

Volume 4
June 2023 - June 2024

i - Aabhayantar

Newsletter of Department of CSE & IT, JIIT, Noida



Computer Science and Engineering & Information Technology
Jaypee Institute of Information Technology, Noida
Deemed to be University under Section 3 of UGC Act 1956)

EDITORS: Prof. Mukesh Saraswat, Ms. Anuradha Surolia, Dr. Anubhuti Roda Mohindra, Dr. Vikash, Dr. Shweta Rani

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MESSAGE FROM PRO CHANCELLOR

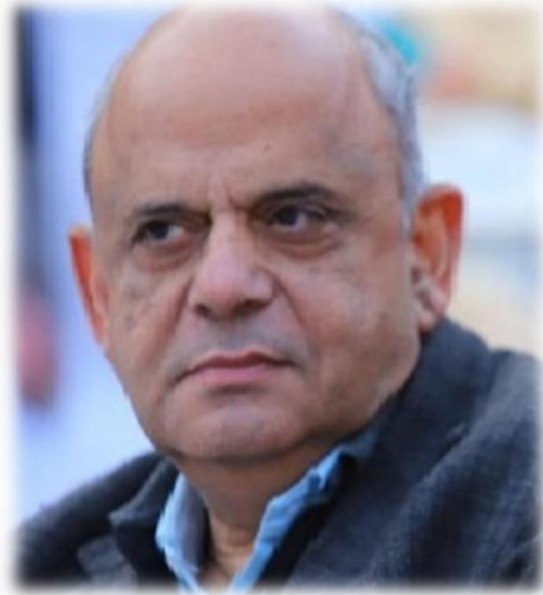
Prof. S. C. Saxena,
Pro-Chancellor, IIIT, Noida



I am delighted to announce the publication of the fourth volume of our Department of CSE & IT's newsletter, "i-Aabhyantar." Building on the success of previous editions, this volume promises to showcase the wide array of activities within our Department. Highlights include cutting-edge research, innovative teaching methods, successful placements, impactful conferences, dynamic workshops, comprehensive training programs, insightful expert lectures, and fruitful collaborations. In an era where computer science and IT are among the fastest-growing fields, our Department is dedicated to equipping students with the skills and knowledge needed to thrive. With modern society's infrastructure and daily operations deeply intertwined with IT, our role in education is more crucial than ever. I extend my heartfelt congratulations to the editorial team for their hard work and dedication in bringing out this volume.



MESSAGE FROM VICE CHANCELLOR



Prof. B. R. Mehta,
Vice-Chancellor, JIIT, Noida

We are pleased to announce that the Department of CSE & IT at JIIT Noida is publishing the fourth volume of its newsletter, "i-Aabhyantar." Our Department is dedicated to fostering an environment that encourages students to expand their knowledge and supports their participation in extracurricular activities. This newsletter stands as a testament to the high-quality teaching and research taking place within department. We eagerly anticipate reading about the various activities, achievements, and innovations highlighted in this edition of "i-Aabhyantar."

Congratulations to the editorial team for their continued efforts in showcasing the excellence of our department.

Our editorial team has worked tirelessly to capture the essence of our Department's vibrant academic life. Their dedication and hard work are evident in the meticulous curation of content that reflects our collective accomplishments and aspirations.



MESSAGE FROM HEAD OF DEPARTMENT

Prof. Vikas Saxena

Director & Head (CSE & IT)



I am delighted to present the sixth edition of i-Aabhyantar, the CSE&IT Department's newsletter at Jaypee Institute of Information Technology, Noida. It is a privilege to lead a department brimming with talent, comprising 127 dedicated faculty members and 117 promising Ph.D. scholars. Together, we strive to uphold JIIT's core mission of knowledge creation and dissemination. This newsletter is a testament to the vibrant academic environment and accomplishments of our students and faculty. We believe i-Aabhyantar will serve as a valuable platform for fostering engagement and contributing to the department's continued growth. I extend my sincere gratitude to Prof. Mukesh Saraswat and the editorial team—Dr. Vikash, Dr. Anubhuti Roda Mohindra, Dr. Shweta Rani, and Ms. Anuradha Surolia—for their exceptional dedication in bringing this edition to life.



EDITORIAL

We are delighted to present the sixth edition of "i-Aabhyantar", a chronicle of the CSE&IT department's journey from July 2023 to June 2024. Under the inspiring leadership of our esteemed Founder Chairman, Shri Jaiprakash Gaur, Hon'ble Chancellor Shri Manoj Gaur, Hon'ble Pro-Chancellor Prof. S. C. Saxena, and Hon'ble Vice-Chancellor Prof. B. R. Mehta, our department continues to be at the forefront of technological advancement.

Computer science is the bedrock of the modern world, driving economic growth and improving quality of life. We are proud to be a catalyst in this transformation. "i-Aabhyantar" offers a window into our world, showcasing the department's achievements, statistics, and aspirations.

As we navigate the complexities of the digital age, our commitment to pushing boundaries and fostering growth remains unwavering. This newsletter is a testament to our journey and a glimpse into the exciting future that lies ahead.

With Regards

Editors



VISION AND MISSION OF INSTITUTE

Vision

To become a Centre of Excellence in the field of IT & related emerging areas education, training and research comparable to the best in the world for producing professionals who shall be leaders in innovation, entrepreneurship, creativity and management.

Mission

1. To develop as a benchmark University in emerging technologies.
2. To provide state-of-the-art teaching learning process and R&D environment.
3. To harness human capital for sustainable competitive edge and social relevance.

VISION AND MISSION OF CSE&IT DEPARTMENT

Vision

To be a Centre of Excellence for providing quality education and carrying out cutting edge research to develop future leaders in all aspects of computing, IT and entrepreneurship.

Mission

1. To offer academic programme with state-of-the-art curriculum having flexibility for accommodating the latest developments in areas of computer science and IT.
2. To conduct research and development activities in contemporary and emerging areas of Computer Science & Engineering and IT.
3. To inculcate IT & entrepreneurial skills to produce professionals capable of providing socially relevant and sustainable solutions.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs) OF B.TECH. (CSE)

PEO 1: To provide core theoretical and practical knowledge in the domain of Computer Science & Engineering for leading successful career in industries, pursuing higher studies or entrepreneurial endeavours.

PEO 2: To develop the ability to critically think, analyze and make decisions for offering techno-commercially feasible and socially acceptable solutions to real life problems in the areas of computing.

PEO 3: To imbibe lifelong learning, professional and ethical attitude for embracing global challenges and make positive impact on environment and society.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs) OF B.TECH. (IT)

PEO 1: To impart core theoretical and practical knowledge of Computer Science & Engineering and emerging Information Technologies for leading successful career in industries, pursuing higher studies or entrepreneurial endeavours.

PEO 2: To develop the ability to critically think, analyze, design and develop IT based solutions.

PEO 3: To imbibe the life-long learning and understanding of ethical values, their duties toward environmental issues and sensitize them toward their social responsibility as IT professional.

