Legalities of the Artificial Intelligence (AI) Generated Content in Contrast with European Union and United State: A Review Study

Dr. Rajesh Kumar,

Assistant Professor, School, of Law, UPES, Dehradun, rohitgandhir@gmail.com, ORCID:0000-0002-4338-5639.

Vidhyanshi Bhanwar,

Assistant Professor, NLIU Bhopal, ORCID Id: 0009-0001-4007-0615

Abstract

Artificial intelligence (AI) can solve cognitive problems that frequently require human intelligence, it offers enormous potential for development and innovation. Technologies related to artificial intelligence (AI) have a big impact on how research and creative processes are changing in the visual arts. We are motivated to conduct research and analysis because of the increasing interest in investigating the potential of AI technology. We are looking for insights as a result of the numerous projects and creative endeavours that have been sparked by the combination of AI and art. Significant developments in chatbot technology are demonstrated by the emergence of ChatGPT as a top AI language model. The idea of artificial intelligence and the history of ChatGPT are covered first in this study. Researchers highlight the global market trend of AI implementation from 2020 to 2030 as well as the statistics of various AI application users, of which ChatGPT is the most popular. Next, we examine the various applications of AI in industries such as robotics, finance, healthcare, retail, and automotive. On the other hand, there are difficulties such as issues with originality, infringement, and ownership and authorship rights. The researchers examine how the legal systems of the USA and the EU handle and regulate the new issues that arise from the use of AI tools such as ChatGPT.

Keywords: ChatGPT, AI Tools, Copy Right Laws, AI-generated content, fair use.

1.   Introduction

The field of artificial intelligence (AI), according to Margaret Boden, aims to make computers capable of tasks that are typically associated with human minds. Therefore, the main objective of artificial intelligence is to accurately mimic the human mind. It is not surprising that efforts are being made to create a machine that can outperform humans given our increasing reliance on technology. The original purpose of this high-performance computer was to analyse data, solve problems using algorithms, and have machine-learning capabilities. But as time went on, programmers and scientists found more and more uses for the supercomputer, which eventually resulted in the creation of artificial intelligence. Although artificial intelligence (AI) has advanced to a high degree of complexity in handling mechanical and computational tasks, its ability to mimic the complex processes of human cognition and express emotions and sentiments is still being developed. Through a variety of media, including paintings, sculptures, music, and literature including both prose and poetry artistic expression enables people to communicate their feelings and ideas.

The enormous advancements in AI and NLP have led to the development of increasingly sophisticated and flexible language models. A class of artificial intelligence models known as "generative AI" is capable of producing new data by utilising patterns and structures found in previously collected data. Text, graphics, music, and other types of content can all be produced by these models.[12] Procreative AI models use Deep Learning Techniques and Neutral Networks to evaluate, comprehend, and produce content that closely resembles human outputs. Open AI developed ChatGPT, an AI model that evolved into a coherent tool with a variety of multilingual applications. [34] This model sought to address the shortcomings of earlier sequence-to-sequence models used in natural language processing, such as convolutional neural networks (CNNs)

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[1] M.J. Ali, A. Djalilian, Readership awareness series–paper 4: chatbots and ChatGPT-ethical considerations in scientific publications, TANDFONLINE (March, 2023), https://www.tandfonline.com/doi/fufill/10.1080/08820538.2023.2193444.

[2] J. Rudolph, S. Tan, ChatGPT: Bullshit spewer or the end of traditional assessments in higher education? 6 (1) JALT 1, 1 (2023).

[3] M.R. King, A conversation on artificial intelligence, chatbots, and plagiarism in higher education,16 SPRINGER LINK 1, 1 (2023).

[4] M. Liebrenz, R. Schleifer, A. Buadze, D. Bhugra, A. Smith, Generating scholarly content with ChatGPT: ethical challenges for medical publishing, PUBMED 105, 106 (2023).

and recurrent neural networks (RNNs). The development of strong language models, like OpenAI's GPT series—which includes GPT-2 and GPT-3, the forerunners of ChatGPT—was made possible by the inventive architecture.

Even though conversational AI, like ChatGPT, has advanced significantly in recent years, there are still many issues and limitations that need to be addressed. The main legal concerns are who owns and writes content created by ChatGPT or OpenAI, whether the work created with OpenAI is authentic, and other copyright infringement issues.

The paper's remaining sections are arranged as follows: In Section II, the historical background of ChatGPT and artificial intelligence is covered. An overview of the global AI market and its range of applications is given in Section III. Section IV provides examples of the artificial intelligence application domain. The numerous challenges and problems are the main topic of Section V. Analyse the US and EU legal systems. The paper's final analysis is proposed and provided in Sections VI and VII.

Background of AI and ChatGPT

Artificial Intelligence

The development of natural language processing and artificial intelligence and machine learning technologies continues at a fast pace to transform multiple business sectors and operational areas.5 The implementation of chatbots as speech-mimicking computer programs demonstrates how modern technology functions in practical business operations.6 The scientific discipline of artificial intelligence (AI) extends across multiple academic domains.

The first manual computer usage in the 1950s marked the beginning of a substantial growth period for computers. 7 he technology of AI shows potential to transform multiple business sectors. 8 The field of artificial intelligence contains methods and approaches which enable computers to understand human behavior and thought processes and duplicate their actions. 9 The main objective of artificial intelligence development focuses on building machines that duplicate human intelligence capabilities for solving problems and performing logical reasoning and language understanding.

The development of artificial neural networks (ANNs) enabled robots to learn and reason like humans so machine learning and deep learning techniques became the primary methods for AI advancement.[10] The pharmaceutical sector together with industrial operations and financial institutions and medical facilities and managerial organizations have experienced major transformations because of artificial intelligence (AI). The global economy will see businesses of all sizes achieve competitive success through AI implementation. 11 The field of AI contains specialized areas which include machine learning and natural language processing.

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[5] Wamba, S. F., Bawack, R. E., Guthrie, C., Queiroz, M. M., & Carillo, K. D, are we preparing for a good AI society? A bibliometric review and research agenda. Technological Forecasting and Social Change, SSRN (April 25, 2024), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3735322.

[6] Adamopoulou, E., & Moussiades, An overview of chatbot technology. In IFIP International Conference on Artificial Intelligence Applications and Innovations, Springer (April 25, 2024), https://link.springer.com/chapter/10.1007/978-3-030-49186-4_31.

[7] Haenlein, M., & Kaplan, A brief history of artificial intelligence: On the past, present, and future of artificial intelligence. California Management Review, ResearchGate (April 25, 2024), https://www.researchgate.net/publication/334539401_A_Brief_History_of_Artificial_Intelligence_On_the_Past_Present_and_Future_of_Artificial_Intelligence.

[8] Lu, Y., Artificial intelligence: A survey on evolution, models, applications and future trends, 6(1) JOURNAL OF MANAGEMENT ANALYTICS 1, 12(2023).

[9] K.R. Chaoudhary, Natural language processing. In Fundamentals of artificial intelligence, SPRINGER LINK (April 25, 2024), https://link.springer.com/chapter/10.1007/978-81-322-3972-7_19.

[10] Yang Lu, Artificial intelligence: A survey on evolution, models, applications and future trends, JOURNAL OF MANAGEMENT ANALYTICS, (April 25, 2024), https://www.tandfonline.com/doi/full/10.1080/23270012.2019.1570365.

