ML MAVEN

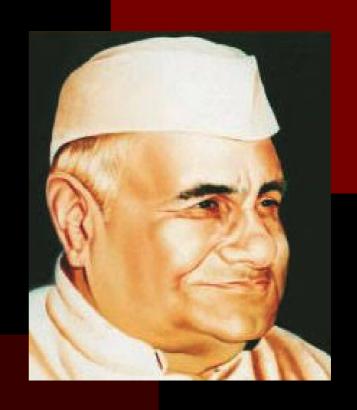# AI

CREATES CONTROVERSIAL IMAGES OF INDIAN RULERS

Trends In
AI & ML
You Should Know

Founder's Note

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

"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."

A TRIBUTE TO

Dr. AKHILESH DAS GUPTA

OUR REVERED & HON'BLE FOUNDER CHAIRMAN SIR.

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.

प्रेरक: सूचकश्चैव वा चको दर्शिकस्था ।
शि क्षको वा प्रदको बड़ेतो गुरव: स्मृता: ॥

Mrs. Alka Das Gupta

Hon'ble Chairperson
BBD Group

Innovation requires passionate explorers who give proper 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 Artificial Intelligence. The Department of Artificial Intelligence & Machine Learning 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 ML MAVEN 2023 setting a higher pedestal. I wish ML MAVEN editorial team a grand success!

Mr. 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 Artificial Intelligence & Machine Learning. 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 Artificial Intelligence & Machine Learning 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 ML MAVEN 2023.

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.

I wish the best for the success of ML MAVEN 2023.

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.

Welcome to have a view of the achievements and activities of the Department of Artificial Intelligence & Machine Learning with the help of this semester's publication of ML MAVEN 2023. 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 pre-placement 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 Machine Learning 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 Artifical Intelligence & Machine learning.

VISION AND MISSION

> To produce socially responsible technocrats, researchers and entrepreneurs in Artificial Intelligence and Machine Learning through eminence in education and research.

VISION

> M1.
> To produce socially responsible technocrats, researchers and entrepreneurs in Artificial Intelligence and Machine Learning through eminence in education and research.
> M2.
> To collaborate with industry to exhilarate novel research and development in Artificial Intelligence & Machine Learning.
> M3.
> To transform students into innovative skilled professionals empowered with knowledge, skills, values, and confidence to cater the global needs of the society.

MISSION

CONTENTS

DEPARTMENT AT A GLANCE

The Department of Artificial Intelligence and Machine Learning is established in the year 2021, offers an undergraduate programme B. Tech. under the affiliation of GGSIPU, New Delhi.

ADGITM, thrives to impart an effective technical education by means of experiential learning and develop concrete infrastructure with efficient faculty and dynamic student community. AI & ML insists on implementing Outcome Based Education (OBE) throughout the tenure of under graduation by means of getting university ranks, higher placement records. To emphasize on lifelong learning and applying knowledge on solving real work problems, department conduct various technical events like hackathons, coding competitions, training programs, workshops and seminars.

STUDENT'S ACHEIVEMENT

- Ankit Arya successfully completed 3 month internship in DRDO SSPL.His commitment to learning and growth is admirable and his industry exposure has given him an edge in future career.

- Tanishka Gaur (2021-25) secured SECOND position in Business Planning organised by Netaji Subhas University of Technology.

- Vibhor Jain (2021-25) secured THIRD position in Business planning organised by Aryabhatta College.

STUDENT'S ACHEIVEMENT

- Daksh Suryavanshi secured the second position in SAMADHAN 2022, IDEATHON held in Bipin Tripathi Kumaon Institute of Technology, Dwarahat, Uttarakhand on 17th and 18th of December by MangosOrange Services Pvt. Ltd. , and won a cash prize of 5,000 for creating an application which aims to make data analysis and data science an affordable and accessible tool for everyone. This is a significant achievement that demonstrates his dedication, hard work, and commitment to learning and growing in his field.

STUDENT'S ACHEIVEMENT

- Yash Raj Singh secured 1st position in Data-Trek competition conducted by IEEE ADGITM on TechnoUtsav'22 with full zeal and exuberance.

EVENTS HELD
TILL DATE

EVENTS HELD TILL DATE

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AND
DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

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19 November

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HACKATHON

Participating in a hackathon is an opportunity for multidisciplinary groups to showcase their skills and develop new projects in record time!

PRICE WORTH
RS 12,000
In TechnoUtsav 2022

23 DECEMBER 2022
9 a.m to 2 p.m

REGISTER ASAP

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DEPARTMENT OF AI & ML

LOGIX

HANDS ON TRAINING ON

ROLE OF STATISTICS IN ML
USING PYTHON
PROGRAMMING

SATURDAY
07 JANUARY 2023
9:00 AM ONWARDS

MS. KANIKA MIGLANI
(DATA SCIENTIST)
FLAX & TEAL LTD.
UK

ONLINE EVENT

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TECHNOPEDIA 1.0

A TECHNICAL QUIZ

ORGANISED BY:
KRITRIM DHI
IN ASSOCIATION WITH
LOGIX

LOGIX

LOCATION : COLLEGE AUDITORIUM
DATE : 22ND DECEMBER 2022
TIME : 2:30 PM

CONTACT:
DEVANSH : 8130928085
AMAN : 8285866269
RAHUL :8700335970

LET'S JOIN!

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CRICKET MATCH

KRITIM DHI
SAHIL SHARMA

VS

DATAZOIC
AKSHAT

ORGANISED BY
DEPARTMENT OF ARTIFICIAL INTELLIGENCE
& MACHINE LEARNING

BY HIMANGI PATHAK

AI & Rulers

Artificial intelligence has taken yet another step forward in the realm of art, with researchers at Stanford University developing an algorithm that can generate realistic images of Indian rulers from the past. Using a combination of machine learning and computer vision techniques, the team was able to recreate the facial features and clothing styles of these historical figures with an impressive level of accuracy.the team gathered a large dataset of images of Indian rulers, including kings, queens, and other historical figures, from various sources such as paintings, sculptures, and photographs.

One of the main criticisms of the AI-generated images is that they may not accurately reflect the true appearance of the historical figures they are meant to represent. Some experts have pointed out that the images are based on a relatively small dataset of paintings, sculptures, and photographs, and that there is a risk of perpetuating inaccurate or stereotypical depictions of Indian rulers..

SOUND TECH

By DEEPTI PRASAD

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.

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 methods that shape acoustic information and generate a more accurate sound model in each case. 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 can lead to a better visual reconstruction. Researchers plan to continue working on the model so they can enhance the details. Also, they want to apply this technique to more complex and larger scenes such as cities and towns.

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.

FACULTY PUBLICATIONS

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

FACULTY
PUBLICATIONS

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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