FUNDED PROJECT



Dr. Himani Bansal



Dr. Shruti Jaisawal

Received Core Research Grant

**Project Title: Detection and Exclusion of Obscene Images in
Image Capturing Device**

Fund Provided: 19.89 Lakhs

Duration: 2 years

Year of Award: 2023

Funding Body: Science and Engineering Research Board (SERB)



PATENTS (Indian)

**Dr. Shikha Mehta, Abhinav Singhal, Harshit Arora, Pranjal Tyagi and
Siddharth Sharma**

Smart Balcony System

23.05.2024 (Granted)

**Avnish Kumar, Nitin Duklan, Shushant Singh, Surender Kumar, Deepak
Bhardwaj, Dr. Shweta Rani**

Motion Assistance Device for Cripple

12/07/2024 (Granted)

**Dr. Vikas Saxena, Dr. Himani Bansal, Dr. Anita Sahoo, Swapnil Kusumwal,
Sidharthranjan Singh and Yashvardhanverma**

A Method to Set a Threshold Value for A Flex Sensor

18-03-2024 (Granted)

Dr. Hema N Other Inventors: Dr. Kavita Pandey

**Smart Trash Segregation with Coordination for Waste Disposal Using
Solar Energy**

18-05-2024 (FER response filed)

NEW FACILITY CREATED

AI Skills lab

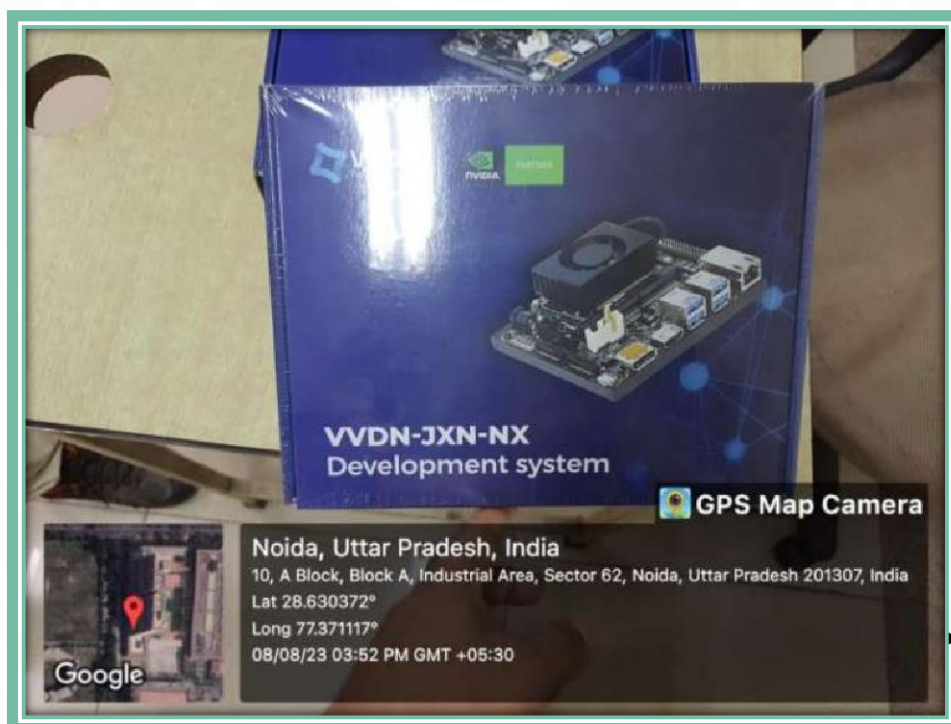
Set up under AI for Youth program of Dell and Intet

Department of CSE&IT set up a new AI lab. The AI Skills Lab provides a comprehensive learning environment focused on developing artificial intelligence capabilities. It offers a range of interactive exercises, projects, and



assessments designed to enhance practical skills in AI. Participants can engage with cutting-edge technologies and methodologies, fostering a hands-on approach to learning. The lab aims to bridge the gap between theoretical knowledge and real-world application, ensuring learners are well-prepared for careers in AI. Through collaborative projects and expert guidance, the AI Skills Lab cultivates a community of innovative thinkers and problem solvers.

Edge Computing Virtual Facility using Nivida Jetson Nano



PHD AWARDED

☐ **Mr. Kashav Ajmera**

- ✓ **Title:** Dynamic Virtual Machine Scheduling Algorithms for Energy Efficient Cloud Computing
- ✓ **Awarded:** November, 2023
- ✓ **Supervisor:** Dr. Tribhuvan Kumar Tiwari



☐ **Mrs. Aditi Sharma**

- Title:** Effective techniques for distributed data storage of multi tenant SaaS applications
- ✓ **Awarded:** February, 2024
- ✓ **Supervisor:** Dr. Parmeet Kaur

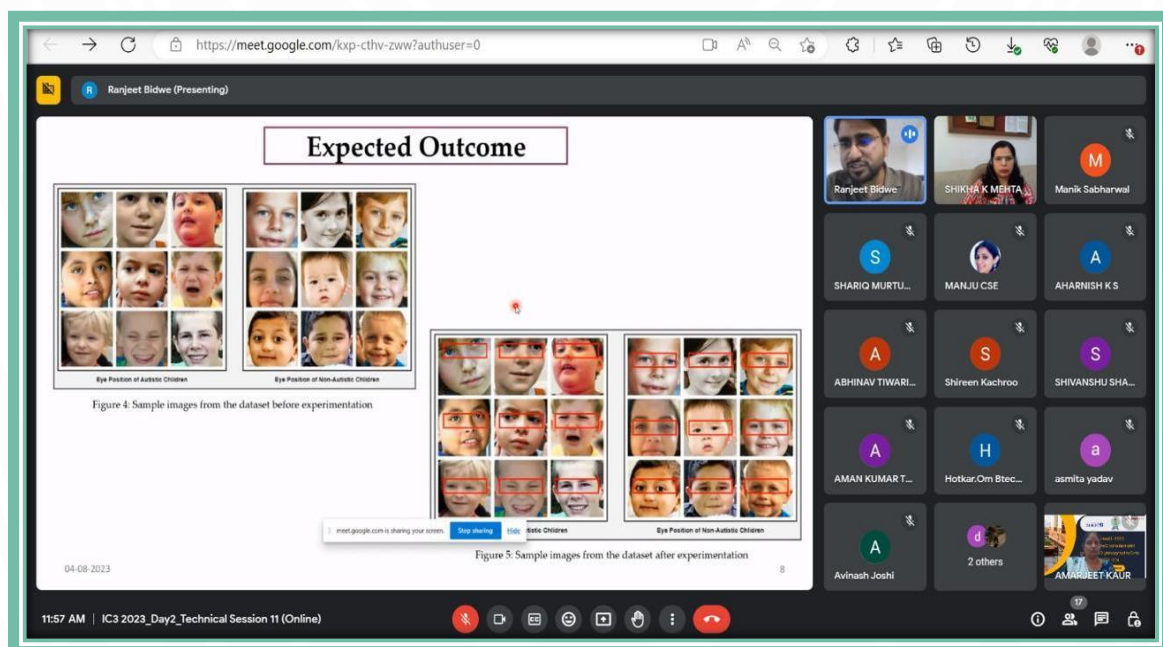


CONFERENCE

15th International Conference on Contemporary Computing (IC3-2023)

03-05 August 2023

The International Conference on Contemporary Computing (IC3) has been jointly organized every year since 2008 by the Jaypee Institute of Information Technology (JIIT), Noida, India, and the University of Florida, Gainesville, USA. It focuses on topics that are of contemporary interest to computer and computational scientists and engineers. IC3-2023 will bring together researchers and practitioners from academia, industry, and government to deliberate upon the algorithmic, systemic, applied, and educational aspects of contemporary computing. The conference is held in NOIDA (outskirts of New Delhi), India, and typically features multiple eminent keynote speakers, and presentations of more than 100 peer-reviewed papers and exhibits.



