Journal Homepage: -www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/19996
DOI URL: http://dx.doi.org/10.21474/IJAR01/19996

RESEARCH ARTICLE

TO EXPLORE AI "SORA" POSSIBLEMULTI-DIMENSIONALINFLUENCESON THE FUTUREEDUCATION INDUSTRY, SHORT-VIDEO INDUSTRY, FILM INDUSTRY AND ROBOTICS INDUSTRY

Liu Yonggang, Hapini Awang and Nur Suhaili Mansor
Institute for Advanced and Smart Digital Opportunities, School of Computing, Universiti Utara Malaysia.

Manuscript Info

Manuscript History
Received: 05 October 2024
Final Accepted: 07 November 2024
Published: December 2024

Key words:-
AI, Sora, Influence, Industry, Robotics

Abstract

In February 2024, OpenAI released Sora (a new Generative Artificial Intelligence (GAI) model), which possessed some capabilities to generate photo-realistic, sequential, animating, high-quality, enriching, or imaginative scenarios. In the context of the birth of Sora, this study focuses on the potential influence of Sora on future multiple industries.The functional analysis method and literature method are used for research. This study thinks that Sora will have an effect on the past business model, stimulating the future short-video industry to display more new paths.With the upgrading of Sora's capabilities, it will not only substantially expand the future robot's perceptual capabilities, but also bring the user with immersive experiences. Through gamified teaching methods and intelligent learning solutions, Sora has the potential to help students access more learning resources and increase engagement and motivation. Sora will have a direct influence on a number of aspects of the future film production industry, such as making technologies, intrinsic patterns, sales volume and personnel composition. Thesecontributions provide a theoretical and practical reference for practitioners in the education industry, robotics industry, the film industry and the short video industry. However, the study belongs to an exploration study in which some opinions need to be repeatedly verified by future researchers.

Introduction:

In February 2024, OpenAI released Sora (a new Generative Artificial Intelligence (GAI) model), which possessed some capabilities to generate photo-realistic, sequential, animating, high-quality, enriching, or imaginative scenarios based on users' textual prompts, and surpassed certain limitations of shorter video fragments and simple visual representations that were typical of traditional video generating techniques (Cho et al., 2024; Liu, Y. et al., 2024; OpenAI, 2024; Wang et al., 2024). Sora, as a text-to-video generative model, represents another significant milestone in the field of GAI after ChatGPT, and an important landmark in the era of imaginative AI (Cho et al., 2024; Liu, Y. et al., 2024; Mogavi et al., 2024; Wang et al., 2024). From found literature and comparing available AI programs in the market, it is inferred that Sora is the most advanced generative AI currently. Cho et al. (2024) thought that the text-to-video generative model consists of two primary components: vision generator and language interpreter (e.g. Contrastive Language-Image Pre-training (CLIP) Text Embedding and large-language models (LLMs)), and its central techniques also involve convolutional neural network (ConvNet) and vision transformer (ViT). Sora provides

Corresponding Author:-Liu Yonggang
Address:-Institute for Advanced and Smart Digital Opportunities, School of Computing, Universiti Utara Malaysia.

numerous potential benefits in many aspects, such as text-to-image synthesis, rendering scenes, enhancing video progression, unlocking imaginations, liberating innovations, improving visual consistency, storytelling creativity, enriching details, decreasing production costs, text-guided editing and simulating physical world (Cho et al., 2024; Liu, Y. et al., 2024; Mogavi et al., 2024; OpenAI, 2024; Wang et al., 2024). Currently, Sora is capable of generating one-minute high-fidelity video derived from text, as well as extended video sequences with subtle movements and interactive depictions, realizing smooth frame-to-frame transitions (Liu, Y. et al., 2024; OpenAI, 2024). With the upgraded technologies and improved models, especially Sora's further deep integration with existing or upcoming technologies in ChatGPT, machine learning (ML), Augmented Reality (AR), three-dimensional (3D) modeling, multiple Algorithms, various robotics, Internet of Things (IoT), Cloud Storage, Unmanned Aerial Vehicle (UAV), Big Data, automatic-driving, virtual reality (VR), deep learning and so on, it is likely to have a far-reaching influence on many industries including short-video, film-making, education, healthcare, industrial robotics, household robotics, arithmetic, journalism and many others in the future. However, there are still relatively few cross-sectional and comprehensive studies that apply functional analysis methodology to study the potential influence of Sora on different industries, especially the paucity of attention to career planning, employment environment, computability, capital flowing, and the stock market. Meanwhile, different aspects of Sora's implications for diverse industries, such as education, healthcare, marketing, short-video, film-making and others remain somewhat controversial and inadequate, which need to be further strengthened. Therefore, the objectives of this study are to fulfill the above-mentioned gaps.

Literature Review:

Sora, as a representative of GAI, has attracted widespread attentions in numerous fields like Film and Television (Lin et al., 2024; Quiroga, 2024; Zhang & Xu, 2024), social media (Mogavi et al., 2024), Intelligent Vehicles (Li et al., 2024; Yu et al., 2024), education (Adetayo et al., 2024; Cheung et al., 2024; Jiao & Huang, 2024; Liu, Y. et al., 2024), healthcare (Waisberg et al., 2024), Digital Humanities Services (Liu, J. et al., 2024b), ophthalmology (Waisberg et al., 2024) and Smart Mining (Xie et al., 2024). Yin & Chen (2024) considered that the history of GAI technology can be traced back to the 1950s with Hidden Markov Models (HMM) and Gaussian Mixture Models (GMM). Based on electronic deliberations in Reddit, Mogavi et al. (2024) investigated the public's considerations for Sora. Cho et al. (2024) emphasized the advancement of scalability and generalizability and pointed out the difficulties of eliminating object hallucinations, processing multi-entity physical interactions, and understandingcausal-effect about the state-of-the-art Sora model. In the background of Sora shock, Zhang and Chen (2024) discussed the relational practices and structural transformations of Gatekeeping Theory in the age of GAI. From a communication standpoint, Fang and Zhong (2024) highlighted that Sora marked the tipping point of automating media productions and unifying media forms, ushering in another "Gutenberg moment" in the history of human communication. Through a few emblematic case studies, Yu et al. (2024) showcased the likelihood of Sora-Based Parallel Vision being deployed in Smart Sensing of Intelligent Vehicles, as well as its futuristic research orientations. Notably, Kustudic and Mvondo (2024) discussed Sora's some unimaginable prospects in film-making, education, advertising and other areas, as well as potential challenges. From the preceding descriptions, it is unsurprising that Sora has captured a considerable degree of attention from various industries and some pioneering research has already been conducted.

