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ARTIFICIAL INTELLIGENCE IN INFORMATION TECHNOLOGY

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ABSTRCT

Artificial Intelligence also defines various concepts within the field of computer science. Artificial Intelligence aims at creating machines that can think and work like the human brain. Engineers are currently creating robots that help in the manufacturing, assembling, and commercial industries. Artificial Intelligence is a broad field that encompasses various concepts in Information Technology. This research paper focuses on different technologies in AI and how they apply to improve the performance of multiple sectors. The purpose of this study is to discuss Artificial Intelligence and its present and future applications. AI is the foundation of multiple concepts, such as computing, software creation, and data transmission. The technologies that use AI are machine learning, deep learning, Natural Language Generation, speech recognition, robotics, and biometric identification. AI applies to many sectors such as healthcare sectors, assembling and manufacturing industries, business organizations, and in the automotive industries.

KEYWORDS: *Artificial Intelligence, Machine Learning, Speech Recognition and Biometrics.*

INTRODUCTION

Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Examples of AI applications include expert systems, natural language processing (NLP), speech recognition and machine vision. A rather widely accepted definition of AI, also a relatively early one, was proposed by John McCarthy at the 1956 Dartmouth Conference, which outlined that artificial intelligence is about letting a machine simulate the intelligent behavior of humans as precisely as it can be. However, this definition seemingly ignores the possi They can understand and respond to human language. They can learn from new information and experience. They can make detailed recommendations to users and experts. Artificial intelligence (AI) is a set of technologies that enable computers to perform a variety of advanced functions, including the ability to see, understand and translate spoken and written language, analyze data, make recommendations, and more. bility of strong artificial intelligence (which means the machine that has the ability or intelligence to solve problems by reasoning). Artificial intelligence (AI) is technology that enables computers and machines to simulate human learning, comprehension, problem solving.

Objectives in AI with IT

1. Improve Decision-Making
2. Improving Natural Language Processing
3. Advances in Machine Learning and Data Science
4. Empowering Computer Vision
5. Personalized User Experiences
6. Promoting Ethical AI Development
7. Improving safety and security
8. Improving Human AI Collaboration
9. Driving Innovation.

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SPECIFIC OBJECTIVES OF AI IN DIFFERENT FIELDS

1.Health Care
2.Finance
3.Education
4.Entertainment
5.Manufacture

LITERATURE REVIEW

The United States of America is one of the nations that apply Artificial Intelligence in many technology and business sectors. With President Trump's election, the U.S has invested massive funds to develop AI in many areas, such as the military, which are essential to the nation. Srivastava (2020) opines that the U.S government invests in AI since it is crucial in maintaining the economy and national security to protect the lives and citizens of the U.S. Not to forget, the government promotes Federal Investment in Artificial Intelligence collaborating different industries, academic institutions, and other non-federal agencies to innovate and develop various sectors by using Artificial Intelligence (Srivastava, 2020). The government of the U.S believes that Artificial Intelligence will be of great importance in facilitating good governance and global leadership in terms of global military supremacy and technology. AI can perform in-depth text analysis, identifying patterns, trends, and insights that might not be immediately apparent. Techniques such as sentiment analysis, topic modelling , and keyword extraction can reveal underlying themes and connections within the literature. Artificial intelligence is one of the fastest growing areas in the field of computer technology .Intention is to provide an overview of modern artificial intelligences technologies applied in various branches of Safety in Emergency Situation and summarize modern emergency management system .

Methodology in AI in IT: The object of the study was research on safety in emergency situations, presents in global stream of specific articles published in 2005-2020 and indexed in the abstract-bibliographic databases Scopus and the Russian Science Citation Index.

Results and discussion in AI in IT: A review of modern artificial intelligence technologies made it possible to create a generalized classification of its system used in various branches of securities in emergency situations ,including for preventing the development of crisis situations, and to show the main examples of us in this branch of knowledge.

Artificial Intelligence Meets Information Technology:

Agree or not, most technological innovations are the products of information technology. But what's taming the data complexity is the fusion of artificial intelligence technology and information technology. Undoubtedly, for the IT industry, AI is the stepping stone that is transforming its systems into intelligent solutions for scaling IT functionalities. But what's making them so intelligent in the IT landscape? It's the Robotic Process Automation (RPA) software and optimization that forms the two core functionalities of AI. Combined with artificial intelligence, robotic process automation is replacing the IT operations and tasks to automate data processing and decision making. The biggest benefit? Organizations can automate mundane business tasks to free up humans to indulge in more brain-intensive tasks than ever!

