Seminar: Algorithmic Game Theory / Advanced Topics in Economics and Computation

- Kick-off Meeting -

Prof. Dr. Peter Widmayer
Prof Dr. Sven Seuken
18.2.2015

Agenda

- Goals of the Seminar
- Some Logistics
- Quick Presentation of Topics/Papers
- Next Steps
- Questions

Goals of the Seminar

- Get a deep understanding of an advanced topic/paper in algorithmic game theory/economics and computation
- Focus on one technical paper (not an overview of ten papers!)
- Give a talk on this paper + lead discussion
- Act as a buddy to another student (also read paper, give feedback)

Prerequisites

- Successful completion of one of the following courses:
  - Algorithmic Game Theory (Widmayer)
  - Economics and Computation (Seuken)
- If you have not successfully completed one of these courses, but believe to have the necessary knowledge (in algorithmic game theory, mechanism design, social choice theory, etc.), please talk to one of the instructors after class to get explicit permission!

Attendance Limitation

- We will present 16 topics
- But total seminar attendance will be limited to 12
- If more than 12 students want to take the seminar, we will choose randomly among all students, maintaining a balance among students from ETH and UZH

Preferences on Topics and Buddies

- We will put the list of topics online later today
- You will get the chance to submit your preferences on topics (and on topics for which you want to be a buddy)
- We will use RSD to assign 1) topics and 2) buddies

List of Topics/Papers

#	Topic	Paper
1	Large-scale combinatorial auctions	A. Goetzendorff, M. Bichler, B. Day, and P. Shabalin. Compact bid languages and core-pricing in large multi-item auctions. Management Science, forthcoming, 2014. http://dss.in.tum.de/files/bichler-research/2014_goetzendorff_compact.pdf
2	Deferred Acceptance Auctions and Radio Spectrum Reallocation	Deferred Acceptance Auctions and Radio Spectrum Reallocation, Milgrom and Segal, http://www.milgrom.net/downloads/heuristic.pdf
3	Faster Algorithms for Combinatorial Auctions	A Faster Core Constraint Generation Algorithm for Combinatorial Auctions, Bünz, Seuken, Lubin, 2015. http://www.ifi.uzh.ch/ce/publications/A_Faster_CCG_Algorithm_Buenz_et_al_AAAI_2015.pdf
4	Gaming in Combinatorial Clock Auctions	Gaming in Combinatorial Clock Auctions, http://homepage.univie.ac.at/maarten.janssen/working%20papers/Gaming%20in%20CCA-V2-Final-2.pdf
5	Manipulation-Resistant Recommender Systems	The Influence Limiter: Provably Manipulation-Resistant Recommender Systems, http://www-personal.umich.edu/~rsami/papers/recsys.pdf
6	Dynamic Mechanism Design	An Ironing-Based Approach to Adaptive Online Mechanism Design in Single-Valued Domains, http://www.eecs.harvard.edu/econcs/pubs/aaai07.pdf
7	Computational Complexity and Financial Markets	Computational Complexity and Information Asymmetry in Financial Products. Sanjeev Arora, Boaz Barak and Markus Brunnermeier. Working Paper. 2012, http://www.cs.princeton.edu/~rongge/derivativelatest.pdf
8	Complexity of Manipulation in Matching	H. Aziz, S. Gaspers, N. Mattei, S. Mackenzie, N. Narodytska, T. Walsh. Manipulating the Probabilistic Serial Rule. AAMAS 2015., http://arxiv.org/pdf/1501.06626v1
9	Combinatorial Matching Markets	The Multi-Unit Assignment Problem: Theory and Evidence from Course Allocation at Harvard
10	The Efficient Frontier in Social Choice	The Efficient Frontier in Randomized Social Choice, Timo Mennle and Sven Seuken, Working Paper, 2015.
11	The Price of Anarchy in Network Creation Games	http://www-math.mit.edu/~hajiagha/networkcreation.pdf
12	Efficient computation of approximate pure Nash equilibria in congestion games	http://arxiv.org/pdf/1104.2690v2.pdf
13	New algorithms for approximate Nash equilibria in bimatrix games	http://www.sciencedirect.com/science/article/pii/S0304397509006719
14	The Price of Stability for Undirected Broadcast Network Design with Fair Cost Allocation Is Constant	http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=6686200&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxpls%2Fabs_all.jsp%3Farnumber%3D6686200
15	The Performance of Deferred-Acceptance Auctions	PAUL DÜTTING, VASILIS GKATZELIS, TIM ROUGHGARDEN,
16	Optimal Coordination Mechanisms for Multi-job Scheduling Games	Fidaa Abed, Jos´e R. Correa, and Chien-Chung Huang

Next Steps (1/4): Assignment of Topics

- We will put these slides online on my teaching website within next 2 hours: http://www.ifi.uzh.ch/ce/teaching/spring2015/seminar.html
- Until today (18.2.2015), 23:59, send an email to Steffen Schuldenzucker (schuldenzucker@ifi.uzh.ch) containing the following information:
  - Name
  - Matrikelnummer (ETH/UZH)
  - Completion of AGT/E&C course (when?) or explicit consent of instructor?
  - Ordinal preferences for topics, with indifferences (e.g., 3a, 3b, 3c):
    - 1) Topic A
    - 2) Topic B
    - 3a) Topic C
    - 3b) Topic D
    - 3c) Topic E
    - 4) Topic F
- Tomorrow, we will use the Random Serial Dictatorship (RSD) Mechanism to assign topics to students
- We will send you your assigned topic, + the list of all assigned topics

Next Steps (2/4): Assignment of Buddies

- Within 24h, you need to confirm your participation in the seminar!
- Additionally, you need to send us your buddy topic preferences from among the list of all topics that were given out, using the same format as before.
- We will again use RSD to assign buddies, and send you your buddy topic assignment
- All assignments will also say who is the advisor for that topic (Prof. Widmayer, Prof. Seuken, or a PhD student)

Next Steps (3/4): Preparing a Manuscript + Talk

- Read your paper (and related papers to understand the main paper)
- Write manuscript (~10 pages), like a „speaker‘s manuscript“, i.e., how would you present it during the seminar (e.g., motivation, formal model, selected most interesting proofs)
- Send your manuscript to your buddy + to the advisor (Prof. Widmayer, Prof. Seuken, PhD student) >=2 weeks before your talk
- Meet with advisor + buddy ~1 week before your talk to receive feedback
- Meet with buddy to do practice talk and receive additional feedback on manuscript and practice talk
- Give talk (20min) + lead discussion (10min), either on (will be assigned by us):
  - Saturday, 2.5.2015, 9:30 - ca. 13:30: location: ETH
  - Saturday, 16.5.2015, 9:30 - ca. 13:30: location: UZH
- Participate actively in the discussions of the other talks
- Until end of semester: submit final version of manuscript

Next Steps (4/4): Acting as a Buddy

- Read the paper of your buddy
- Read the manuscript of your buddy before the meeting with the advisor
- In the meeting, show that you have a good understanding of the paper and the manuscript, and give feedback on the manuscript!
- Later, meet again with buddy, give more detailed feedback on manuscript, attend practice talk, give detailed feedback on practice talk, and on slides, etc.
- Be active in the discussion part of the seminar

Grading will be based on

- Presentation
- Manuscript
- Acting as a buddy
- Seminar participation

Questions?