There are also several researchers who have studied Sora from other angles, for example: Human-Computer Interaction (HCI) (Mogavi et al., 2024), Sora-enabled artificiofactual experiments (Qin et al., 2024), Misinformation (Edwards, 2024), Solipsism (Quiroga, 2024), Challenges (Kyrie Zhixuan Zhou et al., 2024; Kustudic& Mvondo, 2024) or opportunities (Kustudic& Mvondo, 2024). Leveraging information from publicly available technical publications and the process of reverse engineering, Liu, Y. et al. (2024) examined Sora's backgrounds and fundamental technologies. In conjunction with Fernand Braudel's Theory, Fang and Zhong (2024) divided the divergent evaluations surrounding Sora into three points. Moreover, Zhang (2024) philosophized about Sora from the perspective of the Theory of Productive Imagination. Therefore, these researchers have undertaken studies about Sora from different viewpoints, which will provide valuable references and insights for the following research.

In January 2021, OpenAI launched the first version of DALL-E. In 2022, DALL-E 2 arrived, with 4x more resolution and the ability to produce pristine, realistic images and artifacts based on textual depictions (OpenAI, 2024). While, Sora adopted the technology of DALL-E 3, which is capable of understanding more nuances and details (OpenAI, 2024). ChatGPT was another important technical foundation for Sora, which already had many competencies in human-computer interaction, logical inferencing, data preprocessing, computer code writing, model training, mathematical calculations, and so forth (Hassani & Silva, 2023; Liu, Y. et al., 2024b; OpenAI, 2024). Consequently, DALL-E 3 and ChatGPT were two non-negligible fundaments that supported Sora's emergence.

Over the past few years, besides the diffusion model, there were several other well-known models thatwere variational autoencoder (VAE), Generative Adversarial Network (GAN) and Autoregressive Models (Cho et al., 2024). The Diffusion Model, renowned for its superior resolution and fidelity, quickly became the dominant force in the realm of image generation (Wang et al., 2024). For the diffusion model, the denoising diffusion probabilistic model (DDPM) and denoising diffusion implicit model (DDIM) each held their advantages (Cho et al., 2024). What's more, Liu Y. et al. (2024) argued that Sora's text-to-video creation was proceeded by diffusion transformer models, which had been demonstrated to own the abilities of scalability and effectiveness in dealing with various natural languages. Mogavi et al. (2024) also emphasized that the core technology of Sora was the diffusion model, which optimized initial inputs to deliver visually distinct and logical conclusions. While Waisberg et al. (2024) believed that Sora' s technique underpinning was built upon Large Language Models (LLMs) and artificial video generation technologies. Actually, video generation models were derived from imagination generation models, since videos basically were comprised by a series of images that adhered to a specific temporal consistency criterion (Cho et al., 2024). Thus, the diffusion model probably contributed significantly to Sora's creation. Text-to-video generation has made significant progress by utilizing diffusion models.

Before Soar, Midjourney (another GAI) focused on enhancing and transforming images, utilizing state-of-the-art image processing algorithms to modify and stylize visuals, with the ability to shift colors, employ artistic filters and add special effects to create unique optical experiences (Hu, 2024). Borrowing the experience of Sora-inspired multimodal learning, Yang et al. (2024) proposed a Video AI Agent, which had compatibility with current sophisticated diffusion techniques and could wonderfully utilize leading and trailing keyframes. After experimentation, Liu, Y. et al. (2024) discovered that Sora exhibited a distinct superiority in uniformly cropped square videos when compared with another training model. Moreover, Hu (2024) marveled that Sora was distinguishable by its astonishing realism (Hu, 2024). Besides, Wang et al. (2024) summarized a sketchy history of video generation and representational models (Figure 1) (more details and explanations can be found in that literature).

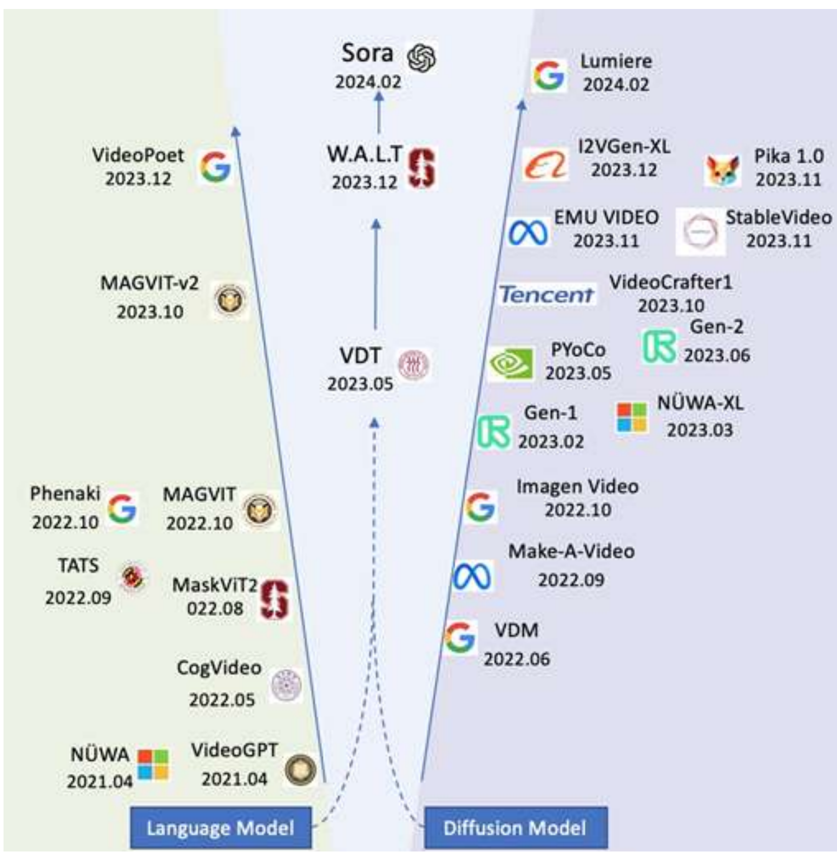

Fig. 1: A sketchy history of video generation and representational models. Adopted from Wang et al. (2024).

Because OpenAI did not release the model infrastructure for Sora, Cho et al. (2024) described Sora similarly relying on a published technology report. Sora harnessed spacetime latent patches as the fundamental components to boost the computational efficiency of video creation (Liu, Y. et al., 2024). For the evaluation approach, text-to-video generation models usually employed assessment metrics to quantify their generating effectiveness, for example: Structural Similarity Index (SSIM), Fréchet Inception Distance (FID), Fréchet Video Distance (FVD), Text-Vision Comprehension (e.g., CLIP Score), Human Perception (Cho et al., 2024). In this section, the primary concerns are the possible modeling frameworks for Sora and the evaluation methods for text-to-video generation models.

