



Faculty: Science and Technology

Department: Mechanical Engineering

Name of the Faculty: Prof. Siddharth Jabade
Department: Mechanical Engineering
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Research Gate: <https://www.researchgate.net/profile/Siddharth-Jabade>



Research Summary: Prof. Siddharth Jabade has received his Ph.D. in Mechanical Engineering from Indian Institute of Technology Bombay (IITB). He has multi-faceted experience in education, research, innovation, intellectual property rights (IPR) and technology commercialization to enable ideation to impact the value chain of innovation. He was Director of Innovation and IPR at the Asian Institute of Technology in Thailand. He has served as an International Consultant for the Asian Development Bank, UNESCO and as a resource person to the World Intellectual Property Organization. He has authored a book titled Nanotechnology Intellectual Property Rights: Research, Design and Commercialization published by CRC press. He is currently the lead author of a book titled Foundations of 21st Century Curriculum: Emerging Technologies, Humanities and the Augmented Age, to be submitted for publication later this year.

Most recently he was the co-inventor of affordable housing technology for SMART GRAM—an initiative sponsored by the President of India's office. The Ministry of Housing & Urban Affairs' Affordable Sustainable Housing Accelerators (ASHA) Award was given to this innovative housing technology on January 1, 2021 by Prime Minister Narendra Modi.

Name of the Faculty: Prof. Kedar Sant
Department: Mechanical Engineering
LinkedIn: <https://www.linkedin.com/in/kedarsant/>
Research Area Refrigeration systems, Cryogenic systems,
Keywords: Non-conventional Energy Sources, Thermal systems, Heat transfer equipment



Research Summary: The educational qualifications being B.E. (Mech), M.E. (Mech – Heat Power) and Ph. D. (Mech from IIT Bombay) and experience of almost two and a half decades. The specialization being in Thermal and Fluids branch of Mechanical Engineering, broader areas of interest for research are Refrigeration, Cryogenics, Non-conventional Energy Sources, Thermal systems and Heat Transfer Equipment. The specific research areas are as follows:-

1. Refrigeration systems – analysis for performance enhancement, development of non-conventional systems,
2. Cryogenic systems – Stirling cryocoolers, Materials to be used at cryogenic temperatures
3. Non-conventional Energy Sources – Performance enhancement of Solar Thermal systems for different applications, Development of Solar Thermal systems for new applications
4. Thermal systems – Analysis and development of energy efficient thermal systems, Waste heat recovery in thermal systems, Efficient refrigeration compressor system
5. Heat transfer equipment – Analysis and development of Heat pipes and Loop heat pipes for various applications

Guided M. Tech and B. Tech student projects in above mentioned areas. Completed and ongoing different research projects funded by SPPU, ISRO etc. About 10 research papers published in last 3 years.

Name of the Faculty: Dr. Nitin Vijay Satpute
Department: Mechanical Engineering
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Research Summary: Implementing novel and efficient solutions for low frequency vibration energy harvesting. Although vibration energy harvesting has been implemented mainly to ensure battery/cable free operation for small sensors, there is wider scope for improving weight to power ratio and broadband energy recovery of these systems. Innovative features in the published research includes detailed mathematical modeling, better fail-safe characteristics and improved efficiency for the given vibration spectrum.

Computer simulations and experimental investigation to implement non-linear damping systems in order to overcome the limitation of passive vibration isolators to have very low natural frequency in comparison to the operating frequency.

Numerical simulation supported with experimentation on reduced scale prototypes to evaluate the performance. Different sensors like LVDT, accelerometer, rotary encoder and load cells have been used to measure the system parameters. I have found computer-based time and frequency-based data acquisition and analysis to be extremely supportive in design and analysis of the energy harvesters.

Externally sponsored research projects include application of nanoparticles and phase change material, Semi-active torsional based on MR fluid and development of adsorption-based oxygen generator for health care use.



Department: Computer Engineering

Name of the Faculty: Prof. Kailas Patil
Department: Computer Engineering
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Google Scholar: <https://scholar.google.co.in/citations?user=PVxc2VcA AAAJ&hl=en>



Research Summary:

Prof. Kailas has built niche expertise for over 18 years with 17 Publications to his name, 3 Books & Datasets each, 10+ journal papers and 8 publications in International Conferences.

He is listed as India's top 15 Cyber Security Researcher, National Critical Information Infrastructure Protection Center (NCIIP) for 2 consecutive years (2021 & 2020).

