STRC 2015

Conference programme

STRC | **16th Swiss Transport Research Conference**
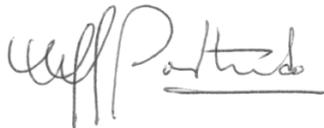Monte Verità / Ascona, May 18-20, 2016

Foreword

It is my pleasure to welcome you to the 16th edition of the Swiss Transport Research Conference (STRC). Over the years, STRC has become an excellent opportunity to exchange knowledge and ideas among researchers in Switzerland, covering a variety of aspects regarding transport and land use. This year, we received an impressive amount of submissions from academia, as well as government and private companies. The 59 presentations will cover a multiplicity of topics, including: traffic monitoring, modeling and control; automated and connected transport systems; demand modeling; logistics; land use data; and public transport operations and infrastructure, among others. We are very excited to have a total of 79 participants, including three internationally renowned keynote speakers:

- Professor Hani S. Mahmassani, Northwestern University, Chicago.

- Professor Jaume Barceló, InLab FIB, BarcelonaTECH.

- Professor Nathalie Picard, THEMA, Université de Cergy-Pontoise, Paris.

This year we have also introduced a number of small changes to the program in order to further encourage the interaction between participants. I hope you take advantage of these changes and the excellent venue to spend quality time with your colleagues. The Hotel and Conference Center Monte Verità (Ascona, Ticino) is the perfect environment to meet new peers, catch up with old friends, exchange ideas, and relax.

On behalf of the STRC organizing committee, welcome!

Monica Menendez
IVT–Institut für Verkehrsplanung und Transportsysteme
ETH Zürich

Outline

General Information

Location

Fondazione Monte Verità, Strada Collina 84, CH-6612 Ascona

The venue is near Ascona and Locarno, both on the Maggiore's lake coast

Arrival / Shuttle Bus

We recommend to travel by train as there are only a limited number of parking places available.

On Wednesday 18th there will be a shuttle service from Locarno train station to Monte Verità. The timetable is the following:

12:00 h Shuttle (30 seats)
12:25 h Shuttle (11 seats)
12:40 h Shuttle (30 seats)
13:05 h Shuttle (11 seats)

We recommend attendants to plan their arrival to the Locarno station before 13.00h.

On Friday 20th there will be also shuttle services from Monte Verità to Locarno starting at 12.15.

Check-in

Check-in is at the reception of the conference center. There you will find your name badge.

Presentation

We shortened this year's sessions. The presentation time this year is 15min with 5min for questions. Please, stick to the schedule.

Information

The present program and the papers of the conference can be accessed through the conference web page: http://www.strc.ch/

Also details regarding the venue can be found: http://www.monteverita.org

Finally, information concerning travel times by train can be checked at: http://www.sbb.ch/

Questions

For other questions regarding the conference, please send us an e-mail at: strc2016@ivt.baug.ethz.ch

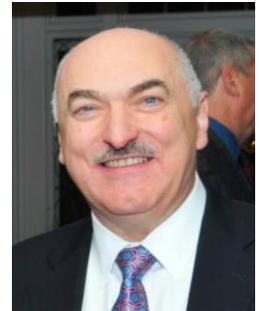For emergency cases you can call Marco Rothenfluh (+41 79 798 76 51)

Schedule Overview

Time	Wednesday	Thursday	Friday
07:45	*Arrival*	Breakfast	Breakfast
09:00		**Session 2A/2B/2C** *Auditorium, Sala Balint, Sala Eranos*	**Session 5A/5B/5C** *Auditorium, Sala Balint, Sala Eranos*
10:20		Coffee break	Coffee break
10:40		**Session 3A/3B/3C** *Auditorium, Sala Balint, Sala Eranos*	Keynote by **Jaume Barceló** and conference closure
12:00		Lunch	*Departure*
12:30	Registration and Lunch		
14:00		Keynote by **Nathalie Picard**	
14:15	Welcome and keynote by **Hani S. Mahmassani**		
15:00		Coffee break	
15:20	Coffee break	**Session 4A/4B/4C** *Auditorium, Sala Balint, Sala Eranos*	
16:00	**Session 1A/1B/1C** *Auditorium, Sala Balint, Sala Eranos*		
17:15	Debate *Auditorium, Sala Balint, Sala Eranos*	Group challenge *Sala Balint*	
18:15	Committee meeting (only STRC board)	Group photo	
19:30	Dinner	Gala Dinner	