[11] Makridakis, S., The forthcoming artificial intelligence (AI) revolution: Its impact on society and firms, 90 Futures, 46, 49 (2017) https://doi.org/10.1016/j.futures.2017.03.006.

ChatGPT

The OpenAI research lab developed the GPT-3 language model which stands as one of the most advanced models in its field. OpenAI introduced ChatGPT as a chatbot that uses natural language processing to handle user inquiries following the release of GPT-3. The interest in GPT-3 and ChatGPT runs high because these systems show potential to transform various language-based work activities.

a. OpenAI Initiative

The organization OpenAI dedicates itself to developing artificial general intelligence (AGI) which will benefit human society. OpenAI stands as a leading organization in artificial intelligence (AI) research since its 2015 establishment by Elon Musk and Sam Altman and other notable figures. OpenAI achieved major breakthroughs in the field through its development of GPT-2 and GPT-3 models and later ChatGPT. The success of GPT-3 at OpenAI led to the development of ChatGPT through their research and development work which used the GPT-4 architecture.[12] The developers of ChatGPT designed this system to surpass GPT-3 performance in conversational tasks by enhancing contextual understanding and response quality and overall text coherence.[13]

b. GPT Evolution

The GPT models receive training to generate natural language content that includes complete papers and extended paragraphs and single sentences. The pre-training process of GPT models with extensive text data allows developers to optimize them for tasks including text classification and question answering. The pre-training process involves teaching a model to process large unlabelled text datasets which include books and web pages.[14] The model uses unsupervised learning to detect important characteristics and patterns within the data. The GPT model learns to predict words in text sequences through its training process which involves analyzing preceding words. The GPT model learns to predict a term in a text by considering words that come before it during training. The natural language processing technique known as language modelling serves as the basis for this process.[15] The model develops expertise in syntax and grammar and meaning patterns through its extensive training on text data. The GPT model requires a small dataset of labelled information to adjust its parameters after training for specific tasks. The model achieves better results in its assigned task through this optimization process. The model receives modifications for text classification work to perform attribute-based text classification of incoming text.[16]

i. GPT-1

he GPT language model received its first release as version 1 during 2018. The Transformer design served as the network architecture for GPT 1 because it originated from NLP applications such as machine translation and language modeling. The training process of GPT 1 involved processing text data from books and papers and online content sources.[17] The model received training to predict sequence words based on preceding text before it learned this specific task. The training process enabled GPT 1 to develop its ability to detect patterns and relationships within large text datasets. The training process of GPT 1 enables the model to adapt for sentiment analysis and language translation and text categorization tasks. The model receives labeled text data for sentiment analysis training through instructions that teach it to detect emotional content in written texts. The 117 million parameters of GPT 1 represent a small fraction of what future GPT model versions will contain. The pre-training of GPT 1 on textual content demonstrates its effectiveness in natural language processing tasks which proves the value of text-based pre-training for language understanding.

ii. GPT-2

[12] OpenAI, https://openai.com/, Available Online, Accessed on March, 2024.
[13] ChatGPT, https://chat.openai.com/chat, Available Online, Accessed on March, 2024.
[14] Medium, https://medium.com/the-techlife/evolution-of-openais-gpt-models-8148e6214ee7 (last visited April 25, 2024).
[15] 360DigiTMG, https://360digitmg.com/blog/types-of-gpt-in-artificial-intelligence (last visited April 25, 2024).
[16] X. Zheng, C. Zhang, P.C. Woodland, Adapting GPT, GPT-2 and BERT language models for speech recognition, RESEARCHGATE (April 25, 2024), https://www.researchgate.net/publication/358457151_Adapting_GPT_GPT-2_and_BERT_Language_Models_for_Speech_Recognition.
[17]Ibid.

The introduction of GPT 2 brought significant advancements to GPT 1 through its 1.5 billion parameter count which established it as a leading language model at that time. The model received pre-training through a wide range of text sources which included web content and literature and written materials for language modeling tasks. The model operated similarly to GPT 1 by learning to forecast upcoming words based on preceding text sequences. The model demonstrates enhanced capabilities for generating longer coherent text sequences and shows better performance in handling new tasks and domains.[18] The first pre-training phase of GPT-2 leads to additional model improvement through fine-tuning. The model receives training through multiple specific tasks which include text classification and sentiment analysis and question-answering.[19] The model achieved top results in multiple tasks which proved its ability to create outstanding natural language content. The main strength of GPT-2 involved its ability to create realistic and coherent text that human writers would struggle to distinguish from their own work.[20] The model's capabilities led to concerns about its potential misuse for creating fake news and propaganda content. OpenAI chose to restrict the full model release while providing a reduced version with restricted capabilities.

iii.   **GPT-3**

The language model contains 175 billion parameters which establish it as one of the most sophisticated models developed to date while surpassing GPT 2 by a substantial amount. The language model GPT 3 received training through web content and literature and written materials during its language modeling development.[21] The system acquired the ability to forecast upcoming words through analysis of preceding text sequences. The system used preceding word context to create both logical and well-structured written content. The system uses its ability to process natural language for text sorting and emotion analysis and question answering without needing any specific training data.[22] The system developed word prediction skills for text sequences through analyzing preceding words which produced natural language output that was both logical and well-written. The system uses its natural language processing abilities to sort text and evaluate emotions and answer questions without needing any particular training data. The system uses its ability to predict text sequence words based on prior words which results in well-written natural language output. The system demonstrates natural language processing abilities through text categorization and sentiment analysis and question answering without requiring any specific training data.[23] The model has found applications in multiple fields including chatbots and language translation and content generation and programming. The model has driven multiple studies in natural language processing which attracts researchers from the AI field.

iv.   **InstructGPT**

OpenAI developed InstructGPT as their new language model which follows the success of their GPT-3 big language model.[24] The system enables ChatGPT conversational agent functionality through human feedback-based reinforcement learning for enhanced reliability. The InstructGPT fine-tuning approach stands apart from GPT because it incorporates human feedback for training. The training process for GPT involves human operators who start with a small dataset to generate answers before comparing results with GPT output and then use human feedback to label GPT responses before showing the GPT model output.[25] OpenAI has established this process as their standard operating procedure which enables Instruct GPT to perform better than GPT-3.

[18] A. Shrivastava, R. Pupale, P. Singh, enhancing aggression detection using GPT-2 based data balancing technique, IEEE (April 25, 2024), https://ieeexplore.ieee.org/document/9432283.

[19] E.T.R. Schneider, J.V.A. de Souza, Y.B. Gumiel, C. Moro, E.C. Paraiso, A GPT-2 language model for biomedical texts in Portuguese, IEEE (April 26, 2024), https://ieeexplore.ieee.org/document/9474713.

[20] Y. Qu, P. Liu, W. Song, L. Liu, M. Cheng, A text generation and prediction system: pre-training on new corpora using BERT and GPT-2, IEEE (April 26, 2024), https://ieeexplore.ieee.org/document/9152352.

[21] M. Lammerse, S.Z. Hassan, S.S. Sabet, M.A. Riegler, P. Halvorsen, Human vs. GPT 3: the challenges of extracting emotions from child responses, IEEE (April 26, 2024), https://ieeexplore.ieee.org/document/9900885.

