International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 11, CONFLUENCE - 2026

AI Applications in Business, Education and Society

Krishna B G,
3rd Year BCA (DEPARTMENT OF BCA)
Balaram M,
ASSISTANT PROFESSOR (DEPARTMENT OF [DEPARTMENT])
BMS COLLEGE OF COMMERCE AND MANAGEMENT

Abstract - Artificial Intelligence (AI) is one of the important technologies that is changing the way people work and live. AI allows computers and machines to perform tasks that normally require human intelligence, such as learning, problem-solving, decision-making, and understanding language. Today, AI is being used in many areas, especially business, education, and society.

In business, AI is used for customer service, data analysis, marketing, fraud detection, and automation of routine tasks. It helps organizations save time, reduce costs, and make better decisions. In education, AI can provide personalized learning, online learning assistance, automatic assessment, and intelligent tutoring systems. It helps students learn according to their needs and provides teachers with useful information about student performance.

In society, AI is used in healthcare, transportation, security, communication, and various public services. AI can make services faster and more efficient, but it also creates concerns related to privacy, job opportunities, security, and the responsible use of technology. Therefore, AI should be developed and used carefully.

Overall, AI has the potential to bring many positive changes to business, education, and society. Proper knowledge, ethical practices, and responsible use of AI are important to ensure that its benefits reach people in a safe and useful way.

Keywords: Artificial Intelligence (AI), Machine Learning, Business Automation, Personalized Learning, Intelligent Education, Healthcare, Data Analysis, Ethical AI, Privacy, Society.

INTRODUCTION:

Artificial Intelligence (AI) is a branch of computer science that focuses on building machines and software that can think, learn and act in ways that normally require human intelligence The idea is not new, but progress in computing power, the availability of huge amounts of data and better learning algorithms has moved AI from research laboratories into everyday life. Voice assistants, product recommendations, online translation, spam filters and navigation applications are all examples of AI that ordinary people use daily, often without noticing it.

AI is now influencing almost every sector. Organizations use it to understand customers and run operations more efficiently, schools and colleges use it to support teaching and learning, and governments and public institutions use it to improve healthcare, transport, safety and public services. At the same time, AI raises serious questions about data privacy, fairness, job security and accountability. This paper therefore studies

(This work is licensed under a Creative Commons Attribution 4.0 International License.)

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 11, CONFLUENCE - 2026

the applications of AI in three important areas – business, education and society – and also discusses the challenges and the ethical practices needed for its responsible use.

UNDERSTANDING ARTIFICIAL INTELLIGENCE:

AI is not a single technology but a group of related techniques. The most important ones used in the applications discussed in this paper are:

1. **Machine Learning (ML):** Systems learn patterns from data and improve their performance with experience instead of being programmed with fixed rules. For example, a bank system can learn from past transactions to identify suspicious ones.
2. **Deep Learning:** A part of machine learning that uses multi-layered artificial neural networks. It is widely used for image recognition, speech recognition and language understanding.
3. **Natural Language Processing (NLP):** Enables computers to understand, interpret and generate human language. Chatbots, translation tools and voice assistants depend on NLP.
4. **Computer Vision:** Allows machines to analyze images and videos, for example to read medical scans or to recognize faces and objects.
5. **Generative AI:** Models that can create new text, images, audio, code and other content from a user's instructions (prompts). These tools have rapidly spread into workplaces and classrooms.

AI APPLICATIONS IN BUSINESS:

Businesses adopt AI mainly to save time, reduce costs and make better decisions. Studies of early corporate adopters show that the most common uses are automating routine work, gaining insight from data and engaging with customers and employees . The major applications are described below.

Customer Service:

AI-powered chatbots and virtual assistants answer common customer questions, track orders, handle complaints and book appointments at any time of day. They can serve many customers at once, reduce waiting time and pass only the complicated cases to human staff. Sentiment analysis also helps companies understand how customers feel about their products and services from reviews and social media.

Data Analysis and Decision-Making:

Companies generate large amounts of data about sales, stock, finances and customer behavior. Machine learning models can analyze this data much faster than people, identify trends and make predictions such as future demand, sales forecasts or the risk of a customer leaving. Managers can use these insights to make decisions based on evidence rather than guesswork.

