TECHNO INDIA SILIGURI INSTITUTE OF TECHNOLOGY

INFOCAST

✦ CSE NEWSLETTER ✦

VOLUME VI, ISSUE II

At Paris Olympics 2024

- Subhradeep Sikder | CSE, 3rd SEM

Not only an Olympics of athletic skill, but Paris Olympic 2024 also introduced a lot of technological inventions. Technology in the Olympics had a long history, starting with the implementation of electronic timing in Stockholm 1912 through to simply using chronophotography all the way back at Paris 1900.

At this year's Paris Olympics, technological integration reached a new level. The Olympic AI Agenda as initiated by the International Olympic Committee (IOC) in April 2024 ushered AI technologies into sports change during implementation.

These also included digital twinning for the games' efficient planning and AI-driven systems to shield athletes from online abuse. Prominent among these was the AthleteGPT, an AI chatbot integrated into the Athlete365 mobile app. The chatbot was able to scour thousands of informational pages in a flash, answering all varieties of questions. The Paris Games were also broadcasted in Ultra High Definition (UHD) High Dynamic Range (HDR), allowing viewers to experience an unprecedented level of detail and a 5.1.4 immersive audio experience.

The Paris Olympics 2024 not only went down in history as a sporting event but also changed how technology was integrated into sports, impacting worldwide tech markets and setting their path for future advancements.

Sustainable Technology

- Sanak Saha | CSE, 3rd SEM

Imagine living in a world where the heat from your pocket charges your smartphone, where skyscrapers eat pollution for breakfast, and where the clothing you wear actively combats climate change. Does this seem like science fiction? Rethink your thoughts. This is the cutting edge of sustainable technology, where environmental responsibility and creativity collide.

Did you know that right now:

- There's paint that can turn any surface into a solar panel?
- Robots are planting trees 10 times faster than humans can?

Have you heard of "artificial leaves" that transform sunshine into fuel or "liquid trees" that absorb as much CO2 as a small forest but occupy only a parking spot?

From self-repairing concrete to AI-powered smart grids, sustainable tech is transforming the world around us. Scientists have even found a way to turn organic waste into a super-material stronger than steel. Ready to dive into a world where technology and nature dance in a delicate, world-changing balance?

EVENTS LIST

Annual Sports

Technovision

SITEX

Teacher's Day

Silver Jubilee

CLUB ACTIVITY

COMPUTER ENGINEERS' SOCIETY

"Where passion meets skill and knowledge"

Quiz-o-mania

A Technical Quiz Competition

September 18, 2024

A Technical Quiz competition was held , with 35+ teams participating. Successful event attended by Principal Dr. Mithun Chakaraborty and Head of Department.

Code bites 4.0

A Thrilling Coding Competition

September 25, 2024

A Coding competition was hosted. It was Conducted in HackerRank and The Top 10 coders awarded mementos and certificates.

Industry Induced International Workshop

An Inspiring Alumni Session and Webinar

November 8, 2024

Our Club organized a Webinar, featuring alumni Sreyashi Das, a Senior Data Engineer from Netflix, focusing on Data Modelling in Machine Learning.

30 Days Programming Challenge

Learn to Code, Unlock Your Potential

October 2, 2024

Initiative for 1st-year B.Tech students, promoting coding skills with daily challenges. The program aimed to encourage students to enhance their programming skills through daily coding challenges.

High Performance Networking : eBPF

- Shankhadeep Mandal | CSE, 5th SEM

Berkeley Packet Filter (BPF) — colloquially the "philosopher's stone" of modern networking. In a world where the Kernel Land is the sole authority to have a hearsay for any process, it allows us to filter, monitor, and manipulate network traffic without the kernel breaking a sweat. Using it as the ultimate low-level, high-performance network processing would be underselling it by a margin. It lets you optimize the very fabric of your network stack with elegant precision. Resulting in lower latency levels.

