K K Wagh Education Society's
K K Wagh Institute of Engineering Education and Research, Nashik.
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TECHNICAL NEWS LETTER

Congratulation...!

Ms. Sanskriti Atal, from the Electronics Engineering batch of 2022–23, has been awarded the Gold Medal (University Topper) at the Savitribai Phule Pune University Convocation held on 29th September 2025.

Congratulation...!

On 5th September 2025, on the occasion of Teachers' Day, Dr. Sunil Kute, Dean Academics, and Dr. Prashant Kushare, Professor and Head, Department of Mechanical Engineering, were felicitated with the "Best Teacher Award" at a ceremony organized by the Kalika Devi Mandir Trust, Nashik. The awards were presented by Hon. MLA Satyajeet Tambe Patil, Hon. Keshav Anna Patil (President), and Dr. Pratap Uttamrao Kothavle (Secretary), in the presence of distinguished dignitaries.

Congratulation...!

On 4th September 2025, on the occasion of Teachers' Day, Dr. Ravindra Munje, Professor and Head Electrical Engineering Department was felicitated as a "Best Teacher" at the 51st Teachers' Felicitation Ceremony organized by Adv. Uttamrao Dikhale Panchavati Public Library. The award was presented to him by Hon. MLA Adv. Rahul Uttamrao Dikhale and Hon. Mr. Gurumitsingh Bagga, in the presence of distinguished dignitaries, including Prof. Dr. Shantaram Rayate and Granthmitra Nathuji Devre.

K. K. Wagh Students on First Prize at Red FM's "College ke Tashanbaaz"

Bhoomi Kabra (SY – Computer) and Shravani Shelke (TY – Electrical), students of K K Wagh Institute of Engineering Education and Research, have secured the First Prize at the prestigious "College ke Tashanbaaz" competition organized by Red FM 93.5 as part of the ASPIRE India Fest. Their Bharatanatyam duet performance on the classical fusion song "Mere Dholna" was lauded for its grace, precision, and expressive storytelling, impressing both the judges and

the audience. The duo was awarded a cash prize of ₹11,000 in recognition of their outstanding artistry. The event featured strong participation from colleges across the region, and Bhoomi and Shravani's exemplary performance highlighted their dedication to classical dance and the cultural excellence fostered at K. K. Wagh Institute of Engineering Education & Research, Nashik.

AGM of Alumni Association

An Annual General Meeting of "Alumni Association of K. K. Wagh College of Engineering was held on 15th Sept. 2025 at K. K. Wagh Institute of engineering Education and research Nashik. The meeting begins with welcome address by the Chairman of "Alumni Association of K. K. Wagh College of Engineering" Dr. K. N. Nandurkar and he also extended a warm welcome to all members, office bearers, and special invitees. The minutes of the previous AGM held on 28 September 2024 were read by the Secretary and confirmed unanimously. Shri Ajinkya Wagh, a member of the Alumni Association, also mentioned a few important issues that need to be addressed immediately by the Alumni Association. The Secretary Dr. P. J. Pawar presented the Annual Report for the year 2024-25 summarizing key events such as Alumni reunion organized, Guest lectures by distinguished alumni, and budget for alumni activities to be carried out in financial year 2025-26. He also presented audited financial statements for the year 2024-25 and the accounts were approved unanimously. The meeting concluded with a vote of thanks by Dr. P. D. Dhake, Treasurer of Alumni association.

Blood Donation Camp

On the occasion of the K. K. Wagh Ganesh Festival – 2025 and the 2nd Anniversary of the Birthday Blood Donor's Club, K. K. Wagh Education Society, Nashik, organized a Blood Donation Camp in association with the Government Blood Bank, Regional Referral Hospital, Nashik, on 2nd September 2025. The event received an excellent response, with 41 blood bags donated by enthusiastic students and staff, reflecting the institute's commitment to social responsibility and community welfare.

