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SAINIK

SRC AI NEXUS FOR INNOVATION & KNOWLEDGE

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The Path to Academic Excellence and Personal Growth

Dr. B. Santhi
Dean, SRC,
SASTRA

Learning is a continuous journey, and every student must recognize that education does not end with classrooms, examinations, or degrees. SASTRA provides a vibrant academic platform where students can learn, explore, question, innovate, and grow as responsible professionals. Make the best use of every opportunity available in the institution, because time is precious and disciplined effort during student life becomes the foundation for future success.

In today's world, Computer Science is not limited to programming alone. It is shaping every field through Artificial Intelligence, Data Science, Cybersecurity, Cloud Computing, Automation, and emerging digital technologies. Students must develop the habit of continuous learning and remain aware of current trends. AI tools can be used wisely for learning, coding, research, documentation, creativity, and problem-solving. However, technology should be used as a support system, not as a substitute for thinking. The effective use of gadgets, digital platforms, and AI tools can enhance the quality of learning only when they are used with responsibility, curiosity, and ethical awareness.

Along with technical knowledge, character building is equally important. Integrity, discipline, humility, teamwork, empathy, communication, and respect for others are essential qualities for a meaningful life and successful career. Learn from multiple dimensions. Learn from teachers, peers, books, projects, failures, and real-life experiences. Every challenge should be viewed as an opportunity to improve oneself. Do not fear difficulties; face them with courage, patience, and a positive mindset.

The future belongs to those who can adapt, adopt, and contribute. Adapt to changing situations, adopt good practices, upgrade your skills regularly, and contribute positively to society. Let your knowledge be useful, your attitude be constructive, and your actions be guided by values. I encourage every student to dream high, work sincerely, use technology wisely, build strong character, and move forward with confidence toward a happy, healthy, and purposeful life.

Insights from SAINIK

This newsletter of the SAINIK Association presents the key academic initiatives, technical sessions, and innovative learning experiences conducted at SRC during the academic year 2025–2026. It covers important activities such as the Faculty Micro Lecture Series, Student Lecture Series, and AI Yatra workshops that focused on Artificial Intelligence, research tools, coding practices, and no-code application development.

The newsletter aims to showcase how these programs contributed to academic excellence and skill development among students, research scholars, and faculty members. In the upcoming pages, readers will explore how expert sessions, practical workshops, and collaborative learning created opportunities for research growth, innovation, and professional advancement across the campus.



From Idea to App

Build Your First App Using No-Code and Generative AI

AI Yatra – Phase V

Dr. B. Santhi
Dean, SRC,
SASTRA

Mobile applications are designed specifically for Android and iOS devices and are usually installed through app stores such as Google Play Store or Apple App Store. These applications often require mobile-specific frameworks, build processes, testing, and store approvals before they can be shared with users. In contrast, web applications run directly in a browser and can be accessed through a simple URL without installation. This makes web apps faster to develop, easier to share, and highly suitable for academic demonstrations and classroom activities. Since Hugging Face Spaces mainly supports web applications, it provides an efficient platform for students and faculty to create and deploy applications quickly for learning, teaching, and research purposes.

How to Create Web app using Hugging Face :

(i)create a hugging face sapce

Hugging Face Space is an online platform that allows users to host, run, and share web applications with ease. Creating a Space begins with signing up and logging into the Hugging Face platform. After logging in, users navigate to the “Spaces” section and click on “Create New Space.” They then provide a meaningful project name, choose the visibility settings as either public or private, and select Gradio as the preferred SDK for application development. CPU hardware is generally sufficient for lightweight academic applications. Once these settings are completed, the new Space is created and becomes ready for uploading files and deployment.

(ii)Upload Files like app.py and requirements.txt

For any Gradio-based application to work in Hugging Face Spaces, two important files are required: app.py and requirements.txt. The app.py file contains the main Python code that defines the application interface, input fields, buttons, output sections, and backend logic. The requirements.txt file contains the list of Python libraries needed to run the application, such as Gradio, Pandas, or NumPy. These files are uploaded directly into the created Space so that Hugging Face can automatically install the dependencies, build the environment, and launch the application. Additional supporting files such as images, datasets, or Excel sheets can also be added if required.

