

Graduate Summer School: Games and Contracts for Cyber-Physical Security

Tuesday July 7, 2015

- 8:00–8:50 *Check-In/Light Breakfast (Hosted by IPAM)*
- 8:50–9:00 *Welcome and Opening Remarks*
- 9:00–9:45 **Adam Wierman** (California Institute of Technology)
Networked Markets: Intermediaries & Market Power (1)
- 10:00–10:30 *Break*
- 10:30–11:45 **Adam Wierman** (California Institute of Technology)
Networked Markets: Intermediaries & Market Power (2)
- 12:00–2:00 *Lunch (on your own)*
- 2:00–2:45 **Patrick Loiseau** (Eurecom)
Review of resource allocation games
- 3:00–3:30 *Break*
- 3:30–4:15 **Patrick Loiseau** (Eurecom)
Learning with strategic agents: from adversarial learning to game-theoretic statistics
- 4:30–6:00 *Reception (Location: IPAM Lobby)*

Wednesday July 8, 2015

- 8:00–9:00 *Continental Breakfast*
- 9:00–9:45 **Saurabh Amin** (Massachusetts Institute of Technology)
Effect of Information in Congestion Games
- 10:00–10:30 *Break*
- 10:30–11:00 *Introductions (1)*
- 11:00–11:45 **John Musacchio** (University of California, Santa Cruz (UC Santa Cruz))
Adversarial Classification Games
- 12:00–2:00 *Lunch (on your own)*
- 2:00–2:45 **Galina Schwartz** (University of California, Berkeley (UC Berkeley))
From Arrow, Nash and Coase to a non-Coasian worldview (1)
- 3:00–3:30 *Introductions (2)*
- 3:30–4:00 *Break*

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4:00–4:45 **Galina Schwartz** (University of California, Berkeley (UC Berkeley))
From Arrow, Nash and Coase to a non-Coasian worldview (2)

Thursday July 9, 2015

8:00–9:00 *Continental Breakfast*

9:00–9:45 **Ramesh Johari** (Stanford University)
An Introduction to Mean Field Models of Dynamic Games

10:00–10:30 *Break*

10:30–11:45 **Galina Schwartz** (University of California, Berkeley (UC Berkeley))
From Arrow, Nash and Coase to a non-Coasian worldview (3)

12:00–2:00 *Lunch (on your own)*

2:00–2:45 **Ramesh Johari** (Stanford University)
Mean Field Models of Dynamic Markets: Examples and Applications

3:00–3:30 *Break*

3:30–4:15 **Ramesh Johari** (Stanford University)
Dynamic Pricing in Ride-Sharing Platforms

Friday July 10, 2015

8:00–9:00 *Continental Breakfast*

9:00–9:45 **Cedric Langbort** (University of Illinois at Urbana-Champaign)
Cheap talk theoretic tools for distributed sensing in the presence of strategic sensors (1)

10:00–10:30 *Break*

10:30–11:15 **Bud Mishra** (Courant Institute of Mathematical Sciences)
From Spamhaus to our House: Two lectures on Signals and Security (1)

11:30–12:15 **Bud Mishra** (Courant Institute of Mathematical Sciences)
From Spamhaus to our House: Two lectures on Signals and Security (2)

12:30 *Lunch (on your own)*

Monday July 13, 2015

- 8:00–8:50 *Continental Breakfast*
- 8:50–9:00 *Introduction to Week 2*
- 9:00–9:45 **Ehud Kalai** (Northwestern University)
Learning, Predictability and Stability in Big Games (1)
- 10:00–10:30 *Break*
- 10:30–11:45 **Ehud Kalai** (Northwestern University)
Learning, Predictability and Stability in Big Games (2)
- 12:00–2:00 *Lunch (on your own)*
- 2:00–2:45 **Muhamet Yildiz** (Massachusetts Institute of Technology)
Global games and higher-order uncertainty (1)
- 3:00–3:30 *Break*
- 3:30–4:15 **Muhamet Yildiz** (Massachusetts Institute of Technology)
Global games and higher-order uncertainty (2)

Tuesday July 14, 2015

- 8:00–9:00 *Continental Breakfast*
- 9:00–9:45 **Muhamet Yildiz** (Massachusetts Institute of Technology)
Common-belief foundations of global games
- 10:00–10:30 *Break*
- 10:30–11:45 **Eran Shmaya** (Northwestern University)
Learning, Predictability and Stability in Big Games (3)
- 12:00–2:00 *Lunch (on your own)*
- 2:00–2:45 **Rakesh Vohra** (University of Pennsylvania)
Matching Problems: Cardinal and Ordinal (1)
- 3:00–3:30 *Break*
- 3:30–4:15 **Rakesh Vohra** (University of Pennsylvania)
Matching Problems: Cardinal and Ordinal (2)

Wednesday July 15, 2015

- 8:00–9:00 *Continental Breakfast*
- 9:00–9:45 **Rakesh Vohra** (University of Pennsylvania)
Matching Problems: Cardinal and Ordinal (3)
- 10:00–10:30 *Break*
- 10:30–11:45 **Rakesh Vohra** (University of Pennsylvania)
Matching Problems: Cardinal and Ordinal (4)
- 12:00–2:00 *Lunch (on your own)*
- 2:00–2:45 **Itai Ashlagi** (Massachusetts Institute of Technology)
Matching and Barter Exchange (1)
- 3:00–3:30 *Break*
- 3:30–4:15 **Itai Ashlagi** (Massachusetts Institute of Technology)
Matching and Barter Exchange (2)

