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Consistency of Preferences and Near-Potential Games

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April 7
4:00 - 5:00 pm**

306 Soda Hall
Hewlett-Packard
Auditorium

Abstract

Exact potential games are those where the preferences of the strategy profiles of the different players are globally consistent, and therefore the players' payoffs can be aggregated through a joint function. In this talk, we analyze the general situation where there are local or global inconsistencies between the preferences of the different players. For this, we introduce a natural decomposition of multiplayer games in terms of potential and harmonic components. Besides its intrinsic interest, this decomposition facilitates the study of equilibrium and convergence properties of natural game dynamics. We discuss the implications for cooperative control problems, pricing schemes, and efficiency loss, and illustrate the results and techniques through an example of power control in wireless networks.

Joint work with Ozan Candogan, Ishai Menache, and Asu Ozdaglar (MIT**)**

Biography

Pablo A. Parrilo is a Professor at the Department of Electrical Engineering and Computer Science of the Massachusetts Institute of Technology, currently holding the Finmeccanica Career Development chair. He is affiliated with the Laboratory for Information and Decision Systems (LIDS) and the Operations Research Center (ORC). He received an EE degree from the University of Buenos Aires, and a Ph.D. in Control and Dynamical Systems from the California Institute of Technology. He has held visiting appointments at UC Santa Barbara (Physics), Lund Institute of Technology (Automatic Control), and UC Berkeley (Mathematics). From 2001-2004, he was an Assistant Professor at the Swiss Federal Institute of Technology (ETH Zurich).

For more information, please go online to:
http://www.eecs.berkeley.edu/Colloquium/10spring/parrilo.shtml

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