




**IEEE Intelligent Transportation
Systems Society**

Cyprus Chapter



2024 IEEE ITSS Cyprus Chapter Workshop: Advances in Intelligent Traffic Management

 **Monday,**
9 December 2024

 **17:00**

 **Amphitheatre LRC 014**
(University of Cyprus Library)

Program

- | | |
|--------------------|--|
| 17:00-17:15 | Opening Remarks |
| 17:15-17:55 | Motorway Traffic Control – From theory to practice
Prof. Ioannis Papamichail,
Technical University of Crete, Chania, Greece |
| 17:55-18:35 | Smart Traffic Signal Control Applications in Cyprus
Alexis Avgoustis,
Public Works Department of the Ministry of Transport,
Communications and Works, Cyprus |
| 18:35-18:45 | Closing Remarks |
| 18:45-19:30 | Networking |

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Ioannis Papamichail

Technical University of Crete
Chania, Greece

Motorway Traffic Control – From theory to practice

ABSTRACT

Motorways within and around metropolitan areas experience daily peak-period congestion phenomena reducing the nominal capacity of the motorway infrastructure with serious impact on travel times, traffic safety, fuel consumption, and environmental pollution. Various traffic control measures have been proposed to alleviate traffic congestion including ramp metering, variable speed limits (VSLs) and route guidance. Ramp metering aims at improving traffic conditions by appropriately regulating inflow from on-ramps to the motorway mainstream. Traffic responsive ramp-metering strategies, as opposed to fixed-time strategies, are based on real-time measurements from sensors installed in the motorway network and can be classified as local or coordinated. We are going to discuss a traffic responsive coordinated ramp metering algorithm and its field applications. We will also discuss a new promising avenue for efficient motorway traffic management, the integration of coordinated ramp metering actions with mainstream traffic flow control enabled using VSLs.

BRIEF BIO

Prof. Ioannis Papamichail is the Director of the Dynamic Systems and Simulation Laboratory, at the Technical University of Crete, Chania, Greece. He received the Dipl. Eng. degree in chemical engineering from the National Technical University of Athens, in 1998 and the M.Sc. degree in process systems engineering and the Ph.D. degree in chemical engineering from Imperial College London, in 1999 and 2002, respectively. From 1999 to 2002, he was a Research Assistant with the Center for Process Systems Engineering, Imperial College London. He joined the Technical University of Crete in 2004 and has served, since then, in all academic ranks. In 2010, he was a Visiting Scholar with the University of California, Berkeley, CA, USA. His main research interests include automatic control and optimization theory and applications to traffic and transportation systems. Dr. Papamichail is an Associate Editor for Transportation Research Part C: Emerging Technologies and for IEEE Transactions on Intelligent Transportation Systems. He received the 1998 Eugenidi Foundation Scholarship for Postgraduate Studies and the 2010 Transition to Practice Award from the IEEE Control Systems Society for the development and implementation of ramp metering algorithms, particularly at the Monash Freeway, Melbourne, Australia.

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Alexis Avgoustis

Public Works Department (PWD)
of the Ministry of Transport,
Communications and Works
Cyprus

Smart Traffic Signal Control Applications in Cyprus

ABSTRACT

Traffic Signal Management is one of the most cost-effective ways to keep traffic moving. Intelligent telecommunication systems, smart technologies and the introduction of Artificial Intelligence (AI) are increasingly used by Road Transport Authorities to manage traffic and provide efficient and safe movements for all modes of traffic. Cyprus is heavily dependent on the private vehicle and the Public Works Department (PWD) along with introducing sustainable solutions, embarked a few years ago on introducing Smart Traffic Signal Control on the road network. This presentation will describe these solutions, including the MOVA (Microprocessor Optimised Vehicle Actuation) system at the Ayia Fyla roundabout in Limassol, the new Urban Traffic Control System (UTC) for the cities of Nicosia and Limassol (to be implemented in 2025-2026) and the recent installation of Traffic Signals (Smart Intersection) using smart microwave sensors at the Nicosia General Hospital roundabout.

BRIEF BIO

Alexis Avgoustis is a Civil and Transportation Engineer currently working at the Public Works Department (PWD) of the Ministry of Transport, Communications and Works in Cyprus, as an Executive Engineer in the Transport Planning & Road Safety Section. Alexis holds an HND Degree in Civil Engineering from the Higher Technical Institute in Cyprus, a BSc in Civil Engineering from the University of Maine (USA), and an MSc in Civil Engineering (Transport Engineering) from the Virginia Polytechnic Institute and State University in the USA. Alexis is a Member of the Institute of Transportation Engineers, ETEK, the Cyprus Association of Civil Engineers, and is a qualified Road Safety Auditor. Alexis currently serves on the Board of the Council of the Registration and Control of Contractors in Cyprus. Alexis has over 25 years of experience in the fields of Civil and Traffic Engineering having worked in USA, the UK and Cyprus. Alexis is currently the Leader of the Traffic Signals Team of the PWD, he is managing procurement contracts for traffic signal equipment and system upgrading, Urban Traffic Control Systems and Intelligent Transportation Systems (ITS), road design projects and is responsible for the traffic data collection program of the PWD.

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