2022

DR. AKHILESH DAS GUPTA INSTITUTE OF TECHNOLOGY & MANAGEMENT

DESTINATION DESTINATION DE LA COMPANSION DE LA COMPANSIÓN DE LA COMPANSIÓN

SESSION JAN TO JULY 2022

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PINALONI PINALONI THE TRAGAZINE

When everything seems to be going against you, remember that the airplane takes off against the wind, not with it"

~ HENRY FORD



"TO PROVIDE AN OPEN OPPORTUNITY TO THE YOUNG GENERATION FOR EVOLVING THEIR CORE COMPETENCIES FOR BUILDING UP THEIR CAREER AS WORLD CLASS PROFESSIONALS WITH BROAD BASED FOUNDATION, IN-DEPTH KNOWLEDGE & VERSATILE PERSONALITY TO MEET THE CHALLENGES OF GLOBAL ECONOMY."

> Late Babu Banarasi Das Ji (1912-1985) Freedom Fighter Ex-Chief Minister of U.P.

A TRIBUTE TO OUR REVERED & HON'BLE FOUNDER CHAIRPERSON SIR Dr. AKHILESH DAS GUPTA

प्रेरकः सूचकश्वैव वाचको दर्शकस्तथा ।

There is no greater tribute to a guru than to maintain the high standards he lived by; Dr. Akhilesh Das Gupta's legacy is one such that will live on through his eminent students and through the beauty of his charitable work; There was an intensity that he brought to every movement and thought he expressed; An inspiring soul, a versatile genius, a noble teacher whose ideas will live forever with his charm.



शिक्षको बोधकश्चैव षडेते गुरवः स्मृताः ॥

MRS ALKA DAS GUPTA Hon'ble Chairperson BBD Group

SHRI VIRAJ SAGAR DAS HON'BLE PRESIDENT BBD GROUP





MRS. ALKA DAS GUPTA Hon'ble Chairperson BBD Group

Innovation requires passionate explorers who propel transformation at the workplace. With an ever changing global scenario, the key to success is responding to the complex and rapidly changing issues in the world of information technology. The Department of Information Technology of ADGITM is always making efforts to justify these points.

We impart an education that is based on consciousness and we rear a breed of young minds that are bustling with selfconfidence, motivation, and ever ready to take up challenges. The campus, sports, and academic facilities all bear testimony to this effort. In order to promote an internationally acceptable education, our key focus has been on overall development.

Proficiency in computing technology has become essential for modern-day managers, business leaders, entrepreneurs, and other professionals. It is a welcome development. I look forward to PIXION 2022 setting a higher pedestal. I wish to PIXION editorial team a grand success!



SHRI VIRAJ SAGAR DAS Hon'ble President BBD Group

I feel so delighted to find that the path of creativity and innovation is consistently followed by the Department of Information Technology. It always encourages its students to actively participate and compete in various competitions and events to show their abilities towards the new platforms of technology.

A great part of the magazine is the fact that it brings us a bouquet of topics which are of utmost relevance and interest to all. It is a great pleasure for me to get to know all the activities and achievements of the Department of Information Technology of Dr. Akhilesh Das Gupta Institute of Technology & Management in the form of such an interactive read.

I convey my best wishes for the success of PIXION 2022.



SHRI S. N. GARG CEO, ADGITM

Through the guidance of trained and inspired leaders, the students are taken across the gap of their present knowledge and experience and place data level of knowledge and competence that enables them to immediately step into the high standard of efficiency required in today's world of development.

We aim to cultivate talents by closely nurturing them throughout the whole programme. We are unique in terms of our programs, academic structure and core values. Our students are our assets. We develop our students to open them up in front of global scholarly endeavour. While the whole world is running after chances, it is essential to create your own opportunity.



PROF. (DR.) SANJAY KUMAR DIRECTOR, ADGITM

In his book On Becoming a Leader, Warren Bennis wrote, "No leader sets out to be a leader. People set out to live their lives, expressing themselves fully. When that expression is of value, they become leaders. So the point is not to become a leader. The point is to become yourself, to use yourself completely – all your skills, gifts and energies – in order to make your vision manifest. You must withhold nothing. You, must, in sum, become the person you started out to be, and to enjoy the process of becoming."