CONFERENCE

2nd International Conference on Informatics (ICI-2023) 23-25 November 2023

The 2023 Second International Conference on Informatics (ICI) aims to provide a leading international forum for researchers, scientists, and industry professionals who are working on next-generation informatics. ICI-2023 is organized under the leadership and joint vision of the Department of CSE & IT, JIIT, Noida (outskirt of Delhi, India) & Prof. Sartaj Sahni, University of Florida, USA. The conference gave a platform to showcase methodological and technological advancements in the emerging areas of IOT and smart systems, Big Data, AI & Machine learning, Cloud Technology, Software Development, etc.

Keynote Speakers



Prof. Shekhar Verma
IIIT Allahabad, India



Prof. Mitsunori Makino
Chuo University, Japan



Dr. Lalit Singh
NPCIL, BARC

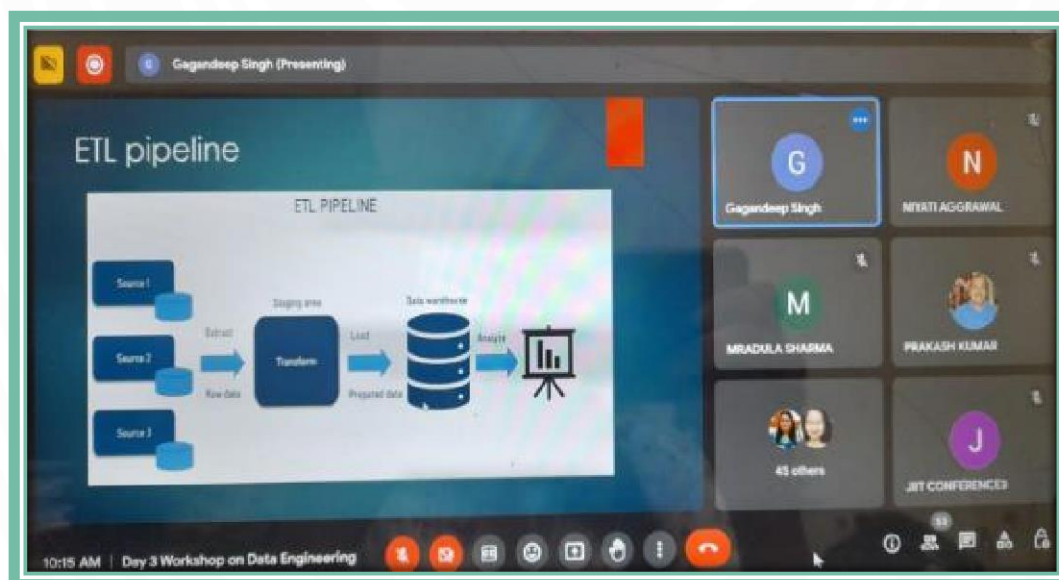


Dr. Aniket Bera
Purdue University, USA

WORKSHOP

Three-Days Workshop on “Workshop on Data Engineering” 21-23 September 2023

Data engineering is the backbone of efficient data processing, storage, and retrieval. It merges engineering principles to construct robust data pipelines, databases, and storage solutions for handling large volumes of data. This is crucial for data-driven enterprises, enabling valuable insights for analysts and scientists. The field encompasses database management, distributed computing, data warehousing, ETL processes, and leverages cloud technologies for scalable and flexible infrastructure. A structured program equips participants with essential skills for research and business projects. It covers fundamental concepts and provides hands-on experience with key tools like Python. Proficiency in specialized platforms and frameworks, especially those optimized for cloud environments, is emphasized. Scalable data pipeline design, storage optimization, and data governance principles are also explored. Through real-world projects, participants develop problem-solving abilities and learn to work effectively in teams. This workshop aimed to empower individuals to innovate, improve business processes, and contribute to the field of data engineering in cloud-driven environments.

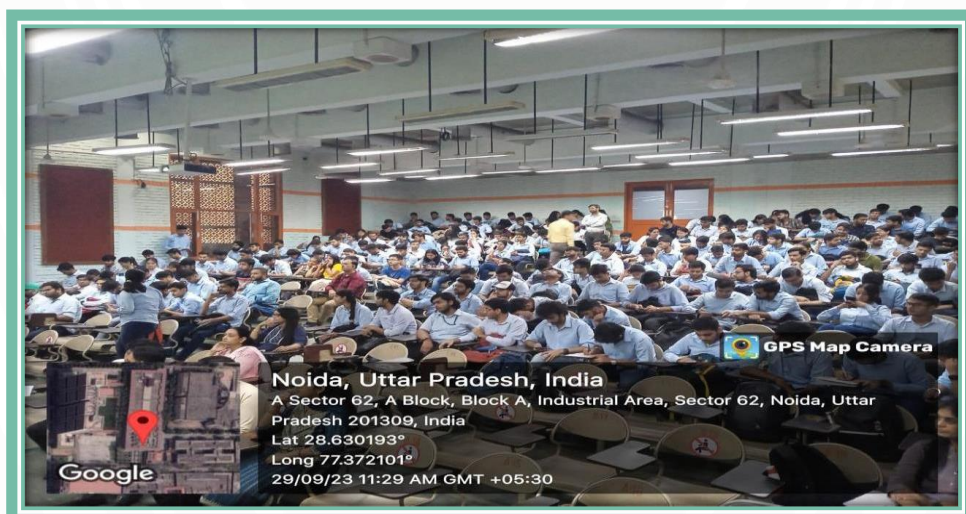


WORKSHOP

One-Day Workshop on “Virtual Labs” Conducted by IIT Delhi 29 September 2023



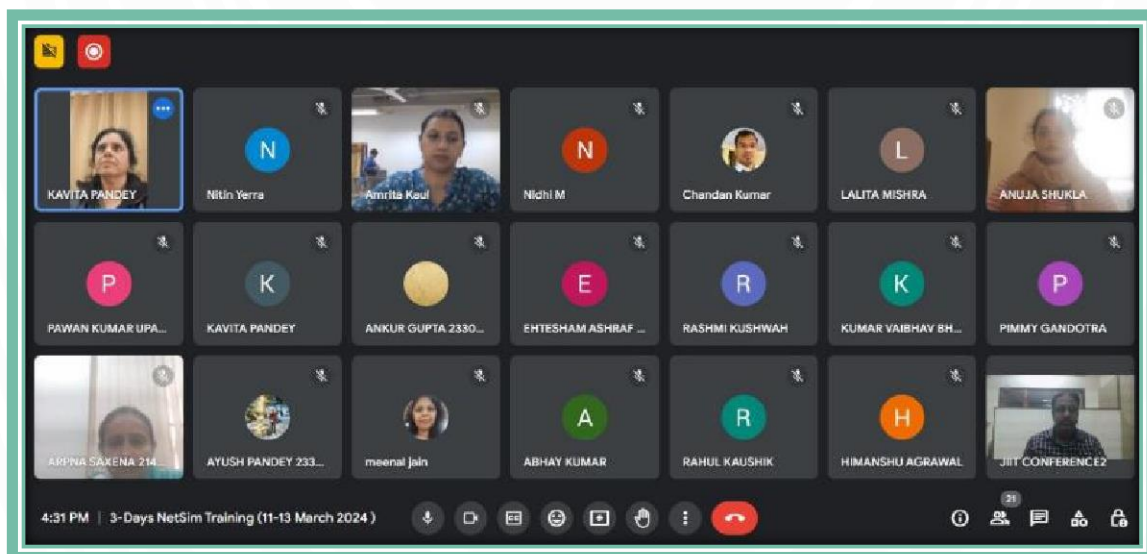
Jaypee Institute of Information Technology (JIIT), Noida is utilizing the facilities of virtual lab to provide the international exposure to his students. In this direction one day workshop was organized on 29-September-2023.