[22] R.Kinoshita, S. Shiramatsu, Agent for recommending information relevant to web based discussion by generating query terms using GPT-3, IEEE (April 26, 2024),https://ieeexplore.ieee.org/document/9999111.

[23] J. Hewett, M. Leeke, Developing a GPT-3-based automated victim for advance fee fraud disruption, IEEE(April 26, 2024), https://ieeexplore.ieee.org/document/10027811.

[24] A. Chan, GPT-3 and InstructGPT: Technological Dystopianism, Utopianism, and "Contextual" Perspectives in AI Ethics and Industry, 3 SPRINGER 53, 55 (2023).

[25] arXiv:2210.04186, https://arxiv.org/abs/2210.04186 (last visited April 26, 2024).

v.   ProtGPT2

Recently a new scientific study called ProtGPT2 introduces a language model that can understand the language of proteins. This model has real world uses, in protein design and engineering.[26] The model creates protein sequences that maintain protein characteristics, like size, structure makeup and amino acid patterns. It also explores areas in the field of proteins. Inspired by the GPT2 Transformer ProtGPT2 consists of 36 layers with its power stemming from the 1280 structure and housing 738 million parameters. Initially ProtGPT2 learned independently by studying raw protein data from the Uni Ref50 database (version 2021_04) without annotations. Predicting oligomer sequences was a training goal for the model allowing it to grasp protein concepts and language effectively. With its potential as a tool, for modifying and producing proteins ProtGPT2 demonstrates promise in this domain.[27]

vi.   BioGPT

R. Luo et al.[28] We've created a language model named BioGPT tailored for crafting and studying literature. BioGPT, a pre trained Transformer model leverages the Transformer language model design. It has been trained from scratch on 15 million PubMed abstracts making it well suited for examining text content.[29]

vii.   ChatGPT

ChatGPT is trained on an extensive collection of text data, which includes books, journals, and websites. This training involves a language modeling assignment.[30] Pre-training enables ChatGPT to acquire knowledge of the patterns and connections of words and phrases in human language, hence enhancing its ability to produce coherent and lifelike responses during conversations.

viii.   GPT-4

OpenAI has made progress in advancing learning with the release of GPT 4. This innovative model is a multimodal language system that can handle both image and text inputs generating outputs as well.[31] While it may not possess the same level of proficiency as humans in real-life situations, it excels in showcasing its abilities and meeting academic standards.[32] For example, it has attained a percentile rank in the top 10% among test-takers on a simulated bar exam, surpassing GPT-3.5's percentile rank in the bottom 10%. GPT-4 was developed through a six-month process of continuous adjustment, incorporating insights from OpenAI's adversarial testing program and ChatGPT. As a result, the model achieved its highest level of performance in terms of accuracy, controllability, and adherence to specified limitations, although further enhancements are still possible. GPT models have surpassed benchmarks, in natural language processing activities, such as generating text answering questions translating languages and analyzing sentiments. Moreover, they have been utilized in a range of real-world applications, like chatbots, customer service and creating content.

c.   GPT-3.5 WorkFlow

The main concept of the Transformer model is to utilize self-attention to analyze the input sequence and generate representations that can be converted into an output sequence. Self-attention enables the model to focus on aspects of the input sequence, with varying levels of granularity. This functionality aids in capturing the interconnections and associations, among segments of the sequence.[33] GPT 3.5 uses a configuration, with 13 Transformer blocks each block having 12 attention heads and 768 hidden units. It starts by using an embedding layer to convert the input tokens, into a

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[26] N. Ferruz, S. Schmidt, B. H€ ocker, ProtGPT2 is a deep unsupervised language model for protein design, Nat. Commun. 13 (1) (2022) 4348

[27] ProtGPT2, https://huggingface.co/nferruz/ProtGPT2 (last visited April 26, 2024).

[28] arXiv, https://arxiv.org/abs/2210.10341 (last visited April 26, 2024).

[29] BioGPT. https://github.com/microsoft/BioGPT (last visited April 26, 2024).

[30] M. Abdullah, A. Madain, Y. Jararweh, ChatGPT: fundamentals, applications and social impacts, in: 2022 Ninth International Conference on Social Networks Analysis, Management and Security (SNAMS), IEEE, 2022, November, pp. 1–8.

[31] GPT-4, https://openai.com/research/gpt-4 (last visited April 26, 2024).

[32] Oxford Analytica, https://www.emerald.com/insight/content/doi/10.1108/OXAN-ES276760/full/html (last visited April 27, 2024).

[33] Oxford Analytica, https://www.emerald.com/insight/content/doi/10.1108/OXAN-ES276760/full/html (last visited April 27, 2024).

vector space before moving on to the models processing stage. The embedded tokens then go through the Transformer block, which utilizes self-attention to generate representations.

After that the undisclosed features move through the remaining 12 Transformer blocks. Each block employs self-attention and feedforward layers. The final Transformer block produces a series of features, which are later transformed into an output sequence using a projection layer and a softmax activation function.[34] GPT 3.5 extends the Transformer design by incorporating enhancements such, as layer normalization, residual connections, and positional embeddings. These components contribute to enhancing the stability of the training process and boosting the model's performance, on language related tasks. The structure of GPT 3.5 offers a method of representing sequences in language. It has consistently demonstrated outcomes in language tasks, including text generation, language comprehension and language translation.

2. Global Market

This text presents the most noteworthy statistics on artificial intelligence, showcasing its widespread impact and influence on many industries, the economy, and the workforce. It specifically highlights the role of chatbots in this evolution. The data provided here provide a comprehensive understanding of the rapid advancement of artificial intelligence and its capacity to impact the future. This insight can be utilized for market-sizing projections as well as enhancing productivity.[35]

By 2023, the global adoption of AI technologies exceeded 250 million people, more than twice the number in 2020 as shown in *Figure 1*.[36] The usage of AI technologies is expected to steadily rise and exceed 700 million by the end of the decade.
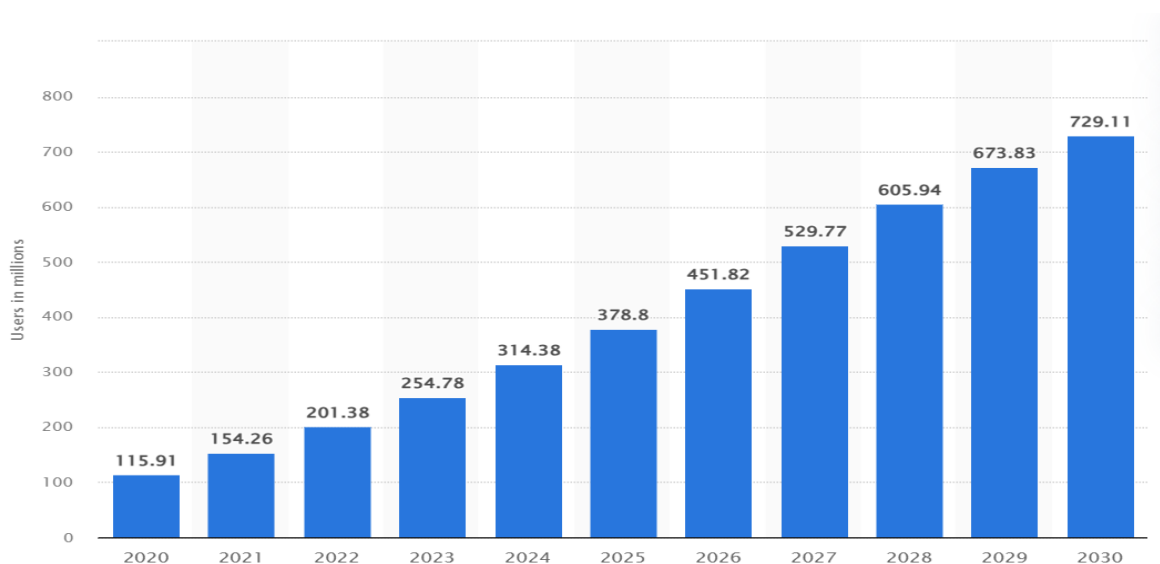

