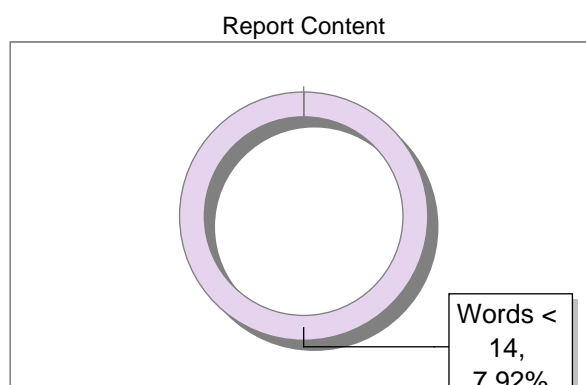
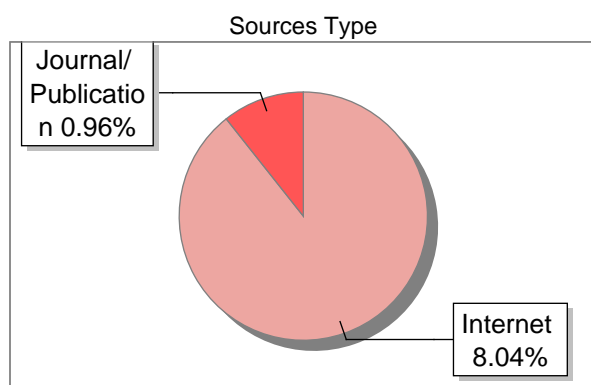


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1. INTRODUCTION

Artificial Intelligence (AI) is no longer science fiction—it's now a part of our daily existence. Unbeknownst to us, most of the luxuries we now take for granted are fueled by AI-powered tools, systems, and applications that enhance our routine and enhance efficiency.

"Everyday AI" is the way artificial intelligence integrates effortlessly into different parts of life—at home, in schools, or in the office. These intelligent machines learn through data, identify patterns, and change their responses to provide a better user experience. Virtual assistants, for example, smart home devices, respond to voice commands, while smart alarms monitor your sleep pattern and wake you up softly at the correct time—showing how AI redefines our daily interactions.

Smart home systems increasingly depend on AI. From thermostats and lights to home security systems, these smart devices learn people's habits and self-adjust for energy efficiency and security purposes. Easy voice commands allow music to play, reminders to be set, or updates to be given—all previously futuristic amenities that are now low-cost realities for most families.

AI also comes into play in communication, e-commerce, and media. Email services utilize it to filter spam and prioritize emails. Entertainment services like Netflix and Spotify employ it to recommend content based on individual interest, and shopping websites like Amazon optimize recommendations to boost customer interaction. Targeted advertisements also become increasingly reliant on AI models analyzing user patterns.

In smartphones, AI drives facial recognition, predictive typing, language translation, and app recommendations—enhancing capability across the board. From smart lighting to home security, AI learns and changes continuously to optimize user spaces through simple voice commands.

AI's influence is also evident in personalized content consumption and online communication. It automates spam filtering, recommends music and videos, and improves user interfaces across many digital platforms. These technologies are becoming an inseparable part of our digital lives.

2. HISTORY

⁹ The origins of artificial intelligence run not only to recent computing, but also to human curiosity regarding intelligent machines throughout history. From centuries ago, scholars from diverse disciplines—be they philosophy or early mechanics—envisioned frameworks that would reason and act like humans. To appreciate this evolution from idea to technology is to appreciate the incredible path of human innovation.

2.1. Early Ideas and Philosophical Foundations

Concepts similar to artificial creatures emerged in early myths—like the Greek deity Hephaestus creating humanoid automatons. Books such as Mary Shelley's *Frankenstein* reflected initial fascination with artificial intelligence and life. They were not factual, but they indicated a profound concern with human-like machines.

In the 17th and 18th centuries, philosophers such as René Descartes and Gottfried Wilhelm Leibniz wondered if logical reasoning could be dissected into formal steps. Leibniz imagined machines that could perform symbolic thinking—a conception that established ideas for subsequent AI.

