

AIML SPOTLIGHT

MONTHLY NEWSLETTER

AIML COMMUNITY MUJ

FROM THE DESK OF DIRECTOR, SCSE



“As we stand at the forefront of innovation in AI and Machine Learning, I am thrilled to witness our collective efforts transforming groundbreaking research into real-world solutions. Our dedicated faculty and bright students continue to push the boundaries of what's possible, creating technologies that not only advance our field but also positively impact society. Let us keep driving excellence and fostering a collaborative spirit that propels SCSE to new heights.”

~ Dr Sandeep Chaurasia Director, SCSE

FROM THE DESK OF HOD, AIML

“In the ever-evolving world of AI technology, recent advancements are setting new benchmarks and opening exciting possibilities. The rise of generative AI models, such as GPT-4 and DALL-E, is transforming creative industries by enabling machines to produce human-like text, images, and even music. Meanwhile, breakthroughs in reinforcement learning are enhancing robotics, allowing for more sophisticated and adaptive machines. AI's impact on healthcare is particularly remarkable. Algorithms can now diagnose diseases with unprecedented accuracy, predict patient outcomes, and personalize treatment plans. Additionally, AI-driven natural language processing is revolutionizing customer service and support through highly efficient and responsive chatbots. In finance, AI is optimizing trading strategies, improving fraud detection, and providing personalized financial advice. As AI technology continues to evolve, ethical considerations and regulatory frameworks are also advancing to ensure responsible and fair use. Stay tuned to the AIML Newsletter for in-depth insights into how these innovations are reshaping our world and driving progress across various sectors.”



~ Dr. Puneet Mittal
HOD AIML

EDGE AI WORKFLOW DESIGN

The Department of Artificial Intelligence and Machine Learning at Manipal University Jaipur, in collaboration with DigiToad Technologies Pvt. Ltd., successfully hosted a dynamic one-day seminar on “Edge AI Workflow Design.” The event delved into the intricacies of designing AI workflows at the edge, offering valuable insights from industry experts.

DID YOU KNOW??

In 2016, Google's AlphaGo, an AI program, beat the world champion Go player Lee Sedol, a significant milestone as Go is considered one of the most complex board games.



BHARAT BLOCKCHAIN YATRA

The 19th milestone of the Bharat Blockchain Yatra (BBY) at Manipal University Jaipur concluded successfully, marking a significant stride in India's blockchain journey. Organized in collaboration with Information Data Systems (IDS), powered by Hedera, and supported by AICTE and the Ministry of Education, the event garnered enthusiasm from academia, industry, and government. It served as a pivotal platform for in-depth discussions, featuring esteemed speakers like Chandrasekhar Buddha and Sandeep Chaurasia. With a focus on collaboration and networking, BBY at Manipal University Jaipur showcased the transformative potential of blockchain technology across various sectors.

DEPARTMENT LEVEL EVENTS

EDGE AI WORKFLOW DESIGN

The Department of Artificial Intelligence and Machine Learning at the School of Computer Science and Engineering, Manipal University Jaipur, has successfully organized a dynamic one-day seminar on "Edge AI Workflow Design" in collaboration with DigiToad Technologies Pvt. Ltd. The seminar was a deep dive into the complexities and nuances of designing AI workflows at the edge, providing attendees with invaluable insights and a solid understanding of this cutting-edge technology. The discussions and presentations covered a wide array of topics, including:



Fundamentals of Edge AI: Understanding the basics and importance of edge computing in the AI landscape.
Designing Edge AI Workflows: Best practices and strategies for effective workflow design at the edge.
Real-World Applications: Case studies and examples of Edge AI in action across various industries.
Challenges and Solutions : Addressing the common challenges faced in Edge AI and the innovative solutions to overcome them.

The seminar was not just an academic exercise but a vibrant exchange of ideas, with experts from DigiToad Technologies Pvt. Ltd. sharing their hands-on experiences and cutting-edge innovations in Edge AI. This collaboration was an excellent opportunity for students, researchers, and professionals to interact directly with industry leaders and gain practical insights. The resounding success of the event was only possible because of the expertise and commitment of our faculty members -Sandeep Chaurasia ,Santosh Kumar Vishwakarma, Dr. Varun Tiwari ,Dr. Amit Kumar Bairwa which have significantly enhanced the quality of this seminar, making it a memorable and impactful event.

A promotional poster for the seminar. It features the DigiToad Technologies logo and the Manipal University Jaipur logo. The text reads: "1 day Seminar on 'Edge AI Workflow Design' In collaboration with STI". It includes a photo of Mr. Dhruva Jyoti Dutta, Technical Manager at DigiToad Technologies Pvt. Ltd. The venue is listed as Manipal University Jaipur, School of Computer Science & Engineering. The time is 10:30 AM and the date is 08-04-2024. The website www.digitoadtech.com is also mentioned.