(iii)Use ChatGPT Prompts to Generate App Code

ChatGPT helps simplify app development by generating Python code through clear and detailed prompts. Users need to mention the app goal, required inputs, expected outputs, interface design, and special conditions. Based on this, ChatGPT can generate the app.py file and requirements.txt, making app development easier for beginners.

(iv)Common Errors and How to Fix Them

Common errors in Hugging Face Spaces include wrong package names, missing dependencies, coding mistakes, and unsupported Gradio functions. These issues can be fixed by checking the Logs section, correcting file names, updating code, and reducing unnecessary dependencies for smooth deployment.

Gen AI Sessions

Dr. B. Santhi
Dean, SRC,
SASTRA

SESSION-I

The first session witnessed enthusiastic participation from postgraduate students and research scholars. The session focused on introducing the fundamentals of no-code development, idea validation, rapid prototyping, and leveraging Generative AI tools for building applications efficiently. Participants were exposed to live demonstrations showcasing how ideas can be quickly converted into deployable applications.









SESSION-II

The second session was organized for teaching and non-teaching faculty members. This session emphasized practical implementation strategies, AI-assisted development workflows, and integration of such tools into academic and administrative use cases. Faculty members actively engaged in discussions on applying no-code and AI tools for research, teaching innovation, and productivity enhancement.

Outcomes of the Workshop

- Participants gained hands-on exposure to building their first app using no-code and Generative AI platforms.
- Enhanced understanding of idea validation, rapid prototyping, and deployment strategies
- Encouraged innovation and entrepreneurial thinking within the campus community.
- Strengthened awareness of emerging AI tools and their real-time applications.

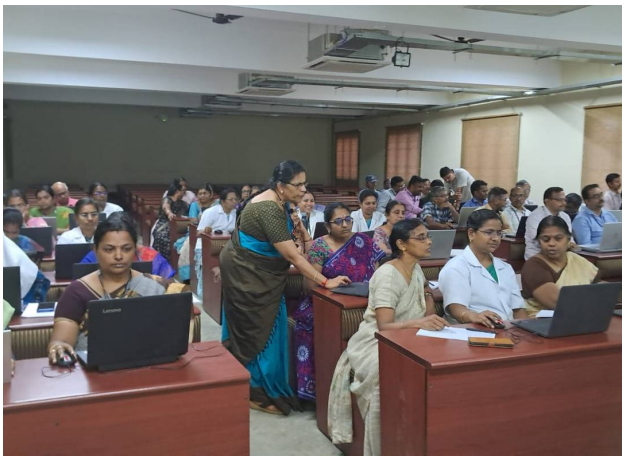
The workshop received an overwhelming response with a total participation of 284 members across both sessions, which included postgraduate students, research scholars, teaching faculty, and non-teaching staff from various departments of the campus. The strong participation reflected the increasing interest among the academic community in exploring no-code development, Generative AI tools, and modern application-building techniques. It also highlighted the growing awareness of how emerging technologies can support teaching, research, and innovation.

The sessions were designed to provide an interactive and engaging learning environment through practical demonstrations, live application-building processes, and real-time problem-solving activities. Participants were introduced to the complete journey of transforming an idea into a functional application using no-code platforms and AI-assisted workflows. This hands-on approach helped them understand the importance of rapid prototyping, idea validation, and digital innovation without requiring advanced programming knowledge. The workshop created an excellent platform for collaborative learning where participants could exchange ideas, improve their technical understanding, and strengthen their problem-solving abilities.

A major factor behind the success of the workshop was the inspiring mentorship and expert guidance provided by Dr. B. Santhi, Dean, SRC, who served as the resource person. Her session was highly informative, practical, and motivating, as she clearly explained how technology and innovation can be integrated into academic and professional life. Her focus on creativity, innovation, and real-world applications encouraged participants to think beyond traditional methods and adopt modern AI tools for research productivity, academic projects, and institutional development.

