

## Sarit Kraus

Automated negotiation Part 1: Coordination and cooperation of automated agents  
Monday morning, 16th August, 2010, Room 6.2.53

Part 2: Automated agents that interact proficiently with people  
Monday afternoon, 16th August, 2010, Room 6.2.53

Each part will be a standalone.

Negotiation is an important mechanism for resolving conflicts between agents. In this tutorial we will present the key approaches for designing automated negotiators. These include game theoretic and heuristics and their integration with machine learning methods. Game theory provides an elegant mathematical framework for modeling and analyzing strategic interaction between self-interested fully rational agents. However, implementation of these models for agents that need to interact with people is problematic since the latter are rationally bounded.

In Part 1 of the tutorial, we will first provide a short introduction on game theory. Then we will present the model of alternating offers and its applications in multi-agent settings. We will also discuss auction mechanisms for multi-agent applications.

In Part 2 we will survey methods for automated negotiators interacting with people with focus on general opponent modeling for improving agent-human interactions. Short bio

Sarit Kraus (Ph.D. Computer Science, Hebrew University, 1989) is a Professor of Computer Science at Bar-Ilan University and Adjunct Professor at the Institute for Advanced Computer Studies, University of Maryland (UMIACS). Her research interests are in multi-agent systems, specially negotiation and cooperation among agents, open agent environments, learning and information agents, personalization and optimization of complex systems. In 1995 Kraus was awarded the IJCAI Computers and Thought Award (the premier award for a young AI scientist). In 2001 she was awarded the IBM Faculty Partnership Award and in 2002 she was elected as AAAI fellow. In 2007 she was awarded the ACM SIGART Agents Research award and her paper with Prof. Barbara Grosz was a winner of the IFAAMAS influential paper award (joint winner). In 2008 she was elected as ECCAI fellow. She has published over 250 papers in leading journals and major conferences and is an author of the book *Strategic Negotiation in Multiagent Environments* (2001) and a co-author of a book on *Heterogeneous Active Agents* (2000); both published in MIT Press. She served as an associate editor of the *Artificial Intelligence* journal during 2004- 2008 and since 2002 she is the Senior Associate Editor of the *Annals of Mathematics and Artificial Intelligence*.