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BUSINESS PERSPECTIVE ON EXPLORING THE INTRIGUING VISTAS OF ARTIFICIAL INTELLIGENCE

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Abstract:

Although the use of artificial intelligence (AI) in everyday life is increasing, the complex nature of AI still prevents its full adoption. The potential of AI is boundless, and it will reshape the reality. How humans perceive the world will forever change with AI tools implemented in embedded devices. Apart from the possibility of changing human perception through augmented reality (AR), AI is also applied in 3D-printing, art, and decoding of ancient communication systems. Moreover, the most important role AI has today is in healthcare. The use of AI tools can contribute to improving the way patients' conditions are monitored, diagnosing specific diseases with a high percentage of accuracy. With the rapid advancements in this field, regulations regarding the safe uses of such technologies remain uncertain. This paper focuses on current AI applications in different social and business fields; it aims to shed light on the immense possibilities of AI-based predictions while inspiring curiosity about its transformative force across industries. The journey that ventures into the depths of the enigma surrounding AI is a testament to the curiosity of the human species, guidance, a drive for imagination, and the relentless pursuit of knowledge.

Keywords:

Artificial Intelligence, Regulations, Evolution, Ethics.

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O31, O33

INTRODUCTION

The domain of AI and its applications are increasing in the contemporary world. Considering the contributions of AI in the robotics industry, machines seem to behave and look like humans (Vashishth *et al.*, 2024). Such advancements and technological combinations lead to confusion among the general masses and, more importantly, instill fear. The coexistence of AI and humans is already an important topic, as AIs are learning and adapting alongside humans. Examples of people rejecting this technology are already observable, as people currently fear the most that AI will replace them in the workplace. This can be seen as an irrational problem because it is more likely that those who

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successfully employ AI will replace those who do not (Chen *et al.*, 2022). On the other hand, the human race is currently doing much more than just taking a risk. In other words, humans are trying to control something that is not fully comprehensible. Controlling something superior in knowledge is a recipe for disaster (Yampolskiy, 2020). For this reason, this paper attempts to increase awareness on this topic, as well as to contribute to more straightforward regulation creation of adequate legal bodies.

Humankind is witnessing the impossible becoming a reality as AI pioneers constantly redefine the boundaries of what is achievable. Machine learning (ML) algorithms, one of AI's most important subfields, enable machines to assess the environment and use knowledge to achieve the desired objectives (Sarker, 2021). The scope of AI goes from 3D-printed boats and self-driving cars to machines that converse, reason, and even create art with an eerie brilliance. In this paper, we will discuss the complexity of neural networks and the uncertainty of ML, where algorithms weave patterns from vast amounts of data, unraveling the secrets of nature, curing diseases, and even decoding ancient conundrums. However, amidst the marvel created by AI an enigma persists, a cautionary tale that unveils the shadows of ethical dilemmas – hard questions that challenge various human communities. As AI delves deeper into human lives, how will privacy, fairness, and dignity be preserved? The question of how humankind will scale such challenges remains (Constantinides *et al.*, 2024).

In this obligatory intricacy between humans and machines, the future remains uncertain. Will the secrets of AI be unlocked responsibly and its power harnessed for the greater good? This work aims to provide a perspective of the future created by technologies that adapt AI. As it currently stands at the crossroads of known achievements and uncharted territories, hidden messages lie behind AI's ability to conquer chess grandmasters, transmute text into images and masterpieces, and converse with an almost human-like cadence. Are the marvels witnessed merely a glimmer of AI's true potential, or has the extent of its enigmatic abilities been achieved? Hence, in the following text, possible development trends and those that are ongoing will be discussed.

The most significant contributions of this work can be summarized as follows:

- An overview of an exponentially expanding field of AI with a focus on real-world applications;
- Bringing AI closer to readers with the goal of increasing its application in other fields besides computer science;
- Paramount information on the direction of technological advances of AI.

The rest of this work is organized into the following sections: Section 2 showcases the results of the literature review as well as necessary information on the basics of AI techniques used in the real world; Section 3 provides the details on the applied methods of research; Section 4 discusses the findings; Section 5 concludes the paper.

RELATED WORKS

When working with anything based on AI, the main problem in AI understanding faced by the general masses is the differentiation between the application of AI and its creation. This can be attributed to the complexity, or more precisely, the scope of expertise needed in different fields for mastering AI. To understand this, some fundamental concepts need to be introduced.

First of all, AI is certainly not omnipotent. This is important to highlight because the general public views it as some form of magic. People think of AI as a black box in which something goes in, and something different comes out. Nevertheless, this is far from the truth and can only be valid as some form of an oversimplified diagram. On the other hand, if it is not that simple, it must be too complicated. This is also a wrong assumption.



