mobil.TUM 2017
International Scientific Conference
on Mobility and Transport

Intelligent Transport Systems
in Theory and Practice

July 4 & 5, 2017
Munich, Germany

Chair of Traffic Engineering and Control
1st conference day – Tuesday, July 4, 2017

09:00 Registration and Welcome Coffee

09:30 Opening Session
Welcome and introduction
Fritz Busch, Technical University of Munich
Welcome address Technical University of Munich
Gerhard Müller, Senior Vice President Academic and Student Affairs
Welcome address City of Munich
Thomas Peig, Head of Traffic Department, KVR
Keynote "Future challenges and opportunities of urban mobility. How digital revolution and new business models reinvent mobility."
Martin Hauschild, Head of Mobility Technologies, BMW Group

10:45 Coffee Break

11:00 Autonomous Vehicles (Moderation: M. Fellendorf)

Session 1
Simulation assisted impact analyses of automated driving on motorways for different levels of automation and penetration
M. Habert, R. Neuhold, M. Fellendorf, M. Rudigier, A. Kirschbaumer, A. Eichberger, B. Rögic
Effects of shared autonomous vehicles on the level of service in the Greater Munich metropolitan area
C. Loria, A. T. Moreno, R. Moekel
Between private cars and mass transit: the rise of intermediate modes in the urban setting
J. Berrada, F. Laurent, G. Lesteven, V. Bouctuill
Managing automated vehicles at signalized intersections
J. Vreeswijk, O. Pröbii, R. Blödspoi, J. Schindler, M. Rondinone

12:30 Lunch

13:15 Poster Presentations

A technology acceptance perspective for electric mobility with Intelligent Transport Systems
L. Kauschke, W.H. Schulz

Validation of HD-maps for autonomous driving
P. Fischer, T. Krawü, F. Kurz, B. Pfaff, H. Runge

Accounting for localization errors in a mixed-vehicle centralized control system
R.H. Patel, J. Harri, C. Bonnet

Classification of traffic jams on alpine motorways
B. Bursa, M. Maier

Multiple CTM based offset optimization technique
M.A. Ali, A. Poschinger

Development and evaluation of a game application for parking lot identification
J. Walther, S. Engle, F. Diermeyer

Determination of static criticality measures for predictive safety state evaluation in vehicles
C. Pfitziger, M. Schreieck, M. Wischne, H. Kromar

Early warning system for emergency vehicles to prevent rear-end collisions by using radar sensors of current driver assistance systems
J. Böding, K. Bogenberger

The intelligent transport system for TRISTAR – theory becomes practice
J. Löffler, B. Thomann, C. Kamper, R. Hildebrand, F. Weichennetzer

Using the 4P model to understand why people choose to use automated vehicles in public transport
S. Nordhoff, R. Madigan, B. van Arem, U.J. Schönüwe, N. Merat

Combining cloud based Smart City activities and c2x use cases in Darmstadt
J. Möck, O. Rolle, C. Müller

Shared autonomous electric vehicles – system architecture and fleet management
L. Kasser, C. Takaö, K. Bogenberger

openTLC: an open traffic control program
M. Harmenzon, R. van den Dries, A. van Turenhou, J. Vreeswijk

Integrated, personalized, real-time traveler information and incentive technology for energy efficient mobility systems
L. Zhang, C. Xiong, Y. Yi, M. Shahabi, Y. Ji

Estimation of integrated and highly dimensional travel choice models
D. Emaasit, A. Paz

14:00 Urban Traffic Control 1 (Moderation: A. Stavrovict)

Session 2A
The Melbourne approach – applying advanced traffic control to Melbourne’s motorways – methods, results and new findings
M. Hail, J. Gaffney, H. Zurflhend, P. Lammers

Adaptive traffic signal control under mixed traffic condition
S. Gažhaw, J. Harri, P. Goatim

Generalization of subnetwork types in urban areas to extrapolate traffic effects
T. Ren, J. Geißendorft, C.E. Murphy

VITAL: traffic signal control based on V2X communication data – application and results from the field
R. Oertel, J. Erdmann, T. Hesse, R. Markowski, J. Trumpolod, P. Wagner

14:00 Non-motorized Traffic (Moderation: H. Twaddie)

