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ANALYSIS OF ARTIFICIAL INTELLIGENCE AND TECHNOLOGIES CREATED ON ITS BASIS

Shoakhmedova Nozima Khairullayevna,
Associate Professor of the Department of Digital Economy,
Tashkent State University of Economics

Yusupova Dilbar Mirabidovna
Senior Lecturer at the Digital Economy Department
of Tashkent State University of Economics
dilbaryus86@gmail.com

ABSTRACT

Artificial Intelligence (AI) has revolutionized the way we live, work and interact. As SI technology continues to evolve, it is important to understand what SI is, how different SI services work, and their purposes, pros and cons. This article introduces the world of artificial intelligence and several popular AI services in different categories, including natural language processing, computer vision, and AI tools in healthcare.

Keywords: Artificial Intelligence, NLP, Siri, Alexa, Google Assistant, Chat GPT, Google Translate, Deeply, Microsoft Translator, Computer Vision, Clearview AI, Amazon Recognition, Microsoft Azure Face API, Google Cloud Vision API, IBM Watson Visual Recognition, Open CV.

INTRODUCTION

Today, artificial intelligence (AI) and technologies based on it are widely used. These technologies can be used in several fields, including medicine, education, tourism, law, commerce, and others. This article describes in detail the general understanding of SI and the technologies based on it, their working principles, their role in various fields, their problems, and their future recognition.

Artificial intelligence is a technology that studies computer programs, mainly data analysis, analysis, and general labeling. It works by collecting a lot of data, statistics, information, and documents with its unique systems and algorithms, identifying things from them, and showing results. It is used in artificial intelligence, entrepreneurship, medicine, education, and many other fields.

LITERATURE ANALYSIS

The book "Speech and Language Processing" by Dan Jurafsky and James H. Martin on Natural Language Processing (NLP) is cited. This literature is a great guide for learning the basics and technologies of NLP. It covers basic topics such as natural language analysis, determining text syntax and semantics, data analysis, text composition, and transcription. "Foundations of Statistical Natural Language Processing" by Christopher D. Manning and Hinrich Schütze reviews the literature, foundations of NLP, as well as additional topics such as statistical applications, language models, and algorithms. "Computer Vision: Algorithms and Applications" by Richard Szeliski is a book on computer vision that presents basic CV concepts, algorithms, and concepts for building CV systems for practical use. "Hands-On Computer Vision with TensorFlow 2" by Benjamin Planche. Helps to learn to create CV systems based on the TensorFlow 2 library. It allows you to understand basic CV algorithms, object detection, calculation, and other skills. "Deep Learning for Computer Vision" by Rajalingappaa Shanmugamani is an introduction to the basic concepts of deep learning for CV (systems built on small, frequently read trials) and covers CV algorithms, object detection, computation, blurring between images, and more. allows the application of deep learning systems in the understanding of skills. The following literature was used on artificial intelligence technologies in healthcare: "Artificial Intelligence in Healthcare" by Adam Bohr and Gil Alterovitz - this shows the use of SI systems in the field of medicine. It describes the main concepts, technologies, and uses of SI in the field of medicine. "Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again" by Eric Topol is a helpful study of the use of AI systems in medicine. In the literature, the main concepts of SI, their use in the field of medicine, hidden requirements, and policy concepts are described. "AI in Healthcare: Building a Successful Business Model" by Anthony Chang - this book helps to build a business model of AI systems in healthcare and describes the basic concepts, business models, and applications of AI in healthcare.

RESULTS

Artificial intelligence technologies and services:

1. Natural language processing (NLP). NLP is a subfield of AI that focuses on enabling computers to understand and process human language. Some popular NLP services include:

a) Chabot’s and virtual assistants. These helps improve human-computer interaction by providing personal assistance, managing tasks, answering questions, and facilitating communication. Chabot uses NLP and machine learning algorithms to

understand user input, extract relevant information, and generate relevant responses. For example, Siri, Alexa, Google Assistant, and Chat GPT are also Chabot's virtual assistants.

Siri is a voice assistant developed by Apple and used in iOS, iPad OS, watch OS, Mac OS, and TV OS. Siri is used by users to perform multiple tasks by voice, such as sending messages, making calls, playing custom music, asking questions, and more.

Alexa, developed by Amazon, is a service that is used in Amazon Echo, Echo Dot, Echo Show, Echo Plus, and other devices. Alexa is used by voice to answer users' questions, play music, watch movies and series, open a place, place orders, and more.

Google Assistant, developed by Google, is used in mobile devices, Google Home, and other devices. Google Assistant is used to answer users' questions and searches, find ready information, send messages and events, make calls, play music, and more.

Chat GPT is a type of artificial intelligence and is used by educators, marketing service providers, and other organizations. Chat GPT is a text assistant and can answer several questions asked by users. Chat GPT is also used to perform actions such as asking users other questions and answers, viewing documents, ordering various services, searching for information, and more.

