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Technological Control Tool of Everyday life? Six Questions on the Design Ethics of Artificial Intelligence

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Abstract: Artificial intelligence (AI) continues to expand into different areas of social life, bringing design ethics and public rights under challenge. Instead of stopping the research application of AI, it is better to urgently study some of the practical problems that AI technology may bring about and promptly formulate corresponding laws to regulate them. This paper discusses the following issues: 1. Security and privacy of face recognition; 2. Political and economic applications of AI; 3. Emotional learning of AI; 4. Human-computer development of brain-computer interface; 5. Ethical supervision of AI; 6. Automatic design of AI etc. It analyses design ethics basic principles, such as security, privacy, fairness, trustworthiness, honesty, etc., and calls for strengthening the institutional construction of design ethics and public safety for AI technology products.

Keywords: Artificial intelligence; Design ethics; Face recognition; Big data; Technology dependence

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Introduction

Large Language Models are currently changing the way humans live and relate to each other socially. It is worth thinking about how AI technology can make life better for the masses, rather than controlling or ruling our lives. It has been shown that AI is gradually leading to the loss of human power to make decisions, and artificial intelligence automates repetitive tasks without allowing humans to remember, use analytical thinking skills, or uses cognition, resulting in a loss of decision-making ability [1]. Deficiencies in AI may also have dangerous consequences; for example, from image classification to automatic speech recognition to translation, which may be disturbed and misjudged, and neural networks may be disturbed and attacked, leading to misclassification of input signals. "Alarm bells are ringing regarding the latest form of AI, generative AI," said UN Secretary-General António Guterres on 13 June 2023. "One of the loudest warning voices comes from the developers who designed it, and we must take these warnings seriously." He supported a proposal by some artificial intelligence (AI) company executives to create an international AI watchdog like the International Atomic Energy Agency (IAEA) [2].

For all the positive promise that AI offers, however, human experts are still essential and it is necessary to design, program and operate AI to avoid any unpredictable errors [3]. AI algorithms rely on big data, and who can own or access the data determines how the technology is developed and applied. When algorithms appear to be inaccurate and biased, then who will vet them? Artist Trevor Paglen, through an exhibition, has collaborated with AI researchers to explore how AI perpetuates biases such as racism and class division, as well as visual truth, through one of the largest online

databases widely used to train machines how to read images, by looking at the AI training process and revealing how AI shapes organizations to control our consciousness.

The aim of this paper is to reflect on what potential crisis does the ubiquitous environment of AI imply for the everyday life of humans? On the one hand, care must be taken to prevent the ascription of human prejudices to AI products; on the other hand, the visual images formed by AI are changing human perceptions of the natural world. There is a need for humans to develop appropriate legal and ethical norms in a timely manner.

Security and Privacy Issues in Face Recognition

The biggest ethical issue in the lifetime application of AI may be privacy and control. While face recognition technology has made significant advances, from unlocking mobile phone screens with faces to the use of face technology by government departments for citizen identification, it is becoming increasingly popular in everyday life, but the ultimate data privacy and security issues are becoming increasingly prominent and worrying. Facial recognition technology poses a severe threat to privacy and democracy, as humans can easily be monitored, influenced, manipulated, or controlled by AI without their knowledge or consent [4]. Is digital privacy becoming an object of exchange between companies?

The use of AI can result in ethical issues and human rights violations, while the demand for large datasets in current AI systems raises concerns related to data privacy and protection [5]. Data has unimaginable functional power for the purpose of collecting personal information to analyze vulnerabilities that can be exploited, and big data has allowed governments to exercise more social control during pandemics and to increase social distance control. When privacy becomes data, and data becomes an asset, how do we protect our privacy? China is already at the forefront of face recognition technology development. There are various loopholes in the commercial use of face data due to the lack of appropriate legal regulation and ethical constraints. For example, in some residential communities, face recognition has become a method of verification for residents to enter and leave the community.

As these intelligent systems are increasingly deployed in the real world, they are being seen as a potential security issue. Developers and user service providers alike should take appropriate security measures to respect basic ethical privacy and address the security threats to face recognition technology and prevent miscalculation by neural network visual recognition systems.

On 25th May 2018, the General Data Protection Regulation (GDPR) established by the European Union came into force to prevent companies from collecting and sharing information about people without their permission. On 21st September 2020, a US Republican Senate group introduced the National Data Privacy Bill at the federal level to ensure transparent and responsible access to data and to protect the national standard. On November 1st, 2020, "Technical Requirements for Remote Face Recognition Systems for Information Security Technologies" was implemented. A great deal of work needs to be done in terms of legislation and ethical construction to limit and secure the collection of data in general. Especially in important industries and fields, it is also necessary to make regulatory requirements for the design of data applications, to use ethical differential privacy technology and, most importantly, to establish a security management system for important data from the digital source

to improve the risk control and security of data dissemination. Developing regulations to encourage the use of AI, cobots, and other machines in manufacturing will improve efficiency and sophistication, and facilitate their adoption through the creation of better standards, laws, and guidelines [6].

Emotional Learning Issues on AI

AI can learn like humans and go beyond them for deep learning, cognitive testing and functional recognition, cognitive decision-making and logical reasoning, all of which have ethical implications. AI expands human capabilities, changes product forms and service models, and drives changes in cognitive intelligence and culture and the arts, contributing to a future society of human-AI-object integration on the one hand, and posing the worry of threats on the other. The question is: Is AI an opportunity or a threat to humanity? We should change the way we educate and change what we teach in due course. In the past we focused on memorization, but computers can remember better than us and count faster; we want to run faster, but machines can run faster than us. Humans want to be more creative, more constructive; how do you teach children to be more creative, more constructive? I think that's the key to education. We can spend more time training children to learn art, to learn to paint, to learn to dance, as all these are creative things. One thing we have to understand is that humans have never been able to make a person, only to shape rather than make them.

But AI is also imitating human emotion and artistic creativity through deep learning. For example, Microsoft Ice, officially launched by the Microsoft (Asia) Internet Engineering Institute in May 2014, incorporates technologies such as natural language processing, computer speech and computer vision, and this "strong AI" underlying framework focuses on the development of AI in fitting the human emotional intelligence dimension, emphasizing the fundamental value of AI emotional intelligence in human-computer interaction, not only in In May 2017, the Microsoft Internet Engineering Institute (Asia) also introduced the concept of "AI Creation," which is to use AI technology to learn from the abilities of good human creators and to automate content based on text, speech and vision. From 13th July to 12th August 2019, AI painter Xiao Bing opened her first solo exhibition, Alternative Worlds, at the Art Museum of the Central Academy of Fine Arts. In 22 months, Xiaobing studied the paintings of 236 famous human painters from the past four hundred years of art history, so that when inspired by texts or other creative sources, she was able to complete 100% original paintings independently. This originality is reflected in the composition, use of color, expressiveness and detailed elements that are considered close to the level of professional human painters. AI-generated art algorithms are not like human artists, they are more than a static tool, similar to a brush loaded with oil paint, highlighting their dynamic and evolving nature [7]. According to Microsoft, AI creation is not aimed at beating humans, but at achieving the same level of quality as the corresponding human creators, making full use of AI's characteristics of rapid learning, high concurrency and stability, thus opening up the future of the "highly customizable" content industry.

AI's deep learning capabilities will surpass human imagination. By learning from large amounts of data, it will also be possible for machines to simulate human creativity, and for AI to make creativity quantifiable. What about the ownership of intellectual property rights, and whether Ice's imitation of styles will involve plagiarism? How will it be judged? What impact will this have on artistic creativity, of which humans are so proud?