WORKSHOP

Three-Days Training Program on NETSIM 11-13 March 2024

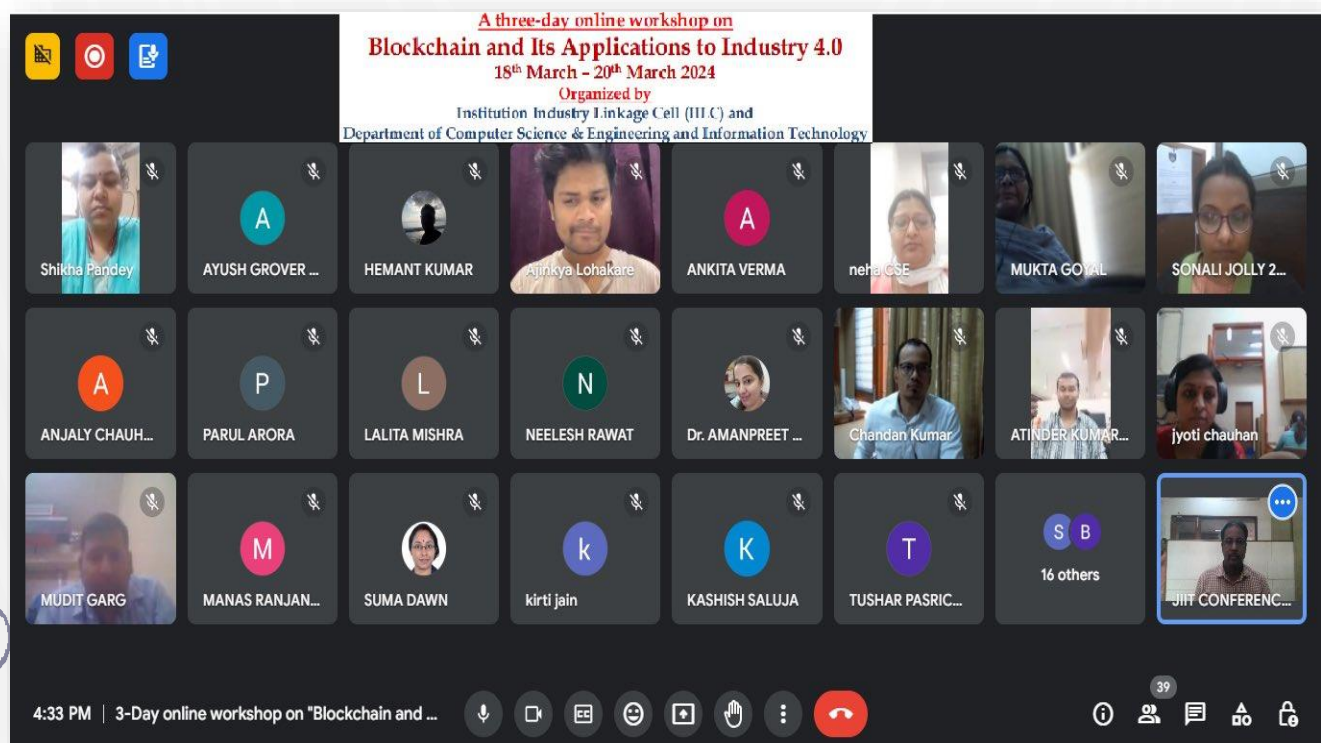
Network simulations are virtual environments created to model and analyze the behaviour of computer networks. These simulations are used to test and validate the performance of network protocols, applications, and hardware in a controlled environment, without having to deploy them in real-world scenarios. NetSim is a powerful network simulation software that enables users to create, simulate and analyze complex network scenarios. It is a widely used tool for designing and testing networks, protocols and applications in a virtual environment. NetSim provides an interactive and user-friendly interface that allows users to build network models using pre-built components, customize network parameters, and visualize the network topology. On the account of purchase of NetSim Standard version by JIIT University for academic and research purpose, a training program was organized in collaboration with Tetcos Systems, Bangalore via virtual mode, during 11-13 March 2024 to faculty members of CSE/IT to create awareness of the tool usage for conducting research activities.



WORKSHOP

Three-Day Workshop on Blockchain and Its Applications to Industry 4.0 18-20 March 2024

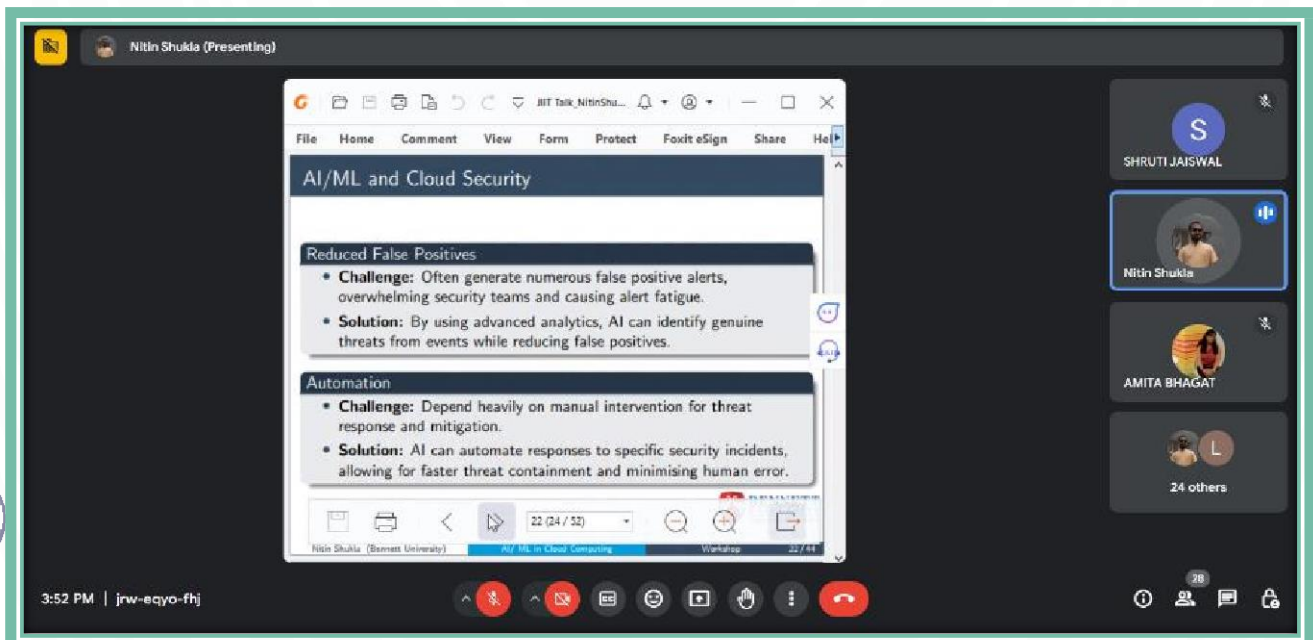
Blockchain is evolving as an innovative distributed ledger technology to establish secure communication and initiate transactions between untrusted users. It first evolved as a backbone technology in a cryptocurrency called Bitcoin in the year 2009. The flexibility in decentralized transaction sharing, cryptographic tamper-proof data creation, and its verification received significant attention in developing secured enterprise applications with Blockchain. Further, several Blockchain frameworks have been developed by vendors for immediate use. This FDP focuses on providing the basics, state-of-the-art developments in Blockchain Technology, and emerging techniques in its application development.



