

# Seminar on AGT and Learning (Winter 2020-21)

Hi and welcome to the seminar! The seminar will take place every Monday 12:30-14:20.

[Zoom link](#); Meeting ID: 913 3338 2513; Passcode: 939245; Be prepared to turn on your video please.

Announcements:

- Papers and peer reviewers are assigned.
- If there are multiple versions of a paper, try to read the most up-to-date one.

Course requirements:

- Attend at least 11 out of 12 presentations. [Attendance sheet](#).
- Each week, write a mini-review on that week's paper. Submit in Hebrew before the beginning of class (Monday 12:30PM) using this Google form: <https://forms.gle/8BPsrhiRecnTArMr9>.
- Give a 40-minute talk (if you're part of a team of 2) or a 30-minute talk (if you're part of a team of 3).
- Serve once as a "peer reviewer", providing private feedback to one of the speakers.
- Bonus points for helpful participation in class.

Presentation requirements (grading criteria) that apply to each presenter team:

- Situate the paper you're presenting within the literature. In particular, include a 1-2 slide survey of follow-up work.
- Pick 1-2 technical results or proof techniques and explain the technical ideas behind them. You may also pick a technical topic that comes up in the paper (for example, VC dimension, Gittins index, etc.) and teach it to the class.
- Critical thinking: Come up with directions for future research or identify weaknesses in the paper.
- Practice your presentation with your co-presenter(s) to make sure it is clear and engaging.

Date	Paper	Topic	Presenters	Peer Reviewers
#1 Oct 26	-	Introduction	Inbal	-
#2 Nov 2	P. Dhangwatnotai, T. Roughgarden and Q. Yan. <b>Revenue Maximization with a Single Sample</b> . Games and Economic Behavior 2015.	Mechanism design via learning: mechanisms robust to distributional knowledge	1. Amit Eisinger 2. Meital Bojan	1. Sigal Notovich 2. Idan Shenfeld
#3 Nov 9	R. Cole and T. Roughgarden. <b>The Sample Complexity of Revenue Maximization</b> . STOC'14.	Mechanism design via learning: statistical learning theory	1. Yotam Gafni 2. Rotem Aviv 3. Nir Bachrach	1. Tomer Voronov 2. Gregory (Grisha) Vaksman 3. Shai Porath

#4 Nov 16	<del>Jamie Morgenstern and Tim Roughgarden. The Pseudo-Dimension of Nearly-Optimal Auctions. NIPS'15.</del>	Office hours <del>Mechanism</del> design via learning: statistical learning theory	Inbal	-
#5 Nov 23	J. Kleinberg, S. Mullainathan and M. Raghavan. <b>Inherent Trade-Offs in the Fair Determination of Risk Scores.</b> ITCS'17.	Learning with ethical considerations: fairness, classification	1. Eyal Rozenberg 2. Gregory (Grisha) Vaksman	1. Ben Warnick 2. Yotam Gafni
#6 Nov 30	M. Hardt, N. Megiddo, C. Papadimitriou and M. Wootters. <b>Strategic Classification.</b> ITCS'16.	Learning with strategic agents: classification	1. Tomer Voronov 2. Sagi Levanon 3. Adir Cohen	1. Meital Bojan 2. Gilad Chase 3. Adi Mesika
#7 Dec 7	P. Frazier and D. Kempe and J. Kleinberg and R. Kleinberg. <b>Incentivizing Exploration.</b> EC'14 (best paper award).	Learning with strategic agents: incentivized exploration, multi-armed bandits	1. Idan Shenfeld 2. Ben Warnick 3. Roy Bernea	1. Roei Tzur 2. Nir Bachrach 3. Adir Cohen
Dec 14	No class			
#8 Dec 21	Ilan Kremer, Yishay Mansour, Motty Perry. <b>Implementing the "Wisdom of the Crowd".</b> EC'13.	Learning with strategic agents: incentivized exploration, multi-armed bandits	1. Adina Paley 2. Akiva Block 3. Sigal Notovich	1. Amit Eisinger 2. Eyal Rozenberg 3. Michael Zaloziecki
#9 Dec 28	Y. Cai, C. Daskalakis and C. Papadimitriou. <b>Optimum Statistical Estimation with Strategic Data Source.</b> COLT'15.	Learning with strategic agents: estimation, incentivized data	1. Adi Mesika 2. Michael Zaloziecki	1. Alon Libling 2. Sagi Levanon
#10 Jan 4	Denis Nekipelov, Vasilis Syrgkanis and Eva Tardos. <b>Econometrics for Learning Agents.</b> EC'15 (best paper award).	Learning with strategic agents: econometrics, equilibrium,	1. Tomer Tsachor 2. Ori Mazon	1. Aviv Shrem 2. Alon Libling