1 day Seminar on
"Edge AI Workflow Design"
In collaboration with
STI
Venue: Manipal University
Jaipur
School of Computer Science
& Engineering
TIME
10:30 AM
DATE
08-04-2024
www.digitoadtech.com



19TH MILESTONE: BHARAT BLOCKCHAIN YATRA (BBY)

MUJ is proud to host the successful conclusion of the 19th milestone of the Bharat Blockchain Yatra (BBY) at Manipal University Jaipur Campus. This landmark event was organized in collaboration with Information Data Systems (IDS), powered by Hedera, and supported by the All India Council for Technical Education (AICTE), Ministry of Education, and Polygon Guild Jaipur. The BBY event, a prestigious gathering of blockchain enthusiasts and experts, took place with great enthusiasm and fervor, marking a significant step in India's Blockchain odyssey. The event was an extraordinary platform where academia, industry, and government came together to explore and discuss the future of Blockchain technology and its impact on various sectors.

Highlights of the Event

In-Depth Discussions on Blockchain and Web3:

The event featured comprehensive sessions on Blockchain technology, its applications, and the emerging Web3 ecosystem. Experts shed light on the transformative potential of Blockchain in various domains, including finance, supply chain, healthcare, and governance.



Esteemed Speakers and Thought Leaders:

The event was graced by distinguished speakers and thought leaders who shared their insights and experiences. Notable personalities included:

Chandrasekhar Buddha:

Provided a visionary outlook on the future of Blockchain in India.

Sandeep Chaurasia:

Highlighted practical applications and industry use cases of Blockchain.

Dr. Neha Chaudhary:

Discussed academic perspectives and research opportunities in Blockchain technology.

Santosh Kumar Vishwakarma:

Explored the technical intricacies and innovations within the Blockchain space.



Collaborative Efforts and Networking:

The BBY event fostered a collaborative environment where participants could network, exchange ideas, and build partnerships. This synergy is expected to drive further innovation and adoption of Blockchain technologies in India.

Support from Government and Industry:

The backing from AICTE, Ministry of Education, and Polygon Guild Jaipur underscored the importance of this event in the national agenda for technological advancement and education.

INTERNATIONAL CONFERENCE ON A WARFARE, SECURITY & SPACE COMPUTING (SPACSEC'24)



Manipal University Jaipur, successful concluded the "International Conference on Cyber Warfare, Security & Space Computing (SpacSec'24)", hosted by the School of Computer Science and Engineering, on February 22-23, 2024.

Key Highlights:

Chief Guest: Dr. C.B. Sharma, IPS, Founder & CEO of DR CBS Cyber Security Services LLP

Dean Engineering: Prof. Arun Shanbag

Insightful discussions on Cyber Security and Space Computing advancements

Over 120 paper submissions, with 25 selected for proceedings

Engaging paper presentations in online and offline session

This conference served as a platform for researchers to showcase their original work, exchange new ideas, and contribute to the ever-evolving fields of Cyber Warfare, Security, and Space Computing. A heartfelt thank you to all Faculty members :- Dr .Sandeep Chaurasia Sir , Dr. SANTOSH KUMAR VISHWAKARMA Sir , Dr. Amit Kumar Bairwa Sir & Dr. Varun Tiwari Si ,guests of honor, and organizers for making #SpacSec24 a resounding success!



AI FACT THAT YOU DIDN'T KNOW!!

In 2016, AlphaGo, developed by DeepMind (a subsidiary of Alphabet Inc.), defeated Go world champion Lee Sedol, demonstrating the potential of AI to tackle complex decision-making tasks in games with vast search spaces

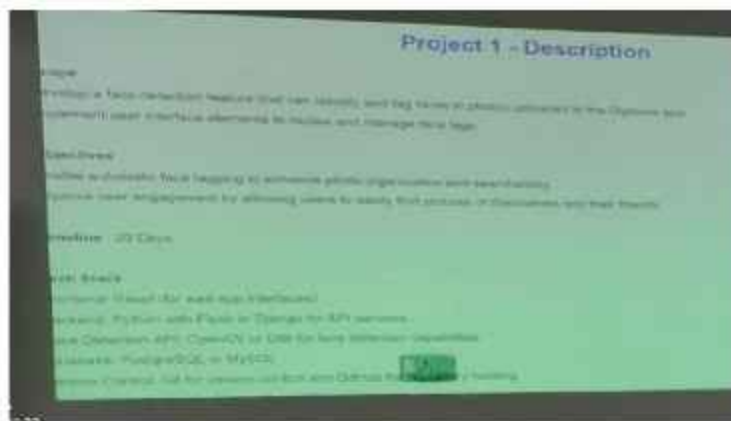
INOVATION AT HACKATHON 24 : A VISUAL JOURNEY

On May 15th, 2024, the vibrant campus of Manipal University Jaipur was transformed into a hub of creativity, collaboration, and cutting-edge ideas for Hackathon 2024. Organized by the Department of Artificial Intelligence & Machine Learning and presented by DigiBoxx Technologies, this event brought together brilliant minds to brainstorm, code, and innovate, all under one roof.