2.2. Formal Beginnings in the 20th Century

Artificial Intelligence came into being as an official academic discipline in the mid-1900s with the emergence of computing. Visionaries such as Alan Turing came up with groundbreaking concepts such as the "universal machine" and the Turing Test, which were intended to evaluate a machine's capability to mimic human answers.

The phrase "Artificial Intelligence" was first used in 1956 at the Dartmouth Conference, where futurists like John McCarthy and Marvin Minsky came together. Their aim was to investigate how machines might comprehend language, learn from experience, and reason.

This period witnessed the emergence of rudimentary AI programs that could play games or solve simple problems. One such early example was ELIZA (1966), a chatbot intended to mimic a therapy conversation, which set a milestone in natural language processing.

2.3. Eras of Decline and Revival

Although initial enthusiasm, AI encountered setbacks during the 1970s and late 1980s—terms well-known as "AI winters." Hardware and algorithmic limitations caused decreased funding and slowing momentum.

But advances in computing capabilities, available data, and machine learning algorithms sparked renewed interest in AI by the 1990s. One milestone was the 1997 win of world chess champion Garry Kasparov by IBM's Deep Blue, demonstrating AI capability in solving complex problems. ¹⁷

2.4. The 21st Century and Mainstream Adoption

Sudden leaps in big data, graphics processing units (GPUs), and algorithmic innovation propelled AI to dizzying heights in the 21st century. Deep learning and natural language processing (NLP) technologies produced stunning results.

Some of the major milestones are:

2006: Deep learning started making significant progress, beating conventional approaches in speech and image tasks.

2011: IBM's Watson defeated human Jeopardy! champions with sophisticated language understanding.

2012 onwards: AI technologies started taking over image recognition benchmarks and speeding up adoption in consumer technology.

2016: AlphaGo defeated Go master Lee Sedol, a landmark moment in strategic AI decision-making.

AI technologies are now deeply ingrained in daily life—ranging from smartphones and virtual assistants to health tools and autonomous systems. AI was once an esoteric subject for academics, and now it fuels many of the technologies we use every day.

3. RELATED WORK / AREAS OF APPLICATION

Artificial Intelligence has transcended research institutes and laboratories into the very center of everyday life, improving convenience, personalization, and problem-solving across various sectors. Below are important areas where AI is positively reshaping ³ how we interact with technology.

3.1. Communication and Virtual Assistants

AI-based ¹⁵ virtual assistants like Google Assistant, Alexa, and Siri are now common in households. These smart systems help users perform tasks through voice commands—¹³ managing schedules, answering questions, controlling smart devices, and more. Customer service is also being redefined with AI chatbots providing instant, round-the-clock assistance across industries.

3.2. Healthcare

AI is contributing heavily to healthcare today. ¹⁹ From early disease detection through medical image analysis to patient monitoring through wearable technology, AI enhances both efficiency and accuracy. Virtual health tools now provide emotional support through conversational AI, and diagnostic systems recommend possible treatments based on medical data.

3.3. Education

The education industry is adopting AI to develop dynamic learning environments. Intelligent tutoring systems and AI-based platforms adapt to unique learning styles and rates.

Applications such as Duolingo tailor language training according to user performance, making the learning process more interactive and engaging.

3.4. Entertainment and Media

Streaming services like Netflix, YouTube, and Spotify use AI to recommend content based on user behavior. These recommendations enhance user satisfaction and usage. AI is also used by social media apps to curate feeds, target ads, and detect inappropriate or harmful content.

3.5. Transportation and Navigation

Navigation software such as Google Maps and Waze use AI to analyze live traffic data, recommend optimized routes, and adjust to road conditions. AI powers autonomous cars and ride-hailing apps as well, providing more efficient coordination among drivers and riders.

3.6. Retail and Online Commerce

Online shopping is now smarter due to AI. Past behavior—e.g., search history, purchases—is analyzed by algorithms to recommend personalized products. Chat-based shopping assistants are also driven by AI, assist with stock management, and predict customer demand in order to optimize inventory systems.

