



CSE NEWSLETTER



**TECHNO INDIA  
SILIGURI INSTITUTE  
OF TECHNOLOGY**

A Satyam Roychowdhury Initiative

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# INFOCAST



VOLUME VI ISSUE I



## VISION OF THE CSE DEPARTMENT

"TO BE A NATIONWIDE RECOGNIZED DEPARTMENT THAT PRODUCES VERSATILE COMPUTER ENGINEERS, CAPABLE OF ADAPTING TO THE CHANGING NEEDS OF COMPUTER AND RELATED INDUSTRY"

## MISSION OF THE CSE DEPARTMENT

"TO IMPART QUALITY TECHNICAL EDUCATION WITH SKILLS, KNOWLEDGE AND ATTITUDE TO SUCCEED IN COMPUTER SCIENCE & ENGINEERING CAREERS. ·TO PROVIDE KNOWLEDGE OF EMERGING TRENDS IN COMPUTER AND RELATED INDUSTRY AND FOSTER AN ENVIRONMENT OF LIFELONG LEARNING. ·TO DEVELOP GRADUATE ENGINEERS WHO INVESTIGATE RESEARCH, DESIGN AND FIND WORKABLE SOLUTIONS TO COMPLEX ENGINEERING PROBLEMS WITH AWARENESS AND CONCERN FOR SOCIETY AND THE ENVIRONMENT"

### EVENT ROADMAP



TEACHERS DAY



ANTI-RAGGING WEEK



SITEX 2023



ANNUAL SPORTS



INDEPENDENCE DAY



TREE PLANTATION



TECHNOVISION



# EXPLORING THE FRONTIERS: CHANDRAYAAN - 3 MISSION UPDATE

By Anirban Pal | CSE YEAR 2, SEM 3



Greetings from the world of zeros and ones! As we delve into the cosmos, let's take a rendezvous with the remarkable Chandrayaan-3 mission which was successfully launched on 14 July 2023 by our very own ISRO to expand lunar horizons with finesse and precision. At its core, Chandrayaan-3 is a testament to India's prowess in aerospace engineering. The mission is equipped with a high-precision guidance and

navigation system, honed to navigate the lunar expanse with pinpoint accuracy. An upgraded propulsion system, featuring advanced thrusters and propellant management, promises a flawless lunar descent. As you read, the spacecraft is maneuvered into a translunar orbit, achieving an orbit with dimensions of 288 km X 369,328 km. The spacecraft entered lunar orbit on 5 August, and the lander touched down near the lunar south polar region on 23 August at 12:33 UTC, making India the fourth country to successfully land on the Moon, and the first to do so near the region of the lunar south pole.

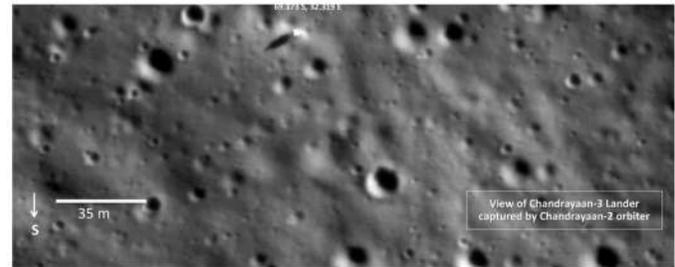
The heart of this mission lay in its lander and rover duo, built to endure the Moon's unforgiving environment. A robust landing system ensured a controlled descent, allowing the rover to embark on its scientific escapades. With an array of sensors and analytical tools, Chandrayaan-3 will conduct comprehensive mineralogical and elemental analyses, painting a vivid picture of our lunar neighbor.

The goals of the Chandrayaan-3 include :

1. Showcasing secure moon surface landing and exploration
2. Examining the thermal properties of lunar regolith
3. Probing lunar seismic activity
4. Evaluating the plasma environment on the lunar surface
5. Investigating the elemental composition in the vicinity of the landing site.

Now let's talk about how ISRO made it possible. At the heart of Chandrayaan-3's successful launch lay ISRO's signature ingenuity. Drawing upon lessons from previous missions, the agency has repurposed and optimized existing technologies to craft a sophisticated lunar probe. This strategic approach minimizes development costs while maximizing scientific output. The budget allocated for Chandrayaan-3 was around ₹615 crore, which was even lower than the budget for Chandrayaan-2.

Stay tuned, tech aficionados, as Chandrayaan-3 propels us into an era of lunar exploration like never before. The cosmos beckons, and our CSE expertise plays a pivotal role in unraveling its enigmatic code, contributing to the software infrastructure that underpins this cosmic ballet.