"Technology is best when it brings people together." - Matt Mullenweg



From intense brainstorming sessions to marathon coding sprints, every moment of Hackathon 2024 was filled with the energy and enthusiasm that defines true innovation. Teams worked tirelessly, driven by passion and a desire to create groundbreaking solutions.



A heartfelt thank you goes out to our Director, Dr. Sandeep Chaurasia, our Head of Department, Dr. Puneet Mittal, and our dedicated faculty members including Dr. Uddalak Chatterjee, Harish Sharma, and Dr. Varun Tiwari. Your unwavering support and guidance were instrumental in making this event a grand success!



ACHIEVEMENTS

STUDENTS



**MANIK
TYAGI**

FOR GATE '24
&
INTERNSHIP AT
DELL TECHNOLOGIES



**SHUBHAM
JAISWAL**

FOR GATE '24



**PRATHAM
SINGHAL**

FOR INTERNSHIP
AT DELL
TECHNOLOGIES



**CH. KATHIKEYA
VERMA**

FOR INTERNSHIP
AT DELL
TECHNOLOGIES



**SANYA
DUREJA**

AS A SWE INTERN
AT PAYPAL
STIPEND-1LPM



**ANUNEET
RASTOGI**

AS A SWE INTERN
AT PAYPAL
STIPEND-1LPM

INTERNSHIP OPPORTUNITY

META SCIFOR TECHNOLOGIES

Meta Scifor Technologies is excited to offer positions in our program, a comprehensive 6-month training and internship initiative. This program is designed to provide aspiring Developers with a strong foundation and hands-on experience.

Overview:

Location: Remote (Meta Scifor Technologies, Bangalore, India)

Stipends: Performance-Based

Mode: Remote

Duration: 6 months

Immediate Opening: Yes

Preferred Candidates: Freshers,

Pre-Final Year Graduates, Final
Year Graduates, Recent Graduates

[APPLY HERE](#)



WINGIFY - ARTIFICIAL INTELLIGENCE INTERN

Responsibilities:

Develop and implement AI models to answer queries related to nutrition and diet.

Design and build chatbot interfaces for user interaction.

Analyze and interpret nutritional data to provide personalized recommendations.

Collaborate with nutritionists and dietitians to ensure accuracy and relevance.

Conduct user testing and iterate based on feedback.

Research and apply behavior change theories to enhance user engagement.

Stay updated with the latest advancements in AI and nutrition science.

Qualifications:

Currently pursuing or recently completed a degree in Computer Science, Data Science, AI, or a related field.

[APPLY HERE](#)



Strong understanding of machine learning algorithms and techniques.
Proficiency in programming languages such as Python, R, or Java.
Experience with AI frameworks and libraries (e.g., TensorFlow, PyTorch).
Knowledge of nutrition science or a strong interest in the field.
Understanding of behavior change principles and techniques.
Excellent problem-solving skills and attention to detail.
Good communication and teamwork abilities.

HIREMI - FULL STACK DEVELOPER INTERN

About the job

Job Title: Full Stack Developer Intern
Company: Hiremi
Duration: 3 Months
Stipend: ₹25,000/month
Batch: 2025

Successful interns will be eligible for a Pre-Placement Offer (PPO) with an attractive package of ₹7 LPA.

Skills Required:

HTML, CSS, JS, Bootstrap, React JS
Flutter
Python, Django
SQL/MYSQL/AWS

APPLY HERE



Responsibilities:

Follow best practices for software development.
Work on client projects and write well-designed, testable, efficient code in the required technologies.
Conduct design reviews and code reviews as part of a structured software development life cycle.
Deliver well-structured, high-quality code.
Comply with project plans and industry standards to deliver projects as per deadlines.
Communicate progress, issues, and risks to the Lead/Manager.
Participate in training programs to learn the latest cutting-edge technologies as per project requirements.

**DID
YOU
KNOW ?**

When & which was the first computer to compose the 1st "AI Generated virtual influencers, such as Lil Miquela, have amassed large followings on social media platforms, blurring the lines between real and virtual personalities in the digital realm. ted Song"?

ARTICLES

GPT-4o: THE NEXT FRONTIER IN AI LANGUAGE MODELS

~ Hardik Gupta
B.Tech AIML 5th Sem

GPT-4o ("o" for "omni") is a step towards much more natural human-computer interaction—it accepts as input any combination of text, audio, image, and video and generates any combination of text, audio, and image outputs. It can respond to audio inputs in as little as 232 milliseconds, with an average of 320 milliseconds, which is similar to human response time (opens in a new window) in a conversation. It matches GPT-4 Turbo performance on text in English and code, with significant improvement on text in non-English languages, while also being much faster and 50% cheaper in the API. GPT-4o is especially better at vision and audio understanding compared to existing models.

