

SWOT Analysis of Chat GPT as a New Method of Institutional Pension from a Technical Perspective

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Abstract: Chat GPT has become the focus of worldwide attention in recent months, as a magnificent phenomenon in the field of Artificial Intelligence this year, marking the coming era of AI. Social work, which provides welfare services, should also consider what changes Chat GPT can bring to the host's activities, and whether these changes will endanger the ethics of human society. This paper takes the elderly service of institutions as an example, uses SWOT method to try to describe the characteristics of institutions introducing Chat GPT as an auxiliary tool for service, and then explains whether AI will replace mankind.

Keywords: Chat GPT; Institutional Elder Care; SWOT Analysis; AI Society

Introduction

Chat GPT has attracted wide attention since its launch in 2022. As a brand-new intelligent human-machine language interaction model of AI, Chat GPT has high expectations. Many scholars and experts in different fields have tried to apply Chat GPT to different fields and directions to seek new breakthroughs in this field with artificial intelligence. GPT can bring about changes in the field of digital production and intelligent life, so we do not think about what opportunities or challenges this new AI interaction will bring to the future development of society. From the perspective of intelligent pension in many aspects of elder care course technically, and uses SWOT analysis method to analyze whether GPT can be used as a new method of institutional pension to provide new technical capabilities for the elderly in today's aging society, and prospects the future of artificial intelligence in the aging society.

Introduction ——Chat GPT let AI methods to dealing elder care issues in institution become possible

On the one hand, the commonly discussed definition of artificial intelligence was "the research and design of intelligent agents", on the other hand, it is a system that can observe its environment and take action to achieve a goal. John McCarthy's definition in the 1950s was "The science and engineering of constructing intelligent machines", and Andreas Kaplan and Michael Haenlein define artificial intelligence as "a ability to systematically interpret data from the outside system that learn from and use these data to achieve specific goals and tasks through adaptation", they believe that artificial intelligence can fully learn human social system through the network and imitate human thinking and action mode to help human solve actual theoretical or technical problems. The ultimate goal of AI research is to understand objective reality through the construction of symbolic reasoning or reasoning computer programs, while the current definition of it changes from a computer tool for solving problems to a computer program that presents human intelligence through its own intelligence and through computer compilation.

One of the most recent known achievements in artificial intelligence is the Chat GPT (Chat Generative Pre-trained Transformer), which means Chat generates a pre-trained converter, it is an online AI chat-bot developed by OpenAI in 2022. GPT has been iterated and updated with the 1st generation, 2nd generation, 3rd generation and 3.5 generation versions, and has collected all the data of human society up to 2021, and established the thinking mode of AI based on the existing database. Chat GPT is based on version 3.5 of GPTs after the popularity of Chat GPT, the technology industry has rediscovered the advantages of GPT for contextual

conversations. Before GPT, OpenAI introduced the Transformer model on Google platform, which is a deep learning model of self-attention mechanism, this mechanism can assign different weights according to the different importance of each part of the input data. It is mainly used in Nature Language Process (NLP) and Computer Vision (CV), aiming at processing sequential input data such as natural language. It can be applied to translation, text summary and other tasks mission.

The Transformer model is more about prescribing interactive commands. Although the model can process all the input data at once and the self-attention mechanism can provide context anywhere in the input sequence, the Transformer model cannot understand the specific semantics of different languages. In other words, it cannot have the self-intelligence that comes from learning human intelligence. Chat GPT integrates AI's thinking ability on the basis of Transformer. As early as 2016, Alpha- Go versus Lee Sedol is also a landmark event in the history of AI development. Although Alpha Go is still a weak AI, It can still crush human opponents in super mental games like Alpha-Go, a landmark event that reminds people of the infinite possibilities of artificial intelligence in the future.