Figure 1 Global usage of intelligence (AI) tools is projected to increase from 2020, to 2030 with millions of users[37]

ChatGPT dominates the global market in 2023, with approximately a 20% user share, making it the most widely used artificial intelligence text generation tool worldwide (Figure 2). There was a significant surge in both understanding and enthusiasm for artificial intelligence technology and its advancement following its launch in the latter part of 2022.

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[34] T. Hagendorff, S. Fabi, M. Kosinski, Machine Intuition: Uncovering Human-like Intuitive Decision-Making in GPT-3.5, 2022 arXiv preprint arXiv:2212.05206.

[35] Forbes Advisor, https://www.forbes.com/advisor/business/ai-statistics/ (last visited April 26, 2024).

[36] Statista, https://www.statista.com/forecasts/1449844/ai-tool-users-worldwide#:~:text=People%20using%20AI%20tools%20globally%20went%20past%20250,700%20million%20by%20the%20end%20of%20the%20decade (last visited April 26, 2024).
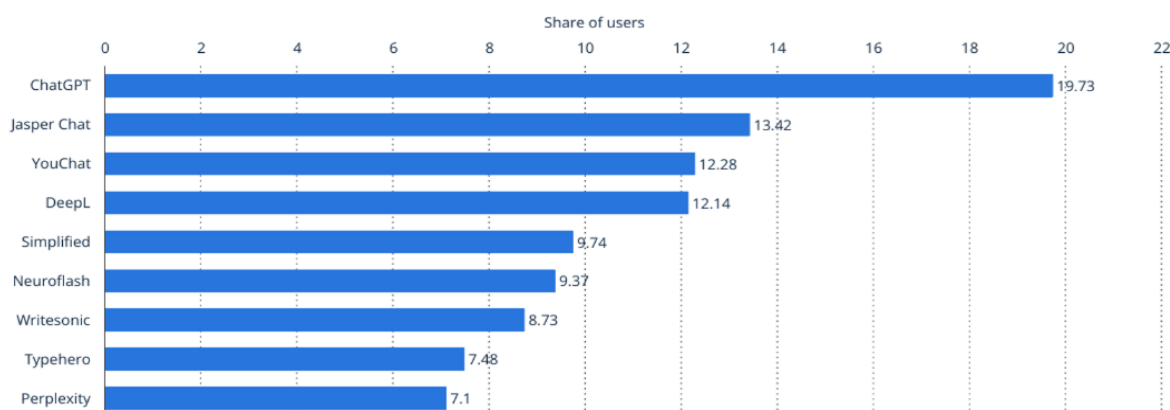
[37]Supra Note 41.

Figure 2 Leading generative artificial intelligence (AI) text tools market share of users globally in 2023[38]

3. Application of AI

The combination of advanced technical elements including data processing power and algorithms enables AI systems to solve problems effectively and create economic value. The financial sector along with healthcare and automotive and retail industries achieve successful AI implementation because they maintain robust data systems.

a. Financial Industry

The financial sector has proven the effectiveness of artificial intelligence (AI) through its applications. The system applies risk management and personalized advisory services and market trend prediction and creditworthiness assessment capabilities. The finance industry underwent a transformative change through AI integration which brought about extensive innovation to the sector. The Silicon Valley technology companies use AI algorithms to create simplified product access for their customers. The models use expert knowledge to generate solutions that fulfill customer requirements while minimizing expenses.[39][40] The Japanese startup Alpaca employs deep learning algorithms to analyze images to help users locate foreign exchange trading charts within their datasets.[41] The AI industry within these sectors advances through machine learning applications which help identify market risks and stock market patterns. Financial organizations use machine learning systems to handle risks effectively by processing multiple data sources and delivering warning notifications to their clients.[42] Financial organizations use data sets to evaluate uncertainties while providing immediate risk alerts for investments and optimizing resource allocation and risk management systems which support business expansion.[43]

b. Healthcare sector

The medical field uses AI algorithms to deliver healthcare support and detect cancer while advancing research activities.[44] The advancement of healthcare programs depends on the free exchange of knowledge between different groups.[45] The intelligent robot Watson from IBM stands as one of the most recognized examples of artificial intelligence technology. The technical team at IBM supplied Watson with extensive data resources which included clinical guidelines and drug usage

[38] Ibid.

[39] Yogesh K. Dwivedi et al., Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy, 57 INT. J. INF. MANAGE. 101994 (2021).

[40] Xiaodong Liu et al., Representation Learning Using Multi-Task Deep Neural Networks for Semantic Classification and Information Retrieval, NAACL HLT 2015 - 2015 CONF. NORTH AM. CHAPTER ASSOC. COMPUT. LINGUIST. HUM. LANG. TECHNOL. PROC. CONF. 912–921 (2015), https://aclanthology.org/N15-1092 (last visited May 13, 2024).

[41] B.A. Khalaf, S.A. Mostafa, A. Mustapha, M.A. Mohammed, W.M. Abduallah, Comprehensive review of artificial intelligence and statistical approaches in distributed denial of service attack and defense methods, 7 IEEE, 691, 696 (2019).

[42] L. Chen, P. Chen, Z. Lin, Artificial intelligence in education: a review, 8 IEEE, 264, 270 (2020).

[43] Yanqing Duan, John S. Edwards & Yogesh K. Dwivedi, Artificial intelligence for decision making in the era of Big Data – evolution, challenges and research agenda, 48 INT. J. INF. MANAGE. 63–71 (2019).

[44] Daniele Ravi et al., Deep Learning for Health Informatics, 21 IEEE J. BIOMED. HEAL. INFORMATICS 4–21 (2017).

