for Power Quality Applications" completed by Ashutosh Pathak.
 11. "Control of Robotic Arm using Hand Gesture Recognition" completed by Devendrakumar Pal.
 - 2014-15:
 12. "A Novel SVPWM Control Stand-alone Three-phase PV Power System based on TMS320F28335" completed by Clint Jolly.
 13. "Designing of automated testing fixture for Single Burner Controller" completed by Dachepally Sandeep (Project sponsored by United Technologies Corporation, Hyderabad).
 14. "Development of PIC Microcontroller based Integrated Board for Controlling Operations of Electrical Motors" completed by Hitesh Khatri.
 - 2013-14:
 15. "Dynamic Hand Gesture Recognition using HMM" completed by Praful Fulzele.
 16. "Design of Software for Radio Communication" completed by Prasanna Chafe (Project sponsored by Antfarm Robotics Pvt. Ltd., Pune).
 17. "Design of Hardware for Radio Communication" completed by Saurabh Panda (Project sponsored by Antfarm Robotics Pvt. Ltd., Pune).

Supervised B. Tech. Projects

- 2022-23:
 1. "Automatic Number Plate Detection System" by Ameya Srivastava, Pragati Narote, Shreeniket Fatan-gare, and Yash Padwal.
 2. "Multipurpose Agriculter Robot" by Saddam Ansari, Sachin Barye, Jagpreet Bali, and Gaurav Rathod.
- 2021-22:
 3. "Automatic Number Plate Recognition System" completed by Atharvraj Patil, Aditya Upadhye, Jayesh Ingale, Sakshi Jaiswal.
 4. "Sign Language to Text Conversion" completed by Kunal Gurjar, Pravin Maragale, Jaydeep Khilari, Ashwin Sonare, and Laveen Chandwani.
- 2020-21:
 5. "COVID-19 Analysis through Machine Learning Perspective" completed by Pooja Gilda, Jagruti Sap-kale, and Madhavi Gattani.
- 2015-16:
 6. "Microcontroller based Automated Irrigation System" completed by Sharvin Rane, Sunil Adsol, Apekshit Chandekar, and Rohan Shinde.
 7. "Microcontroller based Substation Monitoring and Control System" completed by Surabhi Jadhale, Asawari Kadam, and Pallavi Kirange.
- 2014-15:
 8. "Design of a Power Quality Monitoring System based on MSP430" completed by Lekhraj Desai, Nilesh Dhoot, and Saurabh Hamand.
 9. "Human Hand Tracking Robotic Arm" completed by Sameer Deshmukh and Ajeet Wankhede.
 10. "Novel Home Energy Management System Architecture" completed by Sumit Waghavade, Shripad Vasmatkar, and Tejas Shinde.
- 2013-14:
 11. "Remote Home Lighting and Appliance Control System" completed by Nishant Ravichandran and Aniket Bapat.

12. “Remote Power Theft Monitoring” completed by Madura Potdar, Rutuja Deshpande, and Pratiksha Bhamare.
 13. “MPPT based Solar Charge Controller using MSP430” completed by Sonali Waghmare and Kiran Kandekar.
- 2012-13:
 14. “Hybrid Electric Vehicle - Real-Time Simulation and Vector Control of PMSM” completed by Vikrant More, Akshat Khanna, and Akshay Mhalgi (Project sponsored by Automotive Research Association of India, Pune).
 15. “Power Line Communication for Smart Grid” completed by Apurva Singhavi and Ankita Patil.
 16. “Talking Voltmeter” completed by Shubangi Udgirkar and Kalpesh Jaju.
 17. “Automatic Detection and Fire Extinguishing System for Large Spaces” completed by Mehboob Kothiwale, Sonam Pawar, Seema Bhadekar, Prachi Rathod, Ishwar Chaudhari and Samar Kher.
 - 2011-12:
 18. “Fault Detection of Digital Tacho Hour Meter” completed by Komal Shirore (Project sponsored by Cummins India Ltd., Pune).