## ALUMNI SPEECH



### MONIDEEP BANERJEE

CSE - 2019 Batch

Senior Software Engineer at  
Bosch Global Software Technologies

It has really been a privilege to be part of One the Biggest and the Oldest Institutions in North Bengal. Siliguri Institute of Technology, established in 1999, is one of the Names, that strikes our minds when thinking about pursuing our BTech. I didn't have a second thought while choosing the college, as My Brother and Sister had themselves passed out from here and I had heard lots of stories of their college days

Coming down into First Year of College and not knowing where to begin things from, The Teachers have always supported in bringing the Best out of any Individual. From the Aptitude Trainings for Campus Placements, to the Guest Lectures and the Industrial Trainings which gave us insightful knowledge on the latest Technologies that helped us venture out into them and explore for more. The Training & Placement Cell, always being a standout in helping and guiding the students to do the right things, and makes us more visible in the industry.

From the Classes to the Labs, to the Fests and the Events, the 4 Years now seems it passed down so fast. Yet Now, Nostalgia runs down, whenever I visit college, and I imagine our times and how good they were.

With lots of memories of both the Good Times and the tough Times, What I am today, is solemnly, because of our College and our Dearest Faculty Members who have remained the Pillars of Strength for this Institution

# GALLERY



Shankhadeep Mandal | CSE 2nd Year



Hrishab Biswas | CSE 2nd Year



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Arnav Biswas | CSE 2nd Year



Solanki Sarkar | CSE 2nd Year



Debasmita Debnath | CSE 2nd Year



Arnav Biswas | CSE 2nd Year



Sabarna Sarkar | CSE 2nd Year



Abhi Kotwal | CSE 2nd Year

# UNRAVELLING THE ENIGMA OF GAME DEVELOPMENT AND GAME THEORY

By Solanki Sarkar | CSE YEAR 2, SEM 3

Game development and game theory are two sides of a captivating coin that collectively give birth to the immersive digital worlds we love to explore. Game development is a multidisciplinary art that involves designing, programming, and creating interactive video games. It begins with conceptualizing game mechanics and crafting compelling storylines that whisk players into alternate realities. Developers utilize coding languages and sophisticated game engines to shape characters, environments, and gameplay elements, crafting an intricate tapestry of challenges and rewards.

On the other hand, game theory delves into the strategic decision-making processes behind interactive scenarios. It analyzes how players choose actions to maximize their chances of success while considering the moves of other participants. Game theory aids in creating balanced and fair gameplay, encouraging players to strategize, cooperate, or compete intelligently.

The union of game development and game theory is a symbiotic bond that underpins captivating gaming experiences. Game developers use the insights of game theory to design engaging challenges and rewards that motivate players to immerse themselves fully in the gaming world.

Game development and game theory are thus inseparable partners that create the magic of video games. Together, they craft virtual realms that challenge the mind, ignite the spirit of competition, and fuel the joy of exploration. As both fields continue to evolve, we can anticipate even more extraordinary gaming experiences that push the boundaries of imagination and bring us closer to interactive universes that transcend reality.

## STUDENT ACHIEVEMENTS



**NIVEDITA PRASAD**

Selected for CERN Research Internship

**SHWETA BHAGAT**

Selected as a Software Engineer Intern in Microsoft India (R&D) Pvt. Ltd.

Successfully completed Outreachy Internship with the Mboalab community on the project: "Improve diagnostics of typhoid through Open Science: An Artificial Intelligence-based technique", from May 2022 to August 2022 and has received the Internship completion certificate



**KESHAV AGARWAL**

Selected for Summer Internship at Twilio

**SAYANTANI DEB**

(Google DSC Lead)

Selected for Amazon Internship



## FELICITATION PROGRAM OF RUPARNA DUTTA

Felicitation program of our champion Ruparna Dutta for her incredible contribution to India's space science. She received "Student Achiever Award 2023" for her successful journey.



## IN-HOUSE SOFTWARE DEVELOPMENT

On the occasion of National Science Day Celebration, 28th February 2023, our Student Team (Alik Sarkar, Arnab Saha, Diya Sarkar, Prasun Roy, Prittha Datta, Sagnik Saha, Sayantani Sarkar, Soumwadeep Guha, Srishti Majumdar & Subham Devanshu) from Computer Science & Engineering and Information Technology Department making a milestone by handed over a Live Inhouse WebApp (<https://sithm.netlify.app>) for B.Sc. in Hospitality & Hotel Administration (BHHA) Department. the entire WebApp has been Designed, Developed, Coded, Tested, and finally Hosted live from scratch by our students for their application with various customization facility. A remarkable feat indeed.