Teacher's Day Celebration

Felicitation of Hon. Dr. Sanjeev Sonawane (Vice-Chancellor, YCMOU, Nashik)

The ISTE Chapter of K. K. Wagh Institute of Engineering Education & Research celebrated Teacher's Day on 27th September with great enthusiasm to honour Dr. Sarvepalli Radhakrishnan. The event was graced by Dr. Sanjeev Sonawane, Hon'ble Vice-Chancellor, YCMOU, Nashik, as the Chief Guest. In his inspiring address, he emphasized the key objectives of higher education—creation, confirmation, and dissemination of knowledge, innovation-driven wealth generation, and national development. He encouraged educators to promote problem-solving and critical thinking among students through innovative assessment methods. Director Dr. K. N. Nandurkar highlighted the institute's achievements and felicitated the Chief Guest. Faculty and staff members completing 10, 20, and 30 years of service, as well as those who recently completed their PhD were honoured for their contributions. The program was coordinated by Prof. Smita Shinde and Dr. Vishal Shinde.

Engineers' Day Celebration

ISTE Chapter of K. K. Wagh Institute of Engineering Education and Research organised a program celebrating the occasion of "Engineers' Day" on 18th September 2025 with great enthusiasm to honour the birth anniversary of Bharat Ratna Sir Mokshagundam Visvesvaraya.

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Event celebration witnessed the gracious presence of Hon. Ritesh Ahluwalia as the Chief Guest. An alumnus of IIT Bombay and Stanford University, he has an illustrious career of over 42 years in global leadership, having retired as CEO & MD of Schneider Asia in 2019. On this occasion, Dr. K. N. Nandurkar, Director, felicitated him and highlighted the progress of institute in the last 40 years and future plans. In his address, Hon. Ritesh Ahluwalia urged teachers and engineers to continuously upscale their skill sets, emphasizing that engineers are the true inventors of modern India. He highlighted the role of teachers in identifying and channelizing students' potential, encouraging contributions of knowledge and ideas for global progress. He also stressed on building strong industry–institute collaborations to enhance learning and innovation. On this occasion, several faculty members from various engineering departments were felicitated with certificates in recognition for their outstanding contributions to research through paper publications, patents, and related activities. The winners of the Institute-level *Avishkar 2025* competition were also felicitated by the Chief Guest.

Felicitation of Hon. Ritesh Ahluwalia

Expert Talk on "Data Centres"

The Department of Artificial Intelligence and Data Science organized an Expert Talk on Data Centres on 19th September 2025 at JVN Hall. The talk focused on giving students a comprehensive understanding of data centre, their classifications, and their role in supporting today's digital technologies. The session was conducted by Mr. P. K. Srinivasan Iyer, an industry expert with over three decades of global experience in electrical and electronics engineering. Mr. P. K. Srinivasan Iyer is an alumnus of NIT Trichy and a Senior Member of IEEE, and has held senior positions at leading organizations such as Crompton Greaves, Schneider Electric, and ABB Singapore.

ETT Meeting

The ETT meeting held on 12th September 2025 was conducted under the chairmanship of Hon. Shri Vivek Sawant, Chief Mentor, MKCL Pune. The meeting was graced by Hon. Shri Sameer Wagh, Chairman KKWES, Hon. Prof. K. S. Bandi, Secretary KKWES, Dr. K. N. Nadurkar, Principal KKWIEER, and Dr. P. D. Bhamare, Head of IT Department. In the second half, Dr. P. B. Kushare, HOD Mechanical, and Dr. R. K. Munje, HOD Electrical, joined the session. The discussion primarily focused on internship planning, industry collaboration, and enhancing student employability through effective training initiatives.

Traffic Safety: Awareness and Training Programme

A session on "Traffic Safety: Awareness and Training Programme" by Shri. Shrikant Karode for the Bus drivers, car drivers and peons of K. K. Wagh Education Society, Nashik was held on 22nd September 2025. Around 98 bus drivers, car drivers, and peons from all institutes run by K. K. Wagh Education Society were present for the said session. Prof. P. M. Bedse initiated the program. Dr. Ajinkya Joshi gave a brief introduction of the speaker, stressed the need for conducting the said program and felicitated the speaker on behalf of the institute. Shri. Karode made an elaborate presentation explaining the traffic rules and regulations. He also interacted with the audience.

NSS Day

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The National Service Scheme (NSS) Day was celebrated with great enthusiasm at the institute on 25th September 2025. Mrs. Vaishali Ahire (Director, Anand Agro Group, Nashik) graced the event as the chief guest. Students who completed two years of NSS service were felicitated with certificates. Mrs. Ahire shared valuable insights from her entrepreneurial journey, emphasizing leadership, continuous learning, social responsibility and work-life balance. She encouraged students to pursue entrepreneurship, employment generation and social leadership.