OVERVIEW OF ARTIFICIAL INTLLIGNC IN INFORMATION TECHNOLOGY

AI's role within the information technology industry is to enable computers to perform tasks that would typically need human intervention. This technology uses computer-based learning and algorithms. As a result, AI and machine learning create systems that can imitate human behaviour . Artificial Intelligence explained. Artificial intelligence is the simulation of human intelligence process by machines, especially computer system.Examples of AI applications include expert systems, natural language processing (NLP), speech recognition and machine vision. Artificial intelligence (AI) is a set of technologies that enable computers to perform a variety of advanced functions, including the ability to see, understand and translate spoken and written language, analyze data, make recommendations, and more. Artificial intelligence (AI) is a set of technologies that enable computers to perform a variety of advanced functions, including the ability to see, understand and translate spoken and written language, analyze data, make recommendations, and more to involve intelligence.

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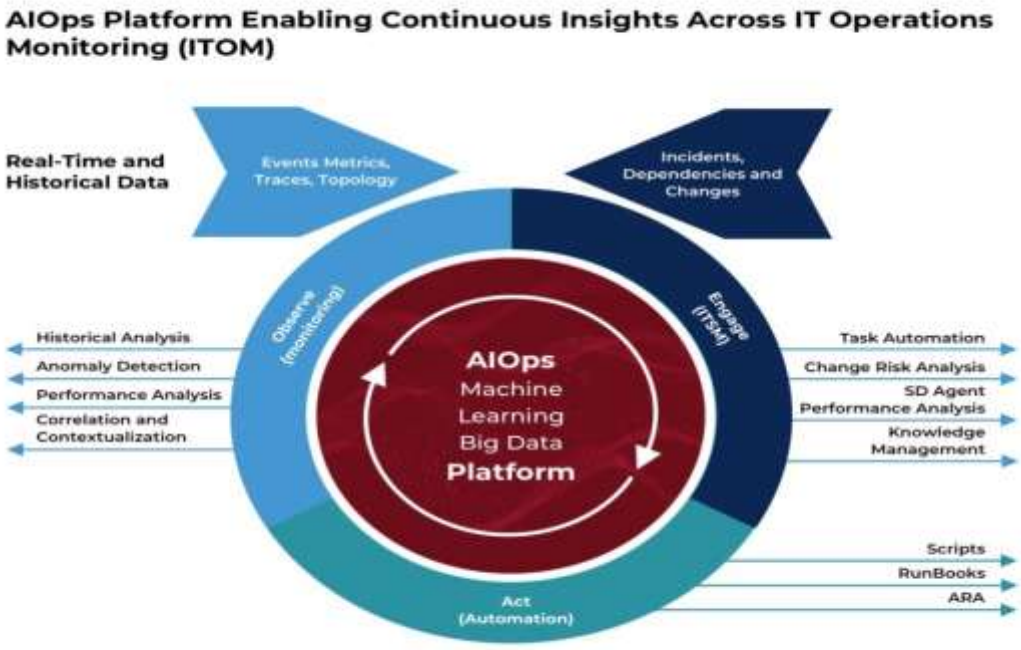
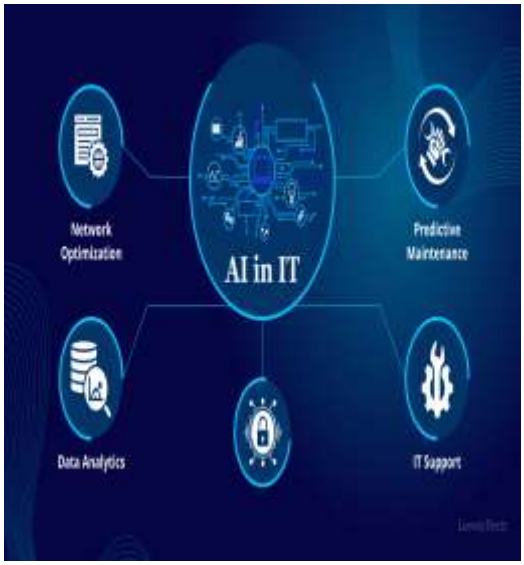


The History of Artificial Intelligence

AI's history began in the mid-20th century with pioneers like Alan Turing**.** Turing's work is the foundation of AI. His Turing Test is still used to measure a machine's ability to act intelligently like a human. The term "Artificial Intelligence" was first coined by John McCarthy in 1956 at the Dartmouth conference where the core mission of AI, "to create machines that are capable of performing tasks that require intelligence when performed by humans", was established. AI has evolved from simple rules to complex machine learning and deep learning**.** This advancement enables machines to learn and enhance themselves through experience, just like humans.