Marketing and Sales:

AI helps businesses divide customers into groups, understand their preferences and send personalized offers. Recommendation systems used by e-commerce and streaming platforms suggest products or content that match each user's interests, which increases customer satisfaction and sales. AI tools can also assist in creating advertisements, product descriptions and campaign content.

(This work is licensed under a Creative Commons Attribution 4.0 International License.)

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 11, CONFLUENCE - 2026

Fraud Detection and Risk Management:

In banking, insurance and online payments, AI systems monitor transactions in real time and compare them with normal behavior. Unusual patterns, such as a sudden large payment from a new location, can be flagged or blocked within seconds. This protects both organizations and customers and is far more effective than manual checking.

Automation of Routine Tasks:

Repetitive tasks such as data entry, invoice processing, report preparation, resume screening and scheduling can be automated using AI and robotic process automation. This reduces human error, saves time and lets employees concentrate on creative, strategic and people-oriented work. In supply chains, AI is also used to forecast demand, manage inventory and plan delivery routes.

AI APPLICATIONS IN EDUCATION:

Education is another area where AI is creating major changes. Because every student learns at a different speed and in a different way, AI offers the possibility of support that adjusts to each learner.

Personalized Learning:

Adaptive learning platforms study a student's answers, speed and mistakes, and then change the difficulty level, suggest suitable study material and recommend topics for revision. A student who is weak in one topic receives extra practice, while a fast learner can move ahead. This helps students learn according to their own needs.

Intelligent Tutoring Systems and Learning Assistance:

Intelligent tutoring systems give step-by-step hints and instant feedback, similar to a personal tutor. AI chat assistants can explain concepts in simple language, answer questions at any time and help with language learning, which is especially useful for online and distance learning.

Automatic Assessment:

AI can grade objective tests instantly and can also support the evaluation of written answers, programming assignments and spoken language. Quick feedback helps students correct mistakes while the topic is still fresh, and teachers save a large amount of time that can be used for teaching and mentoring.

Support for Teachers and Institutions:

Learning analytics tools collect information about attendance, participation and test results and can alert teachers about students who are at risk of falling behind or dropping out. AI also assists in preparing lesson plans, quizzes and study materials, and in managing administrative work such as admissions and timetable scheduling.

Accessibility and Inclusion:

Speech-to-text, text-to-speech, automatic captions and translation tools make learning easier for students with visual, hearing or learning difficulties and for those who study in a language other than their mother tongue

AI APPLICATIONS IN SOCIETY:

Beyond business and education, AI is being used in many public and everyday services.

(This work is licensed under a Creative Commons Attribution 4.0 International License.)

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 11, CONFLUENCE - 2026

1. **Healthcare:** AI helps doctors to detect diseases such as cancer, diabetic eye disease and lung problems from medical images, predicts patient risk, supports drug discovery and powers virtual health assistants. It does not replace doctors but helps them to diagnose faster and more accurately.
2. **Transportation:** Navigation applications, intelligent traffic signals, ride-sharing services and driver-assistance features use AI to reduce travel time, congestion and accidents. Self-driving vehicles are still being tested and improved.
3. **Security and Safety:** AI is used for cyber security, spam and malware detection, face and voice recognition and video monitoring. It can identify threats quickly, but it must be used carefully so that individual privacy is not harmed.
4. **Communication:** Machine translation, voice assistants, speech recognition and content recommendation make communication easier across languages and distances.
5. **Public Services and Smart Cities:** Governments use AI to detect welfare fraud, answer citizens' queries through chatbots, manage energy and water, and plan cities. National strategies such as India's "AI for All" aim to use AI for inclusive growth in areas like agriculture, health and education.

Table 1 summarizes the applications of AI discussed in this paper.

Domain	Key AI Applications	Main Benefits
Business	Chatbots, predictive analytics, targeted marketing, fraud detection, process automation	Lower costs, faster service, better decisions, reduced fraud
Education	Personalized learning, intelligent tutoring, automatic assessment, learning analytics	Learning at own pace, less teacher workload, early support for weak students
Society	Healthcare diagnosis, traffic management, surveillance and security, translation, e-governance	Faster and more efficient public services, improved safety and access

Table 1: Summary of AI applications and benefits

CHALLENGES AND ETHICAL CONCERNS:

Along with its benefits, AI brings important risks that must be handled carefully [8][9].

