

April 7, 2017

Skinner Hall Room 12

11:00a.m-12 noon

(Refreshments at 10:30 am)

Hosted By

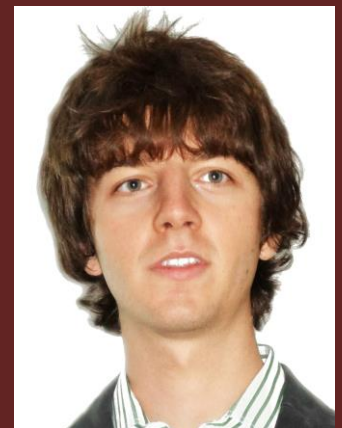
UMassAmherst
Student Chapter of **informs**



Professor
Anna Nagurny

Distributed dynamics to achieve a location equilibrium

This talk focuses on a new concept of equilibrium over a network, referred to as location equilibrium. Its applications include area coverage for taxi drivers, human migration and task assignment for a server network. The proposed equilibrium is connected to two related concepts, namely the Wardrop equilibrium in transportation and the migration equilibrium. Finding a location equilibrium is equivalent to solving a variational inequality which in general is not monotone. The main focus of the talk is on algorithmic convergence: first it is shown that a well-known algorithm achieves a location equilibrium, but requires centralized computations. This motivates the main result, which consists in proposing a novel distributed algorithm and proving its convergence to a location equilibrium. The algorithm can be interpreted as natural dynamics describing how the agents move on the network to achieve a location equilibrium. The findings are applied to a numerical study of area coverage for taxi drivers in Hong Kong.



Basilio Gentile,
Doctoral student,
ETH Zürich

Basilio Gentile is a doctoral student at the Automatic Control Laboratory at ETH Zürich since January 2014. He received his Bachelor's degree in Information Engineering and Master's degree in Automation Engineering from the University of Padova, as well as a Master's degree in Mathematical Modelling and Computation from the Technical University of Denmark. In 2013 he worked on his Master's Thesis in the Motion Lab at the University of California Santa Barbara. His research focuses on aggregative games and network games with applications to traffic networks and to smart charging of electric vehicles.