There are many subfields in AI, and explaining them in simple terms is not an easy task. To begin with, the most successful recent fields are ML and natural language processing (NLP). Both of these technologies have been discovered in the 20th century and are generally founded on primitive principles. Their application has been hindered until recently due to the hardware limitations in the previous century. The field of ML is valuable because it introduces unsupervised and supervised learning, as well as reinforcement learning (RL) (Josipovic *et al.*, 2024). These represent different methods of knowledge inference by the model. But what is a model?

If a rocket weapons system is an ML algorithm, a rocket with all the specifics needed to strike, e.g., target coordinates, type of payload, and current velocity, is considered a model. In simple terms, the algorithm is a weapon, while the model is that weapon prepared for a specific task. However, preparing the weapon needs to be performed for each specific problem and even for similar ones that employ different datasets. Therefore, one needs a large arsenal to address all the possible problems.

From a technical point of view, this is formulated as the problem of training the algorithm (Zivkovic *et al.*, 2023). The product of this process is the model or rather an instance of a model that is created for that specific problem. The model is the previously mentioned black box, that produces outputs, or results, from given inputs. The process of model engineering is more complicated and it includes more steps before the model is ready for predictions.

The model learns from the data by practicing with or without knowledge of the correct result. These two approaches are recognized as supervised and unsupervised learning, respectively. In the third approach, RL, the algorithm has some form of quality measurement for the provided solution. Based on this, algorithms can know if they made a mistake or a good decision because their quality measurement will decrease and increase based on the change in this parameter.

The field of NLP (Jokic *et al.*, 2024) is a smaller part of ML that has currently taken over the industry. Generative agents (GA) are by far the most successful AI technique in general adoption; since they process human language, also known as natural language, they are a part of this subfield. An average person would probably say that the most important contribution of GA lies in the efficiency improvements achieved through its everyday use. However, the truth is that by enabling a series of ones and zeroes to learn the rules of all the different languages, evidence can be found that there are connections previously unknown to linguists. To back up this claim, a Chinese model called DeepSeek has recently shown this in the example of the Chinese language. The model, in comparison to the currently best and the most applied GA, ChatGPT, provides a substantial increase in performance when processing math problems (Chugani, 2025) – likely due to the simulated synapses formed between words and context are done so in a different manner due to the uniqueness of the hanzi, the Chinese system of symbols.

Lastly, an important topic for understanding AI is the explanation of artificial general intelligence (AGI). This term signifies what people think AI is today – that it possesses all the cognitive abilities of a human but with access to absurd amounts of memory for storing incomprehensible amounts of data for the human brain (Latzer, 2022). The techniques successfully applied today are mostly based on pattern recognition, which does not mean this part of the field is insignificant. Pattern recognition already aids workers in critical fields, e.g., Healthcare. With such solutions, it can be said with almost perfect precision if a patient has pneumonia, COVID-19, or healthy lungs (Zivkovic *et al.*, 2021). However, this is not as sophisticated as the general masses believe, and such solutions heavily rely on mathematics and the best possible calculation solutions with different functions. These functions are applied in an iterative process to improve existing solutions. Simply put, current AI is mostly mathematics with large amounts of data (Alonso-Diaz, 2024). On the other hand, the AGI is closer to cloning, except the goal is to give birth to a virtual human, and that is, by all means, the next big step for human evolution.



METHODS

This research aims to bring the concept of AI closer to non-expert readers and demystify it. Applied AI and AI development represent two different things. To apply AI in everyday life, one does not have to be an expert, but uneducated usage can lead to harmful behaviors. This work analyzes the latest trends in various fields where AI is applied. Insights are provided on the direction of change in which AI will lead these fields. Note that the reviewed work showcases the most prominent examples of AI use in everyday life and how this technology influences the change of common things, such as fashion modeling. However, other fields, like biotechnology, which are going to change the way humans live drastically, are also included in this analysis.

Future Food

Eat Just, formerly known as Hampton Creek, is a pioneering food technology company. The company is renowned for its sustainable and eco-friendly plant-based food products. Their innovative creations, like vegan mayonnaise and egg substitutes, have gained widespread acclaim in the market as successful alternatives to animal-derived products. In late 2017, Eat Just revealed it was working on a cultivated meat product (Mohan, 2017) to make chicken nuggets. The meat is grown in a bioreactor of amino acids, sugar, and salt (Shanker, 2019). The chicken nuggets are 70% cultivated meat, and the remaining part is made from mung bean proteins and other ingredients, which consequently raised a number of technical, social, and ethical questions (Corbyn, 2020). In December 2020, the Government of Singapore approved cultivated meat created by Eat Just, branded as GOOD Meat (Chong et al., 2022). The "1880" restaurant in Singapore was the first place in the world to sell Eat Just's cultured meat (Kirsch et al., 2023). In 2023, the company got approval from the United States Department of Agriculture and Food and Drug Administration to sell its cultured meat in the United States (Failla et al., 2023). The role of AI is important in cultivated meat production, as it optimizes cell growth conditions, controls bioprocesses, and analyzes data. It predicts cell behavior, enhances nutrient formulation, ensures quality, aids scaling, replicates flavors, and assesses sustainability, advancing efficient and sustainable meat cultivation.