## PARTICIPATION IN GOVERNMENT FACILITATED PROJECT

Students from 2nd year CSE and BBA dept of Siliguri Institute of Technology have worked on a government facilitated project by SIDBI SCK Ghorer lokkhi Enterprise, Siliguri, Darjeeling where they have developed a Fintech Android Based Mobile Application for promotion of women entrepreneurs in May 2023. The name of the students who had made this application are Arunangshu Nag, Mandir Das, Niraj Dey, Diganta Das and Arpan Dey



## CLUB ACTIVITIES

With an objective to encourage the students to look beyond their textual knowledge and establish a relationship between theory and application of the learnt concepts, Computer Engineers' Society (Student Club of Computer Science & Engineering Department) organized "Quiz Competition & Sudoku Competition" for the 1st, 2nd & 3rd Year Students on 24.01.2023 at Sir J. C. Bose Seminar Hall, SIT Campus. Honorable Principal Sir, SIT, Prof. Dr. Mithun Chakraborty was present in the event to congratulate all the participants for their active participation and encouraged the students for innovation & research minded activity.

# EMBRACING TECHNOLOGICAL ADVANCEMENT: BALANCING CONCERNS AND OPPORTUNITIES

*By Pritam Chakraborty | CSE YEAR 3, SEM 5*

Throughout history, technological advancement has raised numerous questions, from the dot-com boom of the 1990s to the recent AI revolution. Contradictory views about technology have always existed. For instance, when the calculator was invented, concerns arose about students becoming lazy in math. However, the calculator freed up time for problem-solving in non-numeric aspects of mathematics. With the rise of AI a new question arises "Are we going to lose our jobs?"

But we have to understand that AI is a mere tool to tackle tediousness. Nonetheless, we must exercise caution with new technology. Particularly at first -

1. Preventing cybercrime by ensuring it isn't abused.
2. Providing adequate time for people to adapt to new technology is crucial due to its rapid development so that people are not intimidated of the new tech.

## QUANTUM COMPUTING: TRANSFORMING THE FUTURE OF COMPUTATION

*By Arkapriya Chanda | CSE YEAR 3, SEM 5*



Quantum Computing is based on the principles of quantum mechanics, a branch of Physics that describes the behaviour of matter and energy at the atomic and subatomic levels. Unlike classical bits that can represent either a 0 or a 1, qubits can exist in multiple states simultaneously, thanks to

superposition and entanglement. Superposition allows qubits to represent all possible combinations of 0 and 1 at the same time. Entanglement is a phenomenon where qubits become interconnected, meaning the state of one qubit affects the state of another, regardless of the distance between them.

**Advantages:** Quantum Computing holds the potential to outperform classical computers in various ways:

1. Speed: Certain tasks, like factoring large numbers (Shor's algorithm) and searching unsorted databases (Grover's algorithm) have become very efficient and fast.

2. Simulations: Quantum computers excel at simulating quantum systems, enabling advancements in material science, drug discovery and understanding complex molecular interactions.

3. Machine Learning: Quantum computing has implications for machine learning, where it can accelerate training processes and enable more sophisticated algorithms for pattern recognition and data analysis.

Quantum Computing holds tremendous promise for transforming various industries and solving complex problems that classical computers would take an unreasonable amount of time to handle. The potential applications of quantum computing are vast and include cryptography, optimization, drug discovery, supply chain management, financial modelling, to name a few.

As the field continues to evolve, we can expect quantum computing to play a pivotal role in shaping the future of computation and unlocking new frontiers in science, technology and innovation. However, it'll require collaboration between researchers, engineers and industries to address the current challenges such as error correction, scalability and the high cost of developing and maintaining quantum hardware, and unlock the full potential of this transformative technology

# AI IN HEALTHCARE

By Rupanjana Das | CSE YEAR 2, SEM 3

Artificial intelligence (AI) is the use of technology and machines to work and react in place of humans, conducting functions that were previously thought to require human reasoning and problem solving skills. That is the ideal definition at least. However, to this day, most AI applications have been only successfully programmed to carry out specific tasks or solve pre-defined problems. AI has seen significant advances made in the field these past few years. It is believed that AI could be the answer to help combat important health challenges, such as meeting the healthcare needs of an ageing population. We are seeing an emergence of world-renowned technology companies, including Google, Microsoft and IBM investing in AI research and development towards the future of healthcare.

Using AI to analyze clinical data, research publications, and professional guidelines, it has the capability to assist in the diagnosis of disease and to formulate personalized treatment plans for patients. The fields in which AI will produce the greatest waves of impact include the following:

**Medical imaging** – stored collections of medical imaging and scans are used to train AI systems to detect conditions such as pneumonia, breast and skin cancers, and eye diseases. The benefits of such practice include not just the reduction of time and costs in analyzing scans, but also the increase of accuracy in diagnoses.