In the realm of information systems, the extended unified theory of acceptance and use of technology (UTAUT2) was implemented to identify factors influencing consumers' willingness to adopt Sora (Mvondo & Niu, 2024). After collecting data from 940 respondents, Mvondo and Niu (2024) proved that Perceived Realism (PR) and Novelty Value (NV) were the most significant elements influencing users' intention to adopt Sora. With regard to sampling methods, the snowball sampling technique (Cho et al., 2024) and the purposive sampling method (Mvondo & Niu, 2024) were deployed for Sora-related studies. Even though UTAUT2 has been employed to analyze users' acceptance of Sora, information systems theoretical models are far from sufficiently researched and many gaps still exist.

However, reviewing history literature, functional analysis methodology has not been utilized sufficiently. Previous studies have paid little attention to the implications of Sora for capital flows and stock markets, and there has been a paucity of discussion of career planning and the employment environment. Although past research has touched on some aspects of Sora's impact on industries such as film-making, short-form video, education, healthcare, libraries, Intelligent Vehicles, journalism and so forth, it is still incomprehensive and inadequate and needs to be explored further. Prior analyses of Sora's functions and influences contain some inconsistencies and controversies that require further study.

Research Methodology:

The functional analysis method is a research methodology used by natural and social sciences to analyze natural and social phenomena, which derives from structural-functional theory, and its principal steps include: clarifying analysis objects, internal functional analysis, external functional analysis and so on (Cone, 1997; Hanley et al., 2003; Iwata et al., 2000; Mbalib, 2024; Moore et al., 2002). The functional analysis method has been applied in several investigations (Cone, 1997; Hagopian et al., 1997; Hanley et al., 2003; Iwata et al., 2000; Moore et al., 2002; Pelios et al., 1999). Until 3 June 2024, since Sora is still in the stage of internal testing and only availability to specific populations, which is not yet accessible to the public, the Functional Analysis Method is the most suitable research methodology for this study based on Sora's published functionalities and historical literatures. In addition, because the specific technical details of Sora have not yet been published and the exact implications are not yet clear, an exploratory approach was also used in this study. Sora's research procedure in the present study is roughly divided into the following phases (Table 1).

Table 1: Research Procedures.

PHASE I: Identifying gaps and objectives	Step 1: Searching, filtering, refining and analyzing Sora-related literature, exploring Sora's internal technical mechanisms and writing the literature review.	
	Step 2: Clarifying the analysis object and identifying Sora's original design purpose and design philosophy.	
	Step 3: Identifying gaps, stating problems, and formulating research questions and research objectives.	
PHASE II: Analyzing Sora's Internal Functions	Step 4: Analyzing Sora's internal main functions.	Examining the internal components of Sora
	Step 5: Analyzing Sora's internal sub-functions.	
PHASE III: Analyzing Sora's External Functions and Conclusions	Step 6: Exploring Sora's external functions and external influences.	
	Step 7: Conclusions and future research orientations	

Analyzing Sora's Internal and External Functions

Sora has some remarkable internal and external functions, such as: generating longer video from text; relatively strong video generation capabilities; rendering functions, creating multi-shots in a singly generated video, which will be discussed in the following.

Generating longervideo from text

Sora is a GAI model capable of generating lifelike and imaginative visual representations based on textual prompts from users and creating up to one-minute-long high-quality videos (OpenAI, 2024). For instance, OpenAI's official website exhibited one case of generative video (Figure 2): a fashionable woman elegantly walking along a street while wearing a black leather jacket, a lengthy red dress, and a pair of sunglasses. Combining multimodal data integration and deep natural language processing capabilities, Sora transforms creators' ambiguous data inputs including text, images, and video into vivid and tangible visual creations (He & Dong, 2024). At the point of release, Sora was the most high-profile and cutting-edge Text-to-Video (T2V) model in the world at that time. Generating video from text is the most important function of the current Sora. With future technologies are upgraded and innovations are updated, GAI, as represented by Sora, may become so capable that not only will it be able to generate longer and higher quality videos, but it is also expected to have a profound influence on multitudinous industries and technological integration in the future.

Fig. 2: A fashionable woman elegantly walking along a street while wearing a black leather jacket, a lengthy red dress, and a pair of sunglasses.

Relatively strong video generation capabilities

In terms of generation abilities, Sora can generate relatively long and complete videos at once and can expand generated videos (OpenAI, 2024). In the training process, Sora initially reduces the size of videos by compressing them into a low-dimensional Latent Space from spatial dimension to temporal dimension (Wang et al., 2024). Contemporaneously, Sora can efficiently arrange Gaussian noise blocks in a spatial grid within a specific timeframe, generate images of various sizes and resolutions up to 2048×2048, and produce graceful videos with rich content and smooth behaviors (Yin & Chen, 2024). Judging by the generated accomplishments, the majority of Sora's video clips exhibited smooth and clear visuals, devoid from abnormal or strange scenarios, and they correspond nicely to conventional expectations (Wang et al., 2024). All these indicate that Sora already has a relatively strong video generation capability, which lays the foundation for future higher quality, higher fluency and higher resolution video generation techniques.

Generated videos have an in-depth understanding of natural language

Sora possesses a profound comprehension of natural language, allowing it to precisely grasp cues and create captivating characters that effectively convey emotional feelings (OpenAI, 2024). With deep learning and semantic analysis technology, Sora is able to accurately capture and decode the meanings of input instructions, offering more flexibility and customization options for video creation to suit individual creative requirements (OpenAI, 2024; Yin & Chen, 2024). Besides, Sora also displayed exceptional proficiency in comprehending and carrying out intricate human directives with precision (Liu, Y. et al., 2024). When it comes to understanding natural language, Sora outperforms the vast majority of previous T2V models, demonstrating exceptional comprehension and transformation of corresponding video outputs based on textual commands.

Rendering functions

Over the past few years, the techniques or algorithms related to rendering such as deep neural networks (DNNs) (Kato et al., 2020), Neural Lumigraph Rendering (Kellnhofer et al., 2021), Volume Rendering of Neural Implicit Surfaces (Yariv et al., 2021), rasterization of rendering algorithm (Tewari et al., 2022) and others have made great progress. Even though OpenAI has not yet announced specific rendering techniques, Sora has demonstrated impressive rendering capabilities, for instance: 1. it can render specific scenes and make various objects blend together; 2. presenting obscure geographic concepts as stereoscopic 3D presentations; 3. higher optical quality and eye-catching optical coherence; 4. exhibiting subtle changes in the trajectories of objects and scene interactions (Guo et al., 2024; Liu, Y. et al., 2024; OpenAI, 2024). Sora overcame the constraints of shorter segments and simpler visual rendering characterized by previous video generation models and enhanced the progressive feeling and optical coherence among frames, elevating the user's personalized visual impression (Guo et al., 2024; Liu, Y. et al., 2024). Hence, Sora's powerful rendering abilities are a significant factor in its ability to transcend previous T2V models, which also set up the conditions for Sora's external influences it will produce.

