Risk Aware Agent for Bidding in Second-Price Sealed-Bid Auctions and variants

This technical report introduces two forms of a risk aware agent for bidding in Simultaneous Second-Price Sealed-Bid Auctions but who's heuristics are general enough to be used in other auction settings. The main idea of the risk aware agent is the computation of a utility score that given predictions of prices over bundles of goods, considers the risk associated with the distribution of prices over each good contained in a given bundle. This utility is a generalization of the classic acquisition problem described in and used by every agent in .

As a baseline, all agents from were implemented to test the efficacy of the proposed risk-aware agent as well as parallel implementations of both point price predicting and distribution predicting algorithms in order to maximize the number of auction simulations executed in minimal time. The implementation language is Python and all code and documentation can be found in the github repository:

<git://github.com/bam593/bmProjects.git>

The contents can be viewed with a web browser at the address:

<https://github.com/bam593/bmProjects/tree/master/courses/fall2011/csci2951>

Risk Aware Agent

Every strategy profile described in assumes the bidding process can be decomposed into two independent modules: