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Artificial Intelligence Revolution in India

Mrs. Sunindita Pan
Assistant Professor, Economics
Loyola Academy Degree and PG College, Secunderabad, Telangana

Abstract: *India is hub of technical revolution. India has tech savvy population and digitalization of economy is taking place at unfrequented rate. India is on brink of Artificial intelligence revolution India's 1.4 billion population is optimist about AI technology .India has created dynamic digital ecosystem .India has 386 of total 22,000 PhD researcher worldwide. Globally India was ranked 13th with presenters at leading conferences constituted at institutes like IITs, IIITs and ISC. AI has potential to help economic growth through intelligent automation, labor and capital augmentation and innovation diffusion. AI augments human capabilities ad not replaces in employment opportunities. AI helps in decision making of any economic activity by performing automotive works, provides data driven information quickly and analyses efficiently.*

Keywords: Technical revolution, Artificial intelligence, digital ecosystem

I. INTRODUCTION

The terms Artificial intelligence, deep learning and machine learning are used similarly.AI is term used for using approaches of machines using software approaches with human intelligence of solving problems. AI plays crucial role in the development of the economy. AI will help in healthcare, education agriculture, manufacturing sector, road safety; thereby revolutionizing India.AI holds immense potential in different sector of the country.AI executes difficult and repetitive tasks and help workers to focus son on more productive wok.AI helps in supply chain management. It also adopts data driven approach in business which further reduces costs and improve customer experience.AI can address global challenges and problems like climate change

Evolution of AI

In 1956, the term was first coined by John McCarthy at Darmol College, which laid foundation for AI, R&D. IN 1960 concept of artificial intelligence made its way into academic world of India. Computer science education gained momentum. Computer science engineering and technology was being recognized by government educational institutions like Indian institute of Technology and Indian Statistical Institute during 1980's. 1990's witnessed the growth of IT sector due to liberalization of economy. In 1995, Indian National Science Academy acknowledged the importance of AI. Since 2000 real growth and integration started with the global world. Many conferences and workshops were being organized to create awareness. In 2016, Digital India initiative of government promoted the use of AI in governance and services. In 2020, govt released its National Strategy for the need of AI in different sectors of India

CONSTITUENTS OF AI

1. MACHINE LEARNING-deep learning-supervised and unsupervised
2. Natural language processing- content extraction, classification, machine translation, question answering, text generation.
3. Vision – image recognition, machine vision
4. speech- speech to text, text to speech
5. Robotics

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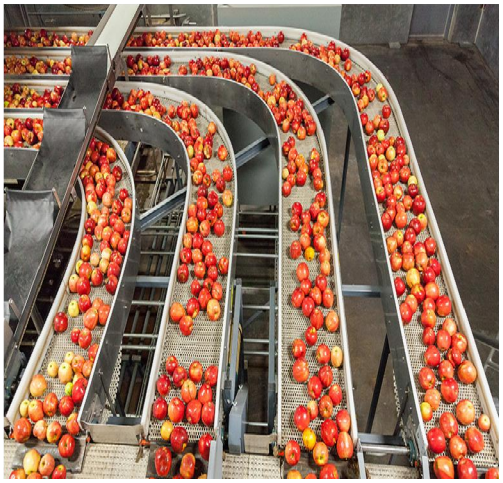
Factors determining AI adoption

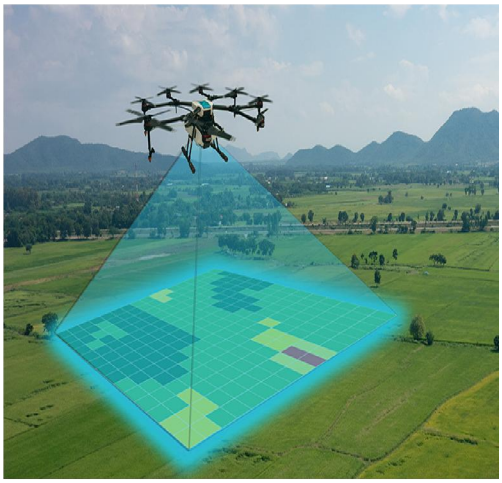
- Technical feasibility
- Regulatory norms
- Availability of structured data
- Privacy issues
- Ethical issues