**Echocardiography** – detection of irregularity patterns in heartbeats, such as in coronary heart disease, can also be administered by AI systems.

**Screening for neurological conditions** – speech patterns are analyzed and processed by AI systems to predict the onset of psychotic episodes and monitor signs of neurological conditions, such as Parkinson's disease.

**Surgery** – robotic tools controlled by AI are increasingly assisting microsurgical procedures to help reduce surgical mishaps and malpractices.

Infectious disease outbreaks and sources of epidemics are major global health concerns and national security threats that know no borders. AI could potentially aid in their detection, isolation, and help achieve disease eradication goals.

## FACULTY ACHIEVEMENTS



### DR. ASIT BARMAN

Asst. Professor, IT

Highest Impact Factor Publication in SIT (8.26 Impact Factor) on publishing his research work with Elsevier.

Doi : <https://doi.org/10.1016/j.asoc.2019.01.011>.

## PUBLICATION UPDATES

1. Anupam Mukherjee, A Ghosh, 4th International Conference on Computational Intelligence in Pattern Recognition (CIPR), "Predictive geo-spatial crime data analysis and their association with demographic features through Machine Learning Approaches", Scopus (2023).
2. Anupam Mukherjee, A Ghosh, "A predictive framework for crime data analysis using a hybrid logistic regression-support vector machine-based ensemble classifier powered by CA(LRTR-SVM CART)", Multimed Tools Appl., <https://doi.org/10.1007/s11042-023-14760-z>, SCI-Index (2023).
3. Sima Das, Siddhartha Chatterjee, Sutapa Bhattacharya, Solanki Mitra, Nimay Chandra Giri, "Movie's Emotracker : Movie Induced Emotion Detection by using EEG and AI tools", 4 th International Conference on Communication, Devices and Computing ( ICCDC 2023), published by Springer Lecture Notes in Electrical Engineering (LNEE), Book Series (Scopus Indexed), [https://link.springer.com/chapter/10.1007/978-981-99-2710-4\\_46](https://link.springer.com/chapter/10.1007/978-981-99-2710-4_46).
4. Prasun Dutta, Dhritiman Mukherjee, Siddhartha Chatterjee, Sutapa Bhattacharya, "MADA: Malware Application Detection Approach in Android using SVM and ANN Model", Two day Online International Conference on Digital Transformation for Sustainable Growth (DTSG), 2022 (Proceedings).
5. Moumita Ghosh, "Lightweight authentication protocol for E-Health care using Fuzzy Commitment Scheme", Springer 2023.
6. Sayani Ghosh, Subhaditya Gupta, Ankita Sinha, 3S, Fast and exhaustive STR search algorithm ICTDsC 2023 at SIT in Press (March 2023), Springer.
7. Himanshu Prasad Saha and Ankita Sinha., Predictive Breast Cancer Learning Model for Selected Features: Comparative Analysis, SIT in Press (march 2023), Springer.
8. Anupam Mukherjee, A., Ghosh., Predictive framework for crime data analysis using a hybrid logistic regression – support vector machine based ensemble classifier powered by CART (LR-SVMCART). Multimed Tools Appl (2023). <https://doi.org/10.1007/s11042-023-14760-z>.
9. Anupam Mukherjee, A., Ghosh. (2022). Predictive Geospatial Crime Data Analysis and Their Association with Demographic Features Through Machine Learning Approaches. In: Das, A.K., Nayak, J., Naik, B., Vimal, S., Pelusi, D. (eds) Computational Intelligence in Pattern Recognition. CIPR 2022. Lecture Notes in Networks and Systems, vol 480. Springer, Singapore. [https://doi.org/10.1007/978-981-19-3089-8\\_52](https://doi.org/10.1007/978-981-19-3089-8_52).
10. Ankita Sinha, 3S, Fast and exhaustive STR search algorithm, ICTDsC 2023 at Siliguri Institute of Technology, March 2023. (In Press).
11. Ankita Sinha, Predictive Breast Cancer Learning Model for Selected Features: Comparative Analysis, Predictive Breast Cancer Learning Model for Selected Features: Comparative Analysis.



“EVERYTHING NEGATIVE – PRESSURE,  
CHALLENGES – ARE ALL OPPORTUNITIES  
TO RISE.”

– KOBE BRYANT

## **FACULTY**

Mr. Anupam Mukharjee, Ms. Sutapa Bhattacharya, Ms. Moumita Ghosh

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Avay Karkidoli  
CSE | 2nd Year | 3rd Semester

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