Spatial Pricing in Ride-Sharing Networks

Wednesday, September 12
3:15 PM – Refreshments, 3:30 – Graduate Seminar
Lind Hall Room 305

We explore spatial price discrimination in the context of a ride-sharing platform that serves a network of locations. Riders are heterogeneous in terms of their destination preferences and their willingness to pay for receiving service. Drivers decide whether, when, and where to provide service so as to maximize their expected earnings, given the platform’s prices. Our findings highlight the impact of the demand pattern on the platform’s prices, profits, and the induced consumer surplus. In particular, we establish that profits and consumer surplus are maximized when the demand pattern is “balanced” across the network’s locations. In addition, we show that they both increase monotonically with the balancedness of the demand pattern (as formalized by its structural properties). Furthermore, if the demand pattern is not balanced, the platform can benefit substantially from pricing rides differently depending on the location they originate from. Finally, we consider a number of alternative pricing and compensation schemes that are commonly used in practice and explore their performance for the platform. (joint work with Ozan Candogan and Daniela Saban)


BIO:

Kostas Bimpikis is an Associate Professor of Operations, Information and Technology at Stanford University’s Graduate School of Business. Prior to joining Stanford, he spent a year as a postdoctoral research fellow at the Microsoft Research New England Lab. Professor Bimpikis has received a PhD in Operations Research from the Massachusetts Institute of Technology in 2010, an MS in Computer Science from the University of California, San Diego and a BS degree in Electrical and Computer Engineering from the National Technical University of Athens, Greece.

Professor Bimpikis' research agenda lies in the interface of operations, economics and information technology. Much of his current research is focused on studying the economics of complex social networks and identifying the implications for individuals and businesses. Moreover, he is interested in issues arising in the operations of Internet-based markets.