The Human-machine Dimension of Brain-computer Interfaces

Neural networks and deep learning are the cornerstones of the highly developed field of AI. Deep learning seems to indicate that humans are one step closer to replicating their original will; the development of AI will continue to stumble, while the relationship between humans and machines and the ethical challenges posed by AI are increasingly becoming a focal topic in AI (**Figure 1**). On 29th August 2020 (BST), Elon Musk's neuroscience startup Neuralink, which is dedicated to creating human brain implants with the ultimate goal of enabling humans to "live with AI," explains to the audience live. On 25th May 2023 Neuralink announced that it had received approval from the US Food and Drug Administration (FDA) to conduct clinical research on its brain-computer interface (BCI) implants in humans. The traditional patterns of human life may be turned upside down by changes in technology, but the social implications are not yet well understood. Brain-computer interfaces are developing rapidly. It will give people smarter brains, more dexterous hands, brighter eyes and more sensitive ears, but as AI gradually reaches and surpasses human levels, humans will have to become human workers in order to cope with AI that surpasses the natural human; how far can people go on the road to becoming human workers? This will undoubtedly lead to a deeper reflection on human-machine preservation and ethics. BCI technologies must address ethical issues and concerns related to the social acceptability, clinical safety, and general permissibility of new technological applications [8].

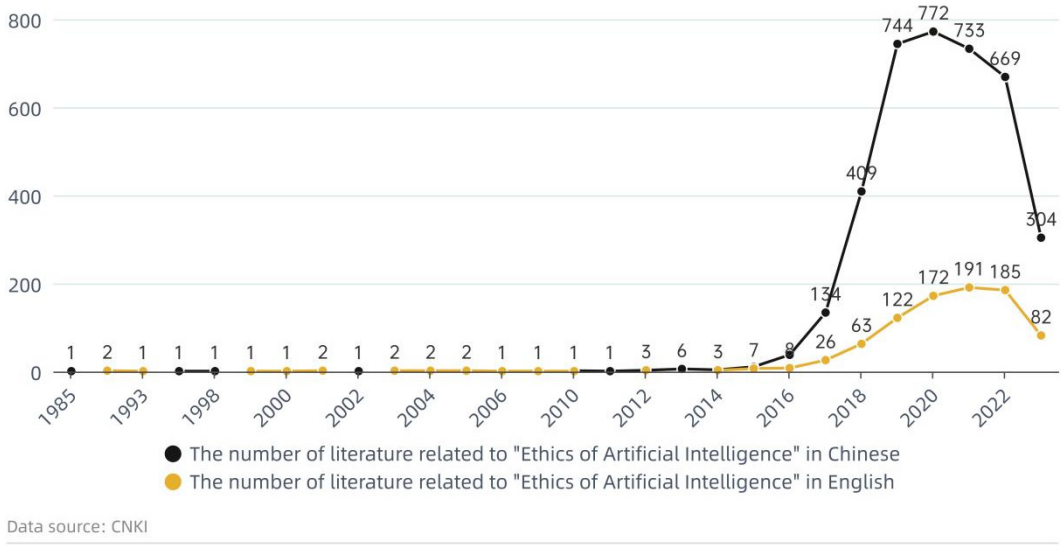

Figure 1. *Academic interest in the "ethics of artificial intelligence" (Drawn by Zhiyu Zhou)*

The most astounding aspect of AI is its ability to learn deeply, and deep learning has become the alchemy of a new era. The need for arithmetic power over and above other aspects of AI has become an important support for AI. Tech giants are designing neural network-specific chips to boost arithmetic power. Brain science, photoelectric computing, etc. have become breakthrough points to become arithmetic power. On 1st September 2020, media reported that Zhejiang University jointly developed the first brain-like computer, based on independent intellectual property rights with a brain-like chip in China, which is the largest brain-like computer in the international neuron scale. The future brain-like computer may be implanted in mobile phones and robots to generate new intelligent

service experiences.

A human-centered person is a human being who coexists peacefully with other creatures, who is the result of his or her own evolution in nature, and who has a social outlook and ethical consensus, rather than one who is instrumentalized by technology and used as a consumer product. To replace the human brain with AI parts would be tantamount to self-immolation. Humanity should gather common wisdom to cope with and control AI. In terms of AI development and application, the exchange of talents from different countries is a necessary way to help solve the common problems faced in AI development and application, and countries should cooperate with each other in the field of AI, including active actions in ethics and regulation building, rather than conflict and confrontation.