The workshop not only enhanced technical awareness but also promoted innovation-driven learning and entrepreneurial thinking among participants. It served as a valuable academic initiative under the SAINIK Association, creating opportunities for students and faculty members to explore new possibilities in technology-based learning and development.





The organizing team extends its sincere gratitude to the Dean for her valuable contribution, guidance, and support in making the event successful. Special appreciation is also extended to all participants for their active involvement, cooperation, and enthusiastic participation throughout both sessions. Their engagement and willingness to learn made the workshop a grand success and one of the most memorable academic initiatives conducted at the SRC campus during the academic year.

Micro Lecture Series

Session -1

Managing References Made Easy using Mendeley

Dr.R.Sujarani
Assistant Professor II / CSE

Dr. R. Sujarani delivered an insightful session on “Managing References Made Easy: Auto-Citation and Bibliography with Mendeley” on February 05, 2026. This session focused on streamlining academic writing through efficient reference management. The session provided a clear understanding of organizing research materials by creating folders, adding files, and utilizing watch folders for automatic updates. A live demonstration highlighted how Mendeley supports automatic citation generation and seamless bibliography integration. The speaker also explained features such as cross-platform syncing, enabling access across devices, and automatic metadata extraction to simplify document organization. Overall, the session effectively guided participants on managing their academic work efficiently while enhancing research productivity and maintaining academic integrity.



Key Highlights of the Session:

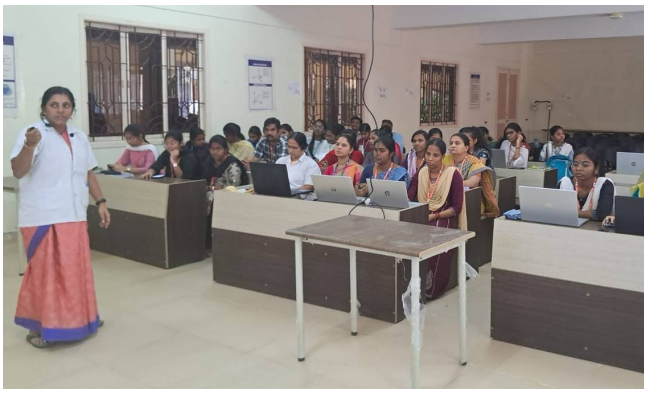
- Introduction to Mendeley for easy reference management, auto-citation, and automatic bibliography generation.
- Helped participants improve research productivity, simplify academic writing, and maintain academic integrity through efficient document organization.

Session -2

Coding made easy with Google Colab

Dr.D.Rubidha Devi
Assistant Professor II / CSE

Dr. D. Rubidha Devi delivered an engaging session on “Coding Made Easy with Google Colab” on introducing it as a powerful cloud-based platform for programming and experimentation. The session demonstrated real-time coding, execution of Python programs without the need for local installation, and effective use of interactive notebooks. Key features such as free access to GPUs, no setup requirements, collaborative editing, seamless integration with Google Drive, support for popular libraries, and easy sharing were clearly explained. The hands-on approach enabled participants to explore AI/ML applications efficiently. The session was well received, and the PhD research scholars expressed their appreciation in their feedback for this highly useful and practical learning experience.



Key Highlights of the Session:

- Introduction to Google Colab as a cloud-based platform for real-time coding and Python program execution without local installation.
- Explained key features such as free GPU access, collaborative editing, Google Drive integration, and support for AI/ML applications, making coding easier and more efficient.

Session -3A

Multi Domain Datasets to Publications

Dr.M.Vanitha
Assistant Professor III / CSE

Dr. M. Vanitha delivered an informative session on “Prediction and Classification Using Multidomain Datasets,” focusing on the role of diverse datasets in building effective machine learning models. She introduced various data sources including weather, agriculture, census, traffic, medical, Google Earth, NASA datasets, as well as repositories like Kaggle and UCI. The session provided practical insights into selecting and utilizing appropriate datasets for prediction and classification tasks across domains. Her dedicated demonstration session enabled participants to understand real-time data usage and interdisciplinary applications. The research scholars highly appreciated the clarity and usefulness of the demonstrations.

Key Highlights of the Session:

- **Introduction to multi-domain datasets such as weather, agriculture, medical, traffic, census, NASA datasets, Kaggle, and UCI repositories for machine learning applications.**
- **Demonstrated how to select and use suitable datasets for prediction and classification tasks, helping participants understand real-time data usage and interdisciplinary applications.**

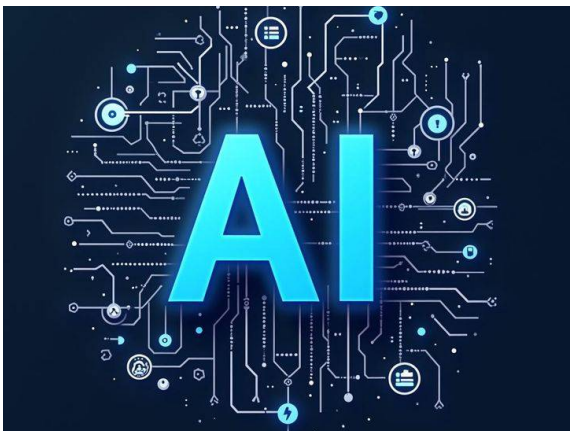




Session -3B

AI Humanizer Tools

Dr.A.Sumathi
Assistant Professor III / CSE



Dr. A. Sumathi conducted an engaging session on “AI Humanizer Tools,” highlighting their significance in enhancing AI-generated content. She demonstrated the use of the HumanizeAI.io platform, explaining how it helps content creators, marketers, and students improve readability, remove robotic tones, and produce more natural and engaging content. The session covered key features such as AI detection bypass, multiple humanization modes, quality enhancement, user-friendly interface, and broad application scope. The live demonstration provided practical exposure, and the research scholars expressed strong appreciation for the session’s relevance and effectiveness.

Key Highlights of the Session:

- Introduction to AI Humanizer tools using HumanizeAI.io for improving AI-generated content by making it more natural, readable, and engaging.
- Live demonstration of features such as AI detection bypass, multiple humanization modes, and quality enhancement for students, researchers, and content creators.

Session -4

AI in India : Initiatives, Challenges & Opportunities

Dr.S.Meganathan
Associate Professor / CSE

Dr. S. Meganathan delivered a comprehensive and insightful session on "AI in India – Initiatives, Challenges and Opportunities," providing a holistic view of the country's rapidly evolving AI ecosystem. The session covered key national frameworks such as the IndiaAI Mission, National Strategy for AI, and the Digital Personal Data Protection (DPDP) Act 2023, emphasizing their role in shaping responsible AI development. The speaker highlighted significant platforms and technologies including Bhashini App, Indic NLP, Saram AI, Krutrim AI, AI Kosh, and the AIRAWAT supercomputer, showcasing India's progress in indigenous AI capabilities.

The talk also shed light on leading startups and industry initiatives such as Qure.ai, Wadhwani AI, CoRover AI, Kore AI, and Gnani AI, illustrating real-world AI deployments. Further, the importance of academic research was emphasized through references to premier institutions like IIT Bombay's multimodal LLM research, IIT Madras's open-source Indic AI initiatives, and the Language Technologies Research Centre at IIIT Hyderabad. The session elaborated on various sector applications, including AI in judiciary systems (SUVAS and SUPACE), healthcare (National TB elimination programs), financial systems (UPI fraud detection), smart cities, and agriculture for millions of Indian farmers. The speaker also highlighted AI education and skilling initiatives through hundreds of AI labs across higher education institutions. Overall, the session effectively inspired participants by presenting both the opportunities and challenges in advancing AI in India.