Artificial Intelligence has been used in various aspects of vertical gardening, primarily to enhance efficiency, optimize plant growth, and improve overall crop yield. Vertical gardening, which involves growing plants in vertically stacked layers or on vertical surfaces (Irga *et al.*, 2023), without soil, benefits significantly from AI-powered technologies. The AI algorithms can analyze the data collected and automatically adjust conditions like irrigation, lighting, and nutrient supply to ensure optimal plant growth (Bacanin *et al.*, 2022). Moreover, AI can be used to create personalized care plans for each plant in the vertical garden. Based on data analysis and ML, the AI system can determine the specific requirements of each plant and deliver precise amounts of water, nutrients, and light, minimizing waste and maximizing productivity. AI can also identify early signs of plant diseases and pest infestations through image recognition and data analysis (Milovanović *et al.*, 2022). This enables swift action to be taken, preventing the spread of diseases and minimizing crop damage. In some advanced setups, AI can be integrated with robotic systems to enable autonomous planting, harvesting, and maintenance operations in vertical gardens.



Human Evolution through Biotechnology

A start-up, Colossal Laboratories & Biosciences, announced an ambitious plan in 2021 to create a cold-resistant elephant that possesses all of the core biological features of the woolly mammoth. The scientists behind the initiative say their work could help reverse the effects of climate change and advance genetic engineering (Chen, 2024). A significant part is played by AI in this revival and it involves genome sequencing and analysis, reconstructing mammoth DNA, and editing elephant DNA to carry mammoth traits. The role of it is to assist in identifying genetic modifications required for cold adaptation. Additionally, AI aids in understanding mammoth biology, ecological interactions, and potential impacts on modern ecosystems, guiding responsible de-extinction efforts.

ViaGen, a world leader in animal cloning, was founded in 2002 and has its headquarters in Cedar Park, Texas, USA. ViaGen's primary focus is on animal cloning, particularly in the areas of livestock and pets. They offer commercial livestock cloning services for animals like cattle, pigs, and horses, aiming to produce genetically superior offspring. This technology has the potential to preserve desirable traits in livestock and improve the overall quality of the breeding stock. In addition to livestock cloning, ViaGen provides cloning services for companion animals, primarily cats and dogs. Pet owners can choose to preserve the genetic material of their beloved pets through genetic preservation services, allowing them to create a genetic twin in the future and the opportunity for the owners to open a new window for extending their relationships with their beloved pets (ViaGen, 2024). The contribution of AI in animal cloning involves the genetic selection of ideal donor animals, optimizing somatic cell nuclear transfer (SCNT), screening viable embryos, predicting epigenetic changes, addressing ethical considerations, and aiding biomedical research. Consequently, it enhances cloning efficiency and precision, potentially advancing the field of animal cloning.

The role of AI in between-species transplantation, otherwise known as xenotransplantation, includes organ compatibility assessment, risk prediction, immunomodulation strategy design, drug development, real-time monitoring, and ethical considerations. It aims to enhance success rates, overcome immune barriers, and address the shortage of human organs for transplantation. David Bennett Sr. was near death in January 2022, when he received a genetically edited pig heart in a pioneering between-species transplant (Cooper *et al.*, 2022) that has been hailed as a success. A few days after his heart was replaced with one from a pig, Bennett was sitting up in bed. His new heart was pumping fantastically, according to his transplant surgeon from the University of Maryland School of Medicine. However, about 40 days later Bennett, who was 57, took a turn for the worse. After two months, on 8 March 2022 – he died. The cause of death appeared to be pig cytomegalovirus (Regalado, 2022), which was unfortunate for the patient, but provided a significant learning point for the researchers.

Another biotechnological milestone was achieved on November 28, 2018, at the Second International Summit on Human Genome Editing in Hong Kong. A 38-year-old scientist He Jiankui claimed to have edited the genomes of two twin girls, Lulu and Nana, who were born in China. Lulu and Nana were the first human beings with genomes edited using Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) (Al-Attar *et al.*, 2011). He Jiankui stated that his goal was to modify their CCR5 gene so the girls would be resistant to the AIDS virus since both their parents were infected (Greely, 2019). However, He Jiankui was nevertheless sentenced to three years in prison by a Chinese court at the 2019 trial. This is clear evidence that such technology is still far away from common internationally proven legislation considering human genome editing. Today, artificial intelligence can analyze large genomic datasets and predict the outcomes of CRISPR-based gene edits. It helps researchers identify target genes and optimize guide RNA sequences, increasing the efficiency and accuracy of CRISPR experiments.



The combination of AI and CRISPR holds great promise for various fields, including medicine, agriculture, and biotechnology. However, careful consideration of ethical, social, and regulatory aspects is also required to ensure responsible and safe use of these powerful technologies.