The role of AI in the IT industry

AI plays a pivotal role in the IT industry. It has the potential to automate routine tasks, provide predictive analysis, and enable advanced system programming and automation**.**

AI technologies like machine learning and deep learning are being used to create more intuitive and sophisticated software applications.

AI has also been instrumental in the field of data analysis**.** It can process and analyze large volumes of data far more efficiently and accurately than human analysts. This capability is particularly useful in the IT industry, where data-driven decision-making is crucial.

Applications of AI in IT

AI is being used in various areas within the IT industry. Here are a few use cases

AI for software development: AI can automate various aspects of software development, including code generation, bug detection, and requirement analysis. This not only speeds up the development process but also improves the quality of the software.

AI for data analysis: AI algorithms can process and analyze large volumes of data to extract meaningful insights. These insights can be used to make data-driven decisions, predict trends, and identify anomalies.

AI for cybersecurity: AI can enhance cybersecurity by detecting and responding to threats in real-time. It can identify patterns in data that may indicate a cyber-attack and take preventive measures.

AI for IT infrastructure management: AI can automate routine tasks in IT infrastructure management, such as monitoring system performance, managing resources, and troubleshooting issues..

AI in fraud detection: AI can significantly enhance fraud detection by identifying patterns and anomalies that may indicate fraudulent activity. Machine learning algorithms can

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learn from historical fraud data and detect fraudulent transactions in real-time, reducing losses and improving customer trust.

Many IT companies have successfully implemented AI to improve their operations, products, and services. Here are a few examples:

- **Open AI:** Open AI as one of the leading organizations in the field of artificial intelligence, uses AI in a multitude of ways, both in its research endeavors and in the products and services it offers.
- **Google:** Google uses AI in various products and services, including BARD search, YouTube recommendations, and Google Assistant. They also use AI for internal purposes, such as data center cooling and energy usage.
- **IBM:** IBM's AI platform, Watson, has been used in various industries for purposes ranging from cancer research to weather prediction. In the IT industry, Watson provides AI-powered IT operations (AIOps) solutions to automate and enhance IT infrastructure management.
- **Microsoft:** Microsoft uses AI in its products like Office 365 and Azure. They also provide AI solutions for businesses, such as AI Builder, a no-code AI solution that allows businesses to build custom AI models.
- **Amazon:** Amazon uses AI for product recommendations, fraud detection, and Alexa, their virtual assistant. They also provide AI services through Amazon Web Services (AWS), including machine learning services and AI app development tools.
- **LeanIX:** LeanIX AI Assistant boosts team productivity and effectiveness while ensuring that confidential EA data remains secure. As a built-in capability for the LeanIX Continuous Transformation Platform, the LeanIX AI Assistant comes equipped with predefined as well as customizable prompt options that can be applied to the EA inventory. These prompts focus on:
    - Automating documentation tasks
    - Speeding up report creation
    - Researching successor technologies
    - Providing architecture recommendations
    - Simplifying access to EA tools for business users

The use of AI in the IT industry is continually evolving, with new applications and use cases emerging regularly. As AI technologies continue to advance, their impact on the IT industry is expected to grow even further.

Impact of AI on IT jobs

Artificial Intelligence (AI) is not only transforming the way businesses operate but also the job market and the kind of skills that are in demand.

➔On one hand, it is automating routine tasks, which could lead to job displacement in certain areas**.** On the other hand, it is creating new jobs that didn't exist before, such as AI ethics officers, data scientists, and machine learning engineers.

➔AI is also changing the nature of existing jobs. For instance, software developers now need to understand how to work with AI algorithms. IT support staff need to know how to manage AI-powered systems. And IT managers need to understand how to use AI to enhance business operations.

➔The impact of AI on the job market is not just about job loss or gain. It's also about job transformation**.** As AI continues to evolve, the job market will need to adapt to these changes.

The Role of AI in IT job roles and skills

➔AI is influencing the skills that are in demand in the IT industry. Skills related to AI, such as machine learning, deep learning, and natural language processing, are highly sought after. There's also a growing demand for skills related to AI ethics**,** given the increasing importance of using AI responsibly.

➔Moreover, AI is not just about technical skills. As AI systems become more prevalent, there's a growing need for professionals who can understand and navigate the intersection of AI and business strategy.