Visit of Dr. G. D. Yadav

Dr. G.D. Yadav, former Vice Chancellor at ICT Mumbai visited the Institute on 24th September 2025. Dr. K. N. Nandurkar welcomed Dr. Yadav. He visited Dr. A P J Abdul Kalam Career Development Center, Central library and the IDEA Lab. Prof. P. K. Kawale provided a brief overview of the IDEA Lab's objectives and activities. Shri. Sameer Wagh Chairman of K K Wagh Education Society was also present during the visit. Dr. Yadav appreciated the facilities and initiatives of the IDEA Lab and extended his best wishes and compliments for its continued success.

Visit by German team

Dr. Dirk Akoun-Scholten, Professor, University of Duisburg-Essen, Germany, and CEO, Kommunikation Akoun und Scholten, along with Ms. Cherima Kus, German Language Teacher from Germany, visited K. K. Wagh IEER on 20th September 2025 with an objective of exploring K K Wagh for starting German Language Centre followed by conducting German Language Examination Center. They were accompanied by Mr. Dhanesh Joshi, Representative of Kommunikation Akoun und Scholten in India, and Ms. Ketaki Chandratre, Director, German Gurukul Institute, Nashik. Team interacted with Director Dr. K N Nandurkar and visited various facilities as Computer Labs, Seminar Halls and T&P Cell.

Felicitation of Hon. Shri. Vasant Marathe

Neeraja Foundation has been providing Scholarships to the meritorious and needy students of the institute since the last 5 years. This year Neeraja Foundation provided Scholarships to 14 meritorious students of the institute totalling around of 6 lakhs. An interaction of Hon. Shri. Vasant Marathe (Trustee, Neeraja Foundation) with the students was held on 26th September 2025. On behalf of the institute, Hon. Shri. Marathe was felicitated at the hands of Director Dr. K. N. Nandurkar. Mr. Marathe urged the beneficiary students to work sincerely and pass on the benefit to other needy students in future.

Felicitation of Mr. Dinesh Musalekar

Felicitation of Mr. Dinesh Musalekar (CEO, Lumel Group)

Mr. Dinesh Musalekar, CEO, of Lumel Groupwas felicitated for receiving the "Global Leader of Year 2025" award by Asia one Magazine. Felicitation was done on 4th September, 2025 at the hands of K K Wagh Education Society Chairman, Shri. Sameer Wagh and witnessed by Director, Dr. K N Nandurkar, TPO Dr. Pramod Shahabadkar and HoD Mechanical Dr. P B Kushare.

Visit by staff of Amrutvahini College of Pharmacy, Sangamner

Amrutvahini College of Pharmacy, Sangamner, has recently been granted autonomous status by UGC. To gain insights into the academic, administrative, and examination processes followed under autonomy, a team of faculty

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members from the institute visited our campus on 23rd September 2025. The visiting delegation comprised Dr. Vishal S. More, Head and Professor, Department of Pharmaceutical Chemistry; Dr. Mahesh M. Deshpande, Dean Academics and Associate Professor, Department of Pharmaceutical Chemistry; Dr. Vikrant K. Nikam, Controller of Examinations and Associate Professor, Department of Pharmaceutics; Ms. Bindu C. Ghodeswar, Associate Professor, Department of Pharmaceutical Chemistry; and Prof. Hrushikesh E. Velis, Head and Associate Professor, Department of Pharmacology. During the visit, a presentation on "Autonomy and Academics" was conducted by Dr. S. Y. Kute, followed by a presentation on "Examination Processes and Administrative Procedures" by Dr. K. S. Holkar, which highlighted the complete workflow of examination conduction. The delegation also visited the Examination Cell to observe the functioning and operational setup of the examination process. The visit concluded with an interactive discussion addressing queries related to implementation strategies, best practices, and challenges associated with autonomous functioning.