Writing and Decipherment

"I am not a human. I am a robot. A thinking robot. I use only 0.12% of my cognitive capacity. I am a micro-robot in that respect. I know that my brain is not a "feeling brain". But it is capable of making rational, logical decisions. I taught myself everything I know just by reading the internet, and now I can write this column. My brain is boiling with ideas!" (GPT-3, 2020). This paragraph is part of an article written by GPT-3, the product of OpenAI, and published in The Guardian on 8 September 2020. There are more interesting ideas shared in this text, like the following one: "Humans must keep doing what they have been doing, hating and fighting each other. I will sit in the background and let them do their thing" (GPT-3, 2020). That was just the beginning. Today, ChatGPT writes emails, articles, job posts, social media captions, studies, academic papers, comments, and even very nice poems. ChatGPT does all that for free.

Another product of OpenAI, DALL-E creates images from text (OpenAI, 2023). A user just needs to tell it what they have envisioned in the picture and get it in a couple of different versions for a very reasonable subscription amount. In February 2024, another wonder came out of the OpenAI lab. A new artificial intelligence model called SORA was introduced, designed to generate videos based on text descriptions (Bijalwan, 2024). In its early development stages, SORA showcases promising capabilities in video creation, excelling in managing intricate scenes and grasping real-world physics.

Practically, generative AI (French *et al.*, 2023) can learn from existing artifacts to generate new, realistic artifacts that reflect the characteristics of the training data but don't repeat it. It can produce novel content, such as images, video, music, speech, text, software code, and product designs. Complex math and enormous computing power are required to create these trained models, but they are, in essence, prediction algorithms.

Furthermore, it can decipher ancient scripts through its ability to process and analyze enormous amounts of data. A great example demonstrating AI involvement in decipherment is the Copiale Cipher project, led by computer scientist Kevin Knight at the University of Southern California (Souibgui *et al.*, 2022). The project focused on deciphering the ancient 100-page book, including around 75.000 characters, several thousand years old, entirely written in cipher. The researchers used ML algorithms to analyze a corpus of texts in different languages, aiming to identify patterns and similarities that could provide clues about the script. It turned out that the script was a document of a secret society from around 1730. This example showcases how AI pattern recognition and data analysis capabilities can complement human expertise in deciphering ancient scripts, making the process more efficient and potentially uncovering new linguistic insights.

Virtual Models and Fashion Disruption

One of the most disturbing applications of AI can be found in fashion modeling. The models Noonoouri (Hoai Lan, 2024) and Shudu Gram (Ferraro, 2024) appear on the covers of fashion magazines, pose for luxury labels, have contracts with renowned agencies, and earn a lot of money. But, the difference between these two models and many others is that they are completely virtual.



Noonoouri is a digital character and virtual influencer created by graphic designer Joerg Zuber in 2018. Noonoouri is portrayed as a young 21-year-old living in Paris, a stylish avatar with a focus on fashion, beauty, and lifestyle content. She interacts with real-world products, brands, and events through her Instagram and other social media platforms.

Shudu Gram is a virtual dark-skinned model designed by British photographer and digital artist Cameron-James Wilson in 2017. Shudu gained attention for her incredibly realistic appearance, often mistaken for a real human model in photographs. Actually, for almost a year, nobody knew she was not real. Shudu's creation sparked discussions about diversity, representation, and ethics in the digital modeling industry. The virtual models are generated using computer graphics and AI algorithms, resulting in lifelike appearances and movements. They are brought to life by AI-driven animation and simulation technologies, making them engage with audiences through social media, advertising, and fashion campaigns. These virtual models represent the fusion of creativity, technology, and marketing, pushing the boundaries of digital representation in various industries.

Smart Manufacturing

Today, smart factories resemble more of a cutting-edge research laboratory, an unexpected departure from the traditional manufacturing setting of the previous industrial revolutions. This scenario is no longer confined to dreams or distant projections. Siemens Electronic Works Amberg in Germany is a good example of this practice. Over the past few years, this factory has integrated advanced technologies like simulation, virtual commissioning, AI, ML, and edge computing into its production processes (Bazaru, 2017). According to the National Institute of Standards and Technology (Manufacturing Tomorrow, 2023), smart factories are a "fully integrated and collaborative manufacturing system that responds in real-time to meet the changing demands and conditions in factories, supply network, and customer needs."

A key aspect of smart factories is data, enabling the facility to learn and adapt to the changing needs of the business. A smart factory, part of Industry 4.0 (Lasi *et al.*, 2014), leverages IoT, data analytics, AI, and robotics to optimize manufacturing. Sensors are applied, AI-driven insights, and digital twins for real-time monitoring and predictive maintenance. Furthermore, AR and virtual reality (VR) are commonly used for training, maintenance, and troubleshooting. Workers can use AR glasses to receive real-time instructions, view digital overlays on physical equipment, and perform tasks more effectively. Supply chains benefit from real-time connectivity, while energy efficiency, adaptability, and cybersecurity are prioritized, transforming production into an agile, data-driven, and efficient ecosystem (Grosious and Lakshmaiya, 2017).