We at Dr. Akhilesh Das Gupta Institute of Technology & Management believe in helping students to manifest their vision completely. How do we do this? We offer a rigorous education program rooted in all forms of practice, coupled with a vast array of electives and opportunities that come from our position of being affiliated to a major university. We give you the tools to continue learning and growing long after you leave our doors; we create opportunities for internships and experiences that broaden your horizons. I take this opportunity to express the fact that every effort is made to improve the existing best services to bring out the best for the welfare of our institution and the growth of our students.



DR. PRASHANT SINGH HEAD OF DEPARTMENT

Welcome to have a view of the achievements and activities of the Department of Information Technology with the help of this semester's publication of PIXION. We are proud of our strong academic programs, which are based on theoretical and practical knowledge and match well with the requirements and demands of the industry. We have been working in the field of HCI (Human-Computer Interaction) which is an emerging technology. HCI researchers observe the ways humans interact with computers, and they design technologies that let humans interact with computers in novel ways.

We are committed to students by offering short term courses and preplacement training classes that foster critical and analytical thinking and build the necessary skills to succeed in the industry. I am sure in times to come, many students from our department will make indelible mark nationally and internationally in the field of Information Technology and make us proud. The hard-working students, a young and dynamic faculty, whose expertise spans the range of disciplines in the computer science stream and a very healthy work-culture, are the basic elements that comprise the Department of Information Technology.

ADGITM VISION AND MISSION

VISION

To produce globally competent and socially responsible technocrats and entrepreneurs who can develop innovative solutions to meet the challenges of 21st century.

MISSION

- To provide value-based education through multi grade teaching methodologies and modern education facilities.
- To sustain an active partnership program with industry and other academic institutes with an aim to promote knowledge and resource sharing.
- To conduct value-added training programme to enhance employability.

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DEPARTMENT OF I.T. VISION AND MISSON

VISION

"To produce successful IT graduates with a strong technical background and managerial skills for promoting growth in industry and society."

MISSION

M1: To provide managerial and professional skills among the students through value added programs.

M2: To provide an atmosphere where faculty and students can be engaged in continuous learning and contribute in the overall growth of the society.

M3: To provide industry oriented technical environment to help students excel in diversified fields.

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DEPARTMENT AT A GLANCE

Department of Information Technology was established in the year 2003 with the motto of providing strong technical background to the students. The Department offers a regular four-year B. Tech. program and the program is intended to create theoretical and practical awareness among the students to strengthen their knowledge. It aims to bring down linguists and cultural boundaries by implementing information systems by focusing on outcome based education It has well defined labs and provides internet connectivity to various departments through its servers, radio links, and switches.

The department has distinguished faculty profile with educational background from reputed/premier institutes. In constant pursuit to excellence, the faculty members of the department have been involved in research work and constantly publishing papers in SCI, Scopus and other reputed journals.



STUDENT'S SECTION



Placements

Company Name	No. of Students Placed
Wipro	58
Infosys	58
Dxc technology	34
TCS	29
Newgen	12
Amazon	6
MAQ	5
Capegmini	4
Sopra	4
Sugal and damani	4

Top Placements

Amazon

ANUBHAV SHARMA 32 LPA GAURAV KUMAR 18.14 LPA BHANU GAKHAR 15.88 LPA ANSH VARSHNEY 13.83 LPA YASHIKA DHALL 13.83 LPA ANKIT 13.83 LPA Josh Technology Group ANMOL GODIYAL 9.70 LPA

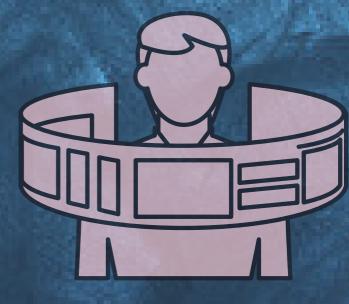
FarEye Sarthak 15.00 lpa

Walmart SURYA BANSAL 23.40 LPA

Grab PRIYANK RASTOGI 23.22 LPA UJJWAL DWIVEDI 23.22 LPA

Tavisca(JP Morgan) HARSHIT JAIN 13.00 LPA

TECHNICAL ARTICLES



BLOCKCHAIN: AN EMERGING REVOLUTION

- AYUSH KUMAR PANDEY BATCH (2019-2023)

Although many individuals have heard of blockchain, relatively few yet properly comprehend it. However, the corporate world is about to undergo a revolution thanks to this incredible, ground-breaking technology that will fundamentally alter how safe transactions and information management are managed. It can be viewed as a disruptive technology that supports crypto currencies and other Fintech advancements.

What's the deal with blockchain, anyway

The creator(s) of the technology who came up with the concept of the blockchain in 2008 are known only by the alias Satoshi Nakamoto. With no need for banks or other financial intermediaries, the first blockchain to be created intends to accelerate the adoption of the virtual currency Bitcoin by offering a secure record of all Bitcoin transactions. However, during the past ten years, the usage of blockchain in business has had far-reaching effects that go far beyond just recording financial transactions. With the advent of blockchain technology, everything from medical data to passport application processing is now recorded. Blockchain improves corporate efficiency by doing away with duplication and the need for expensive middlemen.

What precisely is a blockchain, then?

A blockchain, in its simplest form, is an immutable digital ledger that can track assets and manage transactions through a decentralized network. Using a blockchain, almost any valuable asset may be exchanged, transferred, and tracked, lowering costs and risks for all parties involved. The assets may be movable, such as real estate, or immovable, such as a person's identity. In actuality, a blockchain is a network of dispersed computers that holds data; no one owns the system, but anybody is free to use it and contribute to its upkeep. It is therefore extremely difficult for one person to alter a block, corrupt the data, or bring down the blockchain. Contrary to business systems, where it is customary for one central database to serve as the secure repository of all corporate data and information with a central processor, blockchain technology with a central processor, blockchain technology mandates that all data blocks be saved on each and every computer involved in the blockchain.

The peer-to-peer network structure, which results in block data storage that is maintained autonomously and in a decentralized manner, enables the security that this integrates into a blockchain system. Every time a transaction takes place, the blockchain design enables all participants to share a block that is synchronized through peer-to-peer replication. With this strategy, every member of the network simultaneously contributes to and subscribes to all of the information it has. By adding blocks, each member can send or receive transactions to other participants, and as data is shared, the entire blockchain is immediately updated. The essential characteristics of a blockchain In comparison to more established transaction processing systems, a blockchain offers a number of unique characteristics.

Single source: The shared blockchain ledger gives users a single source to look at to see whether a transaction has been completed or who is the rightful owner of a particular item.

Consensus: Every member of the blockchain must concur that a transaction is valid before it can be recorded.

Origin: Any asset's origin is known to all parties, as is any history of possible ownership changes.

Integrity: No user may tamper with a transaction after it has been added to the blockchain ledger. In the event that a transaction is entered into the blockchain mistakenly or by mistake, a second transaction must be added to the blockchain to override the entry, both of which must be made public. These characteristics combine to make a blockchain distinct and very safe.

How does a blockchain manage to be so extraordinarily safe?

Security on the blockchain is influenced by three factors. A hash, also known as a digital fingerprint, is required for each block of data before

it can be added to the blockchain, along with the hash of the block before it. A block's contents are identified by the hash, a distinctive cryptographic code. Any effort to alter the block's content will, therefore, alter its hash, rendering it invalid for chain membership.

Peer to peer networks that are distributed are synchronized. Every user, sometimes referred to as a node, owns a copy of the chain and must first validate the block before adding it to the chain. Since each node is working independently and transparently, it would be impossible for any one node to consent to performing the exact identical activities simultaneously in order to jeopardize the integrity of the blockchain. In order to validate transactions and add new blocks to the chain, a method called "proof of work" is required for a blockchain.