➔These professionals need to understand how to use AI to solve business problems, drive innovation, and create new business opportunities.

➔In addition, as AI systems become more sophisticated, there's a growing need for professionals who can understand and navigate the intersection of AI and human behaviour.

➔ These professionals need to understand how to design AI systems that are user-friendly, ethical, and socially responsible.

IT Job Impact Index.

The Impact score is calculated based on the tasks that can be performed with AI, the relevancy of those tasks for a specific job, the AI impact score of each task, the number of AIs available for each task, and the capabilities of each individual AI within each task.

Let's see what the AI shows for the major in architect role:

Enterprise Architect (25%): who design and analyze an organization's IT structure, have a 25% AI impact score. This suggests that AI could automate a quarter of the tasks typically performed by an Enterprise Architect. AI can help in analyzing complex data, identifying obsolete services, and suggesting optimization opportunities in process.

Solution Architect (50): This suggests that AI could potentially automate half of the tasks typically performed by a Solution Architect. AI can assist in areas like system design, integration, and optimization. However, tasks that require a deep understanding of the business context and strategic decision-making are less likely to be automated.

Cloud Architect (55%): Cloud Architects, who oversee an organization's cloud computing strategy, have a 55% AI impact score. This suggests that AI could potentially automate more than half of the tasks typically performed by a Cloud Architect. AI can assist in areas like cloud resource management, performance monitoring, and security compliance.

Software Architect (20%): Software Architects, who create high-level design choices and dictate technical standards, have a 20% AI impact score. This suggests that AI could potentially automate a fifth of the tasks typically performed by a Software Architect. AI can assist in areas like code generation, system

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design, and performance optimization. However, tasks that require a deep understanding of the business requirements and strategic decision-making are less likely to be automated.

These scores indicate that while AI can automate certain tasks within these roles, there are still many aspects that require human skills such as strategic thinking, leadership .

Future trends of AI in the IT industry

Artificial Intelligence (AI) is a rapidly evolving field, and its applications in the IT industry are expanding at an unprecedented rate. This section will explore the future trends of AI in the IT industry, providing insights into how AI might shape the future of IT.

Future predictions

➔The economic impact of AI is expected to be significant. According to a study by technology.AI could contribute up to **$15.7 trillion to the global economy by 2030**.

➔This includes productivity gains from businesses automating processes and augmenting their labor forces with AI technologies, as well as increased consumer demand resulting from the availability of personalized and AI-enhanced products and services.

➔As AI technologies continue to advance, businesses in IT stand to gain significantly from these economic benefits.

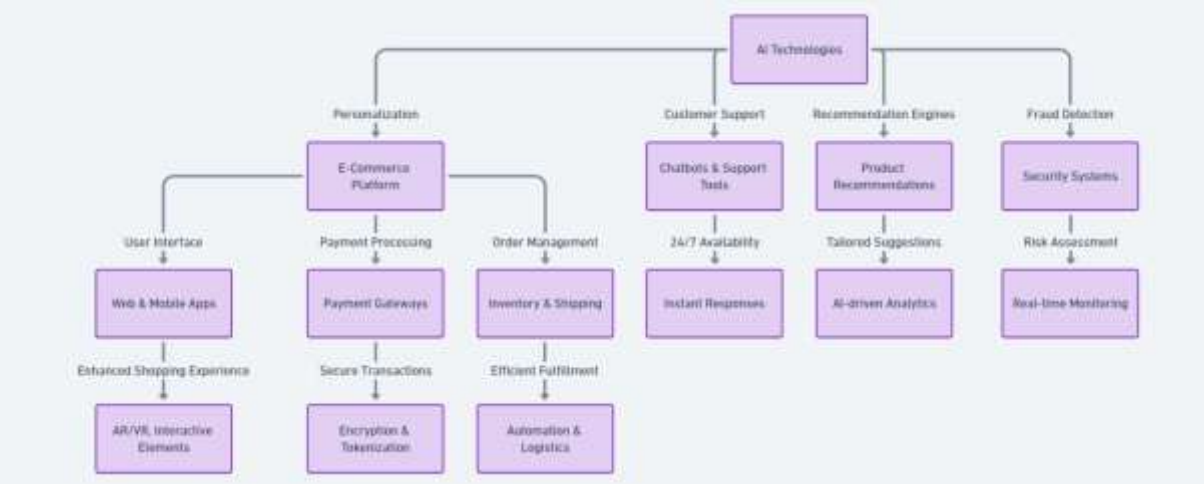
Latest trends in AI

➔Several trends are shaping the future of AI in the IT industry. One of these **is** intelligent automation, which combines AI and automation technologies to create systems that can automate complex tasks and make intelligent decisions.

