

Specifics of medical data mining for diagnosis aid: A survey

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Abstract

Data mining continues to play an important role in medicine; specifically, for the development of diagnosis aid models used in expert and intelligent systems. Although we can find abundant research on this topic, clinicians remain reluctant to use decision support tools. Social pressure explains partly this lukewarm position, but concerns about reliability and credibility are also put forward. To address this reticence, we emphasize the importance of the collaboration between both data miners and clinicians. This survey lays the foundation for such an interaction, by focusing on the specifics of diagnosis aid, and the related data modeling goals. On this regard, we propose an overview on the requirements expected by the clinicians, who are both the experts and the final users. Indeed, we believe that the interaction with clinicians should take place from the very first steps of the process and throughout the development of the predictive models, thus not only at the final validation stage. Actually, against a current research approach quite blindly driven by data, we advocate the need for a new expert-aware approach. This survey paper provides guidelines to contribute to the design of daily helpful diagnosis aid systems.

Keywords: Data mining; Medicine; Diagnosis aid; Explainable Artificial Intelligence (xAI)

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