Session 2B
Integrating the mobility of crowds into the planning process of metro station buildings with real time feedback
D.H. Biedermann, A. Borrmann, M. Flint, R.P. Mundani, E. Rank

Improvements in pedestrian tracking by a generalized potential field approach

Usage patterns and demand analysis in a hybrid bike sharing system
S. Altinski, P. Fontaine, T. Minner

Multimodal dynamic routing for wheelchairs and pedestrians
D. Ozafic, N. Wagner, P. Schoonbron, J. Spiek, S. Kowaleski

15:30 Coffee Break

16:00 Public Transport (Moderation: A. Taskareto)

Session 3A
Sustainable public transport acceleration based on C-ITS
B. Naal, K. Hartung

Vehicle concept development for future public transport systems. Literature review and methodology
M. Ktöppel, M. Lienkamp

Big data for infrastructure evaluation: an ex-post analysis of Copenhagen’s BRT pilot

Imputation of passengers’ trip activities based on smartphone data
B. Du, Y. Zhou, A. Rau

16:00 Crowd Sourcing (Moderation: M. Marghatter)

Session 3B
Social community approach to traffic management in a MaaS context
J. Vreeswijk, R. van den Dries, A. Gajadren

Transferability and sample specification for social media data: a comparative analysis
E. Chaniotakis, C. Anantim, K. Goulas

Crowd-based feedback system for construction site information quality on German highways
G. Hermann, J. Wahle

Automatically generated origin-destination matrices from cell phone trajectories
M. Cich, C. Herr, M. Fellendorf

17:30 Guided Tour Deutsches Museum Verkehrszentrum (1-min walk from conference)

19:00 Conference Dinner (Wirtshaus am Bavariapark)
# mobil.TUM 2017

## Program

**2nd conference day – Wednesday, July 5, 2017**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Topic</th>
<th>Authors</th>
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<td>09:00</td>
<td>Morning Coffee</td>
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<td>09:30</td>
<td><strong>Urban Traffic Control 2</strong> (Moderation: J. Katha)</td>
<td>Methods for the identification of fixed time traffic light parameters with in-car camera systems</td>
<td>M. Schönfelder, V. Protschky, H. Belzner, T. Black</td>
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<td>Optimizing public transport by co-operative traffic signal control - implementation of signal programs in micro simulation models</td>
<td>T. Weidemann, M. Schäffer, R. Hoyer</td>
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<td>Virtual induction loops using smartphones for urban traffic control systems</td>
<td>G. Albertengo, B. Cacioppo, W. Hassan, E. Pappapapanagiotou</td>
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<td></td>
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<td>New performance measures for improved evaluation and retiming of traffic signals</td>
<td>A. Stevanovic, D. Mitrovic, N. Mitrovic</td>
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<td>09:30</td>
<td><strong>Travel Choice and Mobility Behavior</strong> (Moderation: R. Moeckel)</td>
<td>Operational model and impacts of mobility service based on autonomous vehicles</td>
<td>S. Szigeti, C. Csiszár, D. Földes</td>
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<td>Evolution of passenger information in public transport to bi-directional communication gives access to new data sources</td>
<td>C. Dohmen</td>
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<td>11:00</td>
<td>Coffee Break</td>
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<td>11:30</td>
<td><strong>Traffic Demand and Routing</strong> (Moderation: G. Wulfhorst)</td>
<td>Marginal effects evaluation with respect to changes in OD demand for dynamic OD demand estimation</td>
<td>T. Dukic, M. Breve, D. Maapp, J. Perarnau, J. Budin, J. Casas</td>
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<td>Co-modal coaching with avatar support: a tool for shifting mobility choices</td>
<td>L. Cocomea, M. Milli</td>
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<td>An adapted A* algorithm for park spot routing</td>
<td>M. Hodderich, U. Fastenrath, G. Isaac, K. Bogenberger</td>
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<td>DYNAMO dynamic, seamless mobility information, sponsored by the Federal Ministry of Transport and Digital Infrastructure - report on the results of the research project in Munich and future developments</td>
<td>H.-J. Mentz, A. Wiegand</td>
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<td>11:30</td>
<td><strong>Data Collection and Transport System Analysis</strong> (Moderation: C. Antoniou)</td>
<td>Estimating detectors’ systematic error in signalized intersection using flow conservation</td>
<td>Z. Amini, A. Skabardonis, P. Varanay</td>
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<td>Nonlinear moving horizon estimation for large-scale urban networks</td>
<td>I.I. Sirmatel, N. Geroliminis</td>
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<td>Event characteristics that disrupt transport system’s balance</td>
<td>I. Markou, F. Rodrigues, F.C. Pereira</td>
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<td>Personal mobility data: threats and opportunities</td>
<td>D. Huth, A. Faber, F. Matthes</td>
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<td>13:00</td>
<td>Lunch</td>
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<td>14:00</td>
<td><strong>Modeling and Simulation</strong> (Moderation: P. Vortisch)</td>
<td>New solutions for complex traffic situations: requirements analysis and driving simulation of the Finkenwerder Ring in the port of Hamburg</td>
<td>D. Mühlbacher, J. Rademacher, Y. Forster, S. Engelhardt</td>
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<td>Macroscopic traffic modeling of heterogeneous road networks using colored Petri nets</td>
<td>H. Fu, K. Chen, N. Liu, N. Geroliminis, A. Kouvelas</td>
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<td>A comparison of machine learning techniques for data-driven car-following models</td>
<td>V. Papanathanasopoulou, C. Antoniou</td>
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<td>Investigating the computational characteristics of large scale traffic forecasting applications</td>
<td>Y. Petalas, P. Georgakis, C. Nwagbosho</td>
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<td>15:30</td>
<td>Closing Session</td>
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<td>mobil.TUM Awards 2017 presented by ITS Bavaria</td>
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<td>See you! Auf Wiedersehen!</td>
<td>F. Busch</td>
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<td>16:30</td>
<td>Farewell Coffee</td>
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<td>17:00</td>
<td>End of Conference</td>
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## Rooms

