

Application of Artificial Intelligence (AI) in Medical Education

Karunathilake, I., de Abrew, A.

Medical education is undergoing a profound global transformation, propelled by technology including Artificial Intelligence (AI). The Southeast Asian region in particular is witnessing a significant evolution in healthcare and education systems. The Asia Pacific Medical Education Conference (APMEC) 2024, scheduled in Colombo, Sri Lanka, with the theme 'AI in Health Professions Education,' promises to be a catalyst for the widespread implementation of AI in Medical Education throughout the Southeast Asian region.

AI is transforming medical education, with focal points on different aspects of education practice. We are witnesses of the shift of medical curricula from the information age to the age of AI (Wartman & Combs, 2018). Technology-driven approaches gained prominence since the late 1990s, significantly impacting the assessment of medical students' clinical skills, knowledge retention, and critical thinking abilities (Kyaw et al., 2019). Simulated patient encounters provided a risk-free environment for students to practice diagnostic and treatment skills. Virtual Reality (VR) and Augmented Reality (AR) applications offered immersive experiences in exploring the human body and surgical procedures, enhancing clinical skills acquisition, diagnostic accuracy, and decision-making proficiency (Densen, 2011).

It is imperative to instill information integration skills from the outset of medical training (Wartman & Combs, 2018). AI-powered analytics

enhance curricula by identifying student performance and dynamically adjusting course content or teaching methods, thereby improving the efficiency and effectiveness of medical education (Paranjape *et al.*, 2019; Li & Qin, 2023). Evolving medical curricula should consider how AI and other technological advances would affect the roles of medical and healthcare practice, and help learners integrate the technological aspects to their professional identities (Masters, 2019; Rampton *et al.*, 2020).

Continuing Medical Education (CME) benefits significantly from AI, ensuring healthcare practitioners stay updated with medical advancements. AI-driven platforms curate personalized learning pathways, recommending courses, articles, and updates based on individual needs, supporting continuous learning and skill development in medicine (Topol, 2019). However, challenges related to AI-based lifelong learning solutions such as data privacy, accreditation standards, and ongoing research optimization persist.

While AI offers numerous benefits to medical education, ethical considerations and challenges such as data privacy, algorithmic bias, and potential overreliance must be carefully addressed. Ongoing training for educators and healthcare professionals is paramount for effective AI integration (Cruess *et al.*, 2019). The humanistic aspects of medicine, such as empathy, pose challenges to the full replacement of human instructors by AI (Cruess *et al.*, 2019). However, in a context where humanistic aspects are declining among medical students and practitioners (Howit *et al.*, 2023), medical educators should consider how they can be emphasised, developed and enhanced within curricula (Masters, 2019).

*Department of Medical Education, Faculty of Medicine,
University of Colombo, Sri Lanka*

*Corresponding author: Prof. Indika Karunathilake
Email: indika@medarc.cmb.ac.lk*



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The future of AI in medical education is promising, with AI algorithms providing real-time feedback during clinical encounters, virtual mentors, and chatbots offering continuous personalised support to learners, making education more accessible and engaging. As the medical field becomes more complex, AI plays a pivotal role in tailoring educational experiences to individual learner needs (Jidkov *et al.*, 2019) as well as preparing the learner to practice in an AI enhanced clinical environment (Masters, 2019). Adaptive learning systems, virtual and augmented reality simulations, and AI algorithms are shaping the future of medical education, emphasizing continuous improvement and ethical considerations (Pizzolla *et al.*, 2023).

In conclusion, the integration of AI into medical education holds great potential for the advancement of healthcare training. While AI-powered technologies can enhance personalized learning experiences and streamline curricular processes, careful attention to ethical concerns and collaboration among stakeholders is essential for responsible and effective harnessing of AI's potential. APMEC 2024 stands as a pivotal moment for Southeast Asian healthcare education, ensuring that future healthcare practitioners receive the highest quality education and training.

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