Application of AI in different sectors of India

- Agriculture
- Precision tilling
- Crop vaticinator
- Request price soothsaying

AI helps to solve many challenges of agriculture and diminish them. AI can forecast market trends and price and determine time for sowing and harvest. Farm management t software helps production with profitability. Precise farming helps farmers to g row more crops with fewer amounts of resources. Digital automation is being witnessed as mechanization of agriculture sector again-smart irrigation, fertilization system, drones, smart spraying, vertical farming techniques, and green house robots. Algorithms help to identify patterns and potential leaks. AI helps to detect black rot and identify insects accurately. Cattle Eye uses drones to monitor cattle health to help raise milk production.





Healthcare

- Medical opinion
- Developments
- Individual drugs

IBM'S Watson AI system in 2011 marked the beginning. Many other tech giants like Apple, Microsoft and Amazon are investing in healthcare sector. AI helps in maintaining electronic health records. AI is turning to be game changer.

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Algorithms can identify patterns and predict accurately. The common application is Precision Medicine which predicts effective treatment. Natural Language Processing helps in accurate diagnosis of illness of each patient based on past record. Robotic Process automation is used for repetitive tasks. Companies like Niramai, canccr detection and Qurea are major players.

Manufacturing sector

Quality control, Robotics, Predictive analysis and conservation Supply chain management, Warehouse management, performance optimization, order management, cobots, assembly line optimization, new product development, demand forecasting, connected factories are the areas where AI is use effectively. AI helps to reduce cost and raises growth, stay resilient in spite of supply chain management, end to end visibility of manufacturing processes, tackle challenges and reduce waste and ensue efficiency.

Financial sector

- Discovery of fraud
- Assessment of credit threat
- Financial advice

Banks and fintech startups are leveraging AI to offer products to customers.

Education

- Automated grading system AI assistant Siksha copilot can draw up lesson plans quickly and enhance teaching learning for teacher and students.
- Personalized learning platforms=sarvam AI is cost effective a more accurate AI models targeting Indic languages. Karya builds database in Indian languages for research and job creation for Indian rural people.

Transport sector

- Self driving cars
- Route optimization

Road safety is most important issues in India .in 2019, Ministry of road transport and highways reported 151 thousand deaths. India is facing a crisis road safety

Retail sector

- Chatbots for client services
- Demand soothsaying

Government initiatives-NITI AYOG STRATEGY

NITI AYOG started national strategy IN 2018 Entitled for all, focusing on AI applications in key sectors of economy like healthcare, agriculture, education transportation, smart cities and infrastructure. Again, in 2020 AI portal was setup to serve resource hub for developments and resources.. A research centres were started for excellence to promote research, innovation an collaboration industry-academia via government.

Benefits of AI

- Improves productivity and increases efficiency
- Better decision
- Revolution in healthcare
- Enhances security and prevents frauds
- Improves agricultural growth
- Reduces human error
- Enhances economic growth

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Challenges

- Data infrastructure/privacy
- Job loss/displacement
- Skill gap
- Ethical issues
- Inclusiveness
- Misutilization for malicious uses
- Lack of transparency
- Loss of human control

Trends in AI

Future of AI is transformative. Some of the key prospects in future are

- Advanced applications-AI will find more advanced personalized services in future based on customer needs.
- Autonomous system- automotive systems will develop more in industries
- Communication-AI will help understand human behavior and interpret them
- Ethics-it has to deal with issues of privacy, fairness and discrimination/
- Work force-new occupational fields will require retraining of work force.
- Research and development

II. CONCLUSION AND SUGGESTIONS

It is evident that AI will play crucial role in shaping the future. There are both challenges and opportunities. AI should be use for human benefits.

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