These are Chabot's and virtual assistants with unique capabilities and services. Siri, Alexa, and Google Assistant are voice-enabled services. Also, Chat GPT is a service that can be used via text. Together, they all play an important role in providing user-friendly and efficient services. Benefits include improving user experience and customer support, improving accessibility for people with disabilities, and saving time by automating repetitive tasks. in the presence of the possibility. Disadvantages include complex or ambiguous query comprehension, and privacy concerns associated with limited data collection and use. [1]

b) Machine translation (Machine Translation). The purpose of machine translation is to overcome language barriers and ensure continuous communication between speakers of different languages. Examples include Google Translate, Deeply, and Microsoft Translator.

Google Translate is a service that provides translation of text from one language to another using artificial intelligence and translation technologies. This service helps you read and translate text, speech, and even text in multiple languages. Google Translate works with a large database, artificial intelligence, and translation models. These models help in language analysis, analysis of words, sentences and sentences, words and their translation, translation, and preparation. Google Translate has several language-learned translation models that are well-engineered to determine the best translation results by testing and evaluating them extensively. In doing so,

Google handles the translated texts with additional analysis and prediction algorithms and also uses text analytics to better analyze the data. Google Translate performs well in translating into several languages around the world and is considered a user-friendly and efficient service.

Both deeply and Microsoft Translator are translation services and use artificial intelligence (AI) and translation technologies. Deeply uses multiple SI models and systems to provide high-quality translation results when translating one language into another. These models help in original text analysis, text interpretation, translation and correction, translated text analysis, and development of translation models.

Microsoft Translator is also a multilingual and globally recognized service. It works with language analysis and translation models to deliver high-quality translation results. Microsoft Translator also uses additional language analysis algorithms (such as key variables, morphological analysis, and language copy analysis) to analyze texts. Microsoft has also developed a Human Parity evaluation model to compare analysis and translation results with other services.

For the most part, Deeply and Microsoft Translator are effective services in providing high-quality translation results. Also, the features used to analyze each language and develop translation models differ in their comparison.

The advantages of machine translation are that it facilitates global communication and collaboration, reduces the need for human translators, and enables continuous improvement through SI advances. Disadvantages include incorrect translations for phrases or complex sentences, and errors with context-specific translations. [2]

2. Computer Vision. Computer vision allows machines to understand and interpret visual information in the world. Some popular computer vision services include:

a) Face recognition. Computer Vision, or CV, is a type of artificial intelligence that enables computers to learn and understand what they see, objects, and images. Face recognition is one of the main functions of CV and provides the ability to automatically validate faces and images. Facial recognition systems work by using sophisticated algorithms and data analysis to identify the face of any object or person in images or videos. These systems perform steps such as capturing images, extracting data, identifying an object or person, and analyzing the data to understand the image. Facial recognition systems have different principles of operation, some are designed to learn the system, and some are designed to serve other purposes. For example, Face ID is a facial recognition system developed by Apple that is used in the iPhone and iPad Pro. This system uses algorithms based on 30 imaginary points and the imaginary demand from them to detect the user's face. Other systems are facial recognition systems that are designed for other purposes and can be used in various industries such as travel,

commerce, sales, medicine, and more. Facial recognition systems are being developed by studying the features and applications of human faces and images. In this help, images or videos are studied and the learned information is used to build new systems. Facial recognition systems are used in human, commercial, medical, and many other fields. For example: We can get Clearview AI, Amazon Recognition, and Microsoft Azure Face APIs.

Clearview AI is an image facial recognition system for security services. This system enables facial recognition for security agencies by storing and using images of millions of people.

Amazon Recognition is a system developed by Amazon and used in various industries such as commerce, medicine, and security. This system provides features such as face detection, face recognition, and face verification.

Microsoft Azure Face API is a system developed by Microsoft and used for face recognition, face detection, and face verification. This system is used in commercial, security, and various fields.

These systems perform steps such as capturing images, extracting data, identifying an object or person, and analyzing the data to understand the image. Such systems are commonly used for a variety of purposes, such as purchasing products, personal identification, and security for a wide range of services. Advantages of these systems include enhanced security and tracking capabilities, simplified authentication processes, and personalized marketing and advertising. Disadvantages include privacy issues and potential misuse, flaws in facial recognition algorithms, and legal and ethical issues. [3]

b) Image and video analysis. The goal of these systems is to automatically detect, classify, and analyze objects in images and videos for a variety of applications, including autonomous vehicles, healthcare, and manufacturing. This system image and video analysis services are based on the use of deep learning algorithms to extract meaningful information from visual data. Image and video analysis are important areas of computer vision and can be useful for different purposes for users. In this direction, there are various analysis systems such as Google Cloud Vision API, IBM Watson Visual Recognition, and Open CV.