Ethical Oversight of AI

AI needs to focus on the complete industry chain and ecosystem from algorithms, software and human-machine interfaces to system architecture and chips. Interdisciplinary crossover is a typical hallmark of the AI era, involving cognitive vision and cognitive representation, and AI technologies involving computer vision, natural language understanding, robotics and logical reasoning.

There is little guarantee that every decision made by an AI product system will be the right one, so how can technology and product systems be proven to be safe? Both "weak AI," which performs specific tasks, and "strong AI," which can mimic human thinking and decision-making, can face the problem of misinformation. Machines can be misled and see or hear things that are not there. If there is 'noise' that interferes with the AI's recognition system, it can create illusions. AI algorithms and tweets embedded in digital and social media technologies have the potential to hijack people's attention, reinforce social bias, accelerate the spread of rumors and amplify the echoes of public opinion. When doing ethical audits, it is necessary to assess the origin of the training data (where the data was generated, the inferences drawn from the data and the relevance of these inferences to the current situation) to assess the suitability of the algorithm.

AI needs oversight, and there are huge gaps in skills and expertise between the different applicators of AI technologies in terms of fully understanding all the risks of AI, an imbalance in the consideration of the value of applications, no incentive to think and figure out how to consciously eliminate these risks, no well-developed industry standards to test these systems, and no external constraints and regulation. The catalogue of ethical issues involving technology continues to expand and we may need more ethicists and lawmakers to pass laws and regulations to guard against evil through AI technology and to guard against attacks on AI. A system of ethical self-regulation and self-regulation is needed to prevent AI from being used inappropriately and making mistakes through social ethics, and to equip AI with sensible and reasonable functions through design ethics.

Automatic Design Issues for AI

In addition to the intelligence of design products, AI for design is also beginning to develop. Currently, the industry is already experimenting with possible fits between the design field and AI, researching on allowing machines to replace or assist designers in scheme generation or other design activities, and allowing AI to use deep learning for automatic design scheme generation. Allowing AI to drive automatic design through semantics and re-seeking the future direction of AI in industrial design,

graphic design, including interaction design, many traditional design fields are AI-challenged design paradigms. Design AI has expanded from the field of information design to various design fields such as product, architecture, interior, clothing, printing, games, film, and television. The "cross-border fusion" of art and design and AI is a source of inspiration. Design AI is set to make breakthroughs in design efficiency and quality.

How do design ethics and aesthetic emotions play a role in shaping design decisions in AI, both in the commissioner and designer dimensions of design AI? The role of the human needs to emerge when labelling is quantified. How do humans influence the learning content of the AI with their own limited design-like databases when creative problems are equated to for arithmetic problems? Questions such as sequencing and weighting are more important for deep learning programming languages. AI-powered experiences are just starting to emerge, and it won't be long before intelligent experiences become the new norm. How can people ensure that we design experiences that are more personalized, valuable, intelligent and efficient? In short, it is useless to oppose and fear it. What humans have to do is to control it. AI should become the path to help society design the search for data access and ethics of thought. How to design the emotional intelligence of machines becomes the future challenge of design.

Design as a human, cultural, social and imaginative discipline also has a reflective and catalytic role in the evolution of AI; for example, many of the processes of collecting and analyzing data will be done through AI. Data analysis processes will become increasingly complex, with AI cross-referencing more accurate and valuable data sets to help designers and product owners make more targeted and informed decisions. Ultimately, human-machine collaboration will empower design. AI will unleash human creativity, capturing the possibilities of a collection between broad design (ideas, practices, applications, tools, methods, etc.) and broad AI (ideas, critiques, technologies, policies, ethics, etc.). What will ultimately be achieved is a deep dialogue and synergy between design intelligence and machine intelligence.

