Title: Mobility as a Service at the network Edge

Contents:

- Motivation and objectives and Relevance to the ITS community.

Many cities in Europe and world-wide are witnessing an increasing interest in shared and multi-modal mobility services using modes such as carsharing, bikes, ride-hailing, e-scooters facilitated by the emergence of intermediary mobility on-demand platforms. Mobility services accessible ‘on demand’ can be achieved by an integrated Multimodal Intelligent Transport System (M-ITS) incorporating both motorised and non-motorised transport as well as private and public systems through the concept of Mobility as a Service (MaaS). Such services usually need to communicate with multiple moving entities within an environment, work with data that have privacy considerations and need to offer services with low latency requirements. To address the challenges imposed by fast movement of entities, data privacy and low latency requirement, M-ITS can benefit from low-latency communication and computation provided by the edge networks by placing services closer to where relevant data is generated. This workshop will be looking at various challenges in this domain, when centralised, cloud-based services are moved to the network edge in potential use cases. The topics of interest in this workshop include but not limited to:

Topics of Interest:

- Decision making at the Edge of the network
- Multi-modal transport service placement at the Edge
- Service Orchestration and composition
- Decentralised Machine learning
- Data sharing, representation and fusion

Organizers (names, affiliations, emails, and short bio):

Dr Fatemeh Golpayegani, University College Dublin
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Bio: Dr Fatemeh Golpayegani is an Assistant Professor in the School of Computer Science, University College Dublin, and leads the Multi-agent Systems and Sustainable Solutions research group. She received her PhD in Computer Science from Trinity College Dublin, in June 2018, and her main area of research includes developing AI-based algorithms to solve problems such as climate change and sustainability in various applications including smart energy grids and intelligent transportation systems. She is leading a team of 10 researchers and currently coordinating an EU project in the area of intelligent shared mobility and leads other projects in the field. Particularly, she is coordinating RE-ROUTE, an MSCA SE EU funded project in
the field of Edge enabled shared mobility systems, and a PI on Augmented CCAM project, an EU funded project on augmenting the connected and cooperative automated mobility.

Dr Evangelos Mitsakis, CERTH
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Bio: Dr. Evangelos Mitsakis is Research Director at the Hellenic Institute of Transport of the Centre for Research and Technology Hellas (CERTH-HIT) in Greece. He is Head of Laboratory “B3 - Infrastructure and traffic management in land transport” as well as Deputy Head of “Department B - Infrastructure, Networks, Mobility and Logistics”. He holds a diploma in civil engineering and a doctorate degree (PhD) in transport engineering.
His interests cover two main research lines. The first one includes Intelligent Transport Systems, both at traffic management and control and at traveler information level, while in the recent years he works on Cooperative Intelligent Transport Systems (C-ITS) and Connected and Automated Mobility Systems. The research results thereof are commercially exploited since 2021 by deeptraffic, a spin-off company of CERTH-HIT. The second research line is related to impact assessment of climate change on transport systems and networks.
He participates in several national and international R&D projects, several results of which have been implemented in various cities in Europe and in Greece.
He is the author of several scientific publications in peer reviewed journals and conferences. He is member of committees and expert groups related to topics of Intelligent Transport Systems abroad (e.g. ERTICO, ECTRI, TRB, IEEE and others) and in Greece, including the expert committees for the National ITS Strategy and National ITS Architecture. He is also immediate past elected President of the Intelligent Transport Systems Association ITS Hellas (2018-2019), while currently he serves as Vice President and Treasurer.

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Bio: Dr. Shen WANG is a Lecturer/Assistant Professor in the School of Computer Science, University College Dublin since 2018. He teaches modules and supervises final year projects for undergraduates at Beijing-Dublin International College in the spring semester. He is also an academic collaborator with the CeADAR Centre (http://ceadar.ie) and Performance Engineering Laboratory (http://pel.ucd.ie). Prior to that, Shen received the Ph.D. degree in 2016 from the School of Electronic Engineering, Dublin City University, Ireland, for his work on reducing urban road traffic using vehicular communications and artificial intelligence. Since 2016, Shen worked as the lead researcher for CeADAR on the AURORA EU H2020 project (big streaming data framework calculating flight efficiency) and the EXPERTS demonstrator project (explainable graph data analyser). He also worked with the team of Intelligent Transportation at IBM Ireland in 2013, and Natural Resources Solutions group at IBM Research Brazil in 2015.

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