

## ROAD TRAFFIC CONTROL LABORATORY

### WOULD LIKE TO JOIN A CONSORTIUM FOR HORIZON-CL5-2022-D6-02-05: ADVANCED MULTIMODAL NETWORK AND TRAFFIC MANAGEMENT FOR SEAMLESS DOOR-TO-DOOR MOBILITY FOR PASSENGERS AND FREIGHT TRANSPORT

We can contribute to the following tasks as described in the Topic:

- Demonstrating effective collection, analysis and use of network-wide fixed and variable data for effective traffic management.
- Conducting simulations for system-wide optimisation of demand/capacity balancing for passenger and freight flows.

#### Our approach:

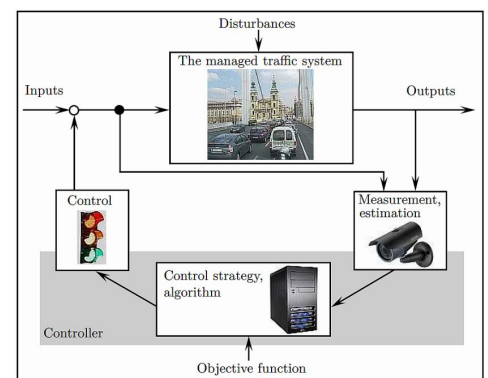
Our competencies range from i) traffic hotspot detection (recurring and ad-hoc incidents, percolation), ii) data fusion of classical traffic sensors, floating car data, and social media data to iii) dynamic and predictive road traffic modeling and control approaches. An important element of our approach is co-simulation: we have demonstrated experience in realizing digital twins of the considered traffic network based on real-time data, microscopic, and agent-based traffic simulations.



#### Road Traffic Control Laboratory

The scope of our laboratory involves road traffic modeling, simulation, and control using classical and data-driven methods. We do scientific research on integrating highly automated vehicles with the traffic infrastructure. Moreover, we have close ties to players in the Hungarian automotive industry and the ZalaZONE Proving Ground (specially created for CAV and CCAM testing).

[Laboratory website](#)



#### COMPETENCES AND REFERENCES RELEVANT TO THE TOPIC

- We can use the test tracks of the ZalaZONE Proving Ground for real-world testing and validation.
- We have an autonomous test vehicle and traffic control devices (controllers, signal heads, etc.).
- We have licenses to several state-of-the-art simulators, such as IPG CarMaker, PTV Vissim/Visum, VTD Vires, PreScan.
- We have experiences to use these tools to create complex co-simulation systems [YouTube link](#)
- Our publication list: [link](#)



#### BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS (BME)

With its regular high-ranking positions (between 200 and 800) BME is among the top universities (2-6%) globally. At the university's 8 faculties and 76 departments, there are 1,200 lecturers teaching 5,000 subjects and 10,000 courses each semester. In the H2020 Framework Programme BME has ranked #2 among the Hungarian institutions (67 funded projects). The University is an active member of the European Engineering Learning Innovation and Science Alliance (EELISA) European University, the CESAER association of universities of science and technology and the European University Association. [University website](#)

## RESEARCH TEAM

### HORIZON-CL5-2022-D6-02-05: ADVANCED MULTIMODAL NETWORK AND TRAFFIC MANAGEMENT FOR SEAMLESS DOOR-TO-DOOR MOBILITY FOR PASSENGERS AND FREIGHT TRANSPORT



#### TAMÁS TETTAMANTI, PhD., Associate Professor, Head of Research Group

Tamás Tettamanti received the Ph.D. degree in traffic engineering in 2013. He acts as associate professor and also participates in research and industrial projects as researcher as well as project coordinator. His main interests include road traffic modeling and control with applications in intelligent and autonomous transportation systems. He is co-author of over 150 scientific papers, two patents and several books. He is member of Public Body of Hungarian Academy of Sciences.

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#### István Varga, PhD, Full Professor

István Varga received the Ph.D. degrees in traffic engineering in 2006. He is currently the Dean of the Faculty of Transportation Engineering and Vehicle Engineering of Budapest University of Technology and Economics. His main interests include road traffic modeling, estimation and control. He is co-author of over 140 scientific papers, two patents and several books. He is Member of Committee on Transport Science and Vehicle Science of Hungarian Academy of Sciences.

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#### Balázs Varga, PhD, Research fellow

Balázs Varga received his Ph.D. in vehicle and transportation sciences in 2021 from Budapest University of Technology and Economics, Budapest, Hungary. He was a postdoctoral researcher at Chalmers University of Technology, Sweden in 2021. He is currently a research fellow at the Budapest University of Technology and Economics, Hungary with over 20 scientific publications. His main research interest is data-driven methods in transportation.

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