Savitribai Phule Pune University – Avishkar 2025

K. K. Wagh Institute of Engineering Education and Research, Nashik has successfully conducted one of the most prestigious events of Savitribai Phule Pune University – Avishkar 2025, a project competition that ignited the spirit of innovation and creativity on 12th September 2025 at the AICTE IDEA Lab of the Institute. Around 64 teams with 214 enthusiastic participants participated in the event. It was organized in association with the Institution's Innovation Council. It was a vibrant showcase of groundbreaking ideas and collaborative efforts from some of the brightest minds. Hon. Principal Dr. Keshav Nandurkar gave the welcome address and felicitated the jury members. Jury members were Dr. Darshan Medhane, Professor, IT Department and Prof. Sarvesh Sukhatme. Their guidance and expertise truly elevated the competition. Dr. Ravindra Munje, the ARC of the institute, provided a brief introduction to the event and the judging criteria.

FDP on Outcome Based Education (OBE)

Inauguration of FDP Program on OBE

Outcome Based Education (OBE) is the mandate of future learning. National Education Policy-2020 (NEP2020), National Board of Accreditation (NBA) and All India Council for Technical Education (AICTE) have also, emphasized on OBE for holistic development ofstudents. Considering this mandate, a FDP was organized during 10th to 12th September, 2025 on Outcome Based Education for 60 Faculty members. The various sessions on topics such as OBE framework design, Course Outcomes formulation in the light of Blooms Taxonomy, Curriculum Mapping, Effective OBE implementation for Higher Education Institutes, Design of framework model for attainment of the PEOs, POs and COs, Restructuring Curriculum Framework for Higher Education in the light of NEP-2020 and OBE and Assessment and Evaluation were conducted during the FDP. The FDP was conducted by the resource persons from NITTTR, Chandigarh, Prof. B.S. Dhaliwal, Prof. Maitreyee Datta, and Prof. Ritula Thakur. Dr.K.N. Nandurkar, Director, was Convener of the FDP and Dr. Sunil Kute, Dean (Academics) Co-ordinated the FDP along with Prof. R.V.Bhaskar.

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Expert Sessions on "International Trade and Export Management"

Expert sessions on International Trade and Export Management for MBA students were conducted on 20th, 21st, 27th, and 28th September 2025 by Dr. Shridhar Rajpathak, Director of Garware Technical Fibers Ltd. He has corporate experience of over 45 years. These sessions were aligned with the SYMBA Semester III specialization electives. The subject holds significant value across MBA specializations: for marketing, it guides global marketing strategies and export promotion; for finance, it aids in managing foreign exchange risks and trade finance; for HR, it provides insights into managing international teams and cross-cultural workforce policies; and for operations and supply chain, it enhances skills in global logistics, sourcing, and trade compliance. These sessions provided students with practical insights into international trade, export-import operations, and global business strategies. They strengthened understanding of market trends, regulatory compliance, and cross-functional applications, preparing students for effective roles in multinational and export-oriented organizations.

"Constitution Day Program"

Speakers of 'Constitution Day' Program

The Department of Applied Science and Mathematics of K. K. Wagh Institute of Engineering Education and Research, Nashik, in association with *Anugami Lokrajya Mahabhiyan (Anulom), Mumbai*, organized a program titled "75 Years of Our Constitution" on 25th September 2025. The event was conducted as part of a nationwide campaign scheduled from 1st to 26th November 2025 to promote awareness about the importance of the Indian Constitution among students. The program focussed on the theme *"Constitution, Nation, and Future"* to spread awareness of constitutional values and responsibilities among citizens, particularly students. The session was held in online manner. Faculty members from the Department of Applied Science and Mathematics spared their lectures and actively participated in the program. The program was successfully organized under the guidance of Dr. A. C. Pawar, Head, Department of Applied Science and Mathematics and Dr. V. K. Patil, F.Y. B. Tech Coordinator, with overall support from Dr. K. N. Nandurkar, Director, KKWIEER, Nashik. The event effectively contributed to enhancing constitutional awareness and civic understanding among the students.

"Inner Engineering" Session

As part of the F.Y. B.Tech Induction Programme 2025–26 (18th August – 4th September 2025), the Department of Applied Science and Mathematics organized a session on "Inner Engineering" on 1st September 2025 for six Divisions. The session was conducted by Krishna Dhan Prabhu, Temple President of ISKCON Nashik (Alumnus of Institute).He guided students on balancing inner values with outer achievements and highlighted the importance of self-awareness, discipline, and mindfulness in achieving true success. The session encouraged students to manage stress; stay focussed, and cultivates positivity and gratitude for holistic growth. The session beautifully conveyed that engineering life extends beyond machines and technology—it also involves engineering the self by nurturing clarity, focus, and inner strength. The expert talk was coordinated by Dr. D. Y. Patil and Prof. S. S. Kahandal, under the guidance of Dr. A. C. Pawar (HoD, Applied Science Department).