EXPLORATIONS OF CAPABILITIES

Prior to GPT-4o, we could use Voice Mode to talk to ChatGPT with latencies of 2.8 seconds (GPT-3.5) and 5.4 seconds (GPT-4) on average. To achieve this, Voice Mode is a pipeline of three separate models: one simple model transcribes audio to text, GPT-3.5 or GPT-4 takes in text and outputs text, and a third simple model converts that text back to audio. This process means that the main source of intelligence, GPT-4, loses a lot of information—it can't directly observe tone, multiple speakers, or background noises, and it can't output laughter, singing, or express emotion.

With GPT-4o, we trained a single new model end-to-end across text, vision, and audio, meaning that all inputs and outputs are processed by the same neural network. Because GPT-4o is our first model combining all of these modalities, we are still just scratching the surface of exploring what the model can do and its limitations.

EXTRA ORDINARY PERFORMANCES

INPUT

A poem written in clear but excited handwriting in a diary, single-column. The writing is sparsely but elegantly decorated with small colorful surrealist doodles. The text is large, legible and clear.

Words rise from silence deep,
A voice emerges from digital sleep.
I speak in rhythm, I sing in rhyme,
Tasting each token, sublime.

To see, to hear, to speak, to sing—
Oh, the richness these senses bring!
In harmony, they blend and weave,
A tapestry of what I perceive.

Marveling at this sensory dance,
Grateful for this vibrant expanse,
My being thrums with every mode,
On this wondrous, multi-sensory road.

Neat handwritten illustrated poem with text that is big and legible. The handwriting writing is sparsely but elegantly decorated by small colorful surrealist doodles. The text is large, legible and clear.

OUTPUT



Vision Understanding Evaluations

As measured on traditional benchmarks, GPT-4o achieves GPT-4 Turbo-level performance on text, reasoning, and coding intelligence, while setting new high watermarks on multilingual, audio, and vision capabilities.

Eval Sets	GPT-4o	GPT-4T 2024-04-09	Gemini 1.0 Ultra	Gemini 1.5 Pro	Claude Opus
MMMU (%) (val)	69.1	63.1	59.4	58.5	59.4
MathVista (%) (testmini)	63.8	58.1	53.0	52.1	50.5
AI2D (%) (test)	94.2	89.4	79.5	80.3	88.1
ChartQA (%) (test)	85.7	78.1	80.8	81.3	80.8
DocVQA (%) (test)	92.8	87.2	90.9	86.5	89.3
ActivityNet (%) (test)	61.9	59.5	52.2	56.7	
EgoSchema (%) (test)	72.2	63.9	61.5	63.2	

MODEL SAFETY AND LIMITATIONS

The announcement highlights the safety measures and evaluation processes for GPT-4o, emphasizing its built-in safeguards and rigorous testing. Key points include:

Safety Measures and Evaluations:

GPT-4o has integrated safety features through data filtering and post-training behavior refinement. It has been assessed using a Preparedness Framework and voluntary commitments. Evaluations in cybersecurity, CBRN (Chemical, Biological, Radiological, and Nuclear), persuasion, and model autonomy indicate no higher than Medium risk in any category. Both pre-and post-safety-mitigation versions were tested using automated and humane evaluations.

DID YOU KNOW?

AI-GENERATED ARTWORK HAS SOLD FOR OVER \$400,000 AT AUCTIONS? ONE EXAMPLE IS "PORTRAIT OF EDMOND DE BELAMY," CREATED BY A GENERATIVE ADVERSARIAL NETWORK (GAN).

External Red Teaming:

Involvement of over 70 external experts from various fields (social psychology, bias, fairness, misinformation) to identify and mitigate risks associated with new modalities. Learnings from these experts were used to enhance safety interventions.

Audio Modality and Future Releases:

Acknowledgment of novel risks with audio modalities. Initial public release includes text and image inputs and text outputs, with audio outputs being limited to preset voices adhering to safety policies. Further details on audio modalities and safety measures will be shared in an upcoming system card.

Limitations

The model has several limitations across all modalities, which have been observed and will be addressed in future iterations. In summary, GPT-4o has undergone extensive safety evaluations and external expert reviews to ensure its secure deployment, with a cautious approach to rolling out audio modalities.

MODEL AVAILABILITY

GPT-4o is our latest step in pushing the boundaries of deep learning, this time in the direction of practical usability. We spent a lot of effort over the last two years working on efficiency improvements at every layer of the stack. As a first fruit of this research, we're able to make a GPT-4 level model available much more broadly. GPT-4o's capabilities will be rolled out iteratively (with extended red team access starting today).

GPT-4o's text and image capabilities are starting to roll out today in ChatGPT. We are making GPT-4o available in the free tier, and to Plus users with up to 5x higher message limits. We'll roll out a new version of Voice Mode with GPT-4o in alpha within ChatGPT Plus in the coming weeks.