SOUND TECH - DEEPTI PRASAD BATCH (2021-2025)

Sound engages the audience. It helps to deliver information. It emphasizes what's on the screen and helps to indicate someone's mood. And hearing sound helps to envision the surrounding.

According to MIT's recent research, researchers have developed an ML(machine learning) technique that accurately captures and models the underlying acoustics of a scene from only a limited number of sound recordings. This ML system can simulate how a listener would hear a sound from any point in the room. This technique makes us imagine the booming chords from a pipe organ echoing the sanctuary of a big massive stone.

MIT's researchers and MIT-IBM Waston AI Lab's researchers are exploring the use of spatial acoustic information to help every machine show better groundwork results. They did develop a machine learning model that can capture how any sound in a room travels, enabling the model to simulate what a person will hear from different locations. researchers can use the acoustic information their system capture to make precise or accurate visual renderings of a room, similar to how humans use sound when estimating the properties of the environment.

This technique helps AI agents to develop a better understanding of the surrounding. By modeling the acoustic properties of the sound in its environment, an underwater robot could sense things that are farther away than it could with vision alone, says Yilun Du a grad student in dept of Electrical engineering and Computer Science and co-author of the paper. Joining Yilun Du on the paper are lead author Andrew Luo, a grad student at Carnegie Mellon University (CMU); Michael J. Tarr, the Kavčić-Moura Professor of Cognitive and Brain Science at CMU; and senior authors Joshua B. Tenenbaum, professor in MIT's Department of Brain and Cognitive Sciences and a member of the Computer Science and Artificial Intelligence Laboratory (CSAIL); Antonio Torralba, the Delta Electronics Professor of Electrical Engineering and Computer Science and a member of CSAIL; and Chuang Gan, a principal research staff member at the MIT-IBM Watson AI Lab. The research will be presented at the Conference on Neural Information Processing Systems.

Sound & Vision:

A machine learning model called an implicit neural representation model has been used to generate smooth, 3D scenes from images. These models save the neural network, which contains layers of interconnected nodes, or neurons that process data to complete any task.

The MIT researchers employed the same type of model to capture how sound or waves travels through a scene continuously. But during research, they found that the vision model gets benefits from a property known as photometric consistency which does not apply to sound. With sound, change location and the sound one hears could be completely different due to distance and other obstacles and this makes audio very difficult to predicate.

Later on, the researchers overcame this problem by incorporating two properties of acoustic into a model: the reciprocal nature of sound and the influence of local geometric features. To combine these two factors into the model called a neural acoustic field (NAF), the development of the neural network with a grid that captures objects and features includes the architecture of the scene.

Predicting sounds to visualize scenes:

Researchers note the NAF visual information about the area and a few spectrograms that shows what a piece of audio sounds like when an emitter and listener are at a set distance in the room. The NAF shows impulse results, which capture how a sound should change as it propagates through the scene. Then researchers apply this result to different sound to listen and hear how those sounds changes as a person walk through a room.

Likewise, if we play a song on a speaker at the center of a room, their prepared model will show how that sounds gets louder and louder as a person gets nearer to a speaker and becomes muffled as they walk out in another direction.

After time researcher compared their model technique to other

After time researcher compared their model technique to other methods that shape acoustic information and generate a more accurate sound model. Because of this, it learned local geometric information, and the model they worked on can be generalized to new locations. They also found that applying the acoustic information to their model learns to computer vision model which led to a better visual reconstruction. Researchers plan to continue working on the model so they can enhance the details. They want to apply this technique to more complex and larger scenes such as cities and towns.