Generating complex scenes

As OpenAI said, Sora was able to create complex sceneries containing several characters, certain sorts of movements, and precise details about the theme and setting, depending on its in-depth understanding of the user's instructions. Meanwhile, Sora can generate multi-shots inside a single produced video, identifying the complex interactions among the various elements of the scene, while balancing abundance, multiplicity, narrative, and fluidity (Liu, Y. et al., 2024; OpenAI, 2024; Yin & Chen, 2024). Just like the picture (Figure 3) illustrates, a group of paper aeroplanes flew through the woods like migratory birds. As the camera undergoes movement and rotation, the characters and elements of the tableau maintain continuous motion inside a three-dimensional world, which suggests that Sora actually possesses the inherent ability to comprehend and generate inside the Spatial-Temporal realm (Wang et al., 2024). Thus, Sora can generate complex scenes with multi-subjects, multi-cameras and multi-activations, contributing substantially to the subsequent evolution of generative video.

Fig.3: A group of paper aeroplanes generated by Sora.

Ensuring subject stability
Through providing Sora with the ability to anticipate many frames simultaneously, OpenAI successfully addressed a difficult issue of maintaining the consistency of the subject even when it momentarily disappears from vision (OpenAI, 2024). This function compensates for the deficiency of common models in which the subject changes after the camera switch.

Generating some historical or imaginary future scenarios
In response to textual suggestions, Sora could generate footage in specific historical periods, for example, some scenes of people's lives during the Gold Rush (Figure 4). Thanks to a fertile imagination, Sora can also generate scenarios of certain cities in the future (Figure 5). These indicate that Sora has some understanding of history and can imagine future scenarios to a certain extent.

Fig.4: Some scenes of people's lives during the Gold Rush.

Fig.5: Scenarios of certain cities in the future.

Creating multi-shots in a singly generated video

Sora has the ability to produce several shots in one video that faithfully maintain the personalities and visual aesthetic (OpenAI, 2024). Sora enabled camera switching without human intervention, seamlessly connecting different segments of video and simulating real shooting effects to enhance video enjoyment and immersion, bringing a richer and more dynamic approach to video performance (He & Dong, 2024). Sora's ability to create multi-shots in one generated video not only adds to the dynamics and watchability, but also contributes to footage switching and three-dimensionality.

Other abilities or functions

Sora is the inaugural visual model to demonstrate verified emergent abilities, representing a noteworthy achievement in the realm of computer vision (Liu, Y. et al., 2024; OpenAI, 2024). Sora also owns more remarkable talents such as the capacity to follow instructions, visual prompt engineering and comprehend videos, which reflects notable progress in the field of vision (Liu, Y. et al., 2024). At this point, there are still more functions about Sora that need to be explored further. In addition, in the future, Sora's abilities for learning, growth, and compatibility with other technologies should not be underestimated.

Partial techniques

Sora is a diffusion model that can generate videos by using available still images and progressively transforming the video by eliminating noise in multiple stages (OpenAI, 2024). This model could supplement missing frames and broaden the user's brief prompts with attention to the details therein (OpenAI, 2024; Wang et al., 2024). Sola took full advantages of DALL·E and GPT model's previous research, for example, DALL·E 3's recaptioning technology (OpenAI, 2024). Wang et al. (2024) thought that Sora employed a Diffusion Transformer (DiT), which integrated the positive aspects of the Diffusion Model and Transformer. On the one hand, the Diffusion Model, which based on probability theory, equipped with capabilities of creating excellent generating quality and high-resolution; on the other hand, Transformers have showcased impressive ability in large language models (LLMs), where their attention mechanism efficiently captures and models distant relationships in spatiotemporal sequential data (Wang et al., 2024). Hence, knowing the technologies employed by Sora will help in understanding how it works and its intrinsic functionality, facilitating the study of its potential influences.

Exploring Sora's Potential Influences for Some Future Industries

Video diffusion models, such as Sora, are becoming a leading technology and are being adopted quickly in multiple academic domains and industries (Liu, Y. et al., 2024). The ramifications of this technology go well beyond simple video generation, with AI-generated video instruments accelerating commercialization and having far-reaching implications across a spectrum of societal sectors (Liu, Y. et al., 2024; Wang et al., 2024). The following part focuses on analyzing some of Sora's potential implications.

Short-Video making industry

Traditional video manufacturing requires the co-operation of scriptwriters, directors, cameramen, actors and other parties, which is time-consuming and costly (Chen, 2024). While Sora dramatically lowers the technical barriers and threshold standards for creating professional visual components, enabling non-professional producers to generate high-quality visual products with simple textual instructions (Yin & Chen, 2024). In fields like advertising, social media, and short videos, AI-generated videos are expected to lower the barrier to short video creation and improve efficiency (Wang et al., 2024). Sora optimizes the video production process, shortening the time from inception to production, alleviating the burden on resources, and making the knowledge production industry more agile to meet market dynamics and consumer requirements (Yin & Chen, 2024). In social media, users can rapidly generate videos with personal elements to express their emotions, share their lives and participate in activities, which will greatly change the way of social information acquisition and social communication, and reshape the social interaction mode and the construction paradigm of interactions (He & Dong, 2024). Based on the existing literature and the features of the short-video industry over the past years, the short-video platforms are likely to see more AI-generated videos for a certain period of time and the short-video industry may usher in a few new rounds of generative AI video tides. The boom of AI-generated short videos, represented by Sora, could have a significant influence on the previous ways of video making, the cost structure and the benefits landscape. It will also accelerate the application and roll-out of digital people and AI hosts. According to the video published by OpenAI, Sora can generate videos that are 'hilarious, bizarre, non-conventional, irregular, illogical or whimsical', and as the model is updated and the technology is upgraded, these videos may be preferred by part of the netizens. It is possible that in the short term there will be a group of 'dark horse' AI creators who receive a high number of likes. The rise of AI-generated short-videos could have an impact on diffusion of ideas, knowledge-sharing pathways and life diversifications. Some personalized AI videos that are close to people's feelings, reflect real lives or compensate for the missing of reality might appear. In the short term, short-video platforms will remain favorably stimulated, but may be affected by various uncertainties in the long term. Sora may also have an effect on the past business model, stimulating the short-video industry to display more new paths and business models.