Key Highlights of the Session:

- Overview of India's major AI initiatives such as the IndiaAI Mission, National Strategy for AI, and the Digital Personal Data Protection (DPDP) Act 2023, promoting responsible AI development.
- Highlighted real-world AI applications in healthcare, judiciary, agriculture, finance, and education through platforms like Bhashini, Krutrim, and research from IIT Madras and IIT Hyderabad.

Session -5

Zotero Reference Management Tool

Dr.P.Umamaheswari
Assistant Professor III / CSE

Dr. P. Umamaheswari delivered an informative session on "Zotero Reference Management Tool – Automatic Citation & Bibliography Generation," introducing Zotero as an efficient and user-friendly alternative for managing academic references. The session demonstrated how to collect, organize, and manage research articles using folders and tags, along with automatic citation generation and seamless bibliography creation in various styles. The speaker also showcased Zotero's browser integration for quick reference capture, its compatibility with word processors like MS Word and LibreOffice, and its cloud syncing feature for access across devices. Emphasis was given to collaborative research through group libraries and sharing capabilities. The session reinforced best practices in academic writing and research organization, enabling participants to handle references systematically and improve the quality of scholarly work.



Key Highlights of the Session:

- Introduction to Zotero as a user-friendly tool for collecting, organizing, and managing research references with automatic citation and bibliography generation.
- Demonstrated browser integration, cloud syncing, and compatibility with MS Word and LibreOffice, helping participants improve academic writing and collaborative research work.

Session -6

Git and Github Repositories for RT, AI, ML and DL Models

Dr.R.Rajakumar
Assistant Professor II / CSE

Dr. R. Rajakumar delivered a comprehensive and application-oriented session on "Git and GitHub Repositories, Real-Time AI, ML and DL Models," focusing on modern software development and deployment practices. The session began with an introduction to version control using Git, explaining core concepts such as repositories, commits, branching, merging, and conflict resolution. The speaker demonstrated how GitHub facilitates collaborative development through features like pull requests, issue tracking, project boards, and team-based workflows, enabling efficient coordination among developers.

Further, the session explored the integration of GitHub with real-time AI/ML/DL model development, including managing codebases, versioning datasets, and tracking experiments. The speaker highlighted best practices for maintaining reproducibility and transparency in AI projects. Insights were provided on deploying models using cloud platforms, APIs, and containerization tools, along with an introduction to CI/CD pipelines for automating testing and deployment. The importance of GitHub Actions for workflow automation and continuous integration was also discussed.

Additionally, the session covered real-time applications of AI models, emphasizing monitoring, updating, and scaling models in production environments. Practical examples illustrated how developers can collaborate on end-to-end AI solutions, from data preprocessing to model deployment. Overall, the session equipped participants with essential skills in version control, collaborative coding, and real-time AI system management, aligning them with current industry practices.

Key Highlights of the Session:

- **Introduction to Git and GitHub for version control, collaborative coding, repositories, branching, and project management.**
- Explained real-time AI/ML/DL model development, deployment, CI/CD pipelines, and workflow automation using GitHub Actions for efficient project management.

Overall Outcome:

The Micro Lecture Series conducted at the Srinivasa Ramanujan Centre of SASTRA Deemed University created a significant academic and professional impact across PG students, PhD research scholars, and faculty members from various domains.

For PG students, the sessions provided strong foundational exposure to emerging tools and technologies beyond the regular curriculum. They gained hands-on experience in platforms like Google Colab, GitHub, Mendeley, and Zotero, which enhanced their coding skills, project development capabilities, and academic writing practices. The exposure to AI applications and real-world datasets helped them understand interdisciplinary problem-solving, thereby improving their readiness for higher studies, internships, and industry roles.

For faculty members across disciplines, the series served as a platform for continuous professional development and interdisciplinary learning. It helped them integrate modern tools and AI-based approaches into teaching, research, and consultancy activities. Faculty members gained insights into national AI initiatives, policy frameworks, and domain-specific applications, enabling them to align their academic activities with current trends. The sessions also promoted collaborative research opportunities, innovative pedagogy, and effective mentoring of students and scholars.

