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The International Year of AI: Navigating Scope and Risk in 2025

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ABSTRACT

This manuscript explores the transformative impact of Artificial Intelligence (AI) in the year 2025, emphasizing its wide applications and challenges. Tracing AI's evolution from its conceptual roots at the 1956 Dartmouth Conference, the paper highlights the rise of generative AI tools like ChatGPT, Claude, Grok, Meta, and Deep Seek etc, which are reshaping industries & business by enabling autonomous multi support. A major milestone is the advent of multimodal AI, such as GPT-4o, GPT – 4.5 , GPT – 4.1 capable of processing and generating across text, audio, video, and images, enabling more human-like interactions. Meta(LlaMA)" is also gaining momentum, offering competitive alternatives to proprietary models and democratising innovation especially for research purposes.

The integration of AI into consumer devices and its role in revolutionizing sectors such as healthcare, Agriculture, education, marketing, and scientific research underscore its pervasive influence. The proliferation of AI start-ups, business models, and strategic investments marks a global economic shift, positioning AI as a foundational platform for the internet or mobile technology. Workforce transformation is a significant theme, with job displacement in the AI era. Governments and organizations are responding with policies, training, and ethical frameworks to address the AI developments and consequences.

Despite its promise, AI brings critical risks. These include job inequality, misinformation via deepfakes, privacy concerns overreliance leading to human deskilling, and cyber security threats. The write up collects the reflections and reality of AI & argues that these challenges must be addressed through transparent governance, ethical AI deployment, and public awareness.

Introduction

Artificial Intelligence (AI) is a transformative field within computer science dedicated to creating machines capable of performing tasks that typically require human intelligence. These tasks encompass learning from experience, reasoning, problem-solving, perception, and language understanding. The term "Artificial Intelligence" was first introduced during the 1956, Dartmouth Conference, where pioneers like John McCarthy, Marvin Minsky, and Claude Shannon envisioned machines that could simulate human cognition (McCarthy et al., 1955). McCarthy, was often regarded as the father

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of AI, defined it as 'the science and engineering of making intelligent machines' (McCarthy, 2007). Since then, AI has evolved into a multifaceted discipline, branching into areas such as machine learning, natural language processing, robotics, and computer vision.

Over the decades, various scholars have conceptualized AI in various ways that capture its evolving capabilities. Marvin Minsky described AI as 'the science of making machines do things that would require intelligence if done by men' (Minsky, 1967). Similarly, Elaine Rich and Kevin Knight defined AI as 'the study of how to make computers do things which, at the moment, people do better' (Rich & Knight, 1991). Russell and Norvig offer one of the most comprehensive definitions, defining AI as 'the study of agents that perceive their environment and take actions to maximize their chances of success' (Russell & Norvig, 2020). To better capture the scope of the discipline, they further divide AI into systems that act and think like humans, as well as those that think and act rationally. At present, AI was also defined as 'the capability of a machine to imitate intelligent human behaviour (IBM, 2023), and as 'the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings' (Copeland, 2024).

1. Mass Deployment of Generative AI

Tools like ChatGPT, Claude, Gemini, and others have moved from novelty to utility in education, work, and creative industries. The mass deployment of generative AI is revolutionizing industries by enabling machines to autonomously create content, such as text, images, and code. This technological advancement is reshaping business operations, enhancing productivity, and fostering innovation (Ali et al., 2025; Haridasan & Jawale, 2024). However, its widespread adoption also presents several challenges that organizations must address to harness its full potential.

2. AI Becomes Multimodal and More Human-like

2025 sees widespread use of multimodal AI can understand and generate text, images, audio, and video. Multimodal AI refers to systems that can process and interpret data from various modalities such as text, speech, images, video, and even gestures simultaneously (Patil, 2024). By combining information across these different channels, multimodal AI models can achieve a more comprehensive understanding of context and intent, leading to more accurate and nuanced responses. The integration of multimodal capabilities enables AI to engage in more human-like interactions. For example, Google's Gemini 2 can process video and audio inputs, converse in natural language, and perform tasks on a user's behalf, such as navigating the web or interpreting visual data from a smartphone camera (Ramachandran, 2024).

3. Open-Source AI Is Catching Up

Open-source AI is rapidly closing the performance gap with proprietary models, empowering developers and enterprises with powerful, cost-effective alternatives. In 2025, several open-source large language models (LLMs) have demonstrated competitive or even superior capabilities compared to their closed-source counterparts (Chen, 2024). This democratizes AI development and reduces reliance on a few tech giants.