Film industryand television industry

Traditionally, making a cinematic masterpiece was a costly and time-consuming ordeal, necessitating state-of-the-art tools and a hefty budget (Liu, Y. et al., 2024). Sora possesses the capability to transform conventional film manufacturing procedures by diminishing dependence on physical filming, scene assembly, and special effects, thereby cutting production expenses (Wang et al., 2024). Not only that, but Sora also stands out for its smooth transitions, visual elements and stylistic unification, laying the foundation for creating continuous, dynamic and sophisticated films and videos (Zhang & Xu, 2024). It enables screenwriters and creative workers to convert written scripts into videos, facilitating the effective presentation and dissemination of their creative ideas (Liu, Y. et al., 2024). Visual effects (VFX) and special effects for film and television (TV) often involve a number of complicated steps such as digital twins, 3D model creation, texturing, lighting, interpretation and rendering (Zhang & Xu, 2024). The advancements exemplified by Sora's capacity to effortlessly produce engaging film content signify a crucial turning point in the democratization of film production (Liu, Y. et al., 2024). Meanwhile, Sora helps to foster Human-Machine Co-Creation and to bring the dream of 'throw into a novel and outcomes a blockbuster' so close to reality (Li & Tao, 2024). Zhu and Wang (2024) think that Sora will allow more small production companies and independent producers to enter the field of film and television production, and promote the diversification of the film and television industry. Furthermore, the Sora helps to foster Human-Machine Co-Creation and to bring the dream of 'throw into a novel and outcomes a blockbuster' so close to reality (Li & Tao, 2024). Besides, Sora not only contributes to assisting both independent developers and large studios (Mogavi et al., 2024), but also helps to promote the convergence and balance between intelligent generative technology and artistic authenticity (Zhang & Xu, 2024). Through sorting through the literature of Google Scholar, Scopus, Web of Science and CNKI, it can be found that up to now, the film industry's literature related to Sora is one of the relatively more frequent types, probably due to the fact that the emergence of Sora will have a direct influence on a number of aspects of the film production industry, such as making technologies, intrinsic patterns, sales volume and personnel composition. If Sora's current version and future updated technologies are as advertised, it is likely to profoundly transform the existing landscape of the film industry. Compared to previous AIs, Sora exhibits a certain degree of progressiveness in various respects, like scene articulation, style conversion, ambient rendering, deep field editing, point-of-view switching, background noise reduction and so on. Common personalities are also expected to realize their dreams of becoming the hero or heroine in a film or TV series. Hollywood is also likely to be directly affected. Another noteworthy point, T2V represented by Sora has greatly fueled the rising trend of private customization and exclusivity, in which they allow individuals to create unique and captive videos according to their own preferences, personality characteristics, wishes, etc., and even generating many ridiculous, bizarre, irrational, illogical, and whimsical videos. This study considers that Generative Artificial Intelligence, represented by Sora, will have an irreversible impact and far-reaching influence on the film and TV industry.

Robotics industry

As a prolongation of Distributed/Decentralized Hybrid Workshop (TIV-DHW) on Scenarios Engineering (SE), Li et al. (2024) examine Sora's possibility to transform the scenario generation process by minimizing physical shooting and enhancing extreme scenario creation. With the advancement and popularization of Sora, more intelligent devices are integrating voice interaction, gesture interaction and other interaction modes gradually, which opens up more possibilities for the emerging applications of intelligent terminals (He & Dong, 2024). Big models have a tendency to replace some of the human functions with their powerful knowledge to deal with a wide variety of situations (Yu & Chen, 2024). Incorporating technologies such as Sora into robotics has the potential to lead to breakthroughs, for example, robots that can seamlessly navigate and interact with their surroundings (Liu, Y. et al., 2024). More than that, as the level of anthropomorphism increases, AI showcases a human touch that allows it to more deeply and effectively comfort relationship-harmed individuals (Yu & Chen, 2024). In the future, if Sora is combined with three-dimensional (3D) principles, VR, AR and other techniques, it will be possible to realize highly simulated spatial reconstruction, 3D virtual simulation of space construction, and greatly expand the robot's capabilities and boundaries, as well as promote the intelligent upgrading of the robots. Especially when future Sora converges and develops with various types of robotics or application scenarios such as industrial robots, family robots, healthcare robots, service robots, companion robots, etc., the robotics industry will usher in a new wave of great explosion.

With the upgrading of Sora's simulation capabilities, it may be possible in the future to work with other technologies to simulate the real natural climate, the undulating lands, the diversified forests, dynamic transportation, stereoscopic cities and other sophisticated scenarios and external environments, which will not only substantially expand the robot's perceptual capabilities, but also bring the user with immersive experiences that eliminate the constraints of time and space. However, the process of robot intelligence may have a considerable impact on traditional jobs that are low-tech, low-skilled, highly repetitive and too replaceable. Generative AI, as exemplified by Sora, may have an important influence on, or even guide, the future career plans of many people. Some students may avoid choosing a major that is vulnerable to AI. For young people who have already entered society, there may also be a "baton" effect, and some young people may consider learning about generative AI or attending corresponding training. In contrast, some young people may also show signs of "lagging behind" by refusing to learn new technologies and skills. How to adapt to the development tendency of AI society is still a long-term topic that deserves to be explored.

In the case of industrial robots, if Sora provides intelligent collaboration technologies, it can enable multiple industrial robots to work in a coordinated way, working together to accomplish intricate tasks, thereby increasing productivity and facilitating industrial automation. With the addition of machine learning algorithms, Sora may be able to support energy-saving algorithms, material optimization, thus permitting industrial robots to achieve higher outputs with fewer resources, assisting companies in achieving their sustainability targets. Through continuous refinement of task routes and procedures, and expansion of flexibility and adaptability, Sora+ industrial robots might be widely used in the future in a wide range of industries such as automotive manufacturing, food processing, medical devices processing, electronic assemblies and many others.

On top of technological tools from ChatGPT, Sora and others, future families' robots will most likely integrate more advanced AI systems and natural language processing (NLP) technologies, which will result in robots that are more fluent in understanding complex commands or conversing with family members. Different types of family robots are poised to break out in the coming years, for example: future companion robots, kitchen robots, cleaning robots, elderly robots, family healthcare robots, family education robots, entertainment robots. These family robots are anticipated to seamlessly link with smart home appliances, smart curtains, smart lights, thermostats, humidifiers, security systems, and other devices for more intelligent management. For example, the centralized AI system intelligently adjusts the room temperature, automatically moderates the ventilation system, switches the curtains on and off automatically, reminds the weather conditions at the appropriate time, voluntarily controls the indoor humidity, intelligently recommends different types of food, smartly counsels the children's homework, and wisely recommends the suitable exercise, etc., based on the owner's commands and habits. Family robots can sense the sentiments of family members and respond appropriately, such as by comforting or teasing. Under the influence of AI, future family scenes may perhaps realize intelligent transition, for instance, "Cinema Mode", "Sleep Mode", "Parent-Child Mode", "Couple Mode", "Work Mode", "Leisure Mode", "Entertainment Mode", "Sports Mode" and so on.