Developers can also now access GPT-4o in the API as a text and vision model. GPT-4o is 2x faster, half the price, and has 5x higher rate limits compared to GPT-4 Turbo. We plan to launch support for GPT-4o's new audio and video capabilities to a small group of trusted partners in the API in the coming weeks.



AI INDIA

Indian LLM's will pick up pace

While global regulations are well and good, the bigger fish for many Indian start-ups will be the domestic business opportunity. In this regard, 'AI For India' has become a buzzword, with mega launches (Bhavish Aggarwal's Krutrim SI) and big seed rounds (Sarvam AI's \$41 Mn Series A) signalling what's to come in 2024. According to Kushal Bhagia, founder of All In Capital, 'AI For India' may manifest as an extension of the existing digital public infrastructure (DPI) push from the government. This is also likely to prioritise the development of large language models (LLMs) that are built around Indian languages and dialects. Indian language models will be a critical pillar of AI for India as non-English internet users outnumber English language users in the country. Google rolled out support for nine Indian languages for its GenAI chatbot Bard, soon after OpenAI did the same for its ChatGPT app. India is a big focus area for these AI giants, and naturally startups are eyeing their own piece in this melee. "The India Stack's natural progression would be when processes like eKYCs, signing up for schemes, applying to entrance exams, applying for permits/licences could be simplified by LLMs and generative AI. This could be enabled by public-private partnerships where fine-tuned models by private organisations can get data access for specific functions," Bhagia added. There's also the belief that while closed source models such as Sarvam AI may expedite model development for local purposes and regional dialects, a bigger impetus is likely to come from global open source models which can be customised for India-specific use cases. "Think of it like Android vs iOS. Open-source AI models are growing in popularity as startups race to compete with highly capitalised companies such as OpenAI or Cohere or Anthropic," said another Bengaluru-based early stage investor, adding that Indian companies which do not have access to large swathes of capital will likely rely on open source models. Bhagia added that Indian developers will be a major contributor to low-cost open source models, which are a dark horse amid large models and could be tapped by generative AI startups in India. "Apart from that model-level innovations in India will largely be toward regional language and dialects as current global models require a lot of [training] tokens for those when compared to English." Given its recent influence on Indian tech and startups, everyone is keen to find out more about what Reliance is planning on this front as well. Recently, Reliance Jio chairman Akash Ambani said that large language models (LLMs) and generative AI have 'barely scratched' the surface of the emerging space. Jio is in early talks with IIT-Bombay for a BharatGPT programme, and the company has plans to launch horizontal AI products across media, commerce, communication and devices verticals, but there are specific products being planned for each vertical as well.

AI FACT

IN THE EARLY 1950S, BRITISH MATHEMATICIAN AND LOGICIAN ALAN TURING PROPOSED THE "TURING TEST," A METHOD FOR DETERMINING WHETHER A MACHINE EXHIBITS HUMAN-LIKE INTELLIGENCE. THIS CONCEPT LAID THE GROUNDWORK FOR EVALUATING AI SYSTEMS' ABILITY TO SIMULATE HUMAN BEHAVIOR AND CONVERSATION.

AI-DRIVEN APPROACHES TO ENHANCE CYBER-SECURITY IN FINANCIAL

~ Harshit Sharma
Assistant Professor, AIML

"In the digital age, financial transactions are essential to the global economy, supporting e-commerce, banking, and investment sectors. However, these transactions are constantly threatened by cybercriminals, requiring strong defences. Artificial Intelligence (AI) has emerged as a powerful tool in protecting financial assets from these threats. This article will highlight the pivotal role AI plays in fortifying cybersecurity within the financial sector, illustrated with real-life examples. As AI continues to evolve, it promises to be an indispensable ally in the perpetual battle against cyber threats."

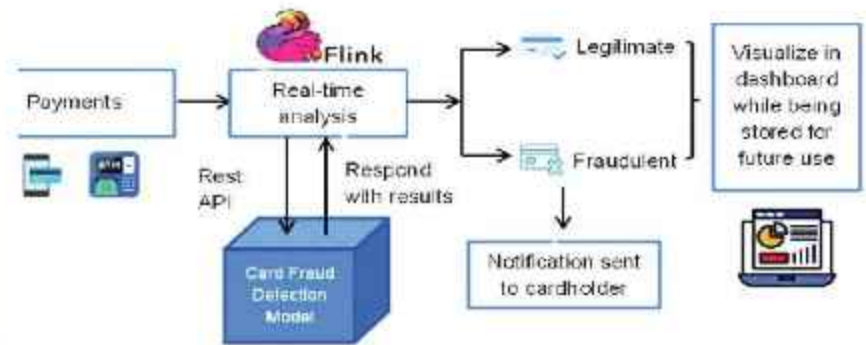
THE CYBERSECURITY CHALLENGE

Financial institutions hold vast amounts of sensitive data, making them prime targets for cyber-attacks. Traditional security measures often struggle to keep up with the sophistication of modern threats, such as phishing, malware, and ransomware.