4. AI Is Now in Consumer Devices

Artificial Intelligence (AI) has seamlessly integrated into consumer devices in 2025, transforming everyday technology into intelligent, responsive tools that enhance convenience, personalization, and productivity. From smart home appliances to wearable gadgets, AI is now a core component in shaping user experiences across various sectors. Mobile technology has seen significant advancements with AI integration. Samsung's Galaxy AI suite, introduced with the Galaxy S24 series, combines on-device and cloud-based AI technologies to offer features like real-time translation, AI-powered photo editing, and generative search tools. Dedicated AI hardware (like Apple's rumoured AI chips or the Rabbit R1 device) is gaining traction (Ramya & Rao, 2024).

5. Explosion of AI Start-ups, Business models and Investment

The AI startup ecosystem in 2025 is experiencing an unprecedented surge in innovation, investment, and business model diversification. This growth is driven by advancements in generative AI, strategic partnerships, and a global influx of capital, positioning AI as a central pillar of the modern economy, billions in VC funding are pouring into AI startups globally (World Economic Forum, 2025; Economic Times, 2025). Entire industries from healthcare to education are being rebuilt around AI-first principles.

6. Workforce Transformation and Policy Focus

AI is automating routine tasks across various sectors, leading to job displacement in areas like customer service, data entry, and basic analysis. For instance, companies such as IBM and CrowdStrike have reduced human resources positions, reallocating roles towards programming and sales. Conversely, AI is creating new opportunities in fields like data science, AI ethics, and cybersecurity. In India, over two-thirds of workers report career advancements linked to AI adoption, surpassing figures in the US and UK. This reflects a global trend where companies and governments are investing in upskilling initiatives to build AI literacy and readiness. Pharmaceutical and tech firms are leading this push by reskilling employees for AI-driven roles

(Jarrahi, 2023). Governments are introducing policies and frameworks for responsible AI use (e.g., EU AI Act, Biden's AI Executive Order). Companies are investing heavily in AI training, retraining, and ethical deployment, signalling a long-term shift.

7. AI as a Platform Shift

Just like the internet in the 1990s or mobile in the 2000s, AI is now the next platform shift—changing how people access knowledge, communicate, and work. Historically, AI served as a specialized tool within specific applications. However, with the advent of generative AI and large language models (LLMs), AI is now embedded at the core of enterprise operations. This shift is evident in the emergence of AI agents—autonomous systems capable of executing tasks across various domains, from customer service to software development. These agents are not just applications but are becoming the new operating systems upon which, businesses build their processes and services

8. Boost in Productivity and Efficiency

AI is not just a tool but a transformative force reshaping how work is done. By automating routine tasks, enhancing decision-making, and enabling personalized learning, AI empowers employees to focus on higher-value activities, leading to significant performance gains (Peng et al., 2023). As organizations continue to integrate AI into their operations, the future of work promises increased productivity, efficiency, and innovation (Nielson, 2023). AI assistants can automate routine tasks (emails, summarization, and data entry). Professionals in law, finance, healthcare, and education can do more with less.

9. Personalized Experiences

In 2025, artificial intelligence (AI) is revolutionizing customer experiences by enabling hyper-personalized interactions across various sectors. Leveraging vast amounts of data, AI tailors services and communications to individual preferences, behaviours, and needs, enhancing engagement and satisfaction.

Education: AI tutors adapt to student learning styles. AI tutors analyse students' strengths, weaknesses, and preferences to create customized learning journeys. For example, platforms like ALEKS assess a student's knowledge and adjust the curriculum accordingly, ensuring that learners engage with material suited to their current understanding (Harati et al., 2021).

Healthcare: Personalized treatment plans using predictive analytics. AI leverages predictive analytics to create customized treatment strategies by analysing a patient's genetic makeup, medical history, lifestyle, and real-time health data. This approach ensures that therapies are specifically suited to the individual, moving away from the traditional one-size-fits-all model (Olawade et al., 2024).

Marketing: Hyper-personalization goes beyond traditional personalisation by using AI to analyse vast amounts of data—such as browsing behaviour, purchase history, and social interactions—to deliver highly targeted content and advertisements. This approach ensures that each consumer receives messages and offers that are uniquely relevant to them (Devenport, 2023).