BPF was originally designed to filter network packets at the socket layer, but developers and administrators have really pushed the limits of what can happen. Google, Netflix, Cloudflare etc. are all running a lot of packet processing and profiling using the entire (e)BPF stack. Using BPF, users can attach custom code to different parts of the kernel like network hooks, tracepoints and even syscalls, without needing to modify the kernel itself. The real magic comes in the form of eBPF (extended BPF), which amplifies BPF to a broader range of uses, including performance monitoring, security auditing, and even debugging network applications. To get started, get BPF Compiler Collection (BCC) and have a go!

Immanuel Kant has dictated that the mind imposes its own categories on the world, BPF imposes a similar powerful framework upon the kernel.

India's Space Tech : Trailblazing Startups

- Anirban Pal | CSE, 5th SEM

Space-tech startups in India are turning the nation's cosmic dreams into reality, tackling challenges that once seemed impossible. Until recently, space-tech was a largely unexplored domain for the private sector, but the government opened the sector to privatization in 2020. Startups like Pixxel, Agnikul Cosmos, Skyroot Aerospace, and Bellatrix Aerospace are taking giant leaps, overcoming doubtful investors, limited resources, and tough challenges to create groundbreaking innovations.

In 2021, global venture capital investment in space-tech surged to $2.7 billion in the first quarter alone, according to Seraphim Capital, while Indian startups raised $31 million—a 70% increase from 2020. Leading this charge is Pixxel, founded in 2019 by BITS Pilani alumni Kshitij Khandelwal and Awais Ahmed, with a vision to deploy 30 micro-satellites providing daily earth imaging for

climate monitoring, agriculture, and urban planning. Similarly, Agnikul Cosmos, supported by IIT Madras, became the first to test-fire a 3D-printed rocket engine and has raised $14.5 million to offer customizable payload launches.

The journey of these startups is a testament to the power of resilience, innovation, and bold vision. Their stories remind us that no challenge is too great when paired with determination and ingenuity. The next wave of innovation is waiting for courageous thinkers and doers - why not take that leap?

WEB3 Technology in Healthcare

- Rupanjana Das | CSE, 5th SEM

Web3 is the third iteration of the web that gives users the power to own and control their data. Unlike the centralized ecosystem of web 2.0, web3 establishes a decentralized environment where data is distributed, and no central authority interferes in user data control. The read-write-own web3, backed by blockchain technology, establishes a trustless, peer-to-peer, and permissionless ecosystem.

Web3 in healthcare is phenomenal as it brings innovation to the medical field with the following :

- Blockchain
- Metaverse
- NFTs

Blockchain enables healthcare professionals to store patient information securely through its immutable digital ledger technology. These data cannot be altered or tampered with, as they are distributed among nodes. A metaverse can transform digital healthcare like telemedicine and teleconsultation into a more engaging and immersive space. The blockchain-based tokens of web3, like NFTs, give ownership rights to users, decentralizing data by transferring ownership to individuals. This marks a significant shift in healthcare.

From the Sidelines to the Scoreboard : The Power of Data Analytics in Sports

- Debasmita Debnath | CSE, 5th SEM

In the modern era of professional sports, the use of data analytics has become a game-changer. What was once a domain held sway by raw talents, instinct and tradition has transformed into a highly scientific field where vast datasets, numbers, and algorithms shape decisions. By analyzing advanced parameters such as player efficiency and movement patterns, teams can gain a competitive edge.

Data has revolutionized game strategy. Soccer teams use heat maps to analyse player positioning, while basketball strategies are increasingly driven by shot selection efficiency and spacing data. Coaches rely on predictive models and AI-powered tools to optimize tactics and reveal vulnerabilities. Beyond the field, data analytics enhances fan experiences by personalizing marketing, optimizing ticket pricing, and creating awesome digital experiences.

Despite its power, the rise of analytics in sports has not been without challenges. The human aspect of sports remains unpredictable, and no algorithm can replace the psychological and emotional elements of competition. In this new era, the balance between numbers and instinct will define athletic success.