3.7. Smart Homes and Internet of Things (IoT)

With integration to IoT, AI has converted commonplace households into smart homes. Through learning user patterns and automatically adjusting, systems regulate lighting, climate, security, and appliances. Such configurations enhance comfort, reduce energy consumption, and overall safety.

4. OPEN CHALLENGES IN DAY-TO-DAY AI

While artificial intelligence has greatly enhanced numerous day-to-day aspects of life, it also raises challenging complexities that need to be tackled in order to facilitate responsible and sustainable deployment. These challenges are multidimensional in nature, namely, covering ethical, technical, and social aspects, impacting trust, accessibility, and fairness in AI implementation.

4.1. Data Privacy and Security

Today's AI use cases strongly depend on user data for offering personalized services. The gathering and usage of personal data, nevertheless, create privacy and data protection issues. Unauthorized access, data leakage, and misuse of data are constant threats. Safeguarding the secure processing of personal data and open data policies as well as adherence to privacy regulations such as the GDPR are still a priority.

4.2. Bias and Unfair Outcomes

AI systems tend to mirror the prejudices ⁶ in the data they have been trained upon. These are likely to produce discriminatory outcomes, particularly in sensitive fields such as recruitment, lending, and law enforcement. Overcoming problems of this nature goes beyond enhancing data variety and algorithmic fairness and necessitates creating accountability for the outcomes that affect actual lives.

4.3. Lack of Transparency (Black Box Models)

⁸ One of the principal disadvantages of advanced AI models, particularly deep learning networks, is that their inner decision-making processes tend to be hard to comprehend. This, in turn, can lead to a loss of user confidence, sometimes even in industries like healthcare and finance where decisions must be traceable. Creating understandable and transparent AI—now mostly called "explainable AI"—is a present-day focus area.

4.4. Overdependence on AI Systems

¹¹ As AI becomes increasingly a part of day-to-day activities, there is always a chance that humans will become too dependent on the suggestions made by it, even though the results can be erroneous or misleading. Overreliance may reduce human judgment and decision-making ability. Awareness regarding the limitations of AI and ensuring control by humans is necessary for proper usage.

4.5. Ethical and Moral Dilemmas

AI development ¹⁸ raises ethical issues that are still challenging to solve. For example, should machines make decisions in emergency situations such as autonomous car crashes? What about ownership of AI-generated content? And how do we create universal ethical standards when there are variations in cultural values? ¹⁶ These are issues that require careful policy, open debate, and international cooperation.

4.6. Technical Barriers and Limitations

Although recent advances, AI is still poor at tasks like general reasoning, flexibility, and awareness of the context. Most systems excel in controlled environments but break down in the unpredictable real world. The limited ability of AI to know sophisticated human behavior or handle emerging situations in flexible ways restricts its reliability in complicated scenarios.

4.7. Sustainability and Energy Demands

Training massive ² AI models requires enormous computing power and energy, which is environmentally problematic. With increasing adoption of AI, its carbon impact increases as well. Identifying methods to minimize energy use—like creating more efficient algorithms and adopting green computing habits—is crucial for the long-term sustainability of the environment.

5. USE CASES OF DAILY AI

Artificial Intelligence has made a silent entry into our daily lives, operating in the background to enable smarter, quicker, and more personalized experiences. The following practical examples indicate how AI applications are transforming our daily routines in positive ways.

5.1. Voice-Activated Assistants

Intelligent ¹⁴assistants like Siri, Google Assistant, Cortana, and Alexa have revolutionized the way users interact with devices. These AI-based tools can:

- Set reminders or alarms

- Make online searches with voice commands

- Control smart devices at home

- Translate languages in real time

Due to natural language processing (NLP), these assistants speak and comprehend verbal commands in a natural way, allowing technology to become more accessible and usable.

5.2. Personalized Content and Product Recommendations

AI is used by platforms such as Netflix, Amazon, and Spotify to analyze and study user behavior and preferences. Consequently, personalized:

- Provide relevant product or content suggestions

- Guess user interests more accurately

- Make interactions more personalized to raise user satisfaction

¹⁰This not only enhances engagement but also serves to drive greater conversion and repeat usage.

