E-Commerce and Decision Technologies: Research Opportunities and Challenges

Ramayya Krishnan
Carnegie Mellon University

Abstract

In this talk, I will motivate the important role that decision technologies play in Electronic Commerce. Decision technologies—algorithmic and model-based methods to assist decision-making—are a contribution of scholars in the Operations Research and Management Science (OR/MS) communities. In conjunction with Information technologies, they power many electronic commerce applications. To provide context and to motivate key research themes addressed in this literature, I will draw on my own work and a recent set of special issues on electronic commerce of the Management Science journal that I co-edited. In particular, I propose to highlight work in a set of diverse e-commerce topics such as shopbot design, evaluation of information revelation policies and incremental bidding mechanisms in e-markets, peer-to-peer infrastructure design for digital goods and privacy. In each of these illustrative examples, I will sketch methodological approaches (e.g., markov decision processes, game theory, mathematical programming, statistical analysis) underlying the decision technologies and discuss opportunities for further work. The objective is to engender further interest in research opportunities at the intersection of computer science and OR/MS.

Ramayya Krishnan is the W. W. Cooper and Ruth F. Cooper Professor of Information Systems at Carnegie Mellon University. He has a B. Tech in Mechanical Engineering from the Indian Institute of Technology, Madras, an M.S. in Industrial Engineering and Operations Research, and a Ph.D. in Management Science and Information Systems from the University of Texas at Austin. He is faculty chair of the university’s Masters of Information Systems Management (www.mism.cmu.edu) program. Professor Krishnan’s research interests lie in problems that arise at the interface of technology, business and policy aspects of Internet-enabled systems. His current research projects investigate the emergence of virtual communities in peer-to-peer networks, study intermediation in e-markets, and the design of policies that take into account the competing needs of promoting data access and protecting privacy. His research on these topics is supported by the National Science Foundation, the Army Research Office, ARPA, and other private foundations.