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A game theoretic approach to value information in data mining. (English) [Zbl 1121.91330](#)

Petrosyan, Leon A. (ed.) et al., ICM millennium lectures on games. Selected papers from the ICM satellite conference on game theory and applications, Qingdao, August 14–17, 2002. Berlin: Springer (ISBN 3-540-00615-X/hbk). 397-416 (2003).

Summary: This paper applies a game-theoretic framework to suggest a fair value for information extracted via data mining and shared between two retail market competitor firms. Neither firm has a dominant position in that market. Two players, each owning a privileged information set (a collection of data) may wish to share or pool that information for mutual benefit. We assume that each player is equipped with a mining technique which extracts information from the data. We first model information sharing as a cooperative game. Then we use results from the cost sharing literature to construct information sharing methods when data can be quantified either as discrete or as continuous variables. In the latter case, we supply a method to obtain decision rules for price shared information.

For the entire collection see [\[Zbl 1074.91004\]](#).

MSC:

- [91A80](#) Applications of game theory
- [91B38](#) Production theory, theory of the firm
- [91A12](#) Cooperative games

Keywords:

[information set](#); [information sharing](#)