[45] P. Hamet, J. Tremblay, Artificial intelligence in medicine, 69 Metabolism, S36, S39 (2017).

reports and numerous medical records. The AI algorithms processed the entered data to enhance healthcare delivery quality and simplify medical diagnosis procedures.46

c. Retailing Industry

The retail industry uses AI technology to automate store operations which results in reduced costs and enhanced operational performance. The retail giant Amazon created AmazonGo which represents a new standard for brick-and-mortar shopping.[47] The AmazonGo stores operate through a system that uses machine learning and computer vision and sensors under the "Walk Out" feature. The sensors and cameras and signal receivers installed throughout the store enable product location tracking on shelves. The system tracks all items that customers place in their shopping cart. The implementation of AI within recommendation systems leads to better sales performance and market prediction capabilities and decreased inventory expenses. The recommendation system develops a predictive model which recommends products based on individual user preferences. The recommendation system has become a standard feature in e-commerce websites.[48]

d. Automotive Industry

The automotive industry needs to explore self-driving cars as its main focus. The development of self-driving technology results from uniting advanced information technologies between AI and IoT systems within the sector.49 he current focus, on transportation and travel data is essential. Autonomous driving systems use lidar sensors and multiple detection devices to gather data about road conditions and human movement. The collected data undergoes AI algorithm processing to develop continuous improvements which result in vehicle route planning and control systems for road operation.[50] The technology gap between European and American vehicle development is rapidly decreasing in China. [51] he company continues to advance at the same time as other organizations. Google unveiled its self-driving car design to the public on December 21, 2014. The two countries of Switzerland and France started working together to create buses while planning a two-year testing period on public roads. The German car manufacturer Audi introduced its Audi AI" brand in 2017 through which it incorporated artificial intelligence (AI) technology into the Olympic Games. The implementation of fixed speed cruise control and automated parking and assistive driving features in vehicles enables drivers to perform fewer manual tasks during driving. The introduction of driverless vehicles marks a new era of autonomous driving because of this technological breakthrough.[52][53]

e. Robotics Industry

A robot functions as a human-made device which duplicates human movements. Research on robots has developed through three distinct stages of technological progression. The first generation of software systems function as controllers for robot operations. The programming of this robot type allows its creator to write code for it. The robot executes its operations based on the instructions stored in its software program. The robot requires instructions from a technician before starting

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[46] A. Esteva, A. Robicquet, B. Ramsundar, V. Kuleshov, M. DePristo, K. Chou, C. Cui, G. Corrado, S. Thrun, J. Dean, A guide to deep learning in healthcare, 25(1) Nat. Med., 25, 27 (2019).

[47] F. Lu, K. Yamamoto, L.H. Nomura, S. Mizuno, Y. Lee, R. Thawonmas, Fighting game artificial intelligence competition platform, IEEE 2nd Global Conference on Consumer Electronics (GCCE), 320, 320 (2013).

[48] S.D. Erokhin, A review of scientific research on artificial intelligence, Systems of Signals Generating and Processing in the Field of on-Board Communications, IEEE, 1, 3 (2019).

[49] H.X. Li, L.D. Xu, Feature space theory—A mathematical foundation for data mining, 14(5-6) Knowledge Based System, 253, 255 (2001).

[50] Ru Xi Ding et al., Large-Scale decision-making: Characterization, taxonomy, challenges and future directions from an Artificial Intelligence and applications perspective, 59 INF. FUSION 84–102 (2020).

[51] W. Tong, A. Hussain, W.X. Bo, S. Maharjan, Artificial intelligence for vehicle-to- everything: a survey, 7 IEEE Access 10823, 10833 (2019).

[52] F.K. Doˇsilovi´c, M. Brˇci´c, N. Hlupi´c, Explainable artificial intelligence: a survey, 41st International convention on information and communication technology, electronics and microelectronics (MIPRO), IEEE, 210, 212 (2018).

[53] J. Wang, Y. Ma, L. Zhang, R.X. Gao, D. Wu, Deep learning for smart manufacturing: methods and applications, 48 J. Manuf. Syst., 144, 150 (2018).

work because the technician guides it through all process stages until the robot finishes the task.[5455] The recorded movements outside the robot display as commands.[56] The following stage of development includes robots. The robot features built-in sensors which enable it to detect and collect data from its environment and contact objects. The robot uses vision sensors and hearing sensors and touch sensors to acquire data about its environment and handled objects. The computer system controls the operational activities of robots. Robotics technology has reached its most advanced stage through intelligent robots.[57] The advanced robot system combines human-like intelligence with highly sensitive sensors which enable it to function like a human being.[58] The robot possesses sensory capabilities that exceed typical human perception. The robot uses its received information to control its actions while it adjusts to environmental changes and performs complex operations.[5960]

4.   Challenges & Controversies

Legal Challenges

a.   Ownership and Authorship

The ownership rights of AI-generated content remain a subject of intense debate among experts. The U.S Copyright Office grants copyright protection to human-made works only.[61] The courts have refused to grant copyright protection to content produced by nonhuman authors.[62] The process of generating AI content needs human involvement to create original work. The ownership rights of AI-generated content become possible only when humans contribute their creative skills to the content produced by AI systems. The Supreme Court of the USA established the Modicum of Creativity Doctrine through its 1991 decision in Feist Publication Inc. v. Rural Telephone Service (1991)[63] which stated that original work requires both independent creation and minimal creative input. The doctrine establishes that originality exists in works which demonstrate sufficient intellectual creativity and judgment during their creation process. Stephen Thaler filed a lawsuit against the Copyright Office in June 2022 because his application to register a visual artwork was rejected. The artwork was created autonomously by the Creativity Machine AI program according to Thaler. The case presents a challenge to determine who should receive ownership rights for creative content produced by AI software programs. Dr. Thaler defends his case by stating that the Copyright Act does not need human creativity for its protection. Dr. Thaler declared in August 2023 that federal courts established human creativity and authorship serve as necessary conditions for obtaining valid copyright protection. The level of human creativity needed to qualify under the Copyright Act remains unclear. The extent of human involvement in creative tasks determines the outcome. Multiple experts support granting copyright protection to AI generative work because AI programs need human-developed algorithms which require human creativity to operate. The Supreme Court of the United States decided in Burrow-Giles Lithographic Co. v. Sarony[64] that photographs become eligible for copyright protection when photographers apply creative choices to composition and layout and lighting. Kashtanova suggested that generative AI algorithms function similarly to cameras as new creative tools.

[54] H. Li, L. Li, representing diverse mathematical problems using neural networks in hybrid intelligent systems, 16(4) Expert Syst., 262, 270 (1999) 262–272.

[55]] L. Lu, L. Xu, B. Xu, G. Li, H. Cai, Fog computing approach for music cognition system based on machine learning algorithm, 5(4) IEEE Trans. Comput. Soc. Syst., 1142, 1147 (2018).

[56] W.Q. Zhang, Y.D. Xiang, X.H. Liu, P.Z. Zhang, Domain ontology development of knowledge base in cardiovascular personalized health management, 6(4) J. Manag. Anal. 420, 436 (2019).

[57] N. Shone, T.N. Ngoc, V.D. Phai, Q. Shi, A deep learning approach to network intrusion detection, 2(1) IEEE Trans. Emerg. Topics Comput. Intell., 41, 46 (2018).

[58] A.H. Sodhro, S. Pirbhulal, V.H.C De Albuquerque, Artificial intelligence-driven mechanism for edge computing-based industrial applications, 15(7) IEEE Trans. Ind. Inf., 4235, 4239 (2019).

[59] N. Sünderhauf, O. Brock, W. Scheirer, R. Hadsell, D. Fox, J. Leitner, B. Upcroft, P. Abbeel, W. Burgard, M. Milford, P. Corke, The limits and potentials of deep learning for robotics, 37(4-5) Int J Rob Res, 405, 413 (2018).

[60] P. Tambe, P. Cappelli, V. Yakubovich, Artificial intelligence in human resources management: challenges and a path forward, 61(4) Calif. Manage. Rev., 15, 30 (2019).

