

Seminar by Prof. Stelios Timotheou, University of Cyprus

## Dynamic demand management and routing in urban traffic networks

Institute for Transport Planning and Systems (IVT)

Traffic Engineering Group

Monday, 16 December 2019, 14:00-15:00 – HIL F 36.1

### Abstract:

Traffic congestion causes several adverse effects that lower our quality-of-life, harm the environment and negatively impact the economy. Intelligent transportation systems promise to alleviate congestion by employing various information and communication technologies such as communication between transportation actors and advanced vehicle control capabilities.

This talk will introduce a novel traffic management architecture for urban traffic networks. This architecture decomposes the road infrastructure in the spatial and temporal domains and makes appropriate route reservations for vehicles, with the aim of maximizing the traveller convenience and network efficiency. This is achieved by routing vehicles through congestion-free paths and advising travellers to wait at their origin prior to departure. In this framework, various solution strategies will be presented both at a microscopic and macroscopic level that involve the routing of individual vehicles or traffic flows, respectively.



### Short Bio:

Stelios Timotheou is an Assistant Professor at the Department of Electrical and Computer Engineering and a faculty member at the KIOS Research and Innovation Center of Excellence, of the University of Cyprus. He holds a Dipl.-Ing. from the Electrical and Computer Engineering School of the National Technical University of Athens, and M.Sc. and Ph.D. degrees from the Electrical and Electronic Engineering Department of Imperial College London. In previous appointments, he was a Research Associate at KIOS, a Visiting Lecturer at the Department of Electrical and Computer Engineering of the University of Cyprus, and a Postdoctoral Researcher at the Computer Laboratory of the University of Cambridge.

His research focuses on analysing data and making informed decisions in challenging environments, with the purpose of enhancing efficiency and delivering new capabilities in situational awareness and decision making. Towards this direction, he develops customised, real-time, distributed and cooperative methodologies and algorithms, drawing on theory from mathematical optimization, machine learning, statistical data processing and computational intelligence. The main application area of his research is critical infrastructure systems with emphasis on intelligent transportation systems.

Dr. Timotheou is the recipient of the 2017 'Cyprus Young Researcher in Physical Sciences & Engineering' Award, by the Cyprus Research Promotion Foundation. He is a member of ACM and a Senior Member of IEEE.

**Date:** 16 December 2019

**Venue:** ETH Hönggerberg  
HIL F 36.1

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