Keynote speakers

Hani S. Mahmassani

Dr. Hani S. Mahmassani holds the William A. Patterson Distinguished Chair in Transportation at Northwestern University, where he is the Director of the Northwestern University Transportation Center. He has over 30 years of professional and research experience in the areas of intelligent transportation systems, freight and logistics systems, multimodal systems, crowd dynamics, traffic science, demand forecasting and travel behavior, IT, and real-time operation of transportation and distribution systems. He is past editor-in-chief and current associate editor of Transportation Science, senior editor of IEEE Transactions on Intelligent Transportation Systems, and founding associate editor of Transportation Research C: Emerging Technologies. Mahmassani received his PhD from the Massachusetts Institute of Technology in transportation systems and his MS in transportation engineering from Purdue University.

Key note speech: **Autonomous vehicles, market adoption and flow implications**

Nathalie Picard

Nathalie Picard is professor in economics at THEMA, University of Cergy-Pontoise, where she teaches mainly econometrics. She has a master in mathematics, a diploma of engineer in statistics and economics (ENSAE, Paris) and a PhD in economics (EHESS, Paris). Her research topics include Transport Economics, Urban Economics, Decision theory, Development Economics, Microeconometrics, Discrete Choice Analysis, risk analysis, experimental Economics, behavioral Finance, and family decision modelling. She published in international journals such as Journal of Economic Theory, Journal of Urban Economics, Transportation Science, Transportation Research, Mathematical Population Studies, Journal of Population Economics.

Key note speech: **Transportation economics and the family**

Jaume Barceló

Born in Valencia, Doctor in Physical Sciences by the Universidad Autonoma de Barcelona (1974), from 1986 to 2014 full professor of the department of Statistics and OperationsResearch at the Technical University of Catalonia (UPC); his principal fields of interest include Traffic and Transport Modeling, Transport Planning, Optimization and Simulation techniques in transportation and their applications to City Logistics and Intelligent Transportation Systems, In 1985 set up LIOS (Laboratori d'Investigació Operativa i Simulació), a transport research group at UPC that developed the microscopic traffic simulator Aimsun.

Key note speech: **Bi-level optimization models for adjustment of time-sliced OD matrices**

Debate / Group challenge

Debate

On Wednesday afternoon (17.15 – 18.15), there will be a debate about different topics. The idea is to create an open discussion in which everyone brings inputs from different technical backgrounds. Participants can chose the debate session they would like to attend.

The following 3 topics will be discussed.

Debate 1: ***Shared Mobility***
Chair: Francesco Ciari   **Room:** Auditorium
Debate 2: ***Urban Planning and Mobility***
Chair: Javier Ortigosa   **Room:** Sala Balint
Debate 3: ***Connected vehicle and traffic control***
Chair: Mehmet Yildirimoglu   **Room:** Sala Eranos

The attendance for students is compulsory.

Group challenge

To encourage the interaction between professors and students from different universities we came up with the idea of a group challenge. You will be assigned to different groups, and the goal is to compete in a special task against other groups. A brief introduction and more information about the specific task will be given on:

Thursday afternoon, 5:15pm, Sala Balint

You don't have to bring any material with you. Attendance is compulsory.

Sessions

Wednesday 18th afternoon

<table>
<tr><td colspan="4">Keynote by Hani S. Mahmassani</td></tr>
<tr><td colspan="4">Chair: N. Geroliminis Room: Auditorium</td></tr>
<tr><td>Start</td><td>End</td><td>Author</td><td>Title</td></tr>
<tr><td>14:15</td><td>14:20</td><td>Monica Menendez</td><td>Welcoming speech</td></tr>
<tr><td>14:20</td><td>15:20</td><td>Hani S. Mahmassani</td><td>Autonomous vehicles, market adoption and flow implications</td></tr>
<tr><td colspan="4">Session 1A: Data and simulation</td></tr>
<tr><td colspan="4">Chair: Anastasios Kouvelas Room: Auditorium</td></tr>
<tr><td>Start</td><td>End</td><td>Authors</td><td>Title</td></tr>
<tr><td>16:00</td><td>16:20</td><td>