For many difficult knowledge and hard-to-solve problems, family AI education robots can also play a role. Some children may face difficulties in grasping what they have learned, and some of this knowledge is even more difficult than the parents' level of knowledge. While many parents are willing to invest a relatively large amount of money, time, and energy in their children. Thus, in part of the family (not all), there is one contradiction between the level of parental hunger for their children's desirable knowledge and the inadequate realistic knowledge received by the children to meet parental expectations. Updated Sora and ChatGPT technologies may support educational robots to analyze students' learning habits, personalized advantages and knowledge mastery through artificial intelligence to provide tailored learning plans, for example, it adjusts the difficulty of tasks in real-time and focuses on weak areas. They can also motivate educational robots to be compatible with a wide range of subject contents (e.g., linguistics, math, English, programming, science, logic, economics, philosophy), creating immersive learning experiences, such as immersing students in the evolution of plants and animals, the orbit of the universe, the rotation of the earth, the formation of rainwater, etc. Future family AI education robots can also make learning lively and interesting through multimodal interactions (voice, vision, touch), for example, vocal quizzes, on-the-fly feedback or reward mechanisms to inspire interests in learning. With market needs and progress in artificial intelligence (e.g. ChatGPT, Sora), family AI education robots will probably gain a new wave of growth.

Sora technology empowers family healthcare robots to quickly analyze patient data (e.g., medical history, test reports), monitor patient vital symptoms (e.g., blood pressure, heart rate, blood glucose) in real-time, and deliver assisted diagnostic recommendations. In terms of remote healthcare, the future Sora may be able to support healthcare robots to collaborate telepathically with doctors through high-definition cameras and sensors to treat patients in geographically remote locations. Future family healthcare robots with Sora's technologies can help patients with simple care tasks like washing assistance, pill reminders, mobility aids, ambulance calls, psychological comfort and emotional solace and so on. Companion robots are also a non-negligible development direction. Sora's affective computing technologies enable the companion robot to recognize the user's sentiments (through facial expressions, intonation analysis, etc.) and respond properly, such as comforting, encouraging, or sharing lighthearted content. Future family companion robots may be able to modify their actions based on family members' preferences and daily routines, including but not limited to playing their favorite music for the elderly, telling bedtime stories for children, guiding children to build blocks, or guessing riddles. Sora and other AI tech-enhanced companion robots are also uniquely advantageous in a number of other facets, including helping elderly people who live alone to reduce loneliness, connecting remotely to family members for video calls, and simulating conversations to alleviate anxiety.

Education industry

With the assistance of AI technologies such as Sora and ChatGPT, students' learning data (e.g., knowledge mastery, speed of answering questions, error rate, interest preferences, etc.) can be more easily recorded and analyzed, so that the difficulty of the course and the focus of knowledge points can be automatically adjusted according to the progress of students' learning, and to ensure that each student can have a personalized learning path. Thanks to Sora's data storage and analytics abilities, a student’s learning record can be maintained for a long time. If Sora incorporates VR/AR into teaching, it may have many opportunities to bridge the gap between traditional resources and create immersive learning experiences such as virtual laboratories, dynamic scene reconstructions, mechanical equipment disassembly, and more. In the future, Sora may be able to generate personalized teaching materials for teachers based on course syllabuses and a vast knowledge bank, thereby helping teachers reduce their repetitive workload and increase their productivity. Through gamified teaching methods and intelligent learning solutions, Sora has the potential to help students access more learning resources and increase engagement and motivation.

Some of the Challenges and Limitations

Sora is deficient in handling spatial details and accurately describing events that unfold over time (OpenAI, 2024). Sora's performance in some technical areas still leaves something to be desired, for example: multiple entity dilution, negligence in causal-effect ordering, the difficulty in interpreting non-linear viewpoint alteration, object suddenly disappears hallucination, inability to follow motion harmonization (Cho et al., 2024). It still has flaws in time scales (Wang et al., 2024), ambiguity of authorship (Zhang & Xu, 2024), infringement risk (Zhang & Xu, 2024), intellectual property issues (Zhu & Wang, 2024) and so on. In addition, the future Sora may also be affected by multiple factors such as Knowledge over-monopolization, external environment, uncontrollable power and its future direction still needs a lot of exploration and empirical tests. However, this study is mainly based on previous literature, characteristics of sora, and previous experience to make extrapolations, lack of sufficient data and strong evidence to support, therefore, some points can not be guaranteed to be correct, and need to be repeatedly verified by future researchers.

Conclusion:

Passive avoidance is not a long-term solution, active face and learning, active transformation, so as to better adapt to the trend of the era. The future still faces great uncertainty and ambiguity. By strategically analyzing the potential influence of Sora on the future of the short-video making industry, robotics industry, film industry and television industry, this study delves into possible aspects of influence and pathways of action, and provides important insights at both theoretical and practical levels. This study thinks that Sora will have a direct influence on a number of aspects of the film production industry, such as making technologies, intrinsic patterns, sales volume and personnel composition. With the upgrading of Sora's simulation capabilities, it will not only substantially expand the robot's perceptual capabilities, but also bring the user with immersive experiences. Sora will have an effect on the past business model, stimulating the short-video industry to display more new paths. Through gamified teaching methods and intelligent learning solutions, Sora has the potential to help students access more learning resources and increase engagement and motivation. This study provides a practical reference for practitioners in the robotics industry, the film industry and the short video industry. However, this study belongs to an exploration study in which some points need to be repeatedly verified by future researchers.

Reference:

1. Adetayo, A. J., Enamudu, A. I., Lawal, F. M., &Odunewu, A. O. (2024). From text to video with AI: The rise and potential of Sora in education and libraries. Library Hi Tech News, ahead-of-print(ahead-of-print). https://doi.org/10.1108/LHTN-02-2024-0028
2. Bellini-Leite, S. C. (2024). Are Generative AIs like Midjourney and Sora creative? The "Generative AI Mary's room" thought experiment. https://doi.org/10.31234/osf.io/xj54a
3. Chen Guang. (2024). Sora and the Future of Narrative:How AI is Disrupting Content Creation. Media Review (03),34-36. doi:CNKI:SUN:SJXW.0.2024-03-015.
4. Cheung, K. K. C., Long, Y., Liu, Q., & Chan, H.-Y. (2024). Unpacking Epistemic Insights of Artificial Intelligence (AI) in Science Education: A Systematic Review. Science & Education. Scopus. https://doi.org/10.1007/s11191-024-00511-5
5. Cho, J., Puspitasari, F. D., Zheng, S., Zheng, J., Lee, L.-H., Kim, T.-H., Hong, C. S., & Zhang, C. (2024). Sora as an AGI World Model? A Complete Survey on Text-to-Video Generation (arXiv:2403.05131).8 Mar 2024.version 1.arXiv. https://doi.org/10.48550/arXiv.2403.05131
6. Cone, J. D. (1997). Issues in functional analysis in behavioral assessment. BehaviourResearch and Therapy, 35(3), 259–275. https://doi.org/10.1016/S0005-7967(96)00101-5
7. Edwards, K. (2024). Unveiling Deception: Discourse Analysis of Sora and the Impact of AI on Misinformation. Student Scholar Symposium Abstracts and Posters. https://digitalcommons.chapman.edu/cusrd_abstracts/660
8. Fang Haiguang, Shu Lili, Wang Xianchuang&Hong Xin. (2024). Possibility and Potential of the Digital Transformation of Education in the Era of Generative Artificial Intelligence——Based on Thoughts on Sora. Journal of National Academy of Education Administration (04),69-75. doi:CNKI:SUN:GJXZ.0.2024-04-008.
9. Fang Xingdong &Zhong Xiangming. (2024). Gutenberg Moment: Paradigm Shift and Revolution Logic in Information Dissemination Behind Sora. Modern Publishing (03),1-15.
10. Guo Yajun, Zhou Jiahua, Li Tianxiang, Chen Yanchen&Huang Xin. (2024). The Influence of AI-generated Video Large Model Represented by Sora on Library. Library Tribune.
11. Hagopian, L. P., Fisher, W. W., Thompson, R. H., Owen-DeSchryver, J., Iwata, B. A., & Wacker, D. P. (1997). Toward the Development of Structured Criteria for Interpretation of Functional Analysis Data. Journal of Applied Behavior Analysis, 30(2), 313–326. https://doi.org/10.1901/jaba.1997.30-313.
12. Hanley, G. P., Iwata, B. A., & McCord, B. E. (2003). Functional Analysis of Problem Behavior: A Review. Journal of Applied Behavior Analysis, 36(2), 147–185. https://doi.org/10.1901/jaba.2003.36-147
13. Hassani, H., & Silva, E. S. (2023). The Role of ChatGPT in Data Science: How AI-Assisted Conversational Interfaces Are Revolutionizing the Field. Big Data and Cognitive Computing, 7(2), 62. https://doi.org/10.3390/bdcc7020062
14. He Jing &Dong Junya. (2024). Media Revolution Triggered by Sora:Challenges and Responses for Chinese AI. Yuejiang Academic Journal (03),93-100+174-175. doi:10.13878/j.cnki.yjxk.20240428.002.
15. Hu Yong. (2024). The Rise of AI Video:Possibilities and Risks of Sora-like Generative Platforms. Media Observer (04),5-19. doi:10.19480/j.cnki.cmgc.2024.04.006.
16. Iwata, B. A., Wallace, M. D., Kahng, S., Lindberg, J. S., Roscoe, E. M., Conners, J., Hanley, G. P., Thompson, R. H., &Worsdell, A. S. (2000). Skill Acquisition in the Implementation of Functional Analysis Methodology. Journal of Applied Behavior Analysis, 33(2), 181–194. https://doi.org/10.1901/jaba.2000.33-181.
17. Jiao Jianli &Huang Xingyun. (2024). How ChatGPT and Sora Revolutionize Learning,Curriculum, and Teaching. Journal of National Academy of Education Administration (04),60-68. doi:CNKI:SUN:GJXZ.0.2024-04-007.
18. Kato, H., Beker, D., Morariu, M., Ando, T., Matsuoka, T., Kehl, W., & Gaidon, A. (2020). Differentiable Rendering: A Survey (arXiv:2006.12057). arXiv. https://doi.org/10.48550/arXiv.2006.12057
19. Kellnhofer, P., Jebe, L. C., Jones, A., Spicer, R., Pulli, K., & Wetzstein, G. (2021). Neural Lumigraph Rendering. 4287–4297. https://openaccess.thecvf.com/content/CVPR2021/html/Kellnhofer_Neural_Lumigraph_Rendering_CVPR_2021_paper.html
20. Kustudic, M., & Mvondo, G. F. N. (2024). A Hero Or A Killer? Overview Of Opportunities, Challenges, And Implications Of Text-To-Video Model SORA. https://doi.org/10.36227/techrxiv.171207528.88283144/v1
21. Kyrie Zhixuan Zhou, Abhinav Choudhry, Gumusel, E., & Sanfilippo, M. R. (2024). 'Sora is Incredible and Scary': Emerging Governance Challenges of Text-to-Video Generative AI Models. https://doi.org/10.13140/RG.2.2.25464.87046