WORKSHOP

AI/ ML in Cloud Computing and its services with APIGEE X 07-09 May 2024

Department of CSE and IT under Institution Industry Linkage Cell at Jaypee Institute of Information Technology, Noida has successfully completed a three days' workshop on "AI/ ML in Cloud Computing and its services with APIGEE X". The workshop was enthusiastically attended by both students and faculties. Two speakers were there who talked about AI/ ML in Cloud Computing with Case- Study of Google Cloud Platform (GCP) and APIGEE X – AI Powered API Management. The first was Dr. Nitin Shukla from Bennett University who has given talk on AI/ ML in Cloud Computing with Case- Study of Google Cloud Platform (GCP); and other speaker was Ms. Shelly Bansal, Solutions Designer & lead Business Analyst, Virgin Media O2, Slough, Berkshire, United Kingdom who talked about APIGEE- X basic architecture to its detailed use cases, with some success stories of APIGEE deployment.



SUMMER SCHOOL

Two-Week Online Summer School on Cyber Threat Intelligence and Forensics 03-15 July 2023

With the increase in usage of the Internet; there has been an exponential increase in cyber-attacks. Cybercriminals use new and clever tricks to bypass security solutions. Cyber Threat Intelligence represents a force multiplier for organizations trying to update their response and detection programs in dealing with recent and advanced persistent threats. Malware is an adversary's tool but the real threat is the human one. Cyber Threat Intelligence focuses on countering those flexible and persistent human threats with empowered and trained human defenders.

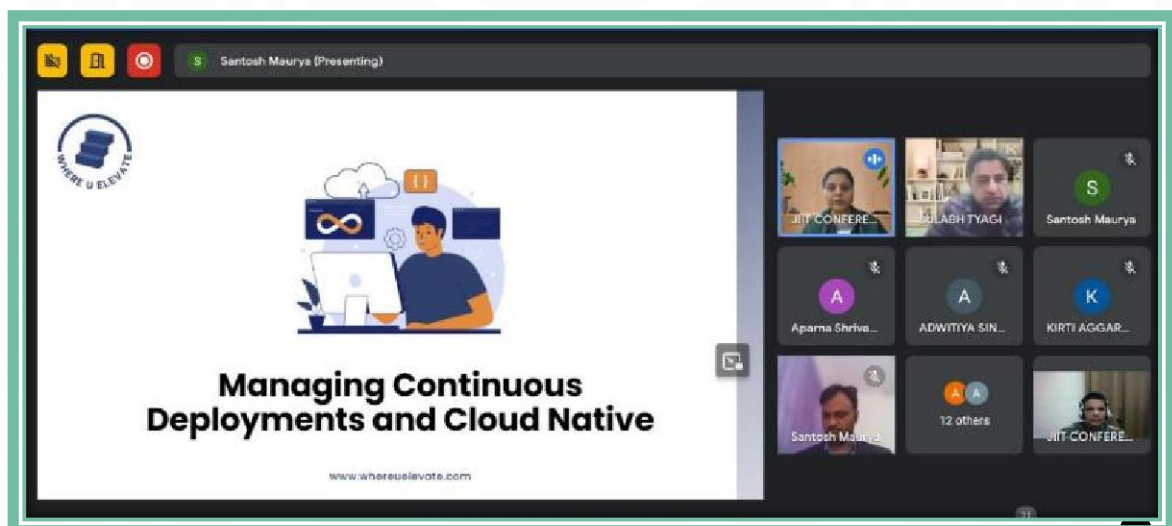
The goal of the Summer School on Cyber Threat Intelligence and Forensics was to train the participants in the tactical, operational, and strategic level cyber threat intelligence skills. The aim was to impart the required skills for making security teams better, threat hunting more accurate, and incident response more effective. The target was to promote research in Cyber Threat Intelligence and Forensics which includes topics like data collection tools, techniques for threat intelligence, data analytics, forensics tools for memory, mobile phones, networks, IoT, social engineering, etc.



FACULTY DEVELOPMENT PROGRAM

One week FDP on "Automated Software Development and Delivery using Microservices and Kubernetes" 26-31 December 2023

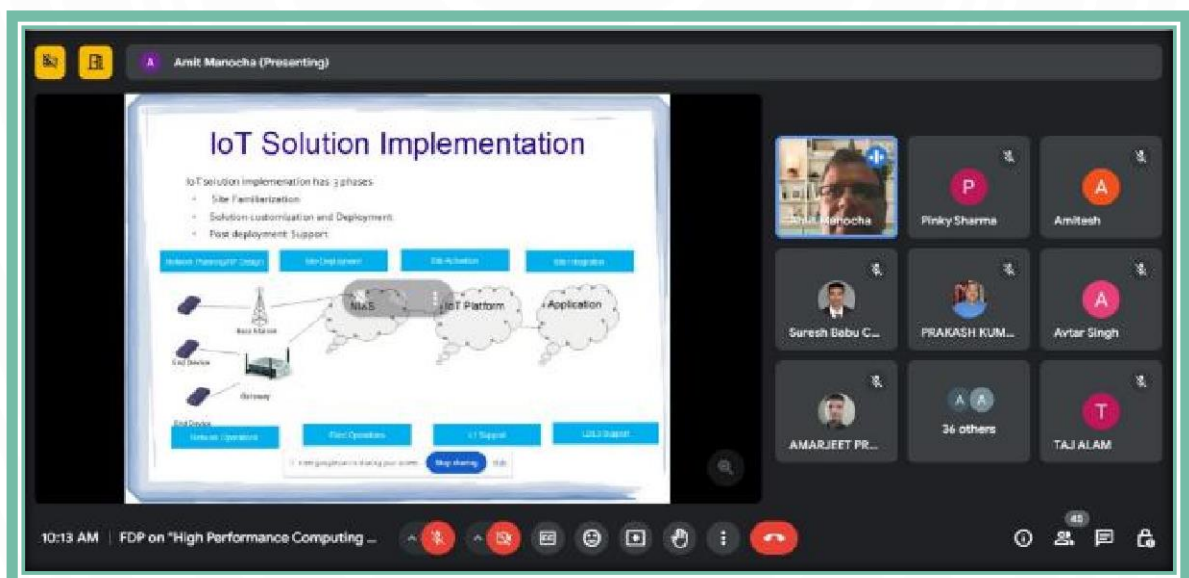
In the dynamic landscape of software development, the adoption of Microservices and Kubernetes has become instrumental in achieving scalability, flexibility, and resilience. This FDP aimed to delve into the transformative realms of Microservices architecture and Kubernetes orchestration, equipping participants with the knowledge and skills to navigate the intricacies of automated software development and delivery. Participants explored the principles of Microservices design, emphasizing modularization and independence, along with Kubernetes fundamentals, encompassing deployment, scaling, and management of containerized applications. Hands-on sessions guided participants in creating, deploying, and managing Microservices-based applications using Kubernetes, empowering them to harness the full potential of containerized environments. The FDP provided participants with a comprehensive understanding of Microservices and Kubernetes, enabling them to architect robust, scalable, and efficient systems. As technology continues to evolve, this FDP stands as a gateway for educators to stay at the forefront of modern software development practices.



FACULTY DEVELOPMENT PROGRAM

FDP on High-Performance Computing and Emerging Trends 27 May – 01 June 2024

High-performance computing (HPC) is a field of computing dedicated to solving complex problems quickly and efficiently through the use of parallel processing and large-scale computational resources. As technology advances, HPC continues to evolve, driven by emerging trends that shape its future trajectory like Exascale Computing, Heterogeneous Architectures, Quantum Computing, Big Data and Data Analytics, Artificial Intelligence and Machine Learning, Edge Computing and HPC and Sustainable HPC, and many more. An intensive week Faculty Development Program was being organized for faculty of engineering and technological institutions in ONLINE MODE to provide exposure to “High-Performance Computing and Emerging Trends” through interaction with experts in different domains from Industry involved in High-Performance Computing and allied fields.