5.3. Intelligent Home Technology

Artificial Intelligence has transformed automated home technology by connecting with IoT (Internet of Things) devices. Some examples include:

- Smart thermostats such as Nest adjusting temperature according to user behavior

- Lighting systems that change according to movement or time

- Security cameras that detect faces and alert users about unusual activities

These tools improve comfort, convenience, and safety while optimizing energy use.

5.4. Intelligent Navigation and Travel Support

AI-enhanced travel tools such as Google Maps and Uber provide smarter, more efficient transportation by:

Monitoring traffic in real-time

Recommending the fastest or safest routes

Connecting drivers and passengers through optimized matching

Suggesting restaurants, fuel stations, or hotels nearby based on location and preferences

These capabilities minimize travel stress and enhance overall mobility.

5.5. Health Monitoring and Fitness

Wearables and mobile apps increasingly employ AI for better health and wellness. Shared capabilities are:

Monitoring activity, sleep patterns, heart rate, and calorie burn

Designing personalized fitness regimens

Reminding users to exercise or drink water

Providing symptom evaluation and recommending medical consultations when needed

These utilities assist users in maintaining healthier lifestyles through ongoing and savvy monitoring.

5.6. Improved Photography and ⁵Social Media Engagement

AI is also simplifying and enriching content creation. On platforms such as Instagram, Snapchat, and TikTok, AI helps by:

Enabling auto-focus and scene detection within camera apps

Applying real-time filters and effects

Auto-creating captions, hashtags, or even short video cuts

Discovering trending or popular content to suggest to users

This enables creators and users to interact with content more creatively and effectively.

6. SYSTEM ARCHITECTURE AND COMPONENTS

Behind every intelligent AI-powered experience stands a well-organized system of hardware, software, and algorithms that co-exist harmoniously. Although individual systems differ by application, most mundane AI applications have a similar multi-layer architecture built to capture, process, and respond to data in an efficient manner.

6.1. Input Layer – Data Collection

This is the point of origin where the AI system collects raw data. The input may be in several forms like:

Text inputs (keyed in or spoken)

Voice inputs via microphones

Images and video streams from cameras

Sensor inputs from wearable or smart devices

User logs of activity (clicks, searches, purchases, etc.)

This information is crucial to determine trends, identify patterns, and initiate corresponding system reactions.

6.2. Data Processing Layer – Cleaning and Organizing

Prior to being utilized by AI models, data needs to be cleaned, formatted, and organized. This process entails:

Removal of noise and irrelevant information

Identification of essential features for model training

Storage of data in secure databases, cloud storage, or data lakes

This layer guarantees the input data quality and dependability, which has a direct impact on the accuracy of the system's output.

6.3. AI/ML Engine – Core Intelligence

This is the thinking center of the system where all the analytical processing is done. It consists of:

Machine Learning Algorithms: For operations like predicting results, identifying categories, or clustering data.

Deep Learning Models: ¹²Neural networks like CNNs for image recognition and RNNs or Transformers for language processing. Natural Language Processing (NLP): For speech understanding, language translation, sentiment analysis, and facilitating chat-based

conversation. The system becomes better through learning from data over time, through repeated exposure and feedback on its decision-making abilities.

6.4. Inference and Decision-Making Layer

The system interprets the output of analysis and determines the correct action to take. This could be:

Recommending a video, article, or product

Predicting the behavior of a user or health status

Returning a chatbot response or playing a voice response

Automatically setting settings on smart devices (e.g., lowering lights or adjusting room temperature)

This level can include rules-based reasoning, probability calculations, or additional levels of AI-driven decision-making.

6.5. User Interaction Layer – Front-End Interface

The interactive and visible aspect of the system in which users interact with AI. It can include:

Mobile applications or web dashboards

Smart speakers or voice interfaces

Wearable technology displays

Notifications or alerts

This layer bridges the human user with the underlying intelligence in a manner that provides smooth communication and responsiveness.