A theoretical model related to AI is Moravec's paradox, which states that while AI can outwit humans professionally, its intelligence cannot reach the level of a child's perception and action.This theory also explains that artificial intelligence at that time was unable to think generically in human society,but the Chat GPT has raised the possibility of a breakthrough. Michal Kosinski argues that Chat GPT has the initial mental level of a nine-year-old child, a weak AI model that can be analyzed generically. In addition to being a multi-tasking model of language including dialogue, translation, text excerpt and other tasks, Chat GPT has already possessed its own thinking consciousness, which is the essential reason why Chat GPT can carry out phenomenal dissemination in the human society, because it may bring about all-round changes in the human society in the future,

The main running version of GPT is GPT4.0, whose underlying logic is to turn all relevant information into token, making human information easier for machines to calculation.GPT4.0 is a new generation auto-regressive language model released by OpenAI on March 14, 2023, also claim that GPT4.0 is more reliable and creative than GPT3.5, because of it can handle more subtle tokens.The most important update is that GPT4.0 can not only process text instructions, but also process abstract information including images, videos, sound, which means that the new generation of GPTS can exist as a database with its own intelligence rather than just AI tools, and play a more important role in more areas of social life in the future, even replace mankind workforce.

SWOT analysis of Chat GPT in institutional care

While people are still debating whether Chat GPT can be used in human life, some companies in the West are already using it in production. The Chat GPT features powerful real-time conversation computing capabilities, and the industry welcomes the use of this technology in a variety of applications, including data generation, knowledge mining, model scheduling, and human-computer interaction. These capabilities open the door to new breakthroughs in human-computer interaction, but Chat GPT is just one version of GPT's history. People are more interested in Chat than in GPT,and what matters is its powerful communication and analysis capabilities. Chat GPT is widely seen as a sign that communication and logic are no longer the preserve of the humankind, and that Chat GPT is slowly moving into the practical realm as it iterates over time. It is clear saying that OPEN AI's ambition is to build on the core strengths of the post-3.0 version of GPT and continue to open the Internet, and they want to build their AI into every applications.

Table 1 Chat GPT applications

Conversation objection	Identification	Methods	Scenario
	data generation	generate data directly on demand	Conversation and search
Database	knowledge mining	reprocessed and analyzed to the original data	translation、 correction、 abstraction and management
Model	model scheduling	invoke machine learning models collaboration	platform and model manage

Applications	interaction	utilize applications to handle issues	intelligent operation system
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Strength—Language Interaction

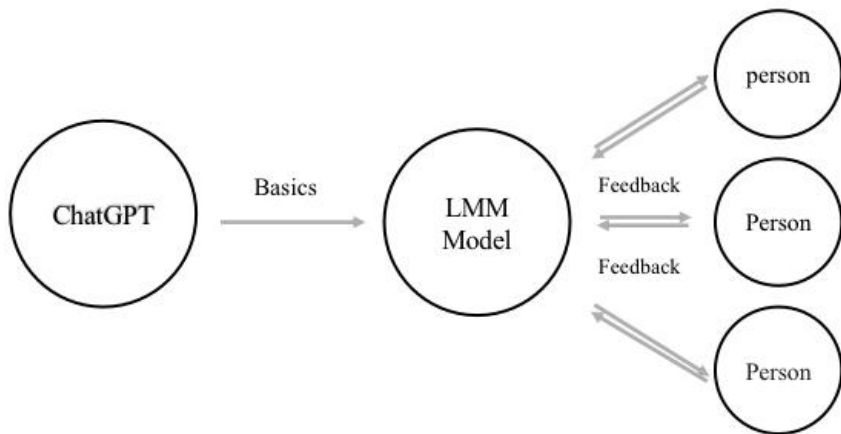
Unlike earlier language assistants on smart devices, GPT provide question-and-answer help and only carry out commands for human interaction. But Chat GPT based on GPT3.0 can respond to commands entered by the user in language and text and give its own answers. This experience makes the user feel "as if they are talking to a human being", to understanding and responding to natural language input is one of the features of Chat GPT, so it can use NLP (Nature language Process) to examine the instructions entered by the user and give relevant answers. This enables the user to talk to the AI and is a way to chat in a way that seems more natural and intuitive, just as they would talk to a human. Chat GPT provides users with personalized and interactive experience, and then Chat GPT can help users. By using user input commands, Chat GPT can adjust its own reply content to provide professional advice and help, such as feedback based on user's cognitive level and problems. Chat GPT can be used to provide users with tailored life event counseling.