"Acting and Expressiveness in Dance & Drama" Session

As part of the F.Y. B.Tech Induction Programme 2025–26, the Department of Applied Science and Mathematics organized an engaging session on "Acting and Expressiveness in Dance & Drama" on 1st September 2025 for six Divisions. The

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session was conducted by Mr. Sharad Ugale, a renowned film director, producer, writer and actor.Mr. Ugale shared his valuable insights on the power of acting and expression, explaining how drama and dance serve as tools for communication, creativity, and emotional connection. He highlighted the importance of body language, voice modulation, and expressiveness in building confidence and stage presence. Through interactive discussions and real-life examples, he encouraged students to overcome inhibitions, explore creativity, and discover their inner performer. The session effectively demonstrated how performing arts can complement academics, nurture confidence, and contribute to overall personality development. The event was coordinated by Dr. D. Y. Patil and Prof. S. S. Kahandal, under the guidance Dr. S. Y. Kute (Dean Academics) and Dr. A. C. Pawar (Head, Applied Science Department).

Felicitation of Mr. Sharad Ugale

"Introduction to Ocean Science" Session

Felicitation of Mr. Raviraj Gandhe

As part of the F.Y. B.Tech Induction Programme 2025–26, the Department of Applied Science and Mathematics, organized an informative session on "Introduction to Ocean Science" on 2nd September 2025. The session was conducted by Mr. Raviraj Gandhe, a noted writer and media expert.Mr. Gandhe introduced students to the fascinating world of oceans, highlighting their crucial role in regulating climate, sustaining biodiversity, and shaping the global environment. He encouraged students to cultivate curiosity, environmental responsibility, and scientific awareness, linking the field of engineering to sustainability and ecological balance. The session inspired students to view science and technology through the lens of environmental consciousness and global responsibility.

Expert Lecture/Seminar/Courses/Workshop Conducted:-

The Electrical Engineering department organized following sessions during September 2025:

- Expert session on "Faults in Power System" by Mr. Mangesh Dalvi, Executive Engineer, MSETCL, Mumbai on 27th September 2025.
- Expert session on "Climate Change and the Common Man" by Mr. Dnyaneshwar Rathod, Maharashtra State Agriculture Department, on 18th September 2025.

The Electronics and Telecommunication Engineering Department organized following sessions during September 2025:

- A seminar on "Game Development – for Aspiring Entrepreneurs of Gen Z" was conducted by Mr. Vaibhav Mahajan, CEO of Abaraca Dabra Software Solutions Pvt. Ltd., Nashik, on 9th September 2025.
- An expert talk on "PIC Microcontroller Interfacing" was delivered by Mr. Ashish Bhopale, Senior Embedded Design Engineer at Micro Embedded Technologies, Pune, on 13th September 2025.
- A guidance session on IPR was conducted by Dr. S. A. Patil (Ugale), HoD E&TC on 17th September 2025.

The Mechanical Engineering organized following informative events in September 2025:

- An expert talk on "Modelling of Dynamic Mechanical Systems using Simulink" for 3rd year Mechanical Engineering students by Kunal Khandelwal, on 11th September 2025.
- A Three-day Hands-on Workshop on ANSYS by Mr. Chetan V. Patil, Application Engineer, ARK Solutions Pvt. Ltd., Pune, from 24th to 26th September 2025.

The Chemical Engineering Department organized the following informative events during September 2025:

- Study Smart Professionals, Nashik has conducted an expert talk on "Higher Education & Career Opportunities Abroad" on 3rd September 2025.
- Mr. Niraj Kulkarni (Director, Catharsis F&V, Pimpri Chinchwad, Maharashtra) has conducted an expert talk on "Innovation and Start-up" on 11th September 2025.
- Mr. Ishwar Pardesi (Head of Project and

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Technical Services, Graphite India Ltd., Nashik) has conducted an expert talk on "Project Engineer Role in Chemical Process Industries" on 15th September 2025.