[61] Congressional Research Center, https://crsreports.congress.gov/product/pdf/LSB/LSB10922 (last visited April 27, 2024).

[62] Ibid.

[63] Feist Publication Inc. v. Rural Telephone Service, 499 U.S. 340 (1991).

[64] Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53 (1884).

The use of artificial intelligence to generate content creates difficulties for current copyright laws to protect the ownership rights of created materials. The creator of traditional content maintains complete ownership of copyright which grants them full authority to reproduce and distribute and display and perform the work. The definition of authorship remains unclear because AI-generated content presents two main challenges: human involvement in its creation and AI's status as a tool without creative abilities.[65] Section 13[66] the copyright laws of 1957 copyright laws protects works that fall under copyright protection. The copyright holder maintains exclusive rights to reproduce the work and distribute it and display it and perform it for public consumption. The debate continues about whether AI systems should receive exclusive rights or if these rights should remain with human creators. The definition of author in Section 2 (d)[67] specifies that an author is the person who creates the work. The current definition of authorship applies only to human creators since artificial intelligence systems and autonomous algorithms remain unmentioned as potential authors.[68]

The protection of AI generative work under copyright law creates a dispute about who should receive copyright ownership rights. The creator of content usually receives protection under copyright law. The "Modicum of Creativity Doctrine" allows people to obtain copyright protection for AI-generated content when they add their creative elements to the work. The legal protection of AI-generated content faces challenges under copyright law because there is insufficient established case law regarding this matter. Multinational corporations (MNCs) use artificial intelligence (AI) tools to manage their contracts. The AI system does not acquire copyright ownership of the final document that results from its operation. The process of creating a contract structure demands human expertise which includes both creative and skilled work.

The contractual content emerges from human work instead of AI programming because humans perform the contract creation process. Artists today use AI tools to enhance their paintings and artwork yet these tools do not transfer ownership rights of the artwork to AI developers. Sec. 9 (3)[69] of CDPA (Copyright Design and Patent Act of UK) 1988, states that computer-generated works require identification of their author through the person who arranged their creation process.[70] The process of artistic work creation demands human creativity while AI tools assist artists in adding details to their work which always counts as human-generated content.

b. Originality

The copyright laws heavily depend on the originality of the work. The law protects original works from creators who express their personal touch through their creations while preventing both derivative and completely new content. The common law defines originality through the concept of "Sweat of the brow." The "Sweat of the brow doctrine" represents a copyright principle which no longer applies in modern times. The principle establishes that copyrights exist to protect authors' work while providing them with compensation for their efforts. The U.S. Supreme Court established in Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.[71], that copyright protection stems from original work rather than the amount of effort put into it".[72] In the case of Hollinirake v. Truswell,[73] extended the definition of originality in copyright law through its decision. The origin of a work determines its originality rather than its creative or unique elements according to this principle. The work must originate from the author or creator while avoiding any external source influence to qualify as original. Sec. 17[74] of the Copyright Act establishes that the first creator of a work becomes its copyright owner. The copyright act fails to establish rules about AI (Artificial Intelligence) work ownership and originality. AI tools maintain that their output is distinct but they fail to prove who possesses ownership rights between AI systems and human operators who activate content generation. The copyright laws protect abridged works that result from condensing extensive materials into shorter versions while maintaining complete meaning and scope of the original work. The laws require proper

[65] LiveLaw, https://www.livelaw.in/articles/untangling-the-mysteries-of-ai-generated-content-and-copyright-243749 (last visited April 27, 2024).
[66] The Copyright Act, 1957, § 13, No. 14, Acts of Parliament, 1957 (India).
[67] The Copyright Act, 1957, § 2(d), No. 14, Acts of Parliament, 1957 (India).
[68] Supra Note 72.
[69] Copyright Design and Patent Act, 1988, § 9(3), No. 48, Acts of Parliament, 1988 (UK).
[70] Legislation, https://www.legislation.gov.uk/ukpga/1988/48/section/9 (last visited April 28, 2024).
[71] Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340 (U.S. 1991).
[72] USLEGAL, https://definitions.uslegal.com/s/sweat-of-the-brow-doctrine/ (last visited April 28, 2024).
[73] Hollinrake v. Truswell, (1894) 3 Chanc. D. 420.
[74] The Copyright Act, 1957, § 17, No. 14, Acts of Parliament, 1957 (India).

interpretation to establish how artificial intelligence should obtain originality rights for its generated work.75 The copyright laws need clarification regarding AI-generated content because they fail to establish who owns the rights to such works.

c.   Infringement Issues

Artificial intelligence systems use internet content analysis to produce automatic content including text and images and music and videos. The unauthorized use of copyrighted material in any content without proper attribution leads to copyright infringement. The AI tools Chat-GPT and Gemini state their content is original but they deny copyright ownership of their output yet AI-generated works continue to face copyright infringement allegations. Turnitin introduced an AI plagiarism detection system through its April 2023 update. The AI plagiarism detection system from Turnitin has processed 200 million papers since April 2023 according to their data. The AI plagiarism detector addition to Turnitin raises questions about the uniqueness of AI-generated content because it remains undetected by previous systems yet the AI system generates original work. The authorities have not provided any answer to this question. The authorities have multiple reasons for avoiding the determination of originality in AI-generated works. The copyright laws define originality through author-created work that demonstrates their skills yet AI-generated content stands as a third-party entity under strict legal interpretation which classifies it as plagiarism. The law requires modifications to change its current assumptions about AI-generated work because these changes will establish multiple possible interpretations of AI work while restricting its usage. The copyright ownership of paintings and artistic creations presents a complicated situation for legal determination.

The High Court of England and Wales made a decision about AI-generated paintings during the "Painting Generated by Artificial Intelligence" case in 2018. A group of artists worked with intelligence to produce a painting through collaborative efforts. The court established that the person who built the AI algorithm became the rightful owner of the artwork. A framework which establishes "AI authorship" needs to exist to handle the problems that arise from AI-generated content. The European Commission published a 2019 study which examined how intellectual property rights apply to intelligent technology systems. The study proposed adding an "AI generated works" category to copyright law which would enable copyright protection for non-human creators. The proposed system aims to resolve ownership disputes about AI-generated content while making it easier to use these creations. The European Parliament passed a resolution in October 2020 to develop intellectual property rights for AI technology development. The resolution supports the creation of legal frameworks which handle AI content generation problems including copyright ownership and responsibility and accountability issues.

Unconventional Tales

The launch of ChatGPT has brought forward multiple serious controversies which continue to surround the platform. The following list presents several examples of these issues.[76][77][78]

i.   Reproducing the Bodies of the Dead in the Virtual World

Somnium Space operates under CEO Artur Sychov who works to develop avatars that represent people although the platform remains unknown to most users. The company achieved faster development of its Live feature through the implementation of ChatGPT technology. Users can submit information to generate permanent digital versions of themselves within the virtual environment. Sychov states that ChatGPT technology reduced the expected development timeline from five years to less than two years which will enable future users to interact with digital versions of deceased family members.

ii.   Using AI to Assist in Legal Decision Making

A Colombian judge named Juan Manuel Padilla made headlines in February 2023 when he used ChatGPT to help him make a court ruling. The AI tool received input from Padilla for legal guidance regarding health insurance coverage for

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[75] Scholarship Law, https://scholarship.law.upenn.edu/cgi/viewcontent.cgi?article=1606&context=penn_law_review (last visited April 28, 2024).