		no-regret learning agents		
<b>#11</b> <b>Jan 11</b>	Mark Braverman, Jieming Mao, Jon Schneider, Matthew Weinberg. <b>Selling to a No-Regret Buyer</b> . EC'18 (best paper award).	Mechanism design with no-regret learning agents	1. Gilad Chase 2. Amani Shhadi	1. Roy Bernea 2. Adina Paley
<b>#12</b> <b>Jan 18</b>	Paul Dütting, Zhe Feng, Harikrishna Narasimhan, David C. Parkes. <b>Optimal Auctions through Deep Learning</b> . ICML'19.	Mechanism design via deep learning	1. Yarin Bar 2. Alon Libling	1. Akiva Block 2. Matan Mandel
<b>#13</b> <b>Jan 25</b>	E. Calvano and G. Calzolari and V. Denicolo and S. Pastorello. <b>Artificial Intelligence, Algorithmic Pricing and Collusion</b> . Forthcoming in American Economic Review 2020.	Learning to price	1. Roei Tzur 2. Aviv Shrem 3. Matan Mandel	1. Ori Mazor 2. Amani Shhadi 3. Tomer Tsachor

## Materials on AGT and learning

Courses, tutorials, talks etc.:

- MIT Spring 2019 course: <http://vsyrgkanis.com/6853sp19/>
- TAU Fall 2018 course: <http://advanced-topics-ml-agt-tau-2018.wikidot.com/>
- UVA Fall 2019 course: <https://www.haifeng-xu.com/cs6501fa19/index.htm>
- Papadimitriou's talk at the Simons Institute:  
<https://simons.berkeley.edu/talks/christos-papadimitriou-2015-11-20>
- [EC'17 tutorial](#)
- [EC'16 tutorial](#)
- Dagstuhl seminar: <https://www.dagstuhl.de/de/programm/kalender/semhp/?semnr=17251>
- EC'19 workshop: [Learning in Presence of Strategic Behavior](#)

Books:

1. [Twenty Lectures on Algorithmic Game Theory](#), by Tim Roughgarden, Cambridge University Press, 2016.
2. [Mechanism Design and Approximation](#), by Jason Hartline.
3. [Algorithmic Game Theory](#), by Noam Nisan, Tim Roughgarden, Eva Tardos, Vijay V. Vazirani (eds.), Cambridge University Press, 2007.
4. [Online Learning and Online Convex Optimization](#), by Shai Shalev-Shwartz, Foundations and Trends in Machine Learning, 2011.

5. [Understanding Machine Learning: From Theory to Algorithms](#), by Shai Shalev-Shwartz and Shai Ben-David, Cambridge University Press, 2014.
6. [Prediction, Learning, and Games](#), by N. Cesa-Bianchi and G. Lugosi, Cambridge University Press, 2006.
7. [Introduction to Multi-Armed Bandits](#), by A. Slivkins, Foundations and Trends in Machine Learning, 2019.

See also on [my homepage](#) under “Recommended links for students” the links “How to read a paper” and “Tim Roughgarden's AGT courses”.