

Guest editorial

Special Issue on Advances in Agent-mediated Automated Negotiations

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Complex Automated Negotiations have been studied very widely and becoming an emerging area in the field of Autonomous Agents and Multi-Agent Systems. In general, a negotiation could be complex because many factors need to be considered to specify such a negotiation. These factors may include a number of negotiation issues, dependency of issues, representation of utilities, negotiation protocols, negotiation forms (bilateral or multi-party), time constraints, etc. In complex situations, agents are not always selfish but rather cooperative in order to achieve realistic and win-win agreements. In a complex negotiation, there could be multiple issues that are interdependent. Thus, agent's utilities will become more complex than simple utility functions. Furthermore, negotiation forms and protocols could be different between bilateral situations and multi-party situations. To realize such a complex automated negotiation, we have to incorporate strong agent technologies including search, CSP, graphical utility models, Bays nets, auctions, utility graphs, prediction and learning methods.

This special issue brings together a collection of papers addressing issues of designing both negotiation mechanisms and scheduling and control strategies for multi-agent systems into the same forum. This special issue includes 7 papers. Each paper was reviewed by 3 experts in the area. Some of the issues addressed in these 7 papers include:

- An approach of analysing sequential auctions for budget constrained bidders, for multiple heterogeneous common value objects.
- A collaborativeness metric of a negotiation scenario to formalize the intuition of collaborative scenarios versus competitive scenarios.
- Studies and design of bidding strategies in sequential auctions for risk averse agents.
- An approach of multi-round representative based protocols to utilize agents' private information in complex negotiation with interdependent multiple issues.
- An approach to approximate the complex utility space by eliminating issue dependencies in complex negotiation domains
- A fuzzy constraint based model for automated purchase negotiations.
- A coloured Petri Net based approach for future state prediction in agent scheduling.

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