

Brief Summary

11th Shrawan Tandon Lecture organized by ARSIPSO

27 April, 2024

Context Setting

The 11th Shrawan Tandon Lecture was organized by ARSIPSO (Association of Retired Senior IPS Officers) on April 27, 2024 at New Delhi. The lecture was organized in memory of Late. Shri Shrawan Tandon who was a decorated police officer. The lecture focused on current and future implications of artificial intelligence (AI), particularly in the field of law enforcement. The lecture was delivered by Shri Prakash Kumar, an IAS officer of cadre of 1985 Batch and alumnus of IIT, Kanpur. Shri Kumar has had a long standing association with large e-governance projects. In 2007, for his various contributions in this field, he was given a lifetime achievement award and in 2019 he was adjudged IT Person of the Year by Dataquest, the oldest Indian publication in the field of IT industry.

Talk by Shri Prakash Kumar

Shri Prakash Kumar's lecture covered growing capabilities and significant limitations of artificial intelligence (AI) technologies, specifically focusing on their role in assisting human tasks. AI, its capabilities and generative AI including tools such as ChatGPT which was gaining a lot of traction. He noted that AI is a larger rubric of which machine learning is a subset and further subset is deep learning followed by natural language processing and computer vision which are partly machine learning. They use senses to collect data and then use machine learning to interpret it. Machine learning involves learning and getting smarter without being explicitly programmed. Classical programming employs rules and the data are provided, and it gives answer. On the contrary, in the case of machine learning the data and answer are entered and the computer on its own figures out the rules.

AI vs humans

It was noted that anything that learnt and improved over time could be called intelligent. Understanding and assimilating information was a continuous spectrum of capability. The AI tools when given a command understand it and execute it but not to the full spectrum of capability. Human beings on the other hand sense, comprehend and act through the five sensory organs viz., eyes, ear, tongue, skin and nose. Computers achieved a great level of maturity as far as vision, hearing and interpretation are concerned, also called computer vision and natural language processing. Leveraging vision capabilities of computers, there are tools such as virtual assistants, identity analytics, speech analytics, etc. and in government there are solutions like facial recognition software. The speaker also dwelled upon capacity of AI and machines to create. He noted that there is a subtle difference between creation and generation. AI and machines can generate ideas and content based on the data that is fed to them unlike a human being who develop novel ideas. Thus, humans are capable of creating which is a notch above generation. For this reason, the AI tools which use data to generate ideas and content among other things are called generative AI.

AI use in government and law enforcement

In the UK the judicial system decides whether to give bail to a person who had been produced before the judge or not through an AI based system which gives a risk rating. This system has been used for many years. The system analyses data on cases where bail was given or not along with criminal history, demographic data, age, race, profession among other things and based on this, a profile is prepared of those who could get the bail and those who could not. It was found that the tool had a bias against black and brown people in the UK. The bias against non-white people emanated from that analysis of the past data from the old records where majority of white judges had given the verdict. Therefore, it is very important while designing systems, that the data used should not have bias.

The AI system is being used by GST for recording income taxes. Initially the system used to target big taxpayers for assessment but now they have changed. The system looks at taxpayers with high risk scores.

Through use of CCTV camera images the face recognition tools can easily identify faces and government are using them for surveillance. The cameras are surveying who came out, what time the person left, who he/she met and which car a person owns. It is complete surveillance. While people would not want this kind of surveillance, police would like to have at least some information like this so that they can track suspects. In Delhi riots a lot of investigation using the feed from the cameras was done to identify who were the people behind it and who were operating it.

Law enforcement is using AI in hot spot analysis, threat assessment, evidence management, record management, crime, data visualization. Police have a map of the city in their command and control center and identify all hotspots based on the type of crime. Police are also using social media analytics, digital forensics and drone surveillance. The future use of AI is autonomous patrol with use of drones and robots. They are these are all still in the realm of possibility.

Practical applications of AI

- **Development of software codes:** The AI and machines are now capable of developing codes for software, writing music, poems and creating photographs and painting. The software codes written by AI and machines are tested by software developers to remove any bugs and improve outputs. A human being cannot be replaced by AI, but it assists them to be more efficient. AI can design products and images. It can browse other websites to collate information and respond to requests. However, it may hallucinate and give wrong information.
- **Travel planning:** AI can plan complex travel itineraries. For instance, by specifying a simple request such as "I need to go from Delhi to Chennai on Monday and return the next evening," AI can search through connected websites, like Kayak, to find the best travel options and present the cheapest and most convenient options to the user. Conversational AI like chatbots can converse and assist individuals. IRCTC has a chatbot which can talk in regional languages and assist travelers in booking tickets.
- **Data analysis and visualization:** AI tools can quickly analyze large documents and summarize information. This is particularly useful for professionals who need to review extensive reports, like annual reports, in a short period. AI is capable of generating creative content and can be used as a tool for training and education. Tools like Gemini and Tableau are used to present data in graphical forms, making it easier to understand and act upon. For instance, crime data visualization helps identify trends and hotspots and allocate resources more effectively.

- Legal aid: AI can aid in legal matters by helping individuals fill out forms, such as those needed for lodging complaints. A new tool developed by a start up with the help of lawyers is supporting victims of domestic violence who are not allowed to step out. The victims can share their experiences with the tool and it helps them in suggesting possible actions and gives advice. Thereby empowering individuals with limited access to legal resources. In the end the tool asks the user if she wants to lodge a complaint and helps her fill out a form.

However, there are limitations of AI capabilities with respect to accuracy and reliability. AI's responses are not always accurate. Instances of "hallucination," where AI generates incorrect or fabricated information, highlight the need for human oversight and verification. Further AI still struggles with deep contextual understanding. It operates based on patterns and data it has been trained on, which can include biased or incorrect information. The training data for AI includes a mix of accurate and biased information from the internet. This can lead to biased outputs, necessitating careful review of AI-generated content. To get the best responses from AI, users need to provide clear and specific prompts. The quality of the AI's output is heavily dependent on the input it receives.

Discussions

- Highlighting the societal impact of AI tools is important. This will include changes in job roles (like coders) and the need for professionals to adapt to new technologies. The use of these tools ethically is important. However, not using them did not seem to be an option. Therefore, capacity building of work force and job seekers in using AI was necessary.
- Comparing developments in AI between different countries, such as the US, China, and India, there was a discussion on the ownership and control of tech platforms. It was said that India working intensively on developing AI products and tools. Therefore, India must develop its own platforms and tools. The Government of India has launched the National Plan on AI to this end.
- One of the participants noted that during his recent interactions with Delhi and Mumbai police revealed that they were not tech savvy. They did not know anything about artificial intelligence because they believe in brawn more than in the brain. The speaker noted that he had not come across a review on adoption of AI at police station level but his recent interactions established that adoption of AI had not started in police force and a majority of government departments with few exceptions of tax department, customs, intelligence agencies.
- Importance of a strong regulatory and policy framework for ethical use of AI was underscored. Role of Government in regulating AI and ensuring responsible use of technology was considered pivotal.

Conclusion

AI technologies offer immense potential in enhancing human efficiency across various fields by handling routine tasks, providing quick data analysis, and aiding in creative processes. However, their limitations, especially in terms of accuracy and contextual understanding, require users to exercise caution and ensure thorough verification of AI outputs. Ethical considerations and prompt engineering are crucial to maximizing the benefits of AI while mitigating its risks. By leveraging AI responsibly, it can serve as a powerful assistant, augmenting human capabilities and facilitating more efficient workflows.