HEARTFAID project: Integration of knowledge discovery, knowledge representation, and decision support functionality

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Abstract

Heartfaid platform is an excellent example of a real life system in which integration of different artificial intelligence techniques has been necessary. Decision support has been realized by reasoning on a) explicit knowledge represented in the ontological form and b) classification models obtained by knowledge discovery methodology and by interviews of domain experts. The relevant parts of the work has been development of the domain ontology, collection and presentation of procedural knowledge in the form of rules, integration of the descriptive and procedural knowledge, realization of the reasoning system with the included concept of "negation as failure", and implementation of knowledge discovery methodology on different retrospective data sets. In parallel we have been working on the development of the knowledge discovery system for web-based data extraction and analysis. The platform is currently in the evaluation phase. The most significant future work will be improvements in the quality of the knowledge base and knowledge discovery from data collected by the platform during the experimental phase.