STUDENT ACHIEVEMENTS

Placements Radar :

1) Aryan Anand, Snehill Adhikary, Himanshu Prasad Saha. — Ernst & Young (EY)

2) Sayantani Deb, Sajal Santra, Sajeeb Ghosh, Dikshita Shah, Avijeet Paul. — Tata Consultancy Services (TCS)

3) Dipak Agarwal, Gourab Debnath, Dhiraj Agarwal, Priyanshu Choubey. — P360

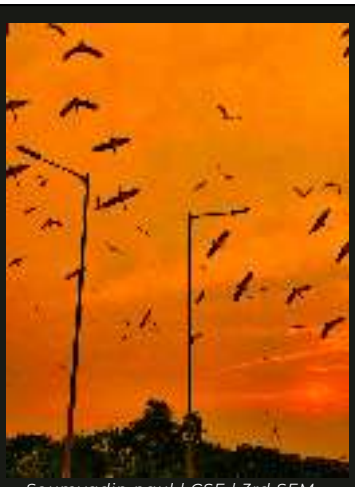
4) Nishant Sharma, Arnagshu Nag, Praneet Guha Roy — Nutanix

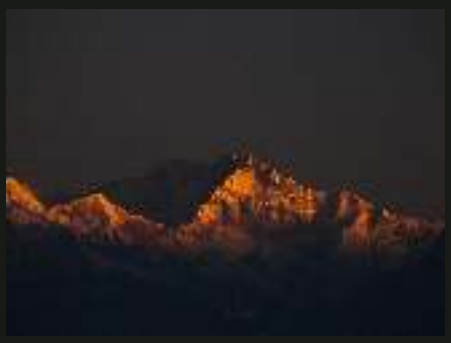
5) Priyam Biswas, Sanajit Bhunia, Sagnik Saha, Srishti Majumder, Mayank Shakhar, Manjeet Sharma, Soumwadeep Guha. — Tech Mahindra

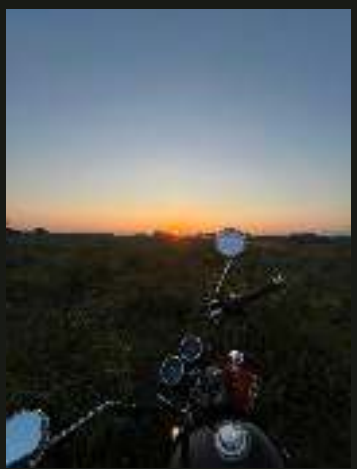
6) Souvik Goswami. — Skolar

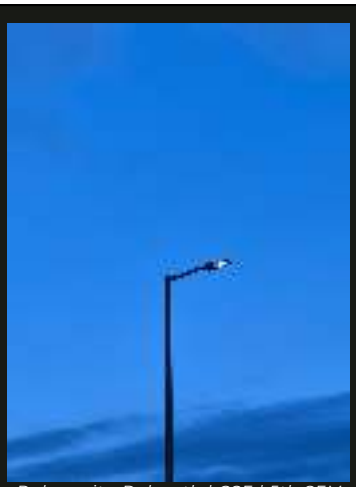
7) Diya Sarkar. — FirstHive

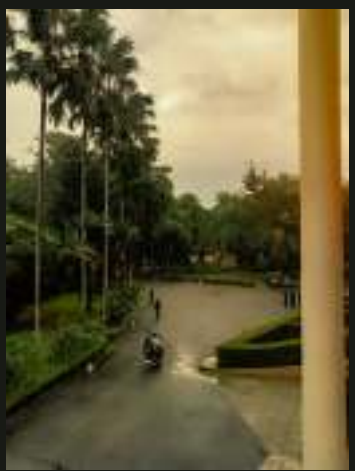
Photo GALLERY

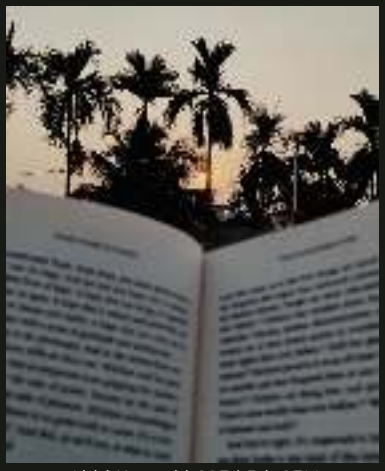

Soumyadip paul | CSE | 3rd SEM

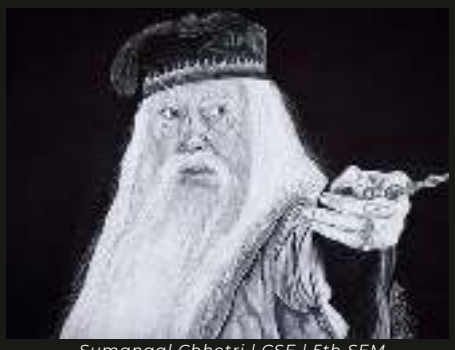

Arnav Biswas | CSE | 5th SEM

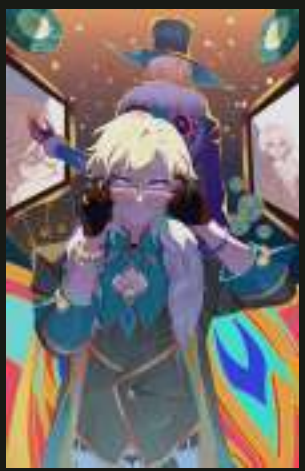

Udyan Gahatraj | CSE | 5th SEM


Debasmita Debnath | CSE | 5th SEM


Sneha Sarkar | CSE | 5th SEM


Abhi Kotwal | CSE | 5th SEM


Sumangal Chhetri | CSE | 5th SEM


Solanki Sarkar | CSE | 5th SEM

FACULTY ACHIEVEMENTS

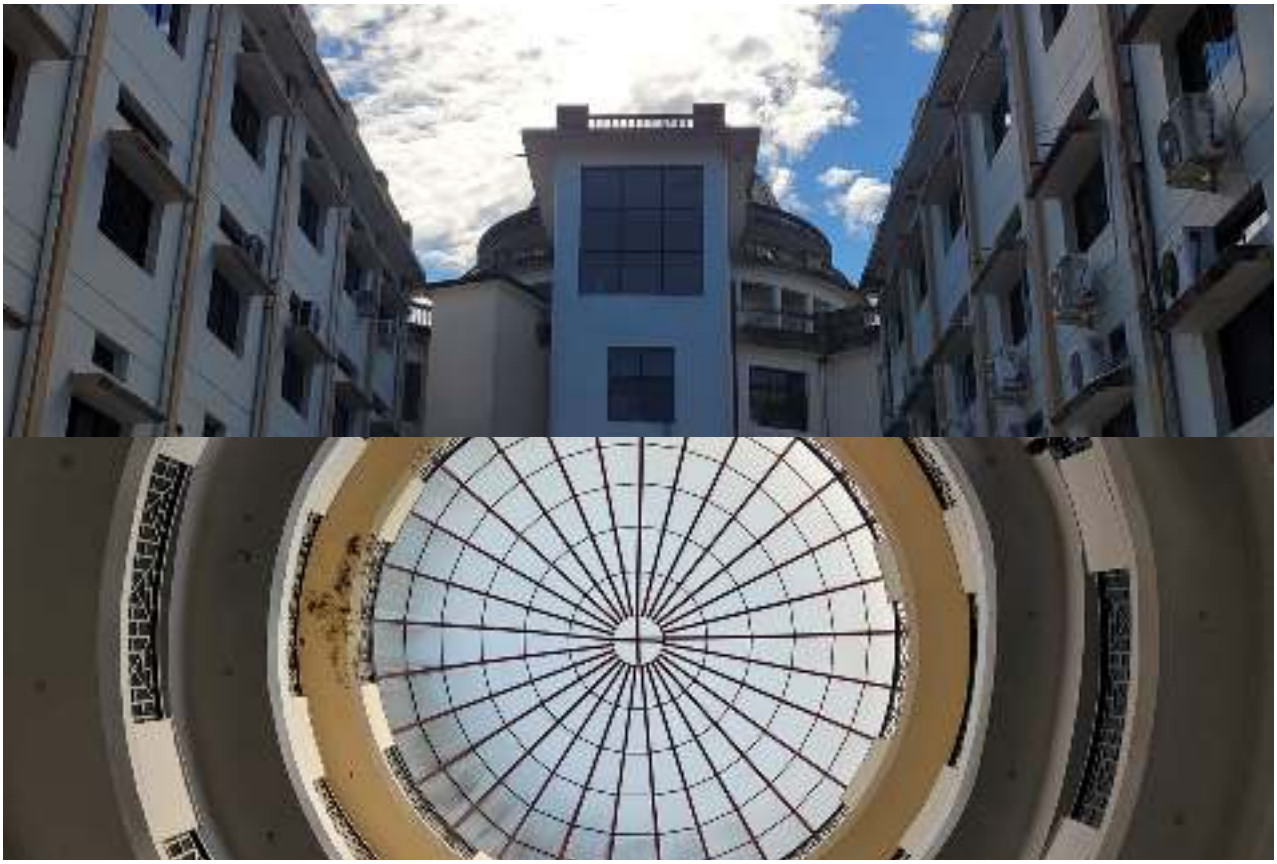
Publications :