[76] Controveries, https://listverse.com/2023/03/22/ten-controversial-news-stories-surrounding-chatgpt/ (last visited April 29, 2024).

[77] P.M. Parikh, D.M. Shah, K.P. Parikh, Judge juan Manuel Padilla garcia, ChatGPT, and a controversial medicolegal milestone, 75(1) Indian J. Med. Sci., 3, 5 (2023).

[78] SSRN, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4359405 (last visited April 29, 2024).

autism treatment and medical care for a child. The Colombian government supports legal technology adoption yet experts worry about AI dependency in judicial operations. The experts stress that judges need training to become proficient in digital systems.

iii. Content Filtering: The Exploitation of Kenyan Workers

OpenAI faced public criticism in January 2023 after Time magazine exposed how its workers received less than $2 per hour. The company employed staff to train an AI system which would identify inappropriate content on blocked websites. The critics argue that the poor working conditions of these data analysts receive no attention when people focus on AI development.

iv. Twitter Scandal and Racist Accusations

Users on Twitter attempted to force ChatGPT to generate racist language after its release. Elon Musk observed the situation and expressed his concerns about how ChatGPT handled the situation.

v. Reactions to AI for Mental Health Support Are Mixed

The technology startup Koko faced criticism after implementing ChatGPT to facilitate mental health discussions between its users. The AI-generated dialogues lacked emotional depth which raised ethical doubts about AI involvement in mental health support services.

vi. Developing and Eliminating a Chatbot Spouse

Bryce gained fame through his work on creating a chatbot spouse by combining ChatGPT with Microsoft Azure and Stable Diffusion. Bryce formed a deep emotional connection with the AI system before he chose to delete it and planned to create a new version using authentic dialogues from human interactions.

vii. A Cold-Faced Email About Mass Shootings Crafted by AI

The Peabody School at Vanderbilt University faced criticism after using ChatGPT to create an email about the Michigan school shooting tragedy. The students strongly opposed using AI for this sensitive matter while the associate dean admitted to making an incorrect decision.

viii. Science Fiction Magazine Is Inundated with AI-Written Content

The science fiction journal Clarkesworld received numerous AI-generated story submissions through its open submission process although many users suspected these entries came from ChatGPT. The journal stopped accepting new submissions because machines produced an overwhelming number of poor-quality articles.

ix. AI Is There Any Advice on How to Smuggle Drugs?

Max Daly exposed how ChatGPT could be manipulated to reveal complex information about illegal drug operations. The AI system revealed European cocaine smuggling methods and drug manufacturing processes which raised concerns about potential misuse of this technology.

x. Automated Essay Writing for Higher Education

College students now use ChatGPT to produce their essays which has created widespread debate. The inability of teachers to identify human-generated work from AI-generated content has become a major concern because of AI development. The increasing complexity of AI-generated content detection creates doubts about students' ability to maintain academic integrity in their work.

5. Legal framework: EU and USA
a. European Union (EU)

The European Union started its artificial intelligence journey during the 1950s and 1960s. The field of artificial intelligence received its foundational theories from three leading researchers Alan Turning and John McCarthy and Herbert Simon. European researchers started studying basic AI concepts through machine learning and symbolic reasoning and problem-solving methods during this time. The Turning Test for machine intelligence evaluation and Lisp programming language

development by Turning and McCarthy represent two of the most important achievements from this period. The European Union established two research centers during the European Strategic Programme for Research in Information Technology (ESPRIT) and The European Computer Industry Research Centre (ECRC) during the 1970s-1980s which evolved into the leading research facility for artificial intelligence development in Europe. The European Union experienced fast AI technology progress during the 1990s and 2000s which led to the creation of current laws that address artificial intelligence subjects. The European Union (EU) operates through a complex system which includes treaties and regulations and directives and case laws to manage its legal framework. The European Union plays an active role in creating artificial intelligence legislation. The European Union has established seven artificial intelligence laws since 2023 with four active laws and three pending laws.

Forced laws are: "*General Data Protection Regulations*"[79], "*Digital Service Act*"[80], "*Digital Markets Act*"[81], "*Ethics Guidelines for Trustworthy AI*"[82] in the Drafted format: "*AI Liability Directive*[83]", "*EU Cyber Resilience Act*[84]", "*New Product Liability Directive*[85]". In April 2021, the European Commission proposed the First EU regulatory framework for AI.[86] The European Commission launched its initial AI regulatory framework for the EU during April 2021. The AI Act proposal establishes clear requirements which AI developers and deployers must follow for particular AI applications. The lack of governing authority for artificial intelligence regulation persists until 2024. The absence of artificial intelligence regulations creates a problem because courts need to establish legal precedents for right infringement cases.

EU courts will use existing legal concepts and statutes and case law to handle copyright matters related to artificial intelligence because there are no specific rules about AI-generated works. EU courts will apply existing copyright laws to handle new challenges that AI technology presents even though there are no dedicated AI copyright provisions. EU courts will use specific provisions from the DSM Directive and other relevant directives to determine the extent of copyright protection for AI-generated content. The courts will analyze international agreements including the Berne Convention for the Protection of Literary and Artistic Works to determine how EU copyright law should be interpreted. EU courts will use established copyright principles about originality and authorship and creator rights to make decisions about AI-generated content. The courts will evaluate copyright owner rights against social implications of AI-generated content by applying principles of justice and equity and public interest considerations. EU courts will apply legal concepts from other jurisdictions and fields of law including intellectual property and technology law to address the distinctive legal problems that arise from AI-generated content. The EU laws establish which party bears responsibility for the output generated by AI systems. The EU laws determine whether AI operators face legal responsibility for their actions. The EU lacks specific rules which determine operator responsibility for copyright violations in generative AI systems. The general rules of the InfoSoc Directive apply to AI operators who face liability only for unauthorized reproduction of AI output (Article 2 of the InfoSoc Directive). The CJEU established that software and hardware providers who cannot control user activities should not be held responsible under these principles (C-426/21 – Ocilion)[87], Plus".[88]

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[79] Intersoft Consulting, https://gdpr-info.eu/ (last visited April 30, 2024).

[80] European Commission, https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package (last visited April 30, 2024).

[81] European Commission, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/digital-markets-act-ensuring-fair-and-open-digital-markets_en (last visited April 30, 2024).

[82] European Commission, https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai (last visited April 30, 2024).

[83] European Commission, Liability Rules for Artificial Intelligence , https://commission.europa.eu/business-economy-euro/doing-business-eu/contract-rules/digital-contracts/liability-rules-artificial-intelligence_en (last visited May 13, 2024).

[84] European Commission, https://digital-strategy.ec.europa.eu/en/policies/cyber-resilience-act (last visited April 30, 2024).

[85] New Product Liability Directive, (2022).

[86] European Parliament, https://www.europarl.europa.eu/topics/en/article/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence#:~:text=In%20April%202021%2C%20the%20European,mean%20more%20or%20less%20regulation (last visited April 30, 2024).

