Yahoo! Academic Relations and the Georgia Tech Algorithms and Randomness Center (ARC) Present:

A Kernel-Based Combinatorial Auction

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Time: 1:00pm
Location: MiRC Building Room 102A

In this talk I present an iterative combinatorial auction that offers modularity in the choice of price structure, drawing on ideas from kernel methods and the primal-dual paradigm of auction design. The auction is able to automatically detect, as the rounds progress, whether price expressiveness must be increased to clear the market, and converges to a sparse representation of nonlinear clearing prices. I show that by introducing regularization the auction is able to compute approximate truth-inducing payments in just a single run, in contrast to VCG payments which require as many runs as there are bidders. An empirical evaluation demonstrates the performance gains that can be obtained in allocative efficiency, revenue, and rounds to convergence through various configurations of the auction design against established linear- and bundle-price auctions.

Sébastien Lahaie is a research scientist at Yahoo! Research. He received his PhD in Computer Science from Harvard University in 2007. At Yahoo his research focuses on market design, including sponsored search and display advertising. He is interested in designing market algorithms that scale well and properly anticipate user behavior. Other interests include preference elicitation, reputation systems, and prediction markets.

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