1. Ms. Sutapa Bhattacharya, Gunjan Kumar Biswas, Bibek Roy, Dhrubasish Sarkar, Koushik Majumder and Dipak Kumar Kole,
"*A Study on Users Sentiment from Twitter Data and Stock Market During Russia-Ukraine War*", COMSYS 2023, pp 185-195, https://link.springer.com/chapter/10.1007/978-981-97-2611-0_13

2. Dr. Joydeep Dutta, Tanmoy Singha, Rudra Sankar Dhar and Arindam Biswas,
"A Novel Approach to Data Clustering based on Self-Adaptive Bacteria Foraging Optimization", International Journal of Advanced Computer Science and Applications (IJACSA), Jan 24, Scopus, Vol. 15 no. 1

3. Dr. Prasanta Kumar Roy, A. Sai Venkateshwar Rao, Tarachand Amgoth and Ansuman Bhattacharya
"A deep learning-based authentication protocol for IoT-enabled LTE systems", Future Generation Computer Systems, May 24, SCIE, Vol. 154 (2024)

4. Ms. Moumita Ghosh, Assistant Professor, CSE Department, two times UGC NET pass (June2023 and December 2023),
"AI in Healthcare: A Critical Review of Large Language Models", International Conference on Advancing Science and Technologies in Health Science IEM-HEALS, 13th -15 th September 2024, IEM,Kolkata. (Published in - Wiley (SCI and Scopus) and Elsevier (ESCI and Scopus) Special Issues)



Faculty Members
Mr. Anupam Mukherjee, Ms. Sutapa Bhattacharya, Ms. Moumita Ghosh

Editor - in - Chief
Avay Karkidoli
CSE | 3rd Year | 5th Semester

Creative Director
Aditya Gurung
CSE | 3rd Year | 5th Semester

Managing Editor
Swarnadeep Saha Poddar
CSE | 3rd Year | 5th Semester

Editorial Team
Anirban Pal, Mohammad Arshaan, Farhan Ansari, Sohan Banerjee, Amol Kumar, Eshita Gon, Koushik Das, Urbi Goswami, Sahil Choudhary, Arijit Bhattacharya, Subhradeep Kundu