22. Li Benqian&Tao Tingting. (2024). Human-Machine Co-Creation - Innovation of Film and Television Industry Models in the Age of AIGC. Research of Radio and Television (02),13-16. doi:CNKI:SUN:SHGB.0.2024-02-001.
23. LinChichen, LiuChenming, FanWeijian, Li Mengke&WangYongbin. (2024). New AIGC-based audiovisual changes. Journal of Communication University of China(Science and Technology) (02),1-8. doi:10.16196/j.cnki.issn.1673-4793.2024.02.009.
24. Liu Geping, Hu Hanlin, Qin Yuchao&Sun Fan. (2024). Sora Transforming Education:Insights Based on Teacher's Role and Learning Methods. Journal of National Academy of Education Administration (04),48-59. doi:CNKI:SUN:GJXZ.0.2024-04-006.
25. Liu, J., Wang, Z., Xie, J., & Pei, L. (2024b). From ChatGPT, DALL-E 3 to Sora: How has Generative AI Changed Digital Humanities Research and Services? (arXiv:2404.18518). arXiv. https://doi.org/10.48550/arXiv.2404.18518
26. Liu, Y., Zhang, K., Li, Y., Yan, Z., Gao, C., Chen, R., Yuan, Z., Huang, Y., Sun, H., Gao, J., He, L., & Sun, L. (2024). Sora: A Review on Background, Technology, Limitations, and Opportunities of Large Vision Models (arXiv:2402.17177). arXiv. https://doi.org/10.48550/arXiv.2402.17177
27. Li, X., Miao, Q., Li, L., Ni, Q., Fan, L., Wang, Y., Tian, Y., & Wang, F.-Y. (2024). Sora for Senarios Engineering of Intelligent Vehicles: V&V, C&C, and Beyonds. IEEE Transactions on Intelligent Vehicles, 9(2), 3117–3122. https://doi.org/10.1109/TIV.2024.3379989
28. Mbalib. (2024). Functional Analyses. MBAlib. https://wiki.mbalib.com/wiki/%E5%8A%9F%E8%83%BD%E5%88%86%E6%9E%90%E6%B3%95
29. Mogavi, R. H., Wang, D., Tu, J., Hadan, H., Sgandurra, S. A., Hui, P., & Nacke, L. E. (2024). Sora OpenAI's Prelude: Social Media Perspectives on Sora OpenAI and the Future of AI Video Generation (arXiv:2403.14665). arXiv. https://doi.org/10.48550/arXiv.2403.14665
30. Moore, J. W., Edwards, R. P., Sterling-Turner, H. E., Riley, J., DuBard, M., & McGeorge, A. (2002). Teacher Acquisition of Functional Analysis Methodology. Journal of Applied Behavior Analysis, 35(1), 73–77. https://doi.org/10.1901/jaba.2002.35-73.
31. Mvondo, G. F. N., & Niu, B. (2024). Factors Influencing User Willingness To Use SORA (arXiv:2405.03986). arXiv. https://doi.org/10.48550/arXiv.2405.03986
32. OpenAI, (2024). Data collection time 3/6/2024. https://openai.com/; https://openai.com/index/sora/
33. Pelios, L., Morren, J., Tesch, D., & Axelrod, S. (1999). The Impact of Functional Analysis Methodology on Treatment Choice for Self-Injurious and Aggressive Behavior. Journal of Applied Behavior Analysis, 32(2), 185–195. https://doi.org/10.1901/jaba.1999.32-185.
34. Qin, R., Wang, F.-Y., Zheng, X., Ni, Q., Li, J., Xue, X., & Hu, B. (2024). Sora for Computational Social Systems: From Counterfactual Experiments to Artificiofactual Experiments With Parallel Intelligence. IEEE Transactions on Computational Social Systems, 11(2), 1531–1550. https://doi.org/10.1109/TCSS.2024.3373928
35. Quiroga, E. (2024). Toward Solipsism: The Emergence of Sora and Other Video Generation AIs in Audiovisual Creation. https://doi.org/10.13140/RG.2.2.24875.00802
36. Ren Tianzhi&Shen Hao. (2024). From Sora to 'World Simulation': Technical Principles, Application Scenarios and Future Progress of Video Megamodelling. Journalism Lover. doi:10.16017/j.cnki.xwahz.20240408.001.
37. Tewari, A., Thies, J., Mildenhall, B., Srinivasan, P., Tretschk, E., Yifan, W., Lassner, C., Sitzmann, V., Martin-Brualla, R., Lombardi, S., Simon, T., Theobalt, C., Nießner, M., Barron, J. T., Wetzstein, G., Zollhöfer, M., &Golyanik, V. (2022). Advances in Neural Rendering. Computer Graphics Forum, 41(2), 703–735. https://doi.org/10.1111/cgf.14507
38. Waisberg, E., Ong, J., Masalkhi, M., & Lee, A. G. (2024). OpenAI's Sora in ophthalmology: Revolutionary generative AI in eye health. Eye. https://doi.org/10.1038/s41433-024-03098-x
39. Wang, F.-Y., Miao, Q., Li, L., Ni, Q., Li, X., Li, J., Fan, L., Tian, Y., & Han, Q.-L. (2024). When Does Sora Show: The Beginning of TAO to Imaginative Intelligence and Scenarios Engineering. IEEE/CAA Journal of Automatica Sinica, 11(4), 809–815. https://doi.org/10.1109/JAS.2024.124383
40. Xie, Y., Wang, C., Liu, K., Xuanyuan, Z., He, Y., Cheng, H., Nüchter, A., Li, L., Huai, R., Tang, S., Ma, S., & Chen, L. (2024). Sora for Smart Mining: Towards Sustainability with Imaginative Intelligence and Parallel Intelligence. IEEE Transactions on Intelligent Vehicles, 1–2. Scopus. https://doi.org/10.1109/TIV.2024.3394520
41. Yang, D., Hu, L., Tian, Y., Li, Z., Kelly, C., Yang, B., Yang, C., & Zou, Y. (2024). WorldGPT: A Sora-Inspired Video AI Agent as Rich World Models from Text and Image Inputs (arXiv:2403.07944). arXiv. https://doi.org/10.48550/arXiv.2403.07944

42. Yariv, L., Gu, J., Kasten, Y., & Lipman, Y. (2021). Volume Rendering of Neural Implicit Surfaces. Advances in Neural Information Processing Systems, 34, 4805–4815. https://proceedings.neurips.cc/paper/2021/hash/25e2a30f44898b9f3e978b1786dcd85c-Abstract.html
43. Yin Kehan &Chen Jiwen. (2024). Empowering Intelligent Library Construction with Sora in the Wave of AGI. Library Theory and Practice (03),12-19. doi:10.14064/j.cnki.issn1005-8214.20240329.001.
44. Yu Guoming& Chen Siyu. (2024). Human-computer relationship vs. interpersonal relationship: a new paradigm in the era of AIGC. Journal of Education and Media Studies (03),42-46. doi:10.19400/j.cnki.cn10-1407/g2.20240412.001.
45. Yu, H., Liang, W., Fan, L., Wang, Y., & Wang, F.-Y. (2024). Sora for Social Vision with Parallel Intelligence: Social Interaction in Intelligent Vehicles. IEEE Transactions on Intelligent Vehicles, 9(3), 4240–4243. https://doi.org/10.1109/TIV.2024.3384835
46. Yu, H., Liu, X., Tian, Y., Wang, Y., Gou, C., & Wang, F.-Y. (2024). Sora-Based Parallel Vision for Smart Sensing of Intelligent Vehicles: From Foundation Models to Foundation Intelligence. IEEE Transactions on Intelligent Vehicles, 9(2), 3123–3126. https://doi.org/10.1109/TIV.2024.3376575
47. Waisberg, E., Ong, J., Masalkhi, M., & Lee, A. G. (2024). OpenAI's Sora in medicine: Revolutionary advances in generative artificial intelligence for healthcare. Irish Journal of Medical Science (1971 -). Scopus. https://doi.org/10.1007/s11845-024-03680-y
48. Wang, F.-Y., Miao, Q., Li, L., Ni, Q., Li, X., Li, J., Fan, L., Tian, Y., & Han, Q.-L. (2024). When Does Sora Show: The Beginning of TAO to Imaginative Intelligence and Scenarios Engineering. IEEE/CAA Journal of Automatica Sinica, 11(4), 809–815. https://doi.org/10.1109/JAS.2024.124383
49. Zhang, J. (2024). What is Lacking in Sora and V-JEPA's World Models? -A Philosophical Analysis of Video AIs Through the Theory of Productive Imagination [Preprint]. https://philsci-archive.pitt.edu/23434/
50. Zhang Lanshan&XuAitong. (2024). Revolution and Reconstruction: The Application and Challenges of Sora in Film and Television Creation. China Television (04),84-91. doi:CNKI:SUN:ZGDD.0.2024-04-014.
51. Zhang Menghan& Chen Ze. (2024). Under the Impact of "Universal Generation": How the Mechanism of Truth Disclosure is Restructured——Relational Practices and Structural Transformations in Gatekeeping Theory in the Era of Generative Artificial Intelligence. Media Observer (04),37-44. doi:10.19480/j.cnki.cmgc.2024.04.001.
52. Zhu Guanghui& Wang Xiwen. (2024). The Text-to-Video Model Sora: Core Technologies,Operative Mechanism and Application Prospects. Journal of Xinjiang Normal University(Philosophy and Social Sciences) (04),149-156. doi:10.14100/j.cnki.65-1039/g4.20240320.001.