Thursday July 16, 2015

- 8:00–9:00 *Continental Breakfast*
- 9:00–10:15 **Galina Schwartz** (University of California, Berkeley (UC Berkeley))
Cyber-Insurance for Large Scale Interdependent Network
- 10:30–11:00 *Break*
- 11:00–11:45 **Galina Schwartz** (University of California, Berkeley (UC Berkeley))
Platform markets and modeling network neutrality via platforms
- 12:00–2:00 *Lunch (on your own)*
- 2:00–3:00 **Mihaela van der Schaar** (University of California, Los Angeles (UCLA))
How networks form? Endogenous network formation games
- 3:15–3:45 *Break*
- 3:45–4:45 **Mihaela van der Schaar** (University of California, Los Angeles (UCLA))
Social norms and incentives in repeated games

Friday July 17, 2015

- 8:00–9:00 *Continental Breakfast*
- 9:00–9:45 **Kostas Bimpikis** (Stanford University)
Games on Networks
- 10:00–10:30 *Break*
- 10:30–11:45 **Kostas Bimpikis** (Stanford University)
Dynamic Information Provision
- 12:00–2:00 *Lunch (on your own)*
- 2:00–2:45 **William Zame** (University of California, Los Angeles (UCLA))
Endogenous Matching and Applications to the On-Demand Economy (1)
- 3:00–3:30 *Break*
- 3:30–4:15 **William Zame** (University of California, Los Angeles (UCLA))
Endogenous Matching and Applications to the On-Demand Economy (2)

Monday July 20, 2015

- 8:00–8:50 *Continental Breakfast*
- 8:50–9:00 *Introduction to Week 3*
- 9:00–9:45 **Stephen Wright** (University of Wisconsin-Madison)
Optimization Methods for Machine Learning
- 10:00–10:30 *Break*
- 10:30–11:15 **Michael Schwarz** (Google Inc.)
Auctions and market design (1)
- 11:15–11:30 *Break*
- 11:30–12:15 **Michael Schwarz** (Google Inc.)
Auctions and market design (2)
- 12:30–2:00 *Lunch (on your own)*
- 2:00–3:15 **Michael Ostrovsky** (Stanford University)
Information aggregation in prediction markets
- 3:15–3:30 *Break*
- 3:30–4:15 **Srinivas Shakkottai** (Texas A&M University - College Station)
Mean Field Games in Societal Networks (1)
- 4:15–4:30 *Break*

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4:30–5:15 **Srinivas Shakkottai** (Texas A&M University - College Station)
Mean Field Games in Societal Networks (2)

Tuesday July 21, 2015

8:00–9:00 *Continental Breakfast*

9:00–9:45 **Tamer Basar** (University of Illinois at Urbana-Champaign)
Game-Theoretic Framework for Network Resilience, Reliability and Security (1)

10:00–10:45 **Tamer Basar** (University of Illinois at Urbana-Champaign)
Game-Theoretic Framework for Network Resilience, Reliability and Security (2)

11:00–11:30 *Break*

11:30–12:15 **Stephen Wright** (University of Wisconsin-Madison)
Optimization in Electrical Power Grid Monitoring and Analysis

12:30–2:00 *Lunch (on your own)*

2:00–2:45 **George Cybenko** (Dartmouth College)
Adversarial and Adaptive Cyber Defenses (1)

3:00–3:30 *Break*

3:30–4:15 **George Cybenko** (Dartmouth College)
Adversarial and Adaptive Cyber Defenses (2)

4:30–5:15 **Alexander Teytelboym** (University of Oxford)
Cascades in Networks (1)

Wednesday July 22, 2015

8:00–9:00 *Continental Breakfast*

9:00–9:45 **Alexander Teytelboym** (University of Oxford)
Cascades in Networks (2)

10:00–10:30 *Break*

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- 10:30–11:45 **Alexander Teytelboym** (University of Oxford)
TBA
- 12:00–2:00 *Lunch (on your own)*
- 2:00–2:45 **Cedric Langbort** (University of Illinois at Urbana-Champaign)
Cheap talk theoretic tools for distributed sensing in the presence of strategic sensors (2)
- 3:00–3:30 *Break*
- 3:30–4:15 **George Cybenko** (Dartmouth College)
Adversarial and Adaptive Cyber Defenses (3)
- 4:30–5:15 **Ian Hiskens** (University of Michigan)
A Decentralized Scheme for Efficient Coordination of Large-Scale PEV Charging

Thursday July 23, 2015

- 8:00–9:00 *Continental Breakfast*
- 9:00–9:45 **Milind Tambe** (University of Southern California (USC))
Towards a Science of Security Games: Key Algorithmic Principles, Deployed Applications and Research Challenges
- 10:00–10:30 *Break*
- 10:30–11:45 **Jeff Shamma** (King Abdullah Univ. of Science and Technology (KAUST))
Asymmetric information security games
- 12:00–2:00 *Lunch (on your own)*
- 2:00–2:45 **Hamsa Balakrishnan** (Massachusetts Institute of Technology)
TBA
- 3:00 *Conclusion*