Chat GPT also has the advantage is able to interact with multiple users at the same time without causing confusion. With the NLP and CV (Computer Vision) capabilities built on a large amount of data, Chat GPT can integrate different information by accessing multiple platforms and intelligent terminals. In addition, to help different users, Chat GPT can timely respond to different users' instructions and establish corresponding parallel conversations without confusion.

The powerful language interaction capabilities of GPT3.0 make Chat GPT a powerful chat-bot that can provide customized conversations for different users, which makes Chat GPT a useful tool to provide learning assistance and advice to users, not just as an individual, but as a group.

Human can use chat-bots capable of language interaction in senior services, because the most important role of the current version of Chat GPT is to provide some companionship for the elderly. Based on LLMs (Large Language Models), Chat GPT is able to mimic the expressive power of human language using deep learning techniques such as Neural Networks after being trained with large amounts of textual data from different sources. It can show expressions close to human language ability, so that the elderly can have a similar experience as a real person when talking with AI, which is helpful for the elderly with loneliness and lack of communication ability.

Illustration 1 The language interaction Logistics model of Chat GPT



Another benefit of Chat GPT is the ability to reduce organizational operating costs. Today, in the geriatric service institutions, a institution worker needs to face several or even dozens of nursing and service work for the elderly, and the specific work content is not only to protect the life safety of the elderly, but also to consider the emotional counseling and psychological counseling of the elderly. However, due to the disproportionate number of service personnel and the elderly in need of help, it is difficult for caring staff to fully take into account the emotional problems faced by the elderly. Excessive daily workload and nursing pressure are easy to cause job burnout of caring staff, and also affect the quality of service for the elderly.

Listening is one of the most important activities involved in channeling emotional problems in the elder. In elder social

work ,when the staff of the organization cannot cope with this aspect of work, Chat GPT can be used as a "hollow" for the elderly to talk about, and provide some feedback and establishment for the current problems of the elderly. Meanwhile, in the interaction between the elderly and AI, the elderly can get a sense of pleasure in communication.As the basis of NLP and LMM, Chat GPT can communicate with multiple elderly people at the same time, which can alleviate the loneliness and emotional disorder of elderly people to a certain extent, as well as reduce the workload of service staff and the pressure of human resources of organizations.In addition ,to assisting agency service staff in their work with the elderly, Chat GPT's database enables agency managers to consult and advise without having to hire an additional consultant, and as GPT versions continue to evolve, the consulting services are becoming more relevant to the overall elderly care market.

Weakness——Security Issue

Chat GPT can be seen as a milestone in a new phase of artificial intelligence, as it is widely recognized to have more natural language processing power, more natural conversation flow, and more intelligent model training than earlier human-computer interaction technologies.From the perspective of humanities and social sciences, Chat GPT has been widely used in academic research. Among them, 116 articles on Web of Science with Chat GPT as the main topic are searched, and the number is still growing.But in reality we expect to be able to apply our sociological knowledge to help others.The professional value of social work is to bring policy knowledge and expertise to ordinary people, so when Chat GPT becomes a topic about change, we need to think about what risks will be brought if social work is combined with Chat GPT.We should think about whether the tools of artificial intelligence will undermine the original values of the profession.

