

On the Use of Reliability Factors to Reduce Conflict between Information Sources in Dempster-Shafer Theory

Authors : A. Alem, Y. Dahmani, A. Hadjali, A. Boualem

Abstract : Managing the problem of the conflict, either by using the Dempster-Shafer theory, or by the application of the fusion process to push researchers in recent years to find ways to get to make best decisions especially; for information systems, vision, robotic and wireless sensor networks. In this paper we are interested to take account of the conflict in the combination step that took the conflict into account and tries to manage such a way that it does not influence the decision step, the conflict what from reliable sources. According to [1], the conflict lead to erroneous decisions in cases where was with strong degrees between sources of information, if the conflict is more than the maximum of the functions of belief mass $K > \max_{1 \dots n} (m_i(A))$, then the decision becomes impossible. We will demonstrate in this paper that the multiplication of mass functions by coefficients of reliability is a decreasing function; it leads to the reduction of conflict and a good decision. The definition of reliability coefficients accurately and multiply them by the mass functions of each information source to resolve the conflict and allow deciding whether the degree of conflict. The evaluation of this technique is done by a use case; a comparison of the combination of springs with a maximum conflict without, and with reliability coefficients.

Keywords : Dempster-Shafer theory, fusion process, conflict managing, reliability factors, decision

Conference Title : ICITS 2015 : International Conference on Information Technology and Science

Conference Location : Paris, France

Conference Dates : February 23-24, 2015