

## A New Method for Enhancing Trust to the Virtual Physician

Arash ROSHANPOOR<sup>1</sup>, Reza SAFDARI<sup>1</sup>, Margan GHAZISAEIDI<sup>1</sup>, Mahyar HOSSEINI<sup>2</sup>

1. School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran
2. Tabarestan University, Chaloos, Iran

Lack of appropriate IT infrastructure in developing countries leans telemedicine services towards using store and forward methods. Response time in this method can be too long in some critical situations. Thus, virtual telemedicine has been established in order to overcome this shortcoming. In this approach, some decisions are made by a virtual physician instead of a medical expert. Therefore, trust to virtual physician is extremely important.

Trustworthiness can be measured by two factors: accuracy and comprehensibility. Virtual physician developed by expert system is comprehensive, but it does not have enough accuracy in dealing with unstructured problems. In contrast, it can be developed by data centric decision support systems, which works by having access to explicit and tacit knowledge encompassing in initial instances. Although making decision by tacit knowledge would be concluded to more accurate results, due to its intuitive nature it is not comprehensible.

More balance between accuracy and comprehensibility can be gained through rule induction system. It is used for transforming opaque knowledge to the transparent one. It will be led to more comprehensibility. Moreover, the output rules that keep both explicit and tacit knowledge, can result in making more accurate decisions. Unfortunately, extracted rules are strictly sensitive to the quality of initial instances. Therefore mitigating the effect of initial instances can cause higher trustworthiness.

This paper is aimed to propose a method for extracting rules without need to initial instances. At first, it is an expert system which makes decision based on expert's explicit knowledge. If it fails to propose a solution, decision will be made by a medical expert. By storing the results provided by expert system or medical expert, new version of rules can be extracted to be used in future, free from dependency on initial instances.

### Correspondence:

Arash Roshanpoor

School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran

a\_roshanpoor@yahoo.com

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