IEEE CSS Italy Chapter

Road2CDC Seminar Series

UNIVERSITÀ DEGLI STUDI DI PADOVA

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Transportation Network Services: Modeling, Economics, and Bundling

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Aula Magna "A. Lepschy"

Starting time 11:00 – Ending time 12:00

link for streaming:

https://unipd.zoom.us/j/83843584709?pwd=X1PVBSz8lF4IbTldYheCoPRIhBjzEo.1

Abstract: Transportation network services such as ride hailing, food delivery, grocery delivery, and package delivery have transformed our lives. There are other services that have been proposed such as EV based services that benefit the electricity grid.

Many of these services are not profitable. There are also negative externalities such as roadway congestion, emissions increases, and poor worker compensation. These have led and government agencies to impose new regulations on transportation network services. These include limiting the number of vehicles, congestion tariffs, wage floors, or classifying contract workers as full-time employees. As a result, the economic viability of these businesses is threatened, and their future is in doubt.

We offer a unified framework for the analysis of transportation network services. This game-theoretic model can be used to explore how regulations, spatial and temporal demand density, and network congestion affects end-user prices, emissions, and the profitability of these services. These analyses suggest that in many cases, businesses must bundle products to ensure economic viability. For example, food delivery can be bundled with ride-hailing, packages can be pooled to reduce delivery costs. Electricity and transport services can be delivered together. We use a queuing-based spatial model to analyze the value created by bundling.

Kameshwar Poolla is the Cadence Distinguished Professor at UC Berkeley in EECS and ME. His current research interests include many aspects of future energy and transportation systems including economics and regulation. He also served as the Founding Director of the IMPACT Center for Integrated Circuit manufacturing. Dr. Poolla co-founded OnWafer Technologies which was acquired by KLA-Tencor in 2007. Dr. Poolla has been awarded a 1988 NSF Presidential Young Investigator Award, the 1993 Hugo Schuck Best Paper Prize, the 1994 Donald P. Eckman Award, the 1998 Distinguished Teaching Award of the University of California, the 2005 and 2007 IEEE Transactions on Semiconductor Manufacturing Best Paper Prizes, and the 2009 IEEE CSS Transition to Practice Award.

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