➔Another trend is the growing focus on ethical AI. As AI systems become more prevalent, there's a growing need to ensure that these systems are used in a way that is ethical, transparent, and fair.

➔In this realm, the European Union's introduction of the EU AI ACT stands out. This pioneering regulatory framework categorizes AI systems based on their potential risk, ranging from "Unacceptable" to "Limited Risk." The Act emphasizes transparency, traceability, and human oversight, setting a global benchmark. As AI continues to evolve, such regulatory measures highlight the global shift towards ensuring AI's ethical and safe deployment.

➔Other trends include the increasing use of AI in cyber security, the rise of AI-powered IoT devices, and the growing importance of data privacy in AI applications**.**



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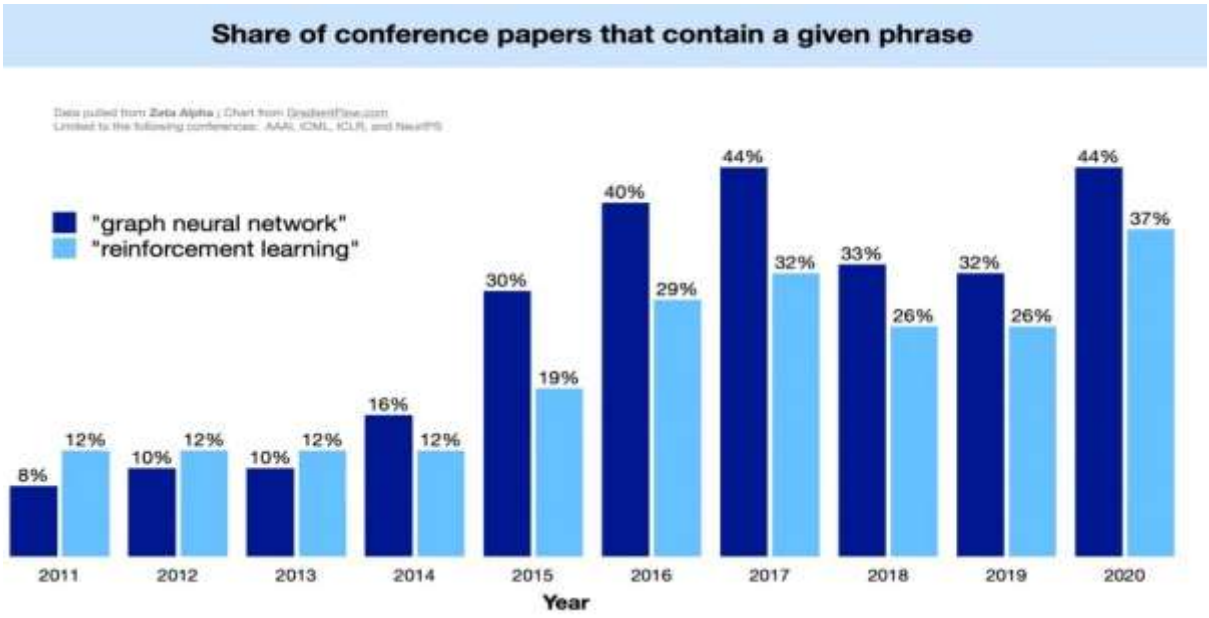
DATA ANALYSIS AND DATA INTERTATION

WHAT AI DO IN 100 YEARS....?

Predicting the role of humans in the world of AI 100 years from now is highly speculative, and many factors could influence this outcome. However, we can make some educated guesses based on current trends and potential future developments.

Artificial intelligence (AI) is a broad concept that encompasses a variety of technologies that can help the IT industry in many ways, including:

1. Automation
2. Data Analysis
3. Customer Services
4. Cyber Security
5. Maintenance
6. Innovation



CONCLUSION

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Exploring artificial intelligence through literature offers an enlightening journey into this transformative technology's past, present, and future. From the historical milestones and philosophical underpinnings to the ethical dilemmas and societal impacts, the books recommended in this article serve as essential guideposts for anyone looking to navigate the complex landscape of AI.

For those inspired to take their AI knowledge to a professional level, the Artificial Intelligence Engineer course by Simplilearn offers an exceptional opportunity to delve deeper. It is designed for aspiring AI specialists and covers everything from machine learning to deep learning and natural language processing, equipping you with the skills needed to excel in the fast-evolving field of AI.

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