FACULTY DEVELOPMENT PROGRAM

FDP on Autonomous AI for Sustainable Development 03-08 June 2024

FDP on "Autonomous AI for Sustainable Development" was conducted to provide educators and researchers with the essential knowledge, abilities, and resources required to comprehend, create, and implement AI strategies that contribute to the progress of sustainable development objectives (SDGs). Autonomous AI encompasses systems designed to function autonomously, executing tasks, making decisions, or addressing challenges without needing human input. When applied to the realm of sustainable development, such technologies hold the promise of delivering substantial impacts across multiple sectors. This FDP provided theoretical and practical training that accredit effectual participation in state-of-art intelligent techniques like Autonomous Artificial Intelligence (AAI), Predictive AI, Federated Learning, Generative Adversarial Networks, Intelligent System, Transfer Learning, Internet of Things (IoT) and Edge Computing.



Expert Talks

Exploring the roles of DevOps in shaping the future technological changes

Mr. Manoj Kumar Sahni, Technological Expert Infosys, Germany

Generative Artificial Intelligence: CO-Pilot tool usages

Mr. Peeyush Surolia, Experian Services India Pvt Ltd

Incubation, leadership and Entrepreneurship

Dr. Nagender Sangra, Flickstree

Dr. Deepak Kumar, Heads UpForTails

Ms. Gopali Agarwal, Capgemini

JIRA - An innovative technological solution for managing projects, collaborations, and academic workflows

Mr. Hemant Kumar Tewtia, Engineering Manager at ION Trading solution

Expert Talks

Role and Importance of Technology for the Rise Up of our Country

Mr. Bhoopendra Nath Pandey, COO and Co-Founder @
Manacle Technologies Pvt Ltd, Noida

Proposal writing for Extra mural funding

Dr. Mahendra Shukla, ABV-IIIT Gwalior

Dr. Mitul Kumar Ahirwal, Maulana Azad National Institute
of Technology, Bhopal

An Industry Perspective on Large-Scale Database

Mr. Rishav Katoch, Product Engineer at Atlan, Singapore

Prototype/Process Design and Development

Mr. Vaibbhav Mishra, Founder and CEO Aujus Technology
pvt Ltd, Noida

PUBLICATIONS

International Journals

- ❖ Arora, A., Taneja, A., & Hemanth, J. (2023). Heart Arrhythmia Detection and Classification: A Comparative Study Using Deep Learning Models. *Iranian Journal of Science and Technology, Transactions of Electrical Engineering*, 1-21
- ❖ Jindal, H., Sardana, N., Vidyarthi, A., Gupta, D., & Mahmud, M. (2023). Mining user's navigation structure by filtering impurity nodes for generating relevant predictions. *International Journal of Cognitive Computing in Engineering*, 4, 248-258.,
- ❖ B. Saxena, M. Gaonkar and S.K. Singh, "Study of the effectiveness of wavelet genetic programming model for water quality analysis in the Uttar Pradesh region," *Environ Monit Assess*, vol. 195, article 1010, July 2023.
- ❖ Naman Saxena, Adwitiya Sinha, Tanishk Bansal, Ankita Wadhwa, "A Statistical Approach for Reducing Misinformation Propagation on Twitter Social Media," *Information Processing and Management*, Elsevier, vol. 60, issue 4, no. 103360
- ❖ Garg S. and Krishnamurthi R. , "A survey of long short term memory and its associated models in sustainable wind energy predictive analytics," *Artificial Intelligence Review*, Jul. 2023
- ❖ Choudhary, A., & Arora, A. (2023). GIN-FND: Leveraging users' preferences for graph isomorphic network driven fake news detection. *Multimedia Tools and Applications*, 1-27.
- ❖ Ansari, Gunjan, Parmeet Kaur, and Chandni Saxena. "Data Augmentation for Improving Explainability of Hate Speech Detection." *Arabian Journal for Science and Engineering* (2023): 1-13.

PUBLICATIONS

International Journals

- ❖ Agarwal, Yashi, P. Raghu Vamsi, Siddhant Jain, and Jayant Goel. "CodeUP: A Web Application for Collaborative Question-answering System.", I.J. Information Technology and Computer Science, 2023, vol. 4, 33-49
- ❖ Arora, A., Jain, A., Yadav, D., Hassija, V., Chamola, V., & Sikdar, B. (2023). Next Generation of Multi-Agent Driven Smart City Applications and Research Paradigms. IEEE Open Journal of the Communications Society.
- ❖ M. Chopra, and A. Purwar. "Food recognition using enhanced squirrel search optimisation algorithm and convolutional neural network." International Journal of Data Analysis Techniques and Strategies, vol 15, no. 3 (2023): 238-254
- ❖ Tarun Agrawal, Prakash Choudhary, Achyut Shankar, Prabhishek Singh, and Manoj Diwakar. "MultiFeNet: Multi-scale feature scaling in deep neural network for the brain tumour classification in MRI images." International Journal of Imaging Systems and Technology (2023).
- ❖ O. P. Singh, K. N. Singh, N. Baranwal, A. K. Agrawal, A. K. Singh, and H. Zhou, "Hidemarks: hiding multiple marks for robust medical data sharing using iwt-lsb," Multimedia Tools and Applications, pp. 1–19, 2023
- ❖ S. Gupta, D. Singh, and S. Kumar, "Development of an Ontology-Based Technique for Labeling Land Cover Classes with Minimum Utilization of SAR Features," SN computer science, vol. 4, no. 6, Sep. 2023,
- ❖ Khadke, S., Ramasubramanian, B., Paul, P., Lawaniya, R., Dawn, S., Chakraborty, A., Mandal, B., Kumar, A., Ramakrishna, S., Dalapati, G.K., (2023). "Predicting Active Solar Power with Machine Learning and Weather Data", Materials Circular Economy, Springer

PUBLICATIONS

International Journals

- ❖ Purwar, Archana, and Indu Chawla. "A systematic review on fall detection systems for elderly healthcare." *Multimedia Tools and Applications* (2023): 1-26.
- ❖ Padha, A., Sahoo, A., QCLR: Quantum-LSTM Contrastive Learning Framework for Continuous Mental Health Monitoring, *Expert Systems with Applications*, Sep 2023.
- ❖ Kumar, S.R., Goyal, M. Design of an incremental learning model for shard management in performance-aware blockchains: GA-TLEHO approach. *Multimedia Tools Appl* (2023).
- ❖ Pal, R., Saraswat, M., Kumar, S. et al. Energy efficient multi-criterion binary grey wolf optimizer based clustering for heterogeneous wireless sensor networks. *Soft Comput* (2023).
- ❖ Somya Jain, and Adwitiya Sinha. "Deep learning intelligence for influencer-based topological classification for online social networks." *International Journal of Innovative Computing and Applications* 14, no. 4 (2023): 211-219.
- ❖ H. K. Singh, K. N. Singh, and A. K. Singh, "Secure transmission of ocean images using deep learning-based data hiding," *Expert Systems*, p. e13469.
- ❖ S. Garg and R. Krishnamurthi, "Transfer learning: a cross domain LSTM way towards sustainable power predictive analytics," *Multimed. Tools Appl.*, 2023.