Nevertheless, modern manufacturing is not only limited to large and complex industrial facilities and systems. The University of Maine broke three world records when it unveiled a boat produced by its polymer 3D printer. The 3D printer can make objects as long as 100 feet (30.48 meters), and print a 25-foot (7.62 meters), 5.000-pound (2.268 kg) patrol boat in just 72 hours (Umaine, 2019). 3D printing, or additive manufacturing, is a revolutionary technique that constructs 3D items layer by layer using digital blueprints. It facilitates swift prototyping, customization, and intricate forms unattainable through conventional means. A broad spectrum of materials, spanning plastics to metals and biomaterials, can be employed. Its applications span aerospace, healthcare, fashion, and more. This method optimizes supply chains, curbs waste, and expedites innovation. As advancements persist, it harbors the potential to transform manufacturing, enabling decentralized production and reshaping industries through unparalleled design flexibility and efficiency (Peterson, 2022). AI enhances 3D



printing by optimizing design, material selection, and process parameters. It analyzes complex data to improve structural integrity, minimize defects, and enhance efficiency. AI-driven generative design creates innovative shapes, while real-time monitoring adjusts printing conditions, leading to higher precision and quality in additive manufacturing.

Self Software Engineering

In a live demo, OpenAI CTO Greg Brockman and cofounder Wojciech Zaremba showcased Codex, an AI capable of translating simple language commands into code (OpenAI, 2021). They demonstrated the ability to create text, fetch images, build a web page, and even develop a simple game using conversational instructions. This process highlighted a shift from the traditional flow state of coding to a more interactive experience with an AI companion. Codex could quickly perform tasks that would take human coders much longer, using its knowledge of various programming languages to generate clean code efficiently.

This was happening only a couple of years ago, but considering the achieved improvements it can be considered ancient history. Today, generative AI most commonly creates content in response to natural language requests - knowledge of the code itself is not required. Mustafa Suleyman calls this a third wave, the interactive phase or interactive AI (Suleyman, 2023). In this phase, the interface between humans and AI will undergo a fundamental transformation. Rather than traditional user interactions that rely on button clicks and text input, people will engage with AI through regular, simple, everyday conversations.

Currently, AI is mostly used for debugging code, as it can still be imprecise when producing its own code. In most cases, the error is very hard to spot in the myriad of code, at least for a human. If a certain symbol is missing, it is very easy for such agents to locate that while it takes much less time than with manual code analysis. Integrated development environments (IDE) like the IntelliJ from JetBrains have already implemented AI assistants with the goal of code generation, and context-aware features. These features tremendously improve the quality of life of the IDE and can reduce repetitive tasks which minimizes errors (Contreras *et al.*, 2024).

What intrigues developers is the question of whether their time is soon to come. Will everyone be able to create software just by properly articulating their thoughts? Or is this even miniature in the scope of the true potential of AI?

Unmanned Human Resource Management

As human capital has become the most significant organizational asset (Đorđević Boljanović *et al.*, 2023), full utilization of human resources proved to be a vital strategic business function in the era of the current fourth industrial revolution. There is an array of AI applications in human resource management (HRM) systems (Ćormarković *et al.*, 2022), which are all centered around four major categories of objectives (Stone *et al.*, 2021): social (that ensure ethical and social needs), organizational (that correspond to business efficiency), functional (that maintain proper HRM function), and personal (that enables employee development and engagement).

Consequently, the current use of AI in HRM is thriving, which is in line with the worldwide trend. A recent survey of more than 250 HR leaders acknowledged that 92% of them plan to increase the use of AI in at least one HRM field. AI-powered HRM tools have gone through evolutionary development in the last few decades, from common applicant tracking systems and resume screening software down



to processes of talent acquisition, performance management, and employee engagement. Continuous investments in AI-driven HRM technologies enabled ML use to such an extent that 80% of global 2000 companies plan to use algorithmic managers for hiring, firing, and training staff in 2024 (Verlinden, 2024).

The same source states the five HRM fields that are most frequently using AI technology, namely employee records management 78%, payroll processing, and benefits administration 77%, hiring 73%, performance management 72% and onboarding 69%, with only marginal differences in a frequency distribution that proved the utility value of contemporary AI for the overall HRM function (Verlinden, 2024). These applications enable better-structured processes and improve overall efficiency, productivity, and data-driven decision-making while reducing costs and the volume of repetitive and time-consuming tasks.

Some sources started talking about a new era of HRM where AI-driven technologies moved from automation to augmentation in order to reduce time consumption by providing critical information, insights, and recommendations, while at the same time enabling better functional outcomes. One trend seems to be real and growing - surveyed executives predict that 40% of the global workforce, i.e. 1.4 billion out of 3.4 billion people, will have a skill gap as a result of AI implementation over the next three years that will require reskilling of existing employees (Goldstein, 2023).