Furthermore, he was also listed as India's top 15 Cyber Security Researcher, National Critical Information Infrastructure Protection Center (NCIIP) for 2 consecutive years (2021 & 2020)

His three research domains

1. Internet of Things (IoT)

The Internet of things (IoT) is the network of physical devices, home appliances, and other items embedded with electronics, sensors, actuators, and network connectivity which enable these objects to connect and exchange data. The applications for internet connected devices are extensive. The research projects in this domain will focus on innovating farming methods. Farming challenges caused by population growth and climate change have made it one of the first industries to utilize the IoT. Also, IoT research projects to enable remote health monitoring and emergency notification systems. In addition, research projects to assist in the integration of communications, control, and information processing across various navigation and transportation systems.

2. Renewable Energy: (Green Energy)

Energy is often crucial in human development. The research projects in this domain will focus on renewable technologies and green power that are suited for rural and remote areas. Green power is electricity generated from renewable energy sources.

3. Security:

The research projects in this domain will focus on cloud security issues and challenges, auditing systems, network security, mobile security and web security.



Name of the Faculty: Dr. Sanjesh Sadanand Pawale
Department: Computer Engineering
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- Research Summary:**
1. Computer Network: Main research focus will be on congestion in the network, where the network may be wired and wireless or hybrid type. In wireless network the key issue is to identify the random loss and congestion loss. There is a lot of scope to design various novel methodologies to detect congestion in the network and provide the solution to minimize it with improvement of various networking parameters such as throughput and bandwidth of the network. We can improve the packet delivery ratio as well as the congestion window size also the increase the performance of the overall network.
 2. Computer Graphics: This is the second research area where the research work is going on in the field of Computer graphics and image processing. Medical field is one of the domain for applications of image processing algorithms. In computer networking domain also computer graphics and image processing is applied to compress the image or video before sending on network.

Name of the Faculty: Dr. Bharati Sanjay Ainapure
Department: Computer Engineering
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Google Scholar: <https://scholar.google.co.in/citations?user=QESJWnAAAAAJ&hl=en>



Research Summary: Dr. Bharati Ainapure has completed B.E. in Computer Science and Engineering from Karnataka University and M. Tech in Computer Science and Engineering from Vishweshryaya Technological Univeristy, Kanataka, in 2008. She did her Ph.D from JNTU, Anatapur, India. Currently, she is working as Associate Professor in Computer Engineering Department, Vishwakarma University, Pune, India. She has more than 20 years of experience in teaching and industry and has published more than 30 research papers in renowned international journals and conferences. She has got an Australian patent grant in 2020. Her research interests include Cloud Computing, Machine Learning, Parallel Computing and high performance computing.

Funded Research Projects: Received the amount of Rs. 1,80000/- from BCUD, Pune university for the project title -Elastic Resource Scaling & Load Balancer for Online Shopping using Cloud Computing during 2013-15 and Received NVIDIA Kits from NVIDIA worth Rs. 1,29,666/-

Name of the

Dr. Mamoon Rashid

Faculty:

Designation:

Associate Professor

Department:

Computer Engineering

Research Area

Healthcare Informatics, Image Processing,

Keywords:

Computational Neuroimaging, Artificial
Intelligence, Big Data Analytics



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Research

Summary:

Dr. Mamoon Rashid is currently working as an Associate Professor in the Department of Computer Engineering, Faculty of Science and Technology, Vishwakarma University, Pune, India. He also holds a position of Director, Research Center of Excellence for Health Informatics, Vishwakarma University, Pune, India. He received his Ph.D. from the Department of Computer Science and Engineering, Punjabi University, India in the field of Medical Imaging Informatics. He has published 100+ papers indexed in SCI/SCIE journals and Conferences of International repute with JCR Impact Factor of 300+. He has been awarded with Golden Researcher and Innovation Excellence Award by Vishwakarma University in 2022. He also edited several books on Healthcare Informatics with publishers of Springer and IET. He served as a Lead Guest Editor for many journals indexing in Web of Science. He has given many invited and keynote talks at international conferences across the globe. His research interests include Healthcare Informatics, Image Processing, Computational Neuroimaging, Artificial Intelligence, Big Data Analytics.



Name of the Faculty: Dr. Pratibha Mahajan
Designation: Assistant Professor
Department: Computer Engineering
Research Area Recommender Systems, Information Systems,
Keywords: IoT, Edge Computing, Knowledge graphs



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Research Summary: Salient features of Ph.D. research work “A Context-Aware Recommender System Architecture for Smart Social Networks”
It proposes a Context-Aware Recommender System Architecture for Smart Social Networks specifically for Event Based Social Networks (EBSNs) and Smart object Based Social Networks (SBSNs). Context modeling and integration have been identified as a major challenge in context-aware recommender systems. To overcome this challenge in EBSNs, Three-Tier IoT-Edge-Cloud (3T-IEC) architecture has been proposed that utilizes edge computing layer to preprocess and filter IoT data for deriving contextual attributes in event generation process. Furthermore, a novel Smart Object Recommendation architecture (SORec) for SBSN has been proposed to suggest appropriate smart objects to users. In order to meet the requirements of these dynamic and everchanging smart social networks, the proposed 3T-IEC architecture has been extended to 3T-IEC* that provides more accurate and personalized recommendations for inductive applications. The proposed architectures lay out a solid foundation for the future development of recommendation applications by researchers and developers.



