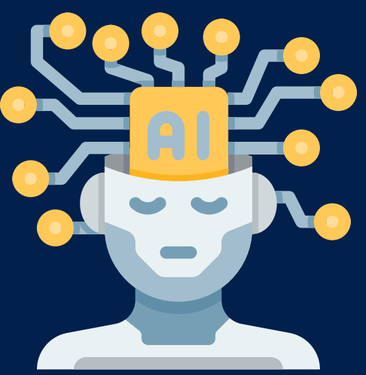
# ADHYAYAN'23

## THE DUO

AI

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# THE AI INDUSTRY

## Introduction

The AI industry, has been rapidly growing over the past decade. It involves the development of computer systems that can perform tasks that typically require human intelligence, such as visual perception, speech recognition, decision-making, and natural language processing.

## Applications

- Machine learning
- Deep learning
- Natural language processing
- Computer vision
- Robotics
- Autonomous vehicles

## Driving force

- Availability of large amounts of data
- The development of more powerful computing systems
- Significant investment in the industry from both private and public sectors.

## Leading companies

Some of the leading companies in the AI industry include tech giants such as Google, Microsoft, Amazon, and IBM, as well as a growing number of startups focused on developing AI technologies.

# CURRENT SCENARIO AND GROWTH OF AI

**The projected growth of AI in numbers is difficult to predict with certainty, as it will depend on a variety of factors such as technological advancements, economic conditions, and regulatory environments. However, there are some estimates and projections that suggest significant growth in the field of AI in the coming years.**

Furthermore, a report by McKinsey Global Institute estimates that AI could potentially contribute $13 trillion to global economic activity by 2030, with the most significant gains expected in industries such as healthcare, retail, and manufacturing.

McKinsey & Company

According to a report by ResearchAndMarkets, the global AI market is expected to reach $733.7 billion by 2027, growing at a CAGR (compound annual growth rate) of 42.2% from 2020 to 2027. The report cites factors such as the increasing adoption of cloud-based technology, the growth of big data, and the development of more powerful computing resources as driving the growth of the AI market.

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Another report by IDC predicts that worldwide spending on AI will grow from $50.1 billion in 2020 to over $110 billion in 2024, with a CAGR of 20.1%. The report highlights industries such as retail, banking, and healthcare as being significant drivers of AI spending.

IDC
Analyze the Future

# APPLICATION OF AI

## Automation

**AI can automate tasks that were previously performed by humans, resulting in increased efficiency, reduced errors, and cost savings. This can lead to significant disruption in industries that rely on manual labor, such as manufacturing, logistics, and customer service.**

## Personalization

**AI algorithms can analyze customer data and behavior to provide personalized recommendations, improving customer satisfaction and loyalty. This can disrupt industries such as retail, hospitality, and entertainment.**

## Enhanced Decision making

**AI algorithms can analyze complex data and provide insights that humans may miss, leading to better decision-making in industries such as healthcare, finance, and marketing.**

## Predictive Analytics

**AI algorithms can analyze large amounts of data and predict future trends and behaviors. This can be used to make strategic decisions and gain a competitive advantage in industries such as finance, marketing, and retail.**

# 1 Disruption in Healthcare

## Electronic Health Records (EHRs)

AI is being used to analyze patient data in EHRs to identify potential health risks and predict patient outcomes. A study published in The Lancet Digital Health found that an AI algorithm could predict hospital readmissions with an accuracy rate of 84%.

## Remote Patient Monitoring

AI is being used to enable remote patient monitoring, allowing healthcare providers to monitor patient health in real-time and intervene before problems become serious. A study published in JAMA Network Open found that an AI-powered system for monitoring patients with

## Drug Discovery

AI is being used to accelerate the drug discovery process. A study published in Nature found that an AI algorithm could predict the binding of potential drug candidates to proteins with an accuracy rate of 94%.

## Personalized Medicine

AI is being used to develop personalized treatment plans for patients. A study published in Nature Medicine found that an AI algorithm could analyze patient data, such as genetics and medical history, to predict the effectiveness of chemotherapy for breast cancer patients.

## Medical Imaging

AI is being used to analyze medical images, such as X-rays and CT scans, to detect diseases such as cancer. A study published in the Journal of the National Cancer Institute found that an AI algorithm could detect breast cancer in mammograms with an accuracy rate of 90%, which is similar to that of experienced radiologists.

# DATA AND FACTS SUPPORTING NEED OF AI IN HEALTHCARE

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## INNOVATION:

- **Development of personalized treatment plans using machine learning algorithms.The idea behind this solution is to use AI to analyze large sets of patient data, including electronic health records, medical imaging, and genetic information.**
- **AI algorithm can continuously learn and adapt based on new patient data, helping to improve treatment plans over time and ensuring that patients receive the most up-to-date and effective care. This can lead to better health outcomes, reduced healthcare costs, and improved patient satisfaction.**

# 2 Disruption in E-COMMERCE

**AI can analyze a user's browsing and purchasing history, preferences, and other data to make personalized recommendations for products that the user is likely to be interested in., the global AI in the e-commerce market size is expected to grow from USD 5.8 billion in 2020 to USD 16.2 billion by 2025, at a CAGR of 22.7% during the forecast period. This growth can be attributed to the increasing adoption of AI by e-commerce businesses**

## Hybrid Filtering

This technique combines both collaborative and content-based filtering to provide more accurate and diverse recommendations

## Collaborative filtering

This technique involves analyzing the preferences of users who have similar preferences to the current user and recommending products that those similar users have liked.

## Content-based filtering:

This technique involves analyzing the attributes of the products that the user has previously interacted with and recommending similar products based on those attributes

## Chatbots and virtual assistants:

AI-powered chatbots and virtual assistants can handle routine customer inquiries such as order status and returns, freeing up customer service staff to focus on more complex issues..

## Fraud detection:

AI algorithms can analyze customer data to detect fraudulent activities such as fake reviews and purchases, protecting both the e-commerce business and its customers.

## Image and voice recognition

: AI algorithms can analyze images and recognize voice commands to simplify the shopping experience by identifying the product and providing purchasing options

# 3 Disruption in CyberSecurity

**A report by MarketsandMarkets estimates that the global market for AI-based cybersecurity will grow from $8.8 billion in 2019 to $38.2 billion by 2026, representing a compound annual growth rate of 23.3%. According to a study by IBM, organizations that have automated their cybersecurity response can contain a cyber attack in an average of 72 days, compared to 146 days for organizations without automated response.**

## Vulnerability Assessment:

AI can be used to identify vulnerabilities in computer systems and software applications. AI-based vulnerability scanners can analyze source code and detect security flaws that might be missed by human testers. This can help organizations to proactively address security issues before they are exploited by attackers

## Fraud Detection:

AI can be used to detect and prevent fraud, including identity theft, credit card fraud, and other types of financial fraud. By analyzing data from multiple sources, AI algorithms can identify suspicious transactions and flag them for review by human analysts.

## Threat Detection:

AI algorithms can analyze vast amounts of data and detect patterns that are indicative of cyber threats. By monitoring network traffic, system logs, and user behavior, AI-based cybersecurity systems can identify potential threats that might go unnoticed by humans. This can allow organizations to respond quickly to threats and prevent attacks before they cause significant damage.

## Automated Response:

AI-based cybersecurity systems can be programmed to automatically respond to threats in real-time. For example, an AI system might detect a malicious file attachment and automatically quarantine the attachment or block the email sender. This can reduce the response time and minimize the impact of an attack.


Thank
You!