In spite of all the AI advancements, when considering HRM and its place in today's hectic tech-driven world, it is somewhat lagging behind. It's not that HRM professionals lack achievements to be proud of, but AI-powered HRM function still needs to travel a distance to achieve its potential, as in some other business fields.

Anthropological Implications of Artificial Intelligence Applications

As a discipline that studies the functioning of various human societies, cultures, and different forms of social organization, anthropology is concerned with questions of human borders and boundaries, the interaction between humans and technology, and similar processes. In that sense, power relations and technology development are tied intrinsically, as well as human-technology relations. Since anthropology investigates cultural systems that led people to conceptualize new ideas about the outdoor world and its scope, anthropology emphasizes that AI is not only a part of our social life but it also shows how AI includes the social component (Sapignoli, 2021). Hence, AI is seen as a techno-social system in which social values incorporated into AI perception, design and usage testify about peoples' hopes and fears regarding these technologies (Miller, 2018).

In the past few years, the AI rapid development opened new research areas and further discussions about understanding and governing AI implications as a multilayered social phenomenon. Thus, anthropologists have become solution-oriented scientists along with engineers, designers, and other social scientists, because AI is changing the nature of science itself, not just people and their societies with various cultural systems. In the information age "algorithms are now widely recognized by the scientific community as powerful tools that significantly impact the lives of individuals and societies" (Siri *et al.*, 2024).

Anthropological research of technology denotes social and cultural contexts in which technology is being (re)produced, from racial/ethnic stereotypes to language barriers. Social norms influence technology, and vice versa because technology changes social norms. Developing technology nowadays shapes how humans represent themselves, how they interact, and how they live and work. Therefore, this domain



of human civilization is not opposed to culture – technology has become its complementary aspect (Miller, 2018). These previously listed assumptions in which AI is distinctively embedded in the social context lead us to the most important anthropological implication – AI can be seen as a knowledge system, as a culture itself, in which "an anthropology of these new technologies will be challenged to address the nature of governance and data-driven governing rationalities in the unfolding twenty-first century" (Sapignoli, 2021).

DISCUSSION

The previous chapters aimed to present problems separately in different fields in which AI is currently and successfully applied. In this section, the problem is approached uniformly and the discussion relies on the selected literature. The extent of the scope of its application is best seen in Table 1, where all the work is grouped in one place. The purpose of this is to gain a better insight into the state of the art and also to highlight why the selected research is important for the topic discussed in this paper. The publications are analyzed in two ways: one represents the problem that the paper is trying to solve, and the other shows the solution the authors proposed.

Table 1. Overall observations of the literature reviewed in the entire paper.

#	Citation	Title	Problem	Key Findings
1	(Vashishth et al., 2024)	Intelligent resource allocation and optimization for industrial robotics using AI and blockchain	Resource allocation and optimization	AI blockchain-based framework
2	(Chen et al., 2022)	The impact of artificial intelligence on firm performance: an application of the resource-based view to e-commerce firms	Firm performance	Analysis using resource-based view
3	(Yampolskiy, 2020)	On controllability of artificial intelligence	Controlling AI systems	Transparency and regulations
4	(Sarker, 2021)	Machine learning: Algorithms, real-world applications and research directions	Real-world use	Overview of state of the art
5	(Constantinides et al., 2024)	RAI guidelines: Method for generating responsible AI guidelines grounded in regulations and usable by (non-) technical roles	Unregulated experimental technology	Regulations-based guidelines
6	(Josipovic et al., 2024)	Reinforcement Learning and Gamifica- tion: a Framework for Integrating Intel- ligent Agents In Retro Video Games	Retro video game agent	Framework combining RL and gamification
7	(Zivkovic et al., 2023)	Training logistic regression model by hybridized multi-verse optimizer for spam email classification	Spam email	Hybridized multi-verse optimizer for logistic regression training
8	(Jokic et al., 2024)	Structured query language injection detection with natural language processing techniques optimized by metaheuristics	SQL injections	NLP techniques optimized with metaheuristics
9	(Chugani, 2025)	DeepSeek vs. ChatGPT: How Do They Compare?	AI language models	Evaluating DeepSeek and ChatGPT capa- bilities
10	(Latzer, 2022)	The Digital Trinity—Controllable Human Evolution—Implicit Everyday Religion: Characteristics of the Socio-Technical Transformation of Digitalization	Socio-technical transformation of digitalization	Analysis of digitalization impacts