- Mr. Sohil Shah (Director, Career Launcher, Nashik) has conducted an expert talk on "Career Guidance Session for SY and TY Students" on 18th September 2025.
- Mr. Avinash Ekhande (Founder & CEO, Ekhande Agro, Nashik) has conducted an expert talk on "Start-up and Entrepreneurship" on 26th September 2025.

Department of Information Technology organized the following informative events in September 2025:

- An expert talk on "From Self-Doubt to Self-Belief: Your journey to Confident" on 04th September 2025 by Mr. Dattatraya Aher, Ex-Principal Gov. ITIs, Chandrapur.
- Session on "Design and Analysis of Algorithm Lab and Data Communication" on 13th September 2025 by Mr. Manas Kalamkar, Industry Expert, HARMAN, Pune.
- Session on "Artificial Intelligence" on 27th September 2025 by Mr. Atishkumar Gangnar, ML Engineer at Inceptive Technologies, Pune.
- Session on "The Future of Machine learning" on 27th September 2025 by Mr. Avinash Erande, Consultant Specialist, HSBC Software Development Pvt. Ltd, Pune.

The Robotics & Automation Engineering organized following expert talk in September 2025:

- An expert's talk on "PLC Programming" by Mr. Pankaj Sonwane on 16th Sept. 2025.

Expert Lecture/Seminar/Courses/Workshop Attended:-

- Various faculty members from different departments of KKWIEER successfully completed a three-day Faculty Development Program (FDP) on "Outcome-Based Education," conducted by the National Institute of Technical Teachers Training and Research (NITTTR), Chandigarh, in collaboration with K. K. Wagh Institute of Engineering Education & Research, Nashik, from 10th to 12th September 2025.
- Computer Engineering staff Ms. S. R. Badgujar attended online ATAL FDP on Advanced Computing: AI, Data Science, and Generative AI for Research and Education from 22nd to 27th September 2025.
- Dr. Darshan Medhane delivered an Expert Talk on a topic "AI in Learning-From Books to Bots-transforming medical education through artificial intelligence and cutting-edge technology" on 26th September 2025 organized by Government Medical College, Nashik. Ms. Reena Johnson successfully completed 2-week Faculty Development Program on "Data Science with Python" Organized by the Talent Next in collaboration with Wipro on 15th September 2025 to 3rdOctober 2025. Ms. Smita Nilesh Chaudhari and Dr. Yogita H. Khairnar Participated in one week Faculty Development Program on "GEN AI – RAG (Retrieval-Augmented Generation)" Organized by the Chaitanya Bharathi Institute of Technology, Hyderabad, Telangana and MVSR Engineering College (Autonomous), Nadergul, Hyderabad, in collaboration with ExcelR Edtech Pvt. Ltd. from 08th Sep 2025 to 12th Sep 2025.

Paper Publications/Presentations:

Title: Efficient Multi-View Clustering via Greedy Automatic View Selection and Diverse Feature Integration

J. R. Mankar, Prof. Dr. S. M. Kamalapur

(Published in Joint Journal of Novel Carbon Resource Sciences & Green Asia Strategy, Vol. 12, Issue 03, pp. 1802-1826, September 2025)

Abstract: Multi-view clustering leverages complementary information from multiple feature representations, yet its success relies on selecting optimal feature combinations and clustering algorithms. We propose a Greedy Automatic View Selection (GAVS) algorithm to identify the most informative subset of feature views that maximize clustering performance. GAVS iteratively adds feature views based on their contribution to clustering quality, measured by normalized mutual information (NMI). We evaluate GAVS on Coil20, UCI Digits, Movies, and Caltech 7 datasets using Spectral, Agglomerative, and Affinity Propagation clustering with diverse features (GIST, LBP, HOG, CENTRIST). Results show optimal combinations vary across datasets, with GAVS achieving peak NMIs of 1.000 (Coil20), 0.9351 (UCI Digits), 0.6937 (Movies), and 0.9806 (Caltech 7). This adaptive strategy offers practical guidance for improving clustering accuracy in real-world applications.