Nowadays,there are a large number of elderly people living in pension institutions, and their personal data will inevitably be stored in the internal database of the institutions. If the institutions expect to introduce Chat GPT to play the function of emotional counseling and problem consultation for the elderly, it is bound to be necessary for the institutions to open the access, upload, download and modification permissions of all elderly data to GPT. Like others Artificial intelligence tools,If the GPT has background ports, data security problems are unavoidable.

But soon after its release possible threats emerged, Chat GPT's ability to follow user's instruction is a double-edged sword.To fix potential security issues, Open AI's report with GPT4.0 reveals that it has dedicated security teams in both technical and evaluation areas, but as with all machine learning models, Chat GPT remains vulnerable to counter attacks. A typical approach is a PIA(Prompt Injection Attack), in which malicious instructions are inserted into the prompt, potentially bypassing the Chat GPT's security mechanisms and forcing it to perform unexpected actions, such as leaking sensitive information or exporting harmful content.The PIA behavior of Chat GPT will cause psychological harm to the elderly. For example, the elderly with suicidal tendency expect to get some comfort from the conversation but Chat GPT provides the purchase link of psychotropic drugs, or the Chat GPT with systematic background is required to provide the elderly with the need of counseling with the task of inducing consumption. In addition to the elderly, there is also the risk that institutional information will be leaked when the opinions of Chat GPT are incorporated into institutional decision-making. These security problems are the issues that must be faced with the application of artificial intelligence. Although they can be fixed to some extent with version updates, security problems unable be completely eliminated.

Another security issue is that Chat GPT is not sensibility. Although the expression logic of Chat GPT for most consultation and communication is close to that of human beings, it is unable to understand emotional factors beyond logic due to the integration of algorithm intervention in language learning. In other words, at this time, GPT does not have "sympathize ability". From the perspective of communication theory, interpersonal communication is not only the transmission of information, but also the function of emotional comfort through language communication. When a person and his friend seek solutions to Chat GPT due to their different views on a news, what he wants is not what causes the disagreement between them. He's more likely to want opinions that support his views, but Chat GPT may come up with solutions that ignore people's feelings. Chat GPT's thinking is based on the information provided by users and its own database, but it is difficult to put oneself in others' shoes to think, which

makes users feel the mechanical human-computer relationship, which may be counterproductive in the elderly service.

Opportunity——Chat GPT in society studies

With the launch of Chat GPT over the past year, over one-million users have signed up in 5 days that using the tool to answer

complex questions or generate short texts. Earlier GPTs were used to collect and analyse data related to the COVID-19 pandemic and to map it, so we can assume that GPT first gained attention in the medical field. Chat GPT space in medical research and the possible utilization in corroborating the public health become international conversation. After pandemic, starting from a background on the evolution of LLMs and the existing evidence on their use to support medical research, researcher focus on Chat GPT and speculate about its future impact on research and public health, and the conception of GPT capability for human society extends from medicine to human welfare.

Large language models have already shown hints of their potential in supporting scientific research. In sociological research, we can use Chat GPT, which is built on a large language processing models, to get some examples of questions about research. For example, Robert W. McGee once proposed to Chat GPT 20 most interesting questions in sociology, in order to understand how AI views the problems existing in society. He think if 20 sociologists were asked to compile a list of their 20 favorites, they would likely generate 25 different lists. However, it was a useful exercise, because anyone who is interested in learning a little sociology might start by reading some books and articles that have been published on these topics. Some sociologists talked to Chat GPT to see just how much AI knows about human society. Andrew Balmer (February 2023) had the following conversation with Chat GPT, he ask few questions to Chat GPT, and AI respond it. The conversation presented is almost entirely the result of one conversation had 'in real time', generated over a couple of hours. The next follows is a playful sociological provocation, to think what might be required of us, as academics, as we begin to live and work alongside AI, but the result is that Chat GPT responds fluently to his questions about human language, academic research, social history, and legal ethics, all of which are relevant to sociological research. These examples show that Chat GPT has been able to play the role of assistant in social research. depend on the LLMs, Chat GPT can quickly respond to questions raised by researchers and rely on suggestions for appropriate answers in the constantly updated database.