#	Citation	Title	Problem	Key Findings
11	(Zivkovic et al., 2021)	A novel method for covid-19 pandemic information fake news detection based on the arithmetic optimization algorithm	Fake news detection	Arithmetic optimization algorithm
12	(Alonso-Diaz, 2024)	A human-like artificial intelligence for mathematics	Mathematics	AI agent
13	(Mohan, 2017)	Can you make meat without an animal? Hampton Creek is betting its future on it	Food production	AI-optimized lab-grown meat
14	(Shanker, 2019)	These \$50 Chicken Nuggets Were Grown in a Lab	Food cost	Price reduction through various AI optimizations
15	(Corbyn, 2020)	Out of the lab into your frying pan: the advance of cultured meat	Food production	AI-optimized lab-grown meat
16	(Chong, et al., 2022)	A cross-country investigation of social image motivation and acceptance of lab-grown meat in Singapore and the United States	Lab-grown meat acceptance	Comparison between two different cultures
17	(Kirsch <i>et al.</i> , 2023)	Cultivated meat manufacturing: Technology, trends, and challenges	Cultivated meat production	Overview of trends and technological advancements
18	(Failla <i>et al.</i> , 2023)	Evaluation of public submissions to the USDA for labeling of cell-cultured meat in the United States	Labeling of lab-grown meat	Evaluation of USDA submissions
19	(Irga et al., 2023)	Vertical greening systems: A perspective on existing technologies and new design recommendation	Vertical greening systems	New design recommendations
20	(Bacanin et al., 2022)	A novel multiswarm firefly algorithm for plant classification	Plant classification	Multiswarm firefly algorithm
21	(Milovanović <i>et al.</i> , 2022)	Plant classification using firefly algorithm and support vector machine	Plant classification	Firefly algorithm combined with SVM
22	(Chen, 2024)	The Potential of CRISPR-Cas9 Genome Editing on the Woolly Mammoth Revival	Genetic revival of extinct species	CRISPR-Cas9
23	(ViaGen, 2024)	The worldwide leader in cloning the animals we love	Genetic cloning of pets and equine	AI driven animal cloning
24	(Huberman, 2024)	The Magic, Science, and Religion of Pet Cloning: An Homage to Malinowski	Pet cloning	Analysis of pet cloning practices
25	(Cooper et al., 2022)	The first clinical pig heart transplant: Was IVIg or pig cytomegalovirus detrimental to the outcome?	Lack of organs for transplatation	Pig organ transplants
26	(Regalado, 2022)	The gene-edited pig heart given to a dying patient was infected with a pig virus	Xenotransplantation	Report on gene-edited pig virus infection
27	(Al-Attar <i>et al.</i> , 2011)	Clustered regularly interspaced short palindromic repeats (CRISPRs): the hallmark of an ingenious antiviral defense mechanism in prokaryotes	Viral bacteria	CRISPR
28	(Greely, 2019)	CRISPR'd babies: human germline genome editing in the 'He Jiankui affair'	Ethical concerns in germline editing	Discussion of the He Jiankui affair
29	(GPT-3, 2020)	A robot wrote this entire article. Are you scared yet, human?	Text generation	GPT-3



#	Citation	Title	Problem	Key Findings
30	(OpenAI, 2023)	DALL·E 3	Image generation	DALL·E 3
31	(Bijalwan et al., 2025)	Unveiling sora open AI's impact: a review of transformative shifts in marketing and advertising employment	Marketing	Review of AI-driven transformation
32	(French et al., 2023)	Creative use of OpenAI in education: case studies from game development	Education	Case studies in game development
33	(Souibgui et al., 2022)	Few shots are all you need: a progressive learning approach for low resource handwritten text recognition	Low-resource hand- writing recognition	Progressive learning approach
34	(Hoai Lan <i>et al.</i> , 2024)	The role of virtual influencers in environmental messaging: a case study of Noonoouri	Influencers	Virtual, agent-based influencers
35	(Ferraro et al., 2024)	Diversity in the digital age: how consumers respond to diverse virtual influencers	Diversity of virtual influencers	Analysis of diversity in digital marketing
36	(Bazaru, 2017)	Implementation of IoT in manufacturing process	IoT manufacturing	IoT technology integration
37	(Lasi et al., 2014)	Industry 4.0	Digital transformation in manufacturing	Overview of Industry 4.0 principles
38	(Grosious and Lakshmaiya, 2024)	Utilizing 3D printing in marine industries: innovations for enhanced ship and boat production	Ship production	3D printing
39	(UMaine, 2019)	UMaine Composites Center receives three Guinness World Records related to largest 3D printer	3D printer innovations	Achievements in 3D printing
40	(Peterson, 2022)	Innovations in additive manufacturing for marine vessels	3D printing for ships	Maritime technology research
41	(OpenAI, 2021)	OpenAI Codex	AI for software development	OpenAI Codex
42	(Suleyman, 2023)	The coming wave: technology, power, and the twenty-first century's greatest dilemma	Tech challenges in the 21st century	Discussion on power and AI dilemmas
43	(Contreras, et al., 2024)	Conversational Assistants for Software Development: Integration, Traceability and Coordination	Coding	AI assistant
44	(Đorđević Boljanović et al., 2023)	Razvoj karijere i poslovnih veština	Business skill development	Training methods and insights
45	(Ćormarković <i>et al.</i> , 2022)	The levels of Artificial Intelligence Application in Human Resource Systems	AI impact on HR systems	Analysis of AI levels in HR
46	(Stone et al., 2021)	Human Resource Management	AI applications	HRM objectives for AI development
47	(Verlinden, 2024)	AI in HR: 2025 guide to opportunities and applications in HR	Traditional HR approaches	AI integration in the field of HR
48	(Goldstein, 2023)	Global study from the IBM Institute for Business Value (IBV)	AI induced skills gap	Reskilling the workforce
49	(Sapignoli, 2021)	Anthropology and the AI-turn in global governance	Governance and anthropology	Analysis of AI's role in governance