10. Increased Access to Knowledge and Tools

Organizations are increasingly adopting AI-powered knowledge management systems to streamline workflows and enhance decision-making. These systems centralize information, making it readily accessible and facilitating collaboration across teams. By reducing redundancy and improving information retrieval, businesses can operate more efficiently and foster a culture of continuous learning .Language translation and voice AI reduce global communication barriers (Ojika et al., 2025; Tanim & Ahmad, 2025).

11. Scientific Discovery and Research

AI accelerates research in climate science, fusion energy, genomics, and materials science by simulating experiments and analysing massive datasets. Artificial intelligence (AI) is profoundly transforming scientific discovery and research, accelerating innovation across disciplines from drug development to environmental science (Bai & Zhang, 2025). AI systems like The AI Scientist-v2 are now capable of autonomously generating hypotheses, designing experiments, analysing data, and drafting peer-reviewed research papers.

Threats and Risks in 2025

Despite of having numerous benefits AI is not a full proof system, it consists of several loopholes.

1. Job Displacement and Inequality

The rapid advancement of artificial intelligence (AI) is reshaping the global workforce, leading to significant job displacement and exacerbating existing inequalities. White-collar jobs (e.g., administrative, customer service, basic programming) are increasingly automated. AI benefits may concentrate among tech giants and wealthy countries, increasing inequality. The World Economic Forum projects that AI could displace 85 million jobs by 2025, while creating 97 million new roles, resulting in a net gain of 12 million jobs (AnalytixLabs, 2024). However, this growth is unevenly

distributed across sectors and regions (World Economic Forum, 2025).

2. Misinformation and Deepfakes

Deepfakes and AI-generated misinformation have escalated into significant global challenges impacting politics, media integrity, and public trust (Islam et al., 2024). Advancements in AI have made it increasingly difficult to distinguish between authentic and manipulated content, prompting governments, tech companies, and civil society to implement countermeasures.AI-generated text, audio, and video can be weaponized for propaganda, scams, and fake news, especially during elections or conflicts (Vaccari & Chadwick, 2020).

3. Privacy and Surveillance

Privacy, and surveillance in India has become a focal point of national discourse. While AI technologies offer advancements in security and efficiency, they also pose significant challenges to individual privacy and civil liberties. The Digi Yatra initiative, launched in 2022, employs facial recognition to streamline airport processes, allowing passengers to use selfies as digital boarding passes (Fianancial Express, 2024). As of late 2024, 28 airports have adopted this system, covering 90% of the nation's air travel. However, concerns have been raised about data security and the potential for government access to personal information, especially in the absence of a fully implemented digital privacy law (The India Forum, 2024).

4. Bias and Discrimination

AI systems can inherit and amplify biases from their training data, leading to unfair decisions in hiring, lending, policing, continues to mirror and, at times, amplify societal biases, leading to concerns about discrimination across various sectors, including hiring, healthcare, and law enforcement. Addressing AI bias requires a multifaceted approach that includes technical, organizational, and societal measures. By implementing these strategies, stakeholders can work towards developing AI systems that are fair, transparent, and inclusive (Ferrara, 2023).

5. Dependence and Human Deskilling

Excessive use of AI tools like ChatGPT can lead to cognitive offloading, where individuals depend on technology for tasks traditionally requiring mental effort. This trend is linked to declines in critical thinking, memory, and creativity. Studies suggest that frequent AI users, especially younger individuals, exhibit reduced problem-solving skills and increased overreliance on technology (Gerlich, 2025).

6. Security Risks

The integration of artificial intelligence (AI) into various sectors has introduced significant cybersecurity risks. These risks are not only technical but also organizational and geopolitical, requiring a comprehensive approach to mitigation. AI can be used for cyberattacks, autonomous drones, or building malicious code. To navigate this AI era responsibly, both regulation and education are key, governments need to set ethical and legal boundaries (Kulothungan, 2025).

Way Forward

Gone are those days, where human beings were using artifacts for communicating with each other. The paradigm shift from discovering fire to sustain till discovering an artificial cognition system, we have come a long way. Today's fingertip generation holds whole information and communication system in their gadgets. There will be shift from memory-based learning to reasoning based learning. Artificial Intelligence developed as a problem-solving tool, where it acts as a virtual human mind. Technologies are developed for backstepping human civilization, not replacing the human mind. Irrespective of having several strengths it could harm human mind by making it idle by over adoption of AI. AI holds immense promise to enhance various facets of human life. However, to fully realize its benefits, it is crucial to address the ethical, societal, and environmental challenges it presents. Through responsible development, transparent practices, and inclusive policies, AI can be harnessed to create a more equitable and sustainable future.

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