- **Privacy and data protection:** AI systems need large amounts of personal data. If this data is collected without consent, stored insecurely or misused, individuals can be harmed. Laws such as the General Data Protection Regulation (GDPR) [11] have been introduced to protect personal data.
- **Job opportunities:** Automation may replace some routine jobs, while also creating new roles that need digital and AI skills. Reskilling and continuous learning are therefore necessary for workers .
- **Bias and fairness:** AI learns from data. If the data contains human bias, the system may treat people unfairly in areas such as hiring, lending or admissions.
- **Security risks:** AI can be misused to create fake content (deepfakes), phishing messages and automated cyber attacks, and AI systems themselves can be attacked or manipulated.
- **Transparency and accountability:** Many AI models work like a "black box", making it difficult to explain why a decision was made and who is responsible when something goes wrong.

(This work is licensed under a Creative Commons Attribution 4.0 International License.)

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 11, CONFLUENCE - 2026

- **Academic integrity and over-dependence:** In education, careless use of AI tools may encourage copying and reduce students' own thinking, writing and problem-solving skills.
- **Digital divide:** People without internet access, devices or digital skills may be left behind, increasing existing inequalities.

RESPONSIBLE USE OF AI:

Common principles found in AI ethics guidelines around the world include transparency, fairness, privacy, safety, accountability and human control [8][9]. To ensure that the benefits of AI reach people safely, the following practices are recommended:

1. Keep humans in control of important decisions, with AI acting as a supporting tool.
2. Collect only the data that is needed, obtain consent and protect it with strong security.
3. Test AI systems regularly for bias and errors and make their decisions explainable.
4. Provide AI literacy and training to students, teachers, employees and citizens.
5. Develop clear policies and laws through cooperation between governments, industry, educational institutions and society.

FUTURE SCOPE:

AI is expected to become more closely connected with daily life. In business, more advanced automation and AI assistants will support employees in almost every function. In education, learning is likely to become more personalized, with AI tutors and tools that support both students and teachers. In society, AI will contribute to early disease detection, safer transport, smarter and more sustainable cities and better access to public services. The challenge for the future is not only to make AI more powerful but also to make it trustworthy, inclusive and human-centered.

CONCLUSION:

This paper has discussed how AI is being applied in business, education and society. In business, it improves customer service, analysis, marketing, fraud detection and automation. In education, it enables personalized learning, intelligent tutoring and faster assessment. In society, it supports healthcare, transportation, security, communication and public services. However, issues of privacy, jobs, bias, security and accountability must not be ignored. With proper knowledge, ethical practices and responsible use, AI can be a powerful tool to build a more efficient, inclusive and useful future for everyone.

REFERENCES:

[1] S. Russell and P. Norvig, Artificial Intelligence: A Modern Approach, 4th ed. Pearson, 2020.

[2] E. Brynjolfsson and A. McAfee, The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies. W. W. Norton & Company, 2014.

[3] T. H. Davenport and R. Ronanki, "Artificial Intelligence for the Real World," Harvard Business Review, vol. 96, no. 1, pp. 108–116, 2018.

[4] W. Holmes, M. Bialik and C. Fadel, Artificial Intelligence in Education: Promises and Implications for Teaching and Learning. Center for Curriculum Redesign, 2019.

[5] R. Luckin, W. Holmes, M. Griffiths and L. B. Forcier, Intelligence Unleashed: An Argument for AI in Education. Pearson, 2016.

[6] UNESCO, AI and Education: Guidance for Policy-makers. UNESCO, Paris, 2021.

[7] E. J. Topol, "High-performance medicine: the convergence of human and artificial intelligence," Nature Medicine, vol. 25, pp. 44–56, 2019.

[8] L. Floridi et al., "AI4People—An Ethical Framework for a Good AI Society: Opportunities, Risks, Principles, and Recommendations," Minds and Machines, vol. 28, pp. 689–707, 2018.

(This work is licensed under a Creative Commons Attribution 4.0 International License.)

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 11, CONFLUENCE - 2026

[9] A. Jobin, M. Ienca and E. Vayena, "The global landscape of AI ethics guidelines," Nature Machine Intelligence, vol. 1, pp. 389–399, 2019.

[10] NITI Aayog, National Strategy for Artificial Intelligence: #AIforAll. Government of India, 2018.

[11] European Parliament and Council, Regulation (EU) 2016/679 (General Data Protection Regulation), 2016.

(This work is licensed under a Creative Commons Attribution 4.0 International License.)