- **Main Hall:** Plenary Sessions and Sessions marked „A“
- **Bavariasaal:** Sessions marked „B“
Intelligent Transport Systems in Theory and Practice

Intelligent Transport Systems and Services (ITS) provide a wide variety of solutions to existing transport problems and to the ecological and societal challenges presented by an increasing demand for mobility. With growing capabilities concerning information, communication and automation techniques and an increasing digitalization in all domains of transport and mobility, a future with high fidelity transport information in a seamlessly connected, safe and highly automated mobile world for all types of travelers draws ever nearer. In order to respond to the multifaceted character of these developments, science and practice within the mobility domain involve an increasingly broad range of different disciplines.

The mobil.TUM conference will therefore once again serve as an opportunity for international dialogue across disciplines on the latest challenges and achievements in ITS. The conference is organized by the Chair of Traffic Engineering and Control at TUM (Technical University of Munich). It will explore the various aspects of ITS and Services, focusing on the latest technologies and solutions and the perspectives for which they allow. The conference will consist of presentations, a poster session and panel discussions, and is accompanied by a small exhibition.

mobil.TUM Conference Series

mobil.TUM is a conference organized by the focus area Mobility & Transportation Systems at the department of Civil, Geo and Environmental Engineering at TUM.

Previous conferences examined the following topics:

2008: Erreichbarkeit – Accessibility – Accessibilité
2009: ITS for Larger Cities
2011: Making Sustainable Mobilities
2012: Transportation Demand Management
2013: ITS for Connected Mobility
2014: Sustainable Mobility in Metropolitan Regions
2015: Technologies, Solutions and Perspectives for ITS
2016: Transforming Urban Mobility

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mobil.TUM 2017 – Facts

Scientific Conference, July 4 & 5, 2017
Venue Alte Kongresshalle am Bavariapark
Theresienhöhe 15, D-80331 Munich, Germany

Fee 460 € incl. VAT (230 € for students and speakers)
- Entrance to 2-day conference and exhibition
- Conference proceedings
- 2-day coffee breaks and lunch
- Conference dinner
- Guided tour Deutsches Museum Verkehrszentrum

Digital (R)evolution of ITS
New Options for Transport through Digitalization and Big Data
1 day post-conference workshop, July 6, 2017
Venue TUM, Arcisstraße 21, D-80333 Munich, Germany
Fee 230 € incl. VAT (115 € for students)

For registration and further information visit:
www.mobil-tum.de

Or contact us directly:
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The conference is supported by:

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