For PhD research scholars, the series was highly beneficial in strengthening their research workflow and productivity. Sessions on reference management tools streamlined literature review and citation processes, while discussions on multidomain datasets expanded their research perspectives. The exposure to AI humanizer tools, real-time AI model deployment, and collaborative platforms enabled them to enhance the quality, reproducibility, and impact of their research work. The sessions also encouraged them to adopt best practices in experimentation, documentation, and scholarly communication.

Student Lecture Series

Session 1

Understanding Transformer Architecture

Harikrishna Srinivasan
III BTech CSE

The SAINIK Student Association at the Srinivasa Ramanujan Centre, SASTRA University, Kumbakonam Campus, proudly inaugurated its Student Lecture Series with an insightful and technically enriching session on "Understanding Transformer Architecture". This session focused on the fundamental framework that powers today's Natural Language Processing (NLP) revolution, enabling applications such as machine translation, chatbots, and intelligent text generation systems. The lecture provided a comprehensive understanding of why the introduction of attention mechanisms marked a turning point in deep learning, overcoming the limitations of traditional models like Recurrent Neural Networks (RNNs) and Convolutional Neural Networks (CNNs). Participants gained clarity on key concepts such as Self-Attention and Multi-Head Attention through simplified explanations, along with a detailed overview of the Encoder–Decoder architecture that forms the backbone of transformer models. The session highlighted practical, real-world applications, helping attendees connect theory with modern AI implementations. This informative session was delivered by Harikrishna Srinivasan, a third year B.Tech Computer Science & Engineering student, on Monday, 2nd February at 3:15 PM in Room No. 201, providing an excellent platform for students and enthusiasts to deepen their understanding of cutting-edge AI technologies.



Outcome of the Session

- Improved understanding of Transformer Architecture and its role in modern Natural Language Processing (NLP).
- Gained knowledge of key concepts such as Self-Attention, Multi-Head Attention, and Encoder–Decoder architecture.
- Understood how transformers overcome the limitations of traditional RNNs and CNNs in deep learning.

Session 2

Unlocking the Power of Computer Vision

G.Hariharan
II M.Sc CS

The second lecture of the Student Lecture Series, titled "Unlocking the Power of Computer Vision", delivered by Shri. G. Hariharan (II M.Sc Computer Science), provided a comprehensive overview of modern object detection techniques and their practical significance. The session focused on the end-to-end pipeline of object detection using the Roboflow platform, highlighting key stages such as dataset collection, annotation, preprocessing, augmentation, model training, and deployment. Emphasis was placed on the use of YOLO-based deep learning models, which enable real-time object detection with high accuracy and efficiency, making them suitable for dynamic environments. The speaker also discussed how such systems can be deployed across both cloud and edge devices, enhancing their applicability in real-world scenarios such as safety monitoring, agriculture, and industrial inspection. Overall, the session effectively bridged theoretical concepts with hands-on implementation, demonstrating the scalability, efficiency, and practical relevance of computer vision technologies in today's AI-driven world.



Outcome of the Session

- Gained understanding of the complete object detection pipeline using the Roboflow platform, including dataset collection, annotation, preprocessing, and model training.
- Learned the practical use of YOLO-based deep learning models for real-time object detection with high accuracy and efficiency
- Explored applications of computer vision in safety monitoring, agriculture, and industrial inspection
- Understood deployment of computer vision systems on cloud and edge devices for real-world applications



Session 3

Dive into Google Earth Engine

R.Kuberan
III B.Sc CS

The third session of the Student Lecture Series was delivered by Shri. R. Kuberan, a final year B.Sc Computer Science student, on the topic “Dive into Google Earth Engine” on March 4, 2026. The session provided an insightful introduction to Google Earth Engine as a powerful cloud-based geospatial analysis platform widely used for processing and analyzing large-scale satellite imagery and environmental data. The speaker elaborated on how the platform enables users to access vast repositories of remote sensing datasets, including satellite images and climate data, and perform advanced spatial analysis without the need for high-end local computing resources. Key concepts such as image classification, time-series analysis, and geospatial data visualization were explained with practical examples, helping participants understand how large datasets can be transformed into meaningful insights. The session also highlighted real-world applications in areas such as environmental monitoring, disaster management, urban planning, and agriculture, demonstrating how Google Earth Engine supports data-driven decision-making. Overall, the lecture offered a blend of theoretical knowledge and practical exposure, motivating students and researchers to explore geospatial technologies for solving real-world problems.

Outcome of the Session

- Gained understanding of Google Earth Engine as a cloud-based platform for geospatial analysis and large-scale satellite data processing

- Learned key concepts such as image classification, time-series analysis, and geospatial data visualization using remote sensing datasets.



Artificial Intelligence in India Economic Opportunity vs. Employment Challenge

Dr. S. Meganathan
Associate Professor / CSE

Introduction

Robotics and Artificial Intelligence (AI) have gained global prominence as key pillars of the Fourth Industrial Revolution. AI technology has assumed unprecedented importance in shaping India's future economic policies. The recently concluded 'India AI Impact 2026' summit in Delhi showcased India's digital capabilities to the world. However, the specific impact it will have on the daily lives of common people remains uncertain.

Economic Dream and Summit Outcomes

The Union Cabinet approved the 'India AI Mission' project with an estimated budget of ₹10,371.92 crore in March 2024. At the summit, held as a continuation of this initiative, NITI Aayog reaffirmed its target of contributing approximately $500–600 billion to India's GDP by 2035.

Key outcomes of the conference included:

- Agreements with multinational companies to develop AI models for Indian languages (such as the Bhashini project).

- Initiatives to boost agriculture under the goal of 'AI for All'.

Environmental Challenges

Large data centers form the backbone of AI technology. While the Union Budget 2026–27 provided tax incentives to foreign data companies until 2047, these facilities consume enormous amounts of electricity and water:

- Electricity: An AI search query uses up to 10 times more electricity than a standard web search.

- Water: Approximately 2 million liters of water are required per day to cool a 100 MW data center.

CONCERN:

Currently, 80% of India's data centers are located in water-scarce states such as Maharashtra, Telangana, and Tamil Nadu. By 2030, their water demand is expected to rise to 358 billion liters.

Silent layoffs and New Job Opportunities

There are growing concerns about job losses in the Indian IT sector due to AI. Reports suggest that around 50,000 employees may be at risk of losing their jobs.

However, data presented at the summit by the World Economic Forum indicates that AI-related roles are expected to increase by 40% by 2027.

Despite this optimistic outlook, the situation remains complex. For instance, as robots increasingly dominate automobile manufacturing, the future of permanent manual labor is becoming uncertain.

Preventive Measures : The Way Forward

The Central Government and NITI Aayog have proposed several measures to prevent large-scale job displacement:

- Re-skilling IT and BPO workers in areas such as AI security, data management, and prompt engineering.
- Strengthening the Skill India program to make the workforce AI-compatible, especially in industries becoming highly automated.
- Encouraging teachers to move beyond rote learning and use AI tools to enhance students' critical thinking and individual skills.

Technology for Humans

While CEOs of multinational companies collaborate at AI summits to discuss future developments, it remains the government's responsibility to address the concerns of unemployed workers and farmers facing resource shortages.

Artificial Intelligence should serve as a tool to improve human lives, not as a force that disrupts livelihoods. Enhancing human skills and reducing environmental impact are essential safeguards in this AI-driven era.

Note to Readers:

This edition of the SAINIK Newsletter has been created with the assistance of AI tools. AI was used as a supportive aid for drafting, refining language, and organizing content, while the ideas, direction, and final editorial decisions remain entirely human-led. We see this as a step toward thoughtfully integrating emerging technologies into our creative and academic processes, without losing the voice and values of SAINIK.