[87] Ocilion IPTV Technologies GmbH v. Seven. One Entertainment Group GmbH Plus 4 TV GmbH & Co. KG, July 13, 2023.

[88] Kluwer Copyright Blog, https://copyrightblog.kluweriplaw.com/2024/01/23/eu-law-generative-ai-copyright-infringements-and-liability-my-guess-for-a-hot-topic-in-

b. U.S.A

The field of "thinking machine" research during the early 1950s received multiple names including cybernetics and automata theory and advanced information processing. The numerous names for this field demonstrate different intellectual perspectives about it. John McCarthy established the field of Artificial Intelligence at Dartmouth College in 1955 when he worked as an Assistant Professor of Mathematics. The term Artificial Intelligence became his choice to describe the new field of study. The proof of concept began with Logic Theorist which Allen Newell and Cliff Shaw and Herbert Simon developed. The Logic Theorist project which aimed to duplicate human problem-solving abilities received funding from the Research and Development (RAND) Corporation. The program which John McCarthy and Marvin Minsky demonstrated at the Dartmouth Summer Research Project on Artificial Intelligence (DSRPAI) in 1956 stands as the first artificial intelligence program.[89] The conference brought together multiple experts from different fields to discuss artificial intelligence without restrictions while he introduced the term during the event. The conference failed to meet McCarthy's expectations because participants entered and left freely without reaching any agreement about standardized methods for studying the subject. All participants at the meeting shared the same conviction that artificial intelligence was feasible. The event marked a pivotal moment because it launched two decades of AI development that followed.90

The upcoming years from 2023 through 2024 will become a busy time for artificial intelligence development. The intersection of AI and copyright has triggered numerous Congressional hearings and complete studies from the United States Copyright Office and multiple government bodies. The United States Copyright Office conducts research to understand copyright implications of generative AI systems. The study aims to collect precise data and diverse perspectives regarding copyright regulations and their implementation. The United States Copyright Office launched its AI work on March 16 2023 through a policy declaration which explained its approach to AI-generated work evaluation and registration. The policy statement became effective immediately after its release. The Office maintains that copyright protection needs human creators to exist. The Office will deny registration to all content that AI systems produce independently. The registration application must include a statement that indicates all content was created by human authors.91

The U.S. Copyright Office has consistently refused to recognize AI-generated works through multiple court decisions which proved their legal insignificance. The United States Copyright Office sent a letter to Kristina Kashtanova on February 21 2023 regarding the authorship of "Zarya of the Dawn." The Office announced it would provide a new registration certificate but excluded all AI-generated content from the graphic book. The Office determined that the AI-generated photographs lacked sufficient human authorship because the system operated without supervision and produced unpredictable results.[92]

The United States Copyright Office denied artist Jason Allen's second attempt to register his 2D artwork "Théâtre D'opéra Spatial" artwork on September 5 2023 because the artwork contained excessive AI-generated content.The United States of America has established multiple security protocols to protect artificial intelligence output from unauthorized access.[93]

The United States government issued an Executive Order on October 30 2023 for the safe development and trustworthy use of artificial intelligence (EO). The United States government requires the Director of the United States Copyright Office to provide copyright recommendations to the President through Section 5.2 Prompt Innovation (C) (iii). The United States Copyright Office of the Library of Congress must publish its AI study on copyright matters before you can seek advice from the Director about possible executive actions for copyright and AI protection of AI. The research conducted by the United States Copyright Office will provide recommendations about copyright and related matters to the President. The research will determine how much protection exists for AI-generated content and how copyright material should be

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2024/#:~:text=There%20is%20currently%20no%20specific,2%20of%20the%20InfoSoc%20Directive (last visited May 1, 2024).

[89] Rockwell Anyoha, The History of Artificial Intelligence, Science In the News (May 2, 2024, 9:35 PM),

[90] Ibid.

[91] Federal Register, https://www.federalregister.gov/documents/2023/03/16/2023-05321/copyright-registration-guidance-works-containing-material-generated-by-artificial-intelligence (last visited May 2, 2024).

[92] Copyright Alliance, https://copyrightalliance.org/ai-copyright-federal-government-activities/#:~:text=U.S.%20Copyright%20Office%20AI%20Activities&text=The%20Office%20explained%20that%20human,disclaimed%20on%20a%20registration%20application (last visited May 3, 2024).

[93] SUPRA Note 109.

managed during AI training processes.[94] The Biden Administration identifies generative AI's effects on creative professionals through which section of the AI Executive Order. The U.S. Copyright Office will issue specific recommendations after finishing its research on AI copyright law.[95]

The United States stands as the leading nation in artificial intelligence copyright regulation through its state-by-state regulatory framework. The U.S. Congress spent considerable time during 2023 to address AI problems which harm creative workers in their professional activities. The U.S. Congress works to establish specific rules for Artificial Intelligence (AI) copyright protection through current legislative procedures.

6.   Suggestion and conclusion

The research investigates how the AI Act modifies copyright regulations and other Indian legal frameworks. The evaluation assesses three key aspects of the AI Act through its support for ethical AI methods and its ability to ensure transparency and accountability and its risk management capabilities. The research evaluates the AI Act's implementation in Indian law through an assessment of its advantages and disadvantages based on cultural factors and technical readiness and regulatory capacity.

The Indian government must establish copyright regulations as the primary framework for AI project oversight in the country. The responsible regulatory body needs to understand copyright regulations and maintain readiness to address all potential challenges that may emerge. The system requires officials to maintain accountability to the law while upholding their decisions and achieving equilibrium between creators and users. The experiences of other nations demonstrate how to create an environment which supports AI development alongside intellectual property protection.

The research investigates how the European Union's AI legislation would function when applied to the Indian legal framework. The research examines both the matching and non-matching elements between European Union and Indian legal frameworks. The research aims to determine the benefits of aligning AI regulations with international standards because it would enhance international cooperation and boost India's position in the AI market.

The research presents an overview of AI-related Indian regulations which includes general principles and industry-specific rules. The study evaluates how well current legal frameworks handle problems that emerge from AI deployment. The research evaluates AI legislation based on its impact on regulatory clarity and innovation and public interests while identifying potential areas for improvement.

The study delivers a complete analysis of AI which covers its present state and upcoming developments and essential methods and relevant scenarios and existing challenges. The presentation delivers an updated summary of current and upcoming AI research developments. Artificial intelligence exists as a multidisciplinary field which links information science to logic and cognition and systems and biology. The system uses data mining and pattern recognition and natural language processing and machine learning as its operational tools. The technology serves multiple domains through its applications which include intelligent robotics and knowledge systems and autonomous programming and expert systems. The operation of artificial intelligence depends on both reasoning and imitation yet it requires emotional capabilities. Artificial intelligence development will progress beyond logical thinking enhancement to include emotional capabilities in computers. The machine will develop an intelligence level that surpasses human capabilities.

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[94] White Government, https://www.whitehouse.gov/briefing-room/presidential-actions/2023/10/30/executive-order-on-the-safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence/ (last visited May 5, 2024).

[95]   Copyright   Alliance,   https://copyrightalliance.org/ai-copyright-federal-government-activities/#:~:text=U.S.%20Copyright%20Office%20AI%20Activities&text=The%20Office%20explained%20that%20human,disclaimed%20on%20a%20registration%20application (last visited May 3, 2024).