Acupuncture and Herbal Medicine

Traditional Chinese Medicine + artificial intelligence: Wuzhen consensus

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Through three millennia of practice, Traditional Chinese Medicine (TCM) has evolved by integrating knowledge from diverse disciplines, forging a distinct developmental path that respects its ancient foundations while incorporating innovation. TCM has achieved significant breakthroughs in elucidating its theoretical foundations using contemporary scientific methodologies, through the implementation of modernization initiatives over the past three decades. The TCM modernization program has yielded continuous innovations, propelling TCM into a high-quality development stage across both clinical practice and industrial applications. Notably, these advances have enhanced global recognition and adoption of TCM.

Technology reshapes the world and the future. Every major technological breakthrough drives leapfrog development in human society.Amidst the fourth technological revolution catalyzed by artificial intelligence (AI), we soberly recognize that AI is a transformative force driving the development of TCM, presenting both opportunities and challenges. The convergence of AI and TCM is not a mere technical overlay, but rather a generational leap in cognitive paradigms. Through a systematic critical analysis of the technology-enterprise-industry triad, interdisciplinary experts have formulated the following consensus regarding optimal AI implementation in TCM.

Embrace AI

A comprehensive understanding of AI's technological characteristics forms the prerequisite for its judicious application. Although AI technology is in the process of iterative development, it has already demonstrated formidable capacity to propel the new quality productive forces. Looking to the future, AI is also bound to strongly propel the leapfrog development of TCM. This requires the TCM community to strengthen strategic planning in aspects such as ideological understanding, infrastructure development, and talent cultivation.

Advance AI

For AI to generate transformative momentum in TCM, it must be closely aligned with the field's developmental needs. Current general-purpose AI models remain inadequate for addressing the specific needs of TCM. Consequently, it is imperative to enhance top-level design and systemic coordination, to strengthen interdisciplinary innovative research, to explore TCM's empirical knowledge, to focus on data quality and standardisation, and to develop domain-specific models and professional-grade intelligent agents for TCM.

Utilize AI

Real-world adoption serves as the primary engine for sustained innovation and sectoral advancement. It is necessary to enhance research on application AI scenario in TCM. The various fields of TCM, including medical care, education, science and technology, industry, and management, all provide broad scenarios for the application of AI. There is a need to optimize

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collaborative mechanisms, strengthen policy safeguards and project support, promote the linkage of "government-industry- academia- research-application," and cultivate emergent "TCM + AI" ecosystems.

The future is here. "TCM + AI" represents both a present imperative and a strategic priority for future. To fully harness AI's potential for TCM advancement, we must systematically reconcile the relationships between inheritance and innovation, individuality and commonality, development and security. AI will undoubtedly infuse new vitality into TCM's evolution, revitalizing this ancient healing system for contemporary human healthcare. We call upon experts across TCM, AI, bioengineering, industry leaders, and policymakers, to forge synergistic collaborations that will propel the high-quality development of TCM in the intelligent era.

Conflict of interest statement

Boli Zhang is the Editor-in-Chief of this journal, and Junhua Zhang and Shilin Chen are the Editorial Board Member of this journal. The other authors declare no conflict of interest.

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Author contributions

Junhua Zhang contributed to conceptualization, supervision, and writing original draft. Boli Zhang, Shilin Chen, Xiangmei Chen, Yiyu Cheng, Xiaohui Fan, Jingqing Hu, luqi huang, Zongyou Li, Liang Liu, Xiangfei Meng, Zhaopeng Meng, Jinzhou Tian, Qi Wang, Yi Wang, Fengwen Yang, Junning Zhao, Wenke Zheng, Liguo Zhu reached a consensus through discussion and agreed to publish this manuscript.

Ethical approval of studies and informed consent

Not applicable.

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Data availability

None.