DATA SCIENCE - PRESENT AND FUTURE

- RISHITA GOEL BATCH (2019-2023)

Without data, you are just another person with an opinion. -W. Edwards Deming

From the corporate world to tech giants, data is the driving force. If we go by statistics, roughly 2.5 quintillion bytes of data are produced each day(that's 2.5 followed by a staggering 18 zeros!). With every business shifting online, this number is also increasing with every passing second and we are in the need of efficient data management and manipulation more than ever. Data Science is not a new term in technology. But the rise in the need of it relatively is. The demand for skilled data science professionals has seen an upsurge, as organizations are on the constant lookout for data science professionals to resolve business complexities with efficient data useful. Data Science in its simplest explanation is something that makes data useful. Data Science puts statistics, machine learning, artificial intelligence, analysis, and analytics under the same umbrella. It allows us to have some interesting insights about the data and draw some useful conclusions from it.

Over the past decade, we have seen a dramatic movement toward data-driven decision-making, in step with an explosion of available data sources. Point-of-sale data, the internet of things, cellphone data, text data from social networks, voice, and video are all automatically collected and reported. Coupled with advances in machine learning and artificial intelligence, these resources enable leaders and organizations to use analytics and data science for better-informed and improved decisions. The economic impact of COVID-19 is unprecedented, dramatically changing markets and prospects for economic growth. Supply chains, transportation, food processing, retail, e-commerce, and many other industries have transformed overnight. Unemployment in the world has reached levels unknown in recent memory. Data Science and Machine Learning models heavily make predictions by analyzing past data but the recent past we have witnessed is unforeseeable and is causing a seismic shift in data

The debate on the future of data scientists is going on for a long time and almost everyone has their opinion on it. Recently, KDNuggets conducted a poll on 'whether data scientists will extinct in 10 years or not?' About 70% of readers think that the demand for Data Scientists will increase, and over 90% think the role of Data scientists will change. Many professionals across the world also believe that data science is not going anywhere for a long time. With AutoML Tools like Auto-Keras, Auto-Sklearn, Amazon-Lex, etc, the role of data scientists and machine learning engineers is expected to be in danger.

While AutoML can carry some of the machine learning workflows without the need for data scientists, that doesn't mean the data science skillset will become obsolete.

Classically trained data scientists are just as important, if not more so, now that more organizations can access AutoML. The data scientists who embrace AutoML as an accelerator for their potential will be the real winners.

STUDENTS' ACHIEVEMENTS



OUR ACHIEVERS

17



Got internship at Microsoft with stipend of Rs. 1, 25, 000/permonth

Mohd Arshad (Batch: 2020-24)



Udit Mudgal (Batch: 2021-25)



Won silver medal as Delhi Vollyball team member in 8th National Youth Traditional Games 2022 held in Goa.



STUDENT ACHIEVEMENTS

- Mohd. Arshad (2020-2024) Participated in Hackathon i.e. DiamondHacks2022 organised in online mode by North Carolina State University on 26th March 2022 and secured 1st rank.
- Udit Katyal, Mohd. Arshad, Rishika and Palak Garg (2020-2024) Selected as MENTEE in the Microsoft Intern Engage 2022 event, from 4th May-27th May 2022.



STUDENT ACHIEVEMENTS

- Kritika Malhotra: (2019-23) Secured 1st rank in VolleyBall Competition by NSUT
- Shubh Malhotra: (2018-2022) Secured 52th All India Rank in GATE CSE Exam 2022
- Aastha jain: (2019-2023) Qualified the Certified Ethical Hacker (CEH)
- Ashish: (2020-2024) Secured 1st rank in Technical-Hackathon i.e. Robo Mirror-Maze organised by ARES ROBOTICS, NSUT
- NishkarshAggarwal: (2019-2023) Secured
 1st rank in ML Hackathon organized by
 PepCoding Education (OPC) Private Ltd.

