

Preface

Electronic commerce and the design of automated trading agents have been at the core of research interests in the multi-agent systems (MAS) and artificial intelligence (AI) communities since the beginning of these fields. In the past decade, the number of areas in which a form of automated trading is employed has steadily increased. These range from bidding in keyword auctions in online advertising, to algorithmic trading in financial markets and energy acquisition in decentralized electricity markets.

In order to design mechanisms and strategies for such automated marketplaces, researchers from the MAS and AI communities have used techniques from a variety of disciplines, ranging from game theory and micro-economics to machine learning and computational intelligence. The automated Trading Agents Competition (TAC) has served to supply the community with a number of benchmark problems and trading platforms, in which different strategies can be independently tested and validated.

In this volume, we group together revised and selected papers from three leading international workshops in this area: the Agent-Mediated Electronic Commerce (AMEC 2013) workshop, colocated with the AAMAS 2013 conference in St. Paul, Minnesota; the Trading Agents Design and Analysis (TADA 2013) workshop, colocated with the AAAI 2013 conference in Bellevue, Washington, and the joint AMEC/TADA 2014 workshop, colocated with the AAMAS 2014 conference in Paris, France. All papers included in this volume have been thoroughly peer-reviewed, and represent updated versions of the papers presented at the three workshops, revised by the authors in line with reviewers' comments.

Given the breadth of research topics in this field, the range of topics addressed in these papers is correspondingly broad. These include the study of theoretical issues related to the design of interaction protocols and marketplaces; the design and analysis of automated trading strategies used by individual agents; the deployment of such strategies, in times as part of an entry to the Trading Agent Competition (TAC).

Four of the papers deal with acquisition strategies and tariff design in energy markets, an area that has received increasing attention within the AMEC/TADA research community. Babic and Podobnik present an overview and analysis of the results of the 2014 PowerTAC. Liefers et al. present the energy broker which they developed, as part of their successful runner-up strategy submitted in the 2013 and 2014 editions of PowerTAC. Ntagka et al. propose a different approach to designing tariffs in the energy market, using particle swarm optimization techniques, while Yasir et al. present an intelligent learning mechanism for trading strategies for local energy distribution. Also in TAC-related work, Toshniwal et al. consider the detection of opportunistic bids in the Trading Agent Competition, but using the supply chain management game of TAC.

Other papers consider the problem of designing negotiation protocols and strategies. Fatima and Wooldridge study how the agenda influences the outcome of sequential, multi-issue negotiations, and discuss how to set the optimal agenda in such settings.

Di Napoli et al. propose a protocol for market-based negotiation for QoS-aware service selection. Moreover, a range of papers consider novel market settings, where agent-based and automated bidding techniques can be applied. deCastro and Parsons propose a model in which securities markets are modeled as a society of heterogeneous trading agents. Jumadinova and Dasgupta model distributed prediction markets through weighted Bayesian graphical games, while Greenwald et al. provide an empirical analysis of profits in QuiBids in penny auctions. Hafizoglu and Sen consider the problem of fairness and incentives of profit sharing schemes in group buying. Finally, Miyashita investigate the design of an online double auction for perishable goods, motivated by the practical problem of designing fresh fish markets in Japan.

We hope that the papers included will offer the reader an insight into the state of the art in research on electronic markets, performed in the multi-agent systems and artificial intelligence communities in the past 2 years.

To conclude, we would like to thank everyone who contributed to this volume, including the paper authors, the members of the program committees of the three workshops, who provided comprehensive reviews to ensure the high quality of the selected papers, and the participants themselves, who engaged in lively discussions during the workshops.

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Agent-Mediated Electronic Commerce. Designing
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