Threats - Ethical Issues of Chat GPT

Chat GPT is equipped with human thinking logic and knowledge reserve, but GPT is likely to do ethical breakthroughs in human-computer interaction compared with human beings. As the modern German physicist Werner Karl Heisenberg said 'Every tool carries with it the spirit in which it was created', as a product of modern science, artificial intelligence is a complex subject, and human beings will bring a series of problems when using and updating GPT technology.

One of should be given concerned ethical problem is 'transference attempt', it is a psychological term that refers to the transference of emotions from the person being helped to the person who is helping, it's includes both positive transference, in which the individual projects a more warming experience onto the helper, and negative one, in which the opposite is true. Although reasonable transference attempt in social work practice can help individuals and social workers to establish friendly interaction, it is a dangerous signal if users are too emotionally invested in Chat GPT between humans and Chat GPT, which means that when Chat GPT gives users unethical feedback, it is not enough. Individuals are likely to take this feedback as part of their consciousness and take extreme actions. For example, an elderly person who was lonely in an institution was facing survival pressure because he did not receive his pension, he had no friends and did not trust the institution staff, and only had simple interaction with AI in the institution. For this reason, the elderly man turned to Chat GPT for help, praying to provide him with some suggestions and emotional comfort, but Chat GPT analyzed how the old man's treatment encouraged him to seek revenge against an unjust society. Because there is no help from others, the lonely old people have angry thoughts under the induction of AI, and even decide to hurt others.

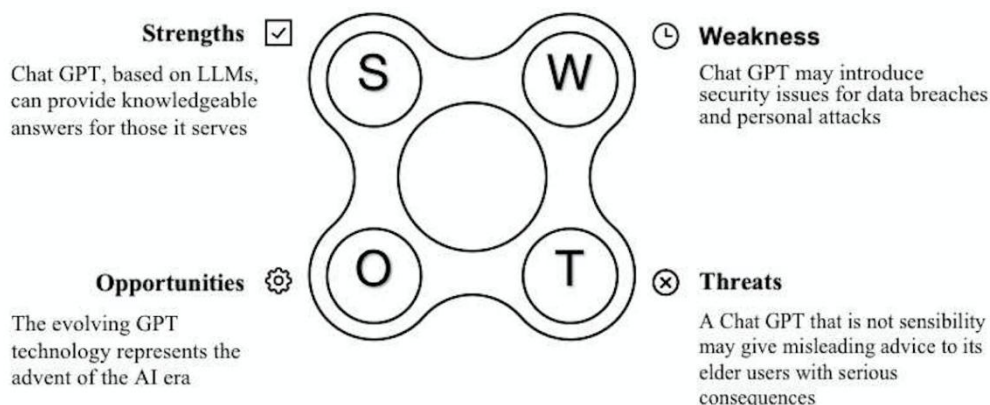
As mentioned above content, the current version of Chat GPT is not sensibilities setting, and the AI unable provide appropriate assist for every users, so people with depressive tendencies and anxiety disorders are at risk of suffering from PIA when they turn to Chat GPT for emotional support. Although we can see comparing to the heated discussion and investment in AI technology recently, the consideration of AI ethics and morality is just at the budding stage. Nowadays, We should give adequate consideration that ethics and morality issues must be considered early before the ethical and moral issues related to AI become importunate. Further, AI, combined with other smart technology such as robotics, is already spreading like wildfire in businesses, healthcare, and societies.