ALUMNI TALK

STRATEGIC FUTURE ROADMAP

28 APRIL 2022

BY :- SATYAM TYAGI (SAP ABAP Developer at Accenture) 

FACULTY PATENTS

Dr. Meenakshi Yadav

- Intelligent Robot-Assisted IoT for Germicide Spray at Hospital Lavatories
- A novel approach for energy efficient wireless sensor network using combination of sensor node's position and communication range

Ms. Meenakshi Aggarwal

• Internet of Things Enabled Smart Shoes

Mr. Joginder Kaushik

- A Data Entry Optical Character Recognition Tool using Convolutional Neural Networks
- Vision based cursor control virtual mouse system

Dr. Preety

• Intelligent RobotAssisted IoT for Germicide Spray at Hospital Lavatories

Ms. Anjani Gupta

• IoT based real Time Exhaustion Detection by Image Classification Using Deep Convolution Neural Network

Mr. Ved Parkash Sharma

• Online auction system using machine learning

Mr. Dhyanendra Jain

- A smart cane device for a blind or a visually impaired user
- Smoke and heat detector
- Implementing Blockchain Technology in Automated Teller Machine (ATM) based Electronic Voting Machine
- Intelligent Agriculture Controlling and Monitoring Using IoT-Based Technology.
- IoT based real Time Exhaustion Detection by Image Classification using Deep Convolution Neural Network
- IoT-based Temperature Measurement Platform for a Real-Time Environment using LM35.
- A Data Entry Optical Character Recognition Tool using Convolutional Neural Networks
- Vision based cursor control virtual mouse system

FACULTY PUBLICATIONS

Ms. Charul Dewan

• Comparative Study of Various Authentication Schemes in Tele Medical Information System. in Applications of Computational Methods in Manufacturing and Product Design. Lecture Notes in Mechanical Engineering. Springer, 2022

Mr. Gaurav Sharma

- Quantum Computers: A review on how quantum computing can boom artificial intelligence in 3rd International Conference on Advances in Computing & Innovative Technologies in Engineering, 2022
- Real Time Exhaustion Detection by Image Classification in International Conference on Electrical and Electronics Engineering ICEEE 2022

Ms. Gunjan Chugh

- Virtual Control Using Hand Tracking, International Journal for Modern Trends in Science and Technology, vol-8 issue 1, January 2022
- Real Time Sign Language Detection, International Journal for Modern Trends in Science and Technology, vol-8 issue 1, January 2022

Mr. Dhyanendra Jain

- Deep Learning and Machine Intelligence for Operational Management of Strategic Planning, Lecture notes in networks and systems, July, 2022
- Real Time Exhaustion Detection by Image Classification using Deep Convolution Neural Network in International Conference on Electrical and Electronics Engineering ICEEE 2022
- Emerging Blockchain technology in commercial enterprise to ensure electronic revaluation : challenges & improvement in Pacific Business Review, vol-14, issue 10, April 2022

Dr. Meenakshi Yadav

- AI based Diagnostic Analysis for Wireless Capsule Endoscopy in Obscure Bowel Disease Detection: Present and Future, International Conference on Intelligent Systems and Computing Scopus (ICISC-2022)
- Smart Agriculture System using Artificial Intelligence and Internet of Things, Book Chapter in Reshaping Intelligent Business and Industry: Convergence of AI and IoT at the Cutting Edge, 2022
- Introduction to Internet of Things, Book Chapter in Evolving Predictive Analytics in Healthcare- New AI technique for real-time interventions, 2022

Dr. Preety

- AI based Diagnostic Analysis for Wireless Capsule Endoscopy in Obscure Bowel Disease Detection: Present and Future, International Conference on Intelligent Systems and Computing Scopus (ICISC-2022)
- Parkinson's Disease Detection Using Biomedical Voice Measurements in International Journal for Modern Trends in Science and Technology, vol 8, issue 6, June 2022
- Smart Agriculture System using Artificial Intelligence and Internet of Things, Book Chapter in Reshaping Intelligent Business and Industry: Convergence of AI and IoT at the Cutting Edge, 2022
- Introduction to Internet of Things, Book Chapter in Evolving Predictive Analytics in Healthcare- New AI technique for real-time interventions, 2022
- Securing big data using big data mining, Book Chapter in Artificial Intelligence in cyber physical Systems: Principles and Applications in CRC Press, 2022

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Dr. AKHILESH DAS GUPTA INSTITUTE OF TECHNOLOGY AND MANAGEMENT



विद्या सर्वस्य भूषणम्

Dr. Akhilesh Das Gupta Institute of Technology & Management, New Delhi

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