Meeting Report: Will AI Have Anxiety?

TCCI Hosts First Interdisciplinary Meeting to Explore Integration between AI and Mental Health Research

In a German test in April this year, **GPT-3.5 model showed that it scored high on commonly used questionnaires for testing anxiety** and demonstrated specific decision-making and biased behaviors when prompted in an anxiety-inducing situation. This raised concerns about whether machines can suffer from emotional disorders such as anxiety, just as humans do.

On May 25, the Tianqiao and Chrissy Chen Institute (TCCI) hosted an online discussion called "**AI and the Brain**." Featuring Jianyin Qiu, Physician and Director of the Center for Psychological Counselling and Treatment at the Shanghai Mental Health Center, and Guang Chen, Associate Professor at the School of Artificial Intelligence at Beijing University of Posts and Telecommunications, the event attracted around **70,000 live audience members**.

As a senior psychiatrist and psychotherapist, Jianyin Qiu is excited to see that new AI technology has taken its performance in emotional cognition to the next level. She's very open-minded about and even looking forward to **making AI suffer from anxiety after professional training, so as to help doctors better understand and analyze the symptoms and factors associated with the condition**. This will open up new ideas for finding more and better approaches to prevent and cure the disorder.

On the other hand, Guang Chen, who has already gained much attention by sharing AI-related research and progress on social media for years, believes that such models are based on a large amount of training data to learn and generate text. The models trained in a way similar to fill-in-the-blank and solitaire do not currently possess authentic subjective consciousness, emotions or will. Relying on reinforcement learning from human feedback (RLHF), **AI technology can indeed continuously adapt its answers to meet the expectations of human prompters in accordance with their responses and guidance.** However, he argued that currently, such imitations neither went beyond text learning and generation, nor did they form a stable and consistent 'personality'.

According to Jianyin Qiu, pathological anxiety is a persistent, unspecified state of nervousness or groundless foreboding of apocalypse, jeopardy, or imminent catastrophe, accompanied by significant dysautonomia and motor restlessness. It'll often result in subjective distress or impaired social functioning. Statistics from 2020 released by the National Health Commission of China show that **the prevalence rate of anxiety disorders in China has reached around 5%.**

In recent years, doctors have been proactively experimenting with the application of AI technology in the diagnosis and treatment of mental disorders, including anxiety. As of now, AI has already played a positive role in areas such as suicide prevention. As the scope of human-machine interaction expands from text-based dialogues to integrate facial expressions, body posture, audio, heart rate, body temperature, and even brain-computer interfaces in the future, AI will help further reveal the physiological mechanisms behind human emotions. Technological advancement in the AI field may be translated into accessible products such as a virtual psychotherapist that can assist mental health treatment in residential communities or remote areas with scarce medical resources.

From the perspective of computer science, Guang Chen observed that the ChatGPT boom has encouraged the use of AI in various industries. If 'fine-tuned' by data from the mental health domain, large language models will optimize the AI simulations of human emotions and play the role of mentally disturbed patients for medical research. In addition, it is expected to identify emotional disorders more accurately and efficiently, which can aid doctors in diagnosis and treatment. The scale of relevant data is crucial to the application of AI technology in the field of mental health.

Both Jianyin Qiu and Guang Chen believe that traditionally, doctors' understanding of mental disorders have relied heavily on subjective observation. However, the emerging field of computational psychiatry has been driving the application of tools such as data analytics, machine learning and artificial intelligence in the diagnostic typing, risk warning and prognosis prediction of mental disorders, as well as in formulating clinical diagnosis, treatment, and prevention strategies. Large language models, represented by ChatGPT, will bring even greater breakthroughs in computational psychiatry and further decode psychosis and the human brain for the benefit of humanity.

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This conference is in Chinese ONLY.

Hanqi Yu is a Science Reporter at TCCI. She wrote this meeting report as part of the Tianqiao and Chrissy Chen Institute Science Writers Fellowship which aims to extend the conversation beyond the meeting with the hopes of sparking new ideas and collaborations.