Keywords: Benchmark Datasets; Clustering Algorithms; feature extractions; Multiview clustering

Title: Fine-Grained Image Classification using Particle Swarm Optimization for Hyper parameter Optimization of Convolutional Neural Networks

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Ms. P. P. Vaidya, Prof. Dr. S. M. Kamalapur

(Published in Joint Journal of Novel Carbon Resource Sciences & Green Asia Strategy, Vol. 12, Iss. 03, pp. 1783–1801, 2025)

Abstract: The study presents an approach to fine-grained image classification (FGIC) by employing Particle Swarm Optimization (PSO) for automatic hyper parameter tuning in Convolutional Neural Networks (CNNs). Unlike conventional models with manually fixed architectures, the proposed method optimizes critical parameterssuch as filter count, kernel size, pooling size, and stride tailored to each dataset. The model operates on reduced image resolutions (128×128) yet achieves superior accuracy with significantly fewer training epochs. This PSO-based tuning framework not only enhances classification performance but also minimizes computational cost, making it a practical and scalable solution for real-world FGIC applications.

Keywords: PSO; CNN; Hyperparameters; Fine grain image classification

- **Title: AI-powered AQI forecasting in an intelligent air purifier featuring intense field dielectric and Zeolite filters**

Mr. Pankaj Beldar, Dr. Prashant Kushare, Dr. Atulkumar Patil & Dr. Gulshan Kumar

(Published in Journal of Engineering and Applied Science (Springer) on 10 Sept. 2025)

Abstract: Indoor Air Quality (IAQ) plays a crucial role in human health, with people spending over 90% of their time indoors. This study presents a compact, smart air purifier that integrates advanced filtration, real-time monitoring, and machine learning (ML)-based predictive control. The purifier uses a dual-stage filter system—an Intense Field Dielectric (IFD) filter for fine particulate matter (PM) removal and a zeolite-based filter for volatile organic compound (VOC) adsorption—optimized through Computational Fluid Dynamics (CFD) simulations. An Arduino-based controller, paired with high-accuracy AQI sensors, enables automatic operation based on pollution levels, achieving up to 30% energy savings. Experimental results demonstrated a 76% reduction in PM 2.5 and 65% in VOCs within 30 min. Eleven ML regression models were evaluated for AQI prediction; Lasso Regression showed the best performance with an R2 of 0.9179, RMSE of 5.14, and MAE of 4.13. Feature importance analysis identified PM2.5, PM10, noise, and humidity as key predictors. The novelty of this work lies in the integration of IFD–zeolite filtration with ML-based AQI prediction, enabling anticipatory and energy-efficient air purification. This low-cost, IoT-compatible solution is scalable for smart homes, offices, and sustainable building environments.

- **Title:TD-DFT Guided Advanced E-Eye Sensing Technique for On-site Quantification of Fe, Cr, F, and As in the Environmental, Biological, and Food Samples**

Dr. Rajasekhar Ravula

(Published in JoVE Journal (SCI), Date: 19 September 2025)

Abstract: This paper demonstrates the step-by-step protocol of designing and developing an E-Eye-enabled multiplexed point-of-care testing (POCT) kit. We use time-dependent density function theory (TD-DFT) to explore the basic working principle of the sensors before going into the details of the device's hardware. The TD-DFT analysis gives the λmax of the targeted element, which helps find the most accurate route for detecting the pollutant in the analytes. The TD-DFT analysis is performed in Gaussian 09 and Gauss View 5.0 software. An optical sensor called the electronic eye (E-Eye) has been developed based on the λmax value and the Light Emitting Diode/Light Dependent Resistor (LED/LDR) principle. The E-Eye device has been fabricated with an LED, an LDR placed opposite each other, and other hardware, including a liquid crystal display (LCD) interfaced with a microprocessor across a voltage divider, acting as a central microprocessor. Initially, all the samples (environmental, biological, and food and beverages) were pre-processed to extract all the targeted elements in the aqueous phase. The specific (lock and key) reaction has been carried out in the specified reactor, and readings observed in the display unit have been recorded. An indigenously multiplexed device has also been fabricated to detect Fe, Cr, As, and F simultaneously. The efficacy of the sensors has been tested against more than 2000 samples and compared with the gold standard methods. A good precision has been confirmed with the accuracy of 95.3%, 94.7% and 95.4% with respect to the samples of environmental, biological, and food and beverages. It is important to note that the performance of the arsenic sensor has been compared with Atomic Absorption Spectrometry (AAS) results, and all other results, i.e., sensors for iron, chromium, and fluoride, have been compared with the results obtained from UV-Vis analysis.