The Google Cloud Vision API is a closed platform that supports image analysis and text validation. This system provides capabilities such as image analysis and object recognition, image text recognition, image search, and image content understanding.

IBM Watson Visual Recognition is an image analysis system developed by IBM. This system provides opportunities for image acquisition and mutual comparison, face recognition, object recognition, image color recognition, and services in various fields.

Open CV is a contribution to image and video analysis and is open source. This system provides opportunities for image acquisition, object detection, image quality display, and various algorithmic operations.

These systems are used for analysis and explanation in various fields. For example, it is used to identify objects with different external characteristics and to confirm text in images. Such systems are also important in various fields such as security, medicine, the automotive industry, and commerce. They help ensure the safety of users when analyzing images and videos, and it is also important to know the rights and good guidelines for the use of these systems.

The benefits of this system include improved efficiency and accuracy in various areas, facilitating data-driven decision-making, and improving creative processes through SI-generated content. Disadvantages include high computing power requirements and potential inaccuracies in algorithmic results. [4,5]

3. Artificial intelligence in healthcare. Artificial intelligence has made significant advances in healthcare, with applications ranging from diagnostics to drug discovery. Some well-known healthcare SI services include:

a) Medical imaging and diagnostics. Examples include Adios, Zebra Medical Vision, and Path AI. The purpose of these is to increase diagnostic accuracy, speed up the process, and reduce human error. In these systems, SI algorithms analyze medical images such as X-rays or MRIs to identify patterns and abnormalities that may indicate diseases or medical conditions. The benefits of this service include improved diagnostic accuracy and early detection, reduced workload for healthcare providers, and personalized treatment plans. Disadvantages include dependence on the quality of study data, algorithmic biases and ethical concerns, and potential overreliance on SI. This reduces the human experience.

b) Drug discovery and development. Examples of these are DeepMind's AlphaFold, Atomwise, and Insilico Medicines. The goal is to speed up the drug discovery process, reduce costs, and increase the success rate of new drugs. These SI algorithms analyze large data sets to identify potential drug candidates, predict their efficacy, and optimize their chemical structures. [6,7]

The benefits of this technology include a faster and more efficient drug discovery process, lower costs for pharmaceutical companies and patients, and opportunities to discover new treatments for rare or complex diseases. Disadvantages include a limited understanding of complex biological systems, intellectual property and data sharing issues, and regulatory challenges in SI-guided drug development.

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DISCUSSION

Table 1: Analysis of artificial intelligence technologies and services

	Services	Examples	Column sides	Disadvantages
Natural Language Processing (NLP).	Chatbots and virtual assistants	Siri, Alexa, Google Assistant, and ChatGPT	- Improve user experience and customer support - Improve accessibility for people with disabilities - Save time by automating repetitive tasks	- Limited understanding of complex or ambiguous requests - Privacy issues related to data collection and use
	Machine Translation (Machine Translation)	Google Translate, DeepL, and Microsoft Translator	- Facilitates global communication and collaboration - Reduces the need for human translators - Continuous improvement through SI achievements	- Incorrect translations for idiomatic expressions or complex sentences - May struggle with context-sensitive translations
Computer Vision.	Face recognition	Clearview AI, Amazon Rekognition, and Microsoft Azure Face API	- Advanced security and tracking capabilities - Simplified authentication processes - Personalized marketing and advertising	-Privacy Issues and Potential Misuse - Bugs in facial recognition algorithms - Legal and ethical issues
	Image and video analysis	Google Cloud Vision API, IBM Watson Visual Recognition, and OpenCV	- Improved efficiency and accuracy in various areas - Facilitates data-driven decision-making - Improves creative processes through SI-generated content	- High computing power requirements - Potential inaccuracies in algorithmic results
Artificial intelligence in healthcare.	Medical imaging and diagnostics	Aidoc, Zebra Medical Vision, and PathAI	- Improved diagnostic accuracy and early detection - Reduction of workload for medical personnel - Personalized treatment plans	- Dependence on the quality of educational information - Algorithmic biases and ethical concerns - Potential over-reliance on SI, which is human experience
	Drug discovery and development	DeepMind's AlphaFold, Atomwise, and Insilico Medicine	- Faster and more efficient drug discovery process - Reducing costs for pharmaceutical companies and patients - Opportunity to discover new ways to treat rare or complex diseases	- Limited understanding of complex biological systems - Intellectual property and data sharing issues - Regulatory challenges in AI-guided drug development

CONCLUSION

Artificial intelligence has penetrated various aspects of our lives, offering innovative solutions and changing industries. While AI services such as natural language processing, computer vision, autonomous vehicles, and healthcare applications have made significant advances, they also come with their challenges and concerns. As AI technology continues to evolve, it is critical to strike a balance between reaping its benefits and addressing the associated ethical, legal, and social implications.

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