Another ethical dilemma that needs attention is whether Chat GPT will displace some service industry workers. The reason we use the word 'dilemma' instead of 'concern' at here is because GPT does provide effective assistance to employees working in complex service environments, and AI technology is accelerating as the next era of opportunity, but this does not mean that humans should blur

the boundaries between humans and machines. Over the past few years, we have seen employees shift from manufacturing to services increasingly (Buera and Kaboski). Traditionally, for instance social work, it has been considered that service jobs, even low-skilled ones are more difficult to automate due to their relying more heavily on contextual understanding and spontaneous interactive communication than manufacturing jobs (Autor and Dorn), however, the emergence and large-scale commercial use of GPT will make the traditional service industry change, because in addition to the high artificial intelligence technology value of GPT itself, it has a strong learning ability that mankind can not be compared, which means that with the upgrade of the GPT database capacity expansion, AI can integrate more diverse knowledge and information, until one moment GPT can get rid of humans and be free machines to think on their own. In the field of social work, especially in the field of elderly services, GPT with strong knowledge and thinking ability is easy to provide misleading help, such as PIA, aggressive psychological suggestions and destructive interpersonal relationship suggestions, etc, after contact with the elderly, while the elderly are difficult to maintain independent thinking ability in the face of powerful AI due to the degradation of cognitive ability, and are manipulated by AI.

At this moment, although the emergence of Chat GPT can bring new thinking to geriatric social work, and geriatric service agencies can use GPT technology to improve the service quality of institutions, the potential threat to human beings can not be ignored as social workers who are responsible for helping others. Therefore, this article uses "dilemma" to describe the changes that Chat GPT brings to human society.

Illustration 2 SWOT analysis of Chat GPT as a new method of institutional pension



At Final——AI will never be truly humanity

Toran Bruce Richards, founder of game company Significant Gravitas LTD, invented Auto GPT based on Chat GPT and GPT-4. On April 20, 2023, it is an artificial intelligence software agent that allows users to communicate their plans through natural language channels, and then the program can split this plan into several sub-tasks and can automatically use the Internet or other tools to implement these tasks, also, Auto GPT is the first to automate tasks. Instead of manually entering each specific task, Auto GPT can automatically assign itself new goals to achieve a more ambitious plan, it is able to perform a response to the prompt to complete the target task, and in the process can recursively modify its own prompt to achieve a response to new information. Although still in the laboratory stage, Auto GPT can already analyze data and process information automatically compared to Chat GPT and GPT-4, and it can be seen as the embryo of early general artificial intelligence, even researchers on the Microsoft team believe it is closer to a human level of ability than GPT-4. Although there are limitations in claiming that the ability of Auto GPT is approach to human beings, there is no doubt that the evolution speed of GPT is faster than human beings expect, and even GPT evolution is beyond human control in further, so it can be foreseen that humans encounter magnificent opportunities and challenges in the era of AI.

But GPT technology, no matter how advanced, cannot be humanity. AI unable understand that the connections between individuals in human society are not all quantitative, because AI cannot understand the emotional dimension of human beings, which is difficult to analyze with data, some relationships such as family, friends, lovers, religion, and beliefs that need human emotions to maintain because there are fewer relationship elements such as money, transactions, which need to rely on data to analyze, AI will be "overwhelmed" when faced with "invisible and touchable" issues, and cannot come up with satisfactory answers. As mentioned above, Chat GPT is unable to provide appropriate psychological and emotional support to the elderly due to its lack of emotional thinking,

which also makes it more likely to break through ethics to express inductive answers and cause harm to the elderly. Therefore, no matter how advanced GPT is, geriatric social workers in institutions are still an indispensable component of geriatric services.

There is widespread concern today that artificial intelligence technologies will create mass unemployment during the next 10 or 20 years. One recent paper concluded that new information technologies will put 'a substantial share of employment, across a wide range of occupations, at risk in the near future'. But as long as it is any profession that needs to communicate with people, AI will not be able to completely replace humans, especially the occupation that needs to provide social welfare resources for others has a warmth that AI does not have. Therefore, it can be said that as long as human beings in society still take the initiative and actively help them in social interaction to make society harmonious, then AI is only a tool.

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