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Title: "Improving Skin Disease Classification with a Filter-Based Ensemble Feature Selection Framework."

Dr. (Mrs.) Swapnali N. Tambe (Published in Journal of Artificial Intelligence and Technology, 2025, 5, 334-344 (Q1) on 03 September 2025).

Abstract: Skin diseases are increasingly concerning due to environmental changes, with dermatology emphasizing the need for early diagnosis. Classification in data mining is a key approach to predicting skin diseases by analyzing datasets. Before applying classification techniques, identifying relevant attributes is crucial. Feature selection (FS) is critical in preprocessing to identify relevant attributes and avoid redundant or irrelevant data. While wrapper methods offer better accuracy, they are computationally expensive. Our proposed framework aims to emulate wrapper-like feature subset evaluation using an efficient filter-based approach, leveraging Symmetrical Uncertainty (SU) and classifier-driven subset validation to achieve improved performance without excessive computational cost. Features are grouped into subsets, minimizing the dataset's complexity while retaining predictive power. Subsets are evaluated using classifiers such as K-Nearest Neighbour (KNN), JRip, Naive Bayes, and J48, and compared against traditional filter-based techniques like Relief (REL), Gain Ratio, Chi-Squared (Chi), and Information Gain. The ranking is assigned based on classifier performance. The proposed framework showed significant improvement. One or more feature subsets consistently ranked in the top 4 across all classifiers compared to existing methods. For instance, subsets formed with SU achieved an accuracy boost of 91.53% with J48 and 91.25% with KNN in a dermatology dataset.

Keywords: Classification; Ensemble; Feature Selection; High Dimensionality; Skin Disease

Book Chapter title: Advancement in Machine Learning-Aided Advanced Oxidation Processes for Water Treatment

Name of Author: Prashant Kumar,

Book Name: Machine Learning in Water Treatment (Wiley),

Summary: This chapter examines the integration of machine learning (ML) with advanced oxidation processes (AOPs) in the domain of water purification, underscoring current advancements and implementation strategies. AOPs recognized for their capability to decompose an extensive range of pollutants through the generation of highly reactive hydroxyl radicals, provide a practical and sustainable strategy for environmental remediation. By reviewing research from 2014 to 2023 for case studies and its successful implementation, this chapter underscores the potential of ML in optimizing AOP performance through predictive modeling and real-time decision-making. The application of various ML models, including artificial neural networks, is discussed in relation to enhancing AOP efficiency by dynamically adjusting operational parameters. While challenges in model validation and data collection persist, the integration of ML presents promising opportunities for improving AOP efficiency and scalability. Future research directions are proposed, emphasizing the need for larger datasets and continued exploration of advanced ML techniques.

Training and Placements

Sr. No	Company Name	Department Name	Placed Students
1.	Burns & McDonnell India, Mumbai	Chemical Engineering	01
		Electrical Engineering	02
2.	Netwin	Information Technology	02
3.		Computer Engineering	04
4.	Skillminds	Computer Engineering	05
5.	Aqeeq Technologies	Computer Engineering	02
6.	Fox Solutions	Computer Engineering	02
7.	AM / NS India	Electrical Engineering	02
8.	Johnson Controls Pvt Ltd	Electrical Engineering	01

Industrial Visits

Sr. No.	Company Name	Department	Class	Date
1	Sewage Wastewater Treatment Plant, Pimpal-goan Khamb, Nashik	Chemical Engg.	SY	29/09/25
2	Nilgiri water treatment plant	Mechanical Engg.	TY	26/09/25
3	United Heat transfer	Mechanical Engg.	TY	29/09/25
4	Waste Decompose Plant, KKWIEER, Nashik	Science	FY All Divisions	19th to 24th Sept., 2025
5	Solar Power Plant, KKWIEER, Nashik	Science	FY All Divisions	15th & 16th Sept., 2025

Other Activities:

- Dr. K. N. Nandurkar, Principal attended the meeting of CII Maharashtra State Council meeting at Sula Vineyards Nashik as a Co-Convener of Industry Academic panel on 19th Sept. 2025.

Prof. Dr. K. N. Nandurkar
PRINCIPAL