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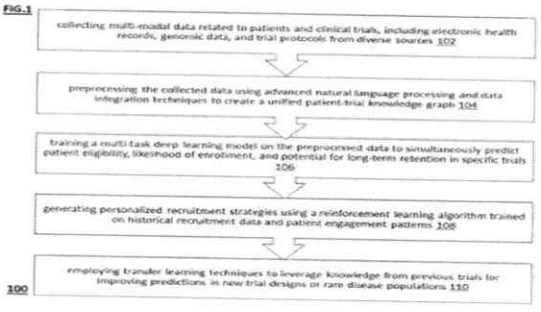
(57) Abstract :
Disclosed herein is an AI-based method (100) for automated patient recruitment for clinical trials, comprising collecting multi-modal data related to patients and clinical trials, including electronic health records, genomic data, and trial protocols from diverse sources. The method (100) also involves preprocessing the collected data using advanced natural language processing and data integration techniques to create a unified patient-trial knowledge graph. The method (100) also involves training a multi-task deep learning model on the preprocessed data to simultaneously predict patient eligibility, likelihood of enrollment, and potential for long-term retention in specific trials. The method (100) also involves generating personalized recruitment strategies using a reinforcement learning algorithm trained on historical recruitment data and patient engagement patterns. The method (100) also involves screening potential participants using the trained multi-task model to identify the most suitable candidates for each trial. The method (100) also involves optimizing outreach and enrollment processes using natural language generation techniques that tailor communication to individual patient preferences and health literacy levels. The method (100) also involves continuously monitoring recruited patients and updating retention predictions using federated learning techniques that preserve patient privacy. The method (100) also involves providing real-time insights and recommendations to trial investigators through an interactive dashboard powered by explainable AI algorithms.



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