Name of the Faculty: Dr. Sandip S. Thite
Designation: Assistant Professor
Department: Computer Engineering
Research Area Computer Network, Cyber Security, Internet of
Keywords: Things



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Research Summary: Dr. Sandip Thite has 14 years of teaching experience. He published 14 research papers in the domain of Computer networks, Wireless network, Cyber security, Cyber Physical system and Internet of Things. Some of the research papers are published in various Scopus indexed international journals while others are in UGC care journals and presented in national and international conference. He published patent with the title Secure Cyber Physical Systems for Smart Home Applications which is currently under examination. He has three copyrights related to his research work. He received Ph. D. research incentive grant of 2,50,000/- Rs. from Ministry of Electronics and Information Technology, Government of India, on successful completion of the Ph.D. under Visvesvaraya PhD Scheme for Electronics & IT. He has passed the World Intellectual Property Organization (WIPO) certificate examination for Intellectual Property Rights (DL101E). He has detailed knowledge about Intellectual Property Rights. His major research domains include Computer Network, Cyber Security, Internet of Things, Operating System.

Department: Chemical Engineering

Name of the Faculty: Dr. Chetan Vasantrya Kapadnis
Department: Chemical Engineering
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Research Summary:

1. Nanotechnology - Primary research focus will be synthesis and applications of nanomaterials in solar thermal energy harvesting, solar desalination, nanofluids for heat transfer enhancement, phase change materials, water and waste water treatment, etc. Nanomaterials would be synthesized by using chemical methods (bottom up approach) in the laboratory. After characterization they would be incorporated in the desired application for improved parameters in accordance with above mentioned applications. The applications currently being studied in the laboratory are use of nanofluids in solar parabolic collectors, flat plate collectors, phase change materials with composite nanomaterials, etc
2. Second research area is related to heat transfer and process equipment design for improved processes, methods, efficiencies, purification in chemical process industry. This involves modification of certain part of equipment or designing of new equipment with new configuration



Department: Mathematics

Name of the Faculty:	Dr. Jagadish V. Tawade
Designation:	Associate Professor
Department:	Mathematics
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Research Summary: The broad area of research of Dr. Jagadish V. Tawade is in both applied and applicable mathematics having 16 years of teaching experience. He has published more than 32 papers in national and international Journals and 07 in conference proceedings. He was awarded as a young scientist by Vision Group on Science and Technology, Govt. of Karnataka in 2013. He was the Senior Research Fellow of DST, New Delhi in 2008. Many practical problems in science and engineering cannot be solved completely by analytical means. The research in the area of numerical analysis and scientific computation is concerned with the development and analysis of numerical algorithms. The use of numerical methods in conjunction with mathematical modeling to solve large-scale practical problems arises in science and engineering. My focused research areas include numerical solution of boundary value problems arises in continuum mechanics. The Current research area in include:

- [1]. Writing mathematical model for Newtonian and non-Newtonian incompressible fluids
- [2]. Deriving an equation of momentum, heat and mass transfer of Visco-elastic fluid, Maxwell fluid, Nanofluid, Jeffery fluid, Micro polar fluid, Williamson fluid etc.
- [3]. Solving highly non linear differential equations by several numerical and analytical methods.
- [4]. The impacts of different physical parameters upon velocity and temperature profiles for fluid flow system are going to be deliberate.



Department: Computer Science

Name of the Dr. Pooja A. Kulkarni

Faculty:

Designation: Assistant Professor

Department: Computer Science

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Scholar: AAJ&hl=en

Research As a computer science faculty my primary research focus remained to utilize IT
Summary: technology for effective management and improved consumer experience.

I have written research papers and done my Ph.D research with an objective of benefiting to the society, companies and government.

One of my research paper is on understanding challenges in implanting smart city project in Pune. Wherein we found major challenges is not having clarity about smart city project to both implements and citizens.

Another research work was on adoption of electronic payment system by senior citizens. Wherein I tried to identify what problems are faced by senior citizens while adopting electronic payment system. I found that they are willing to use the electronic payment system however; the complexity is major obstacle for them.

I also studied security related issues in mobile application from user perspective in another research paper.

