Value of Information in Decision Making under Uncertainty

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ABSTRACT:

The ability to utilize information to gain advantage is the basis for the United States military's net-centric warfare. Technology has facilitated an exponential increase in data collected, causing serious difficulties distinguishing between helpful information and useless facts. Development of information processing theory and techniques capable of synthesizing large quantities of data into meaningful intelligence is critical to the successful implementation of this style of war fighting.

How do we know which information is valuable? In this talk we discuss the current state of the three principle questions of this research project: how do we distill useful, applicable knowledge from human generated IED reports; how do we determine the costs and benefits to decision makers of gathering more information before proceeding; and how do we set criteria for identifying information with high potential for relevance.

KEYWORDS: value of information, decision making under uncertainty, knowledge representation, naturalistic decision making, Bayesian problem diagnosis, active learning, evolutionary game theory, sequential decision making, formal concept analysis.

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