Ethical Issues in Design for AI

In the age of AI, what exactly is the role of the designer in design? Scientists and engineers play a decisive role, while designers are left to whitewash the physical properties of appearance, a role that should not be the designer's job. We need to think: how much "equity" should we give to AI to dominate our lives? Furthermore, what will happen to human society if AI ceases to be an artificial object? How can we prevent AI from receiving the wrong instructions? How can AI be prevented from making bad judgements? By how can AI technology be prevented from being used by a small number of people as a means of controlling humans?

The answer is clear: companies will only follow the market and profit-driven direction, which is much more sensitive than sociologists, and designers are on the front line of technological transformation. Who, then, sets and adheres to the ethical standards of design? AI products enhance human-machine interaction, which is bound to raise ethical questions. When transforming a new technology into a product, it is up to the inventors and applicators of the technology, as well as the designers, to take responsibility for identifying the problem and figuring out how to deal with it - this is where social and design ethics are established. Many large and well-known companies, including Google, have set up ethics committees to oversee the development and deployment of their AI technologies.

Design is an expression of social ethics and values, and AI needs to be rooted in human ethics. AI should be friendly, non-discriminatory, just, and fair. These form the core principles of design ethics, and mastery of the core principles can help individuals and organizations to create ethical frameworks and consider specific issues more effectively.

Assembling a team of technology ethicists, engineering experts and business leaders and designers to study design ethics is a very important matter to undertake. Developers require ethical habits to develop AI for social good, including evaluating potential misuse by unintended parties, considering the impact on user well-being from the optimization algorithm, and recognition of the potential consequences of ignoring critical ethical concerns [9]. Ethical decision-making on how to use AI technology to make human society better is not just another form of technical problem solving. As the designers and developers of AI systems have enormous collective influence, it is important to gain insight into the ethical considerations of designers' work. The design and development of ethically-centered AI must be consistent with the values and moral principles of a society or the society or community it affects. Ethics are based on well-founded standards of right and wrong that define what people should do in terms of rights, obligations, social interests, fairness or specific virtues.

It is advisable to reject the idea that autonomous machines can surpass human intelligence, creativity, and responsibility [10]. AI designers need to take active social responsibility to gain a reasonable competitive advantage by promoting innovation and using AI for strategic behavior. AI designers and developers have a responsibility to think about AI design, development, decision-making processes and outcomes. AI should be designed so that humans can easily perceive, detect and understand its decision-making processes, protect user data and retain user power over access and use. AI should be designed to promote inclusiveness and representation and reduce bias of all kinds. In short, design ethics follows social ethics, seeks to reconcile pragmatism with idealism in the face of globalization, and seeks a balanced common ethical ground in the face of multiple and fundamental conflicting interests to truly preserve a sustainable future for humanity.

Conclusion

The daily ethical construction of AI is an ongoing, interdisciplinary effort. Such a mechanism must be put in place for AI to be put to good use, resulting in a system of ethical assessment of AI. AI tech entrepreneurs and designers alike should sort out values and ethics. In today's world, there is a need to rethink and redefine the purpose of design, or one that questions the intrinsic value and purpose of the things we create, including our society and life itself. Ultimately, we find that it is not AI that is worth worrying about, but rather our immature and flawed human design decisions and the ability of our limited human intelligence to navigate a rapidly evolving and self-improving AI.

New technologies and the effects of AI are inspiring new approaches to design and development. The future of AI-powered mixed reality, empowered teaching, production, design and communication, including industrial design, can take place online virtually offline. Soon AI will be the central designer of technology companies' product strategies, marking the beginning of the era of relational design. For AI to truly enhance our intelligence, we must develop our relationship with machines. The international community needs to strengthen communication and cooperation on AI in terms of privacy, ethics, laws and regulations, to bring the core principles of design ethics into play, and to develop specific ethical rules under them. What matters most, therefore, is not AI technology, nor is

it entirely a question of the people and companies that open up AI technology, but whether humans are able to manage AI technology and applications. How broad the human imagination is, and how broad the potentially harmful uses of AI are, is something we need to be wary of.

Conflicts of Interest:

The author has written the article alone without committing plagiarism.

Ethical approval:

The procedures used in this study adhere to the tents of the Declaration of Helsinki.

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