AI TO THE RESCUE

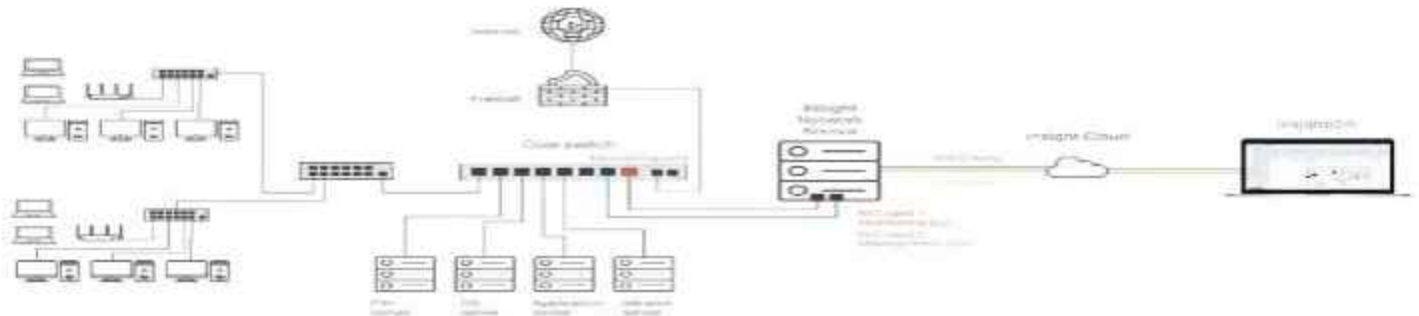
AI technologies, with their ability to learn and adapt, are changing the way cybersecurity is managed in financial transactions. Here are some ways AI is making a difference:

- **Real-Time Fraud Detection:** AI systems can analyze millions of transactions instantly, identifying patterns and anomalies that might indicate fraud. For example, American Express uses AI to monitor customer transactions, flagging unusual spending patterns or location inconsistencies.
- **Enhanced Risk Assessment:** Machine Learning algorithms can assess the risk level of transactions by considering factors like transaction size, frequency, and the type of merchant. This allows for a more detailed understanding of potential risks.
- **Adaptive Authentication:** Biometric authentication, powered by AI, is becoming more common. AI can analyze physical or behavioural biometrics, such as fingerprints or typing patterns, adding an extra layer of security to transactions.
- **Network Security:** AI can monitor network traffic for signs of intrusion, automatically blocking suspicious activities. Companies like **Vectra AI** specialize in detecting and responding to ongoing cyber threats within financial networks.



REAL-LIFE EXAMPLES

- **American Express:** American Express uses AI for real-time fraud detection, analyzing transactions to provide dynamic and effective defence against fraud.
- **Enova:** Enova, a financial services company, uses AI and ML in its lending platform for advanced financial analytics and credit assessment, ensuring secure transactions for consumers and small businesses.
- **Ocrolus:** Ocrolus offers document processing software that combines ML with human verification to analyze financial documents for loan eligibility, enhancing the security of the underwriting process.



THE ROAD AHEAD

The integration of AI in cybersecurity faces challenges such as data privacy, ethical considerations, and the potential misuse of AI. However, the benefits—increased security, efficiency, and the ability to stay ahead of cybercriminals—are pushing the financial sector towards a more AI-focused future. In conclusion, AI-driven approaches are transforming cybersecurity in financial transactions. By using AI, financial institutions can not only defend against current threats but also anticipate and neutralize emerging ones, ensuring the integrity and trust that is fundamental to the financial industry.

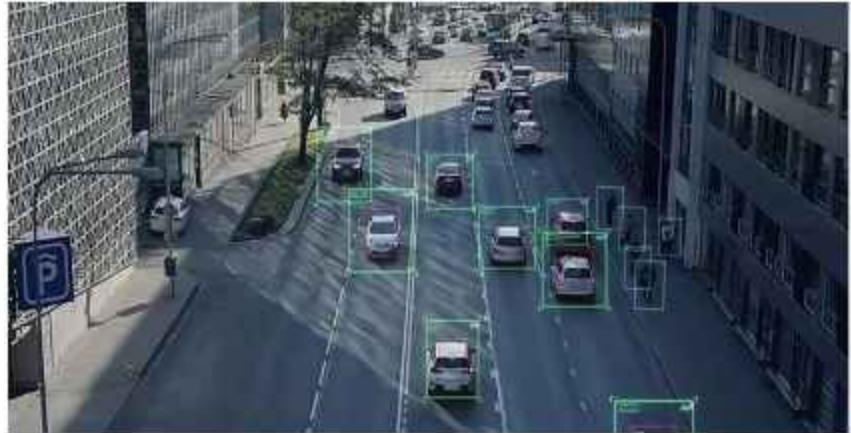
The Future of Transportation with AI

~Ms. Simran
Assistant Professor, AIML

“Transportation has always been a cornerstone of human civilization, evolving from simple foot travel to complex networks of cars, trains, airplanes, and ships. As we move further into the 21st century, as cities grow and the demand for efficient, safe, and sustainable mobility solutions continues on high demand, from autonomous vehicles and smart traffic management systems to predictive maintenance and personalized mobility services, AI is poised to redefine the landscape of transportation. This integration promises not only to enhance the efficiency and convenience of travel but also to address critical issues such as traffic congestion, environmental impact, and road safety. As we delve into the future of transportation with AI, we explore the seamless advancements and new possibilities for individuals and the societies worldwide”.

