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DeepSeek's Readiness for Medical Research and Practice: Prospects, Bottlenecks, and Global Regulatory Constraints

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Abstract

DeepSeek, an open-source multimodal Large Language Model (LLM), was launched by the Chinese startup (Hangzhou DeepSeek Artificial Intelligence Basic Technology Research Co., Ltd.). Despite the lack of advanced artificial intelligence (AI) chips, the performance of its milestone version, "DeepSeek-V3," has set an unprecedented benchmark among LLMs, surpassing existing models. Notably, the opportunity to deploy this model in the local system helps build better-performing "distilled versions" suitable for medical research (hypothesis generation, drafting patient consent forms and biostatistical analysis, etc.) and clinical practice (differential diagnosis from symptom clusters, current guideline-based treatment protocol design, interactive medical training, personalized patient education, etc.). However, privacy and security risks, ethical uncertainties, and diversified global AI regulations hinder its potential for sustainable integration into real-world applications.

Keywords: AI regulations; Clinical practice; DeepSeek; Large Language Models; Medical research; Performance; Privacy; Security.

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