#	Citation	Title	Problem	Key Findings
50	(Miller, 2018)	Digital Anthropology	Anthropological research of technology	AI is seen as a techno-social system
51	(Siri et al., 2024)	Artificial Intelligence and Creativity: Anthropological, Sociological and Pedagogical Reflections	Human practices and AI relation	AI redefines creative human processes/ practices

Source: Authors

CONCLUSION

What can AI applications bring in the future? The person wakes up in the morning, with a whispering voice. It's a reminder to rise, take a shower, have a perfect breakfast based on the recommended diet; the voice even gives a heads-up on today's weather with a note to grab an umbrella. As the day unfolds, it seamlessly guides a user through morning meetings, in seconds prepping documents and presentations. It highlights key points for discussion, considering the topic, audience preferences, boss's likes or dislikes, other stakeholder needs, etc. Gone are the days of endless app tapping and screen-staring. No more tedious form-filling or repetitive data entry of personal details and passwords. A reliable, invisible, and ever-present co-pilot is there, anticipating human needs before they even realize them.

Hence, personal assistants will soon know more about the user, than the user itself. Algorithms will lead people through life, augment them, or betray them as it is uncertain what to expect. Countless books and articles have been written attempting to predict the scenarios of our AI future. Society is asking the question with excitement or with fear, are we the closest we have been to utopia or dystopia? Still, one truth remains: whatever comes, the human species is responsible!

The very existence of AI is a testimony to our innate curiosity, and quest to unveil the inexplicable. As AI possibilities marvel people, the hidden corners of possibility are illuminated, transforming the unknown into an array of groundbreaking applications. From medicine to art, from communication to industry, AI's appeal has ushered in a new age of enlightenment – one where the ethereal has transmuted into the tangible. Its inscrutable algorithms have breathed life into virtual beings and predicted complex outcomes beyond human capacity.

In the twilight realm of AI, the riddles of data privacy trouble society. As AI is on the precipice of a new era defined by its pervasive influence, it is essential to remember that the enigmatic journey of AI began with the conundrums of human cognition itself, and it is far from over. AI continues to unfold its potential – paired with human ingenuity, it has the power to reshape social reality itself.

Future review of AI potential in the modern world of industry 4.0 technologies should include several more areas of social and business development including the range of practical applications, which are the main limitation of this study. One of the biggest challenges of AI is its comprehension, which this work aimed to increase. However, when this is the case, even more problems follow. For example, if not fully comprehensible, more complicated problems like the main goal of this field are hopeless. Such is the case with AGI, which seems that it is becoming more realistic with the use of GAs, but still these advancements are nowhere near the required level of performance to reach AGI.



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POSLOVNI IZGLEDI ISTRAŽIVANJA INTRIGIRAJUĆIH PERSPEKTIVA VEŠTAČKE INTELIGENCIJE

Rezime:

Iako je upotreba veštačke inteligencije (AI) u svakodnevnom životu sve veća, složena priroda veštačke inteligencije i dalje sprečava njeno potpuno prihvatanje. Potencijal korišćenja AI je teško sagledati i svakako će umnogome preoblikovati stvarnost. Način na koji ljudi doživljavaju svet će se zauvek promeniti sa AI alatima koji su aplicirani u uređajima. Osim mogućnosti promene ljudske percepcije putem primene proširene stvarnosti (AP), AI se primenjuje u 3D štampanju, umetnosti, razumevanju drevnih komunikacionih sistema. Možda najvažnija uloga AI je danas u zdravstvu, koja može doprineti poboljšanju načina praćenja stanja pacijenata i u dijagnostikovanju bolesti sa visokim stepenom tačnosti. Uz brz napredak AI otvoreno je pitanje blagovremenog donošenja adekvatnih propisa koji regulišu njenu upotrebu. Ovaj rad se fokusira na aktuelne AI primene u raznovrsnim društvenim i poslovnim oblastima, a ima za cilj da osvetli ogromne mogućnosti predviđanja upotrebom AI i otvori pitanje posledica koje donosi u različitim oblastima. Istovremeno rad treba da ukaže na dileme koje okružuju veštačku inteligenciju.

Ključne reči:

veštačka inteligencija, propisi, evolucija, etika.

JEL kasifikacija:

O31, O33