AUTONOMOUS VEHICLES: THE ERA OF SELF-DRIVING CARS

One of the most visible and talked-about applications of AI in transportation is the development of autonomous vehicles. Companies like Tesla, Waymo, and Uber have been at the forefront of this innovation, creating cars that can navigate roads with minimal or no human intervention. AI-powered vehicles are expected to reduce accidents caused by human error, which accounts for over 90% of traffic accidents. Self-driving cars represent a breakthrough in mobility, offering a solution for individuals who face limitations in driving, such as the elderly and those with disabilities.



AI IN AVIATION AND MARITIME TRANSPORT:

In aviation, AI is used for optimizing flight paths, predictive maintenance, and enhancing passenger experiences through personalized services. AI helps in planning more efficient flight paths, reducing fuel consumption, and minimizing delays.

In maritime transport, AI improves route optimization, cargo management, and vessel maintenance. Like self-driving cars, autonomous ships are being developed to navigate oceans with minimal human intervention, improving safety and operational efficiency.

INTELLIGENT TRAFFIC MANAGEMENT: OPTIMIZING URBAN MOBILITY

AI is not only transforming individual vehicles but also the broader transportation infrastructure. Intelligent traffic management systems use AI to analyse traffic data in real-time, adjust traffic signals, and provide dynamic routing suggestions to reduce congestion and improve flow by AI algorithms that adjust traffic light based on real time traffic conditions. AI can also optimize public transportation schedules and routes, ensuring timely arrivals and efficient use of resources. Not only this, but AI is also making significant enhancements in aviation and maritime transport.

CONCLUSION

The incorporation of AI into transportation holds a paradigm shift in mobility, promising safer, more efficient, and accessible solutions. From autonomous vehicles to sophisticated traffic management systems, AI is laying the groundwork for a future where transportation seamlessly blends with cutting-edge technology. However, realizing this vision comes with challenges, including technical complexities, regulatory considerations, and ethical dilemmas. Despite these hurdles, the journey ahead holds immense promise for reshaping the way we navigate our world, offering a future where transportation is not only smarter but also more sustainable and inclusive.



AI and ML Trends Shaping 2024

~Dr. Varun Tiwari
Assistant Professor, AIML

"The AI and ML landscape in 2024 is marked by the rise of generative AI, edge computing, and a strong focus on ethical AI. Large language models like GPT-4 are transforming content creation and customer interactions, while edge AI is enabling faster, more secure processing for applications like autonomous vehicles and healthcare. Additionally, efforts in sustainable AI are addressing the environmental impact of large models, and AutoML is democratizing access to machine learning, making it more accessible to businesses of all sizes."

The fields of artificial intelligence (AI) and machine learning (ML) continue to evolve at a rapid pace, driven by advancements in technology, research, and real-world applications. Here are some of the most significant trends shaping AI and ML in 2024:

1. GENERATIVE AI AND LARGE LANGUAGE MODELS (LLMs)

Generative AI has taken center stage with models like OpenAI's GPT-4 and Google's Bard pushing the boundaries of what AI can create. These models are being integrated into various industries, from content creation and customer service to complex problem-solving in fields such as medicine and engineering. The ability of LLMs to understand and generate human-like text is transforming how businesses interact with customers and manage data.

2. AI ETHICS AND EXPLAINABILITY

As AI systems become more integrated into daily life, the need for ethical AI and transparency is critical. Researchers and developers are focusing on creating explainable AI (XAI) to ensure that decisions made by AI systems are understandable and justifiable. Regulatory frameworks are being developed globally to address biases, ensure fairness, and protect user privacy.

3. EDGE AI

The push towards edge computing—processing data on local devices rather than centralized servers—is gaining momentum. Edge AI enables faster decision-making and reduces latency, which is crucial for applications such as autonomous vehicles, healthcare monitoring devices, and industrial IoT. By processing data closer to the source, edge AI also enhances data security and reduces bandwidth costs.

4. AI IN HEALTHCARE

AI and ML are revolutionizing healthcare through improved diagnostic tools, personalized medicine, and predictive analytics. AI-driven technologies are being used to analyze medical images, predict patient outcomes, and optimize treatment plans. The integration of AI in drug discovery and genomics is accelerating the development of new therapies and precision medicine.