I have written papers on BI and cloud computing. I studied mobile financial transactions consumer behavior in rural and urban users. My PhD topic was ‘An Analysis of Electronic Payment and Security in Online Financial Applications with Respect to User Behavior in the Selected Region of Maharashtra State’. My research was based on TAM model (Technology Acceptance Model) proposed by Davis in 1969. I studied security issues in financial transaction through cell phone. I also proposed preventive mechanism to take care of security issues.



Name of the Faculty: Dr. Madhuri Prashant Pant
Designation: Assistant Professor
Department: Computer Science
Research Area: ICT in Education, Software Engineering, System Analysis,
Keywords: Big Data, Hadoop, Artificial Intelligence, Digital Image Processing



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Research Summary: Myself Dr. Mrs. Madhuri Pant having Research Interest in area like ICT in Education, Software Engineering, System Analysis, Big Data, Hadoop, Open source web Technologies Artificial Intelligence, Digital Image Processing My Phd. Title was “Evaluation of Online Admission Systems and Design of Optimized Framework with reference to Professional Programmes”. Research approach was hybrid research includes Survey and Design and Creation. Researcher has concentrated on Evaluation Standardization and Optimization throughout the research work. • The contribution and outcomes of research includes Structured documentation of all process diagrams for Online Admissions will help all stakeholders to understand the admission process easily • Identified evaluation steps will guide in evaluation of any online admission system. • Suggested Process Optimization will definitely be helpful in achieving cost, time and memory saving of a software system. Design of Optimized framework for Online Admission Systems using UML will be beneficial in requirements modeling, design and development of online admission system. • Design patterns for Online Admission System provides a general solution which can be applied according to specific requirements of customer and gives shared vocabulary with other developers. This will help in building easily understandable, maintainable and extensible system for stakeholders. • The system analysis part is the most important part for collecting requirements of the system, Expert System designed for online admission system will help system designer to collect requirements from organization which wants to develop online admission system and suggest the system according to their needs with cost estimation. • Prepared a detail checklist for collecting requirements for online admission system. • Scientific approach used to evaluate online admission systems and to design an optimized framework can be applied to any other system where ICT is used.

Name of the Faculty: Dr. Sonali Kedar Powar
Designation: Assistant Professor
Department: Computer Science
Research Area: Image Processing, Machine learning, Artificial
Keywords: Intelligence



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Research Summary: The research topic for Ph.D. was “Design And Implementation Of Image Steganography Algorithm With Reference To Region Of Interest”. The purpose is to develop a new image steganography algorithm that will find the Region of interest (ROI) from the image, increasing embedding efficiency and decreasing embedding distortion. Embedding efficiency can be increased by increasing the pixels in the ROI space to embed data. In the proposed method skin tone area is used as an ROI. The embedding capacity of ROI is increased by increasing the number of bits per pixel in the hiding process and also by using a 7-bit representation of secret data. Distortion can be decreased by embedding data in the color plane of the image which contributes less to the region of interest in the image. The 2k correction is also used to reduce distortion.

Department: Statistics

Name of the Faculty: Dr. Nazia Wahid
Designation: Assistant Professor
Department: Mathematics & Statistics
Research Area Ordered random variables, Generalized Order Statistics,
Keywords: Data Analytics, Sampling, Biostatistics



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Research Summary:

Dr. Nazia Wahid is from core Statistics background and her primary research focus on ordered random variables generalized order statistics, records etc. and her doctorate topic is “Characterizations of probability distribution and its moments through ordered random variables. She has worked on moments of different lifetime distributions like Lindley, Weibull, Topp-Leone etc. She has presented and published 15+ National & International Research Papers in reputed journals. She has worked in collaboration with foreign universities on biostatistics related projects and published research papers based on mitral stenosis: A severe heart disease. She has a keen interest in Data analytics field and contributed as well. She also has published 2+ patent ‘An IOT and Machine Learning-Based Methodology Spectrum Sensing of Cognitive Radio Systems Using Cluster-Based Procedure’ and ‘An automated implantable cardiac monitoring device for detecting arrhythmia’.

Her vision of making a difference in society using statistics, data analytics to integrate welfare & quality research across.

Name of the Faculty: Dr. Mahfooz Alam
Designation: Assistant Professor
Department: Statistics
Research Area Statistical Inference, Generalized Order Statistics, Dual
Keywords: Generalized Order Statistics



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Research Summary: Dr. Mahfooz Alam recently joined Vishwakarma University as assistant professor in the department of Statistics. He is currently working on moment properties in ordered random variates such as order statistics, record values, progressive censoring, generalized order statistics, dual generalized order statistics and the characterizations of continuous probability distributions. He has published several research papers in the reputed journal of national and international.