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- ❖ Archana Sharma, Dharmveer Singh Rajpoot, A memetic approach for optimizing software effort estimation using anti-predatory NIA, International Journal of Information Technology, 2023.
- ❖ D. Pandey, K. Pandey & B. Kanwer, “A prediction model for poly-cystic ovary syndrome problem using computational intelligence”, Journal of Information and Optimization Sciences, Vol 44, Issue 3, pp. 553–563, 11 August, 2023
- ❖ Choudhary, A., & Arora, A. (2024). Assessment of bidirectional transformer encoder model and attention based bidirectional LSTM language models for fake news detection. Journal of Retailing and Consumer Services, 76, 103545.
- ❖ K. Pani and I. Chawla. "Examining the quality of learned representations in self-supervised medical image analysis: a comprehensive review and empirical study." Multimedia Tools and Applications (2024): 1-31.
- ❖ Mehta, S. Improved shuffled Frog leaping algorithm with unsupervised population partitioning strategies for complex optimization problems. J Comb Optim 47, 6 (2024).
- ❖ D. Yadav, K. Kapoor, A. K. Yadav, M. Kumar, A. Jain, and J. Morato, "Satellite Image Classification Using Deep Learning Approach," Earth Science Informatics, pp. 1-14 2024.

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International Journals

- ❖ Aggarwal, K., & Arora, A. (2023). Influence maximization in social networks using discrete BAT-modified (DBATM) optimization algorithm: a computationally intelligent viral marketing approach. *Social Network Analysis and Mining*, 13(1), 1-17.
- ❖ S. Choudhary and B. Saxena, “Analysing Machine Learning based Approaches for Detecting Late Blight Disease in Potato Crop,” *J. Int. Acad. Phys. Sci.* 227(3):285-93, 2023
- ❖ Samayveer Singh, Deepak Garg, Manju, Aruna Malik, A novel cluster head selection algorithm based IoT enabled heterogeneous WSNs distributed architecture for smart city, *Microprocessors and Microsystems*, Vol. 101, 2023, 104892
- ❖ Saxena, U.R., Alam, T. Provisioning trust-oriented role-based access control for maintaining data integrity in cloud. *Int J Syst Assur Eng Manag* pp 1-20, 2023.
- ❖ Saxena, U.R., Alam, T. Recommendation-based trust computation and rating prediction model for security enhancement in cloud computing systems. *SOCA* 17, 239–257 (2023).
- ❖ Choudhary, A., & Arora, A. (2024). Assessment of bidirectional transformer encoder model and attention based bidirectional LSTM language models for fake news detection. *Journal of Retailing and Consumer Services*, 76, 103545.

PUBLICATIONS

International Journals

- ❖ K. Pani and I. Chawla. "Examining the quality of learned representations in self-supervised medical image analysis: a comprehensive review and empirical study." *Multimedia Tools and Applications* (2024): 1-31.
- ❖ Mehta, S. Improved shuffled Frog leaping algorithm with unsupervised population partitioning strategies for complex optimization problems. *J Comb Optim* 47, 6 (2024).
- ❖ D. Yadav, K. Kapoor, A. K. Yadav, M. Kumar, A. Jain, and J. Morato, "Satellite Image Classification Using Deep Learning Approach," *Earth Science Informatics*, pp. 1-14 2024.
- ❖ H. Inani, V. Mehta, D. Bhavsar, R. K. Gupta, A. Jain, and Z. Akhtar, "AI-Enabled Dental Caries Detection Using Transfer Learning and Gradient-Based Class Activation Mapping", *Journal of Ambient Intelligence and Humanized Computing*, vol. 15, pp. 3009-3033, 2024.
- ❖ H. Inani, V. Mehta, D. Bhavsar, R. K. Gupta, A. Jain, and Z. Akhtar, "AI-Enabled Dental Caries Detection Using Transfer Learning and Gradient-Based Class Activation Mapping", *Journal of Ambient Intelligence and Humanized Computing*, vol. 15, pp. 3009-3033, 2024.
- ❖ H. S. Pattanayak, B. Saxena and A. Sinha, "Influence maximization in social networks using community-diversified seed selection", *Journal of Complex Networks*, vol. 12, issue 1, February 2024,

PUBLICATIONS

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SCIENTIFIC ARTICLE

Generative AI Arsenal Beyond ChatGPT

By Dr. Sangeeta Mittal



In past few years, AI has advanced from a futuristic concept to a day-to-day thing. We are in the age of Generative AI, where algorithms don't just compute as they are instructed, but also create new content. It is taking on tasks that were once the exclusive domain of humans. Drafting emails, writing new code, creating stories, generating new catchy music and visuals, all can be done in a blink of eye. Data is the new oil and Gen AI applications are consuming it at ultra-large scale to offer revolutionizing applications. This article gives a gist of the gen AI applications that are making their way into fields of **ART, SCIENCE and Engineering**.

GenAI Tools for Text Generation: Large language models (LLMs) like GPT (Generative Pre-trained Transformer) are engines that consume vast amounts of textual data to give a power-packed performance allowing them to understand and generate human-like language. Popular Examples of text generation AI tools are ChatGPT, Google Bard, Microsoft CoPilot, Claude and Jasper AI.

GenAI Tools for Image Generation: These tools help produce artistic images from text prompts. Few popular ones are **DALL-E, MidJourney**, Stable Diffusion, Adobe Firfly, Runway Gen-2, DeepArt.io, artbreeder and NightCafe Creator.



SCIENTIFIC ARTICLE

GenAI Tools for Sound/Music Generation: These tools cater to a range of users, from professional composers to social media content creators. Some popular generative AI tools for sound or music generation are Amper Music, AIVA (Artificial Intelligence Virtual Artist, Jukedeck, Soundraw and Google Magenta.

GenAI Tools for Video Generation: GenAI can help produce high-quality video content with lesser effort and greater creativity. Examples include Runway Gen-2, Synthesia, Pictory, DeepBrain AI, Lumen5, Veed.io and DeepDream. These tools help in auto-subtitling, background noise removal, and video enhancement features.

GenAI Tools for Code Generation: These can help developers write code in multiple languages by suggesting lines or entire blocks of code based on the context of their work. For example, GitHub Copilot by OpenAI, TabNine autocompletion tool, Codex- another tool by OpenAI that can generate code from natural language descriptions, Sourcery for improving and refactoring Python code. CodeWhisperer by Amazon Web Services (AWS), DeepCode using AI to analyze and review code for potential bugs, vulnerabilities, and Ponicode that provides AI-generated unit tests and code documentation.



SCIENTIFIC ARTICLE

Generative AI tools in Chip Design and Communication Engineering: GenAI can be used for various applications, including circuit design, signal processing, communication systems, and more. For example, Cadence Cerebrus an AI-driven chip design tool, Synopsys DSO.ai by Synopsys leverages AI to explore and optimize chip design spaces, Xilinx Vivado ML from Xilinx integrates AI and machine learning to accelerate FPGA design and PSpice, an electronic circuit simulator that integrates AI to automate circuit design processes are just to name a few. IBM Watson IoT integrates AI with IoT systems, allowing engineers to design and optimize communication networks and devices that are connected to the Internet of Things.

Generative AI tools in Biotechnology: Generative AI tools are also finding use cases in biotechnology, aiding in drug discovery, protein engineering and genomics. Some notable ones are AlphaFold, developed by DeepMind to predict protein structures with high accuracy, IBM Watson for Drug Discovery, Rosetta@home using AI to model protein structures and interactions, Insilico Medicine applies generative AI and machine learning to drug discovery, LabGenius uses AI to automate the design and optimization of protein-based therapeutics. And recently BioNTech's AI for Vaccine Development are upcoming tools in this area.

Apart from these distinctive tools, nowadays Multi-modal AI systems are emerging for producing hybrid content type. We need to be very optimistic about GenAI as it will not replace humans but enhance productivity and make them work more efficiently in their area of work. Few wise are predicting that GenAI will affect the humans in a scale similar to the invention of wheel. ✨

Building a Green Future: Sustainable Energy in the Software Industry

By Dr. Asmita Yadav



Amid escalating climate challenges, the technology sector is increasingly focusing on sustainability, particularly in software development. Energy consumption by software is a growing concern, making the adoption of sustainable practices crucial for mitigating environmental impacts. This article explores how the software industry can leverage energy-efficient coding, sustainable data centers, green cloud computing, and educational initiatives to contribute to a greener future. By embracing these practices, the software industry can significantly reduce its environmental footprint while driving innovation and efficiency.

1. Energy-Efficient Software Development: The energy consumption of software is significantly influenced by the efficiency of the code itself. Energy-efficient software development aims to minimize the computational power required, which in turn reduces energy usage. This can be achieved through several methods: Algorithm Optimization, Code Profiling and Efficient Resource Management.

2. Sustainable Data Centers: Data centers are critical to the functioning of modern software but are notorious for their high energy consumption. Transitioning to sustainable data centers involves using renewable energy sources, improving energy efficiency, and adopting innovative cooling solutions. Few solutions are Renewable Energy Adoption, Energy-Efficient Hardware, Advanced Cooling Techniques.

SCIENTIFIC ARTICLE

3. Green Cloud Computing: Cloud computing offers a pathway to more sustainable software by enabling efficient resource sharing and scalability. It reduces the need for extensive physical infrastructure, thereby lowering overall energy consumption. Cloud platforms optimize server usage, reducing energy waste. Resources can be dynamically scaled, ensuring that energy use matches demand. Cloud providers often have more resources and incentives to invest in energy efficiency compared to individual organizations

Sustainable Software Design: Sustainable software design focuses on creating software that is energy-efficient throughout its lifecycle. This includes considering energy consumption during development, deployment, and maintenance phases.

Education and Awareness: Promoting sustainability in software requires raising awareness and providing education to developers, businesses, and users. Understanding the importance of energy-efficient practices and knowing how to implement them is essential for widespread adoption. This can be achieved by offering workshops and courses on sustainable software development practices and by providing access to materials and guidelines that promote energy-efficient coding and design. More workshops can be conducted to share knowledge and experiences related to sustainability in software.

The integration of sustainable energy practices in software development is imperative for reducing the environmental impact of our digital world. By focusing on energy-efficient coding, sustainable data centers, green cloud computing, sustainable software design, and education, the software industry can make significant strides towards sustainability. As these practices become more widespread, they will not only benefit the environment but also drive innovation and efficiency in the tech sector.



Alumni Spotlight

The B.Tech program at IIIT offers a comprehensive curriculum that aligns well with industry standards, providing a strong foundation in engineering principles. The faculty are highly qualified and approachable, making learning an engaging experience. The state-of-the-art infrastructure, including well-equipped labs and libraries, significantly enhances our academic journey. Extracurricular activities and clubs offer numerous opportunities for personal growth and skill development. The placement cell is efficient, ensuring excellent job and internship opportunities. Overall, the program fosters a supportive and stimulating environment for students to thrive.



Shoolin Kummar Tyagi
B. Tech. CSE
Batch 2024



Rishabh Kumar Sahu
B. Tech CSE.
Batch 2023

My journey from IIIT student to software engineer was not possible without the expertise of professors and exceptional learning experience that IIIT provided. Students are kept motivated and focused by assigning equal weight to their coursework and extracurricular activities. Participating in various projects and extracurricular activities has provided me with a holistic education and prepared me for future challenges. The friendships I've formed and the experiences I've gained will always be cherished. Last but not the least, IIIT has truly been a second home, fostering both my personal and professional growth.

SMART INDIA HACKATHON (SIH) - 2023

Winner Team from Jaypee Institute of Information Technology (JIIT)

Title & Project code:

(SIH1459) Integration of Multiple Data-bases of AICTE in order to fetch Coherent Information

Team Details

S. No	Name of the Student	JIIT Roll Number
1.	Harsh Dhariwal (Team Leader)	21103267
2.	B Sai Kiran	21103230
3.	Somya Sethi	21104045
4.	Tikshanshu Jaiswal	21103270
5.	Ajneya Singh	21103266
6.	Yashovardhan Rawat	21103273

Mentor and SPOC: **Prof Manish Kumar Thakur**



LITERARY

Poetry

*In IIIT's embrace, we found our way,
With dreams and hopes that brightly sway.
Classes and labs, from day to night,
Guiding us with wisdom's light.*

*Amidst the books and screens aglow,
Friendships blossomed, began to grow.
Through highs and lows, we stood as one,
In IIIT's light, our paths begun.*

*Now as we stand on the threshold bright,
With futures glowing in the light.
We cherish IIIT, our guiding star,
Forever grateful for how far we are.*

*So here's to IIIT, with all our love,
A journey blessed, by stars above.
In every step, in every quest,
IIIT, our alma mater, simply the best.*



**Muskaan Gabra
Batch 2025**



LITERARY

स्वतंत्रता दिवस : एक बलिदानी सफर

स्वतंत्रता का है आज त्योहार फिर आया, पर ऐ हिंद तू ये कैसा जश्र मनाता है?
रक्त संचित इस भूमि पर, तू कैसे आजादी के फसल उगाता है?
तुझपर मरकर जो मर गए,
उनके शहादत पर विह्वल ये मन ,आज फिर तूझे तूझसे रुबरु करवाता है॥
तेरी जमीं, ये तेरे ही सब रखवाले हैं,
तेरी आबादी, तेरी आजादी, सबको जान से भी प्यारे हैं,
पर इनकी सांसों की रक्षा का, क्या तू कोई मोल चुकाता है?
मिट जाते हैं ये हस्ते-हस्ते, और तू तब आजाद कहलाता है?
हजारों सिसकियां कैद पड़ी है,
और लाखों ख्वहिशें जब दफ्न हुए, तब स्वप्न ये तेरा मुकम्मल हो पाता है॥
जब सर्द रातों में डट जाते ये हिमालय पर,
गोली भी कब इन्हें है विचलित करते, अडिग खड़े ये मतवाले पर,
इनके बच्चे, इनके घर में अंधियारा भर, तू अपने घर को रौशन बनाता है॥
आग की जरूरत कहाँ पड़ती, घर इनका इक चिंगारी से जल जाता है॥
राह तकती है इनकी,वो बूढ़ी आंखें,
जिसके ख्वाबों के पत्रों से, फिर एक बार तू सारे ख्वाब चुराता है॥
जकड़ा था गुलामी की जंजीरों से तू, तब की ये कहानी है,
करने को स्वाधीन तूझे, दे दी उन्होंने जवानी है,
वीरांगनाएँ भी कहाँ पीछे हटी, सबके सिंदूर से ही तो, तू विजय तिलक लगाता है॥
त्यागकर हर खुशी, हर गम, तूझपर हर वीर नाज़ जताता है॥
महावर, पायल, चुड़ी,
इन सब की आंहीं सुनकर भी, त्योहार ये बड़े धूमधाम से, तू हर
बार मनाता है॥
क्या सोचा है कभी तूमने?
उन्हें स्वप्न नहीं थें क्या बुनने?
खड़ा है गौरवान्वित यूँ, ऐ देश! जो तू ध्वज तिरंगा फहराता है॥
उधार है ये उनकी सांसें तूझपर, जिन वीरों के मरघट को ,आज तू अपना महल बताता है॥



Aparna
Batch 2023

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Talented Team



Sound of Music



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