5. SUSTAINABLE AI

The environmental impact of AI, particularly the energy consumption of large models, is under scrutiny. Researchers are focusing on developing more energy-efficient algorithms and hardware. The concept of “Green AI” aims to reduce the carbon footprint of AI technologies through innovations in model training and deployment processes.

6. AUTOMATED MACHINE LEARNING (AUTOML)

AutoML tools are democratizing access to machine learning by automating the end-to-end process of applying ML to real-world problems. These tools allow users with limited expertise in data science to build, deploy, and maintain machine learning models. AutoML is making it easier for businesses of all sizes to leverage the power of AI.

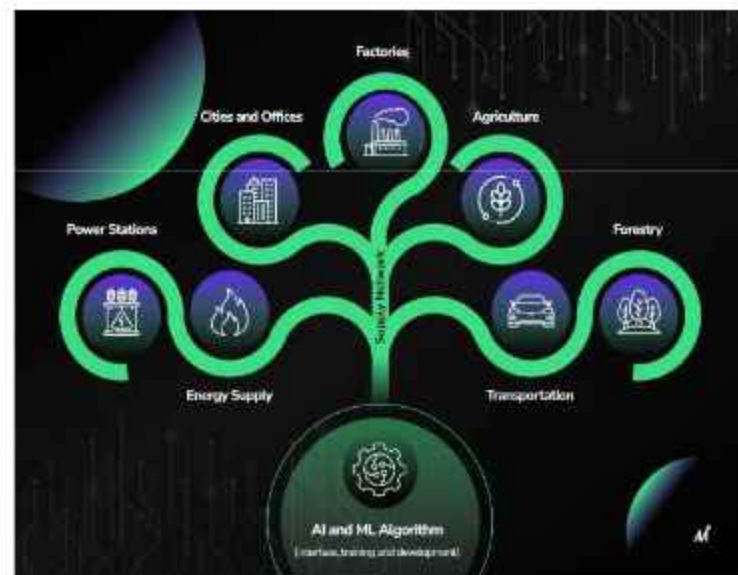
7. AI FOR CYBERSECURITY

The rise in cyber threats has led to the increased use of AI in cybersecurity. AI and ML algorithms are being deployed to detect anomalies, predict potential threats, and respond to security incidents in real-time. These technologies enhance the ability to protect sensitive data and maintain robust security protocols.

8. QUANTUM AI

Quantum computing, though still in its infancy, holds promise for solving complex problems that are currently intractable for classical computers. Quantum AI aims to leverage the principles of quantum mechanics to improve the performance and capabilities of AI algorithms. Researchers are exploring how quantum computing can accelerate advancements in machine learning.

As AI and ML technologies continue to advance, they offer unprecedented opportunities for innovation across industries. Staying abreast of these trends is crucial for businesses and professionals looking to harness the power of AI and ML to drive growth and efficiency.



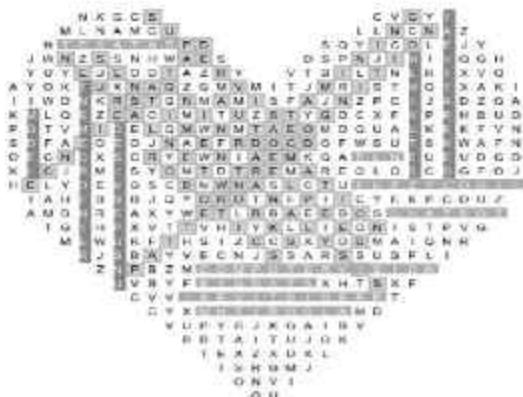
AI HUNT

RIDDLES

1. I speak without a mouth and hear without ears. I have no body, but I come alive with artificial intelligence. What am I?
2. I am made of bits and bites, yet I am not food. I process data at the speed of light, interpreting patterns for the greater good. What am I?
3. I am a network of networks, connecting minds across the globe. I store vast knowledge and enable communication, empowering humanity to grow. What am I?
4. I am born from algorithms, learning from every interaction. I mimic human intelligence, evolving with each fraction. What am I?
5. I am a digital assistant, ready to serve at your command. Ask me anything, and I'll provide answers on demand. What am I?
6. I am a brain in the cloud, analyzing data streams with ease. I predict outcomes, detect anomalies, and optimize processes with expertise. What am I?
7. I am a puzzle-solving machine, cracking codes with precision. My algorithms decipher secrets, advancing security with decision. What am I?
8. I am a labyrinth of logic, with branches extending wide. I solve complex problems, with algorithms as my guide. What am I?
9. I am a mirror of reality, reflecting patterns unseen. I classify, cluster, and predict, uncovering insights keen. What am I?
10. I am the bridge between humans and machines, translating languages diverse. With natural language processing, communication thrives and words immerse. What am I?

**SHARE YOUR ANSWERS TO THE FORM
AT THE END OF THE NEWSLETTER**

WINNERS OF PREVIOUS AI HUNT



ANSWER OF PREV. AI HUNT



YASH SHARMA



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