
Relevance as Resonance: a new theoretical perspective and a practical utilization in information filtering

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ABSTRACT. — *This paper presents a new adaptive filtering system called RELIEFS. This system is based on neural mechanisms underlying an information selection process. It is inspired from the adaptive resonance theory that proposes a neural explanation of how our brain selects information from its environment. In our approach, resonance, the key idea of this model is used to model the notion of relevance in information retrieval and information filtering. The comparison of resonance with the previous models of relevance shows that resonance capture the very core of most existing models. Moreover, the notion of resonance provides a new angle to look at relevance and opens new theoretical perspectives. The proposed mechanism based on resonance has been directly implemented and tested on the TREC-9 and TREC-11 data. The experimental results show that this approach can result in a high effectiveness in practice.*

KEYWORDS: *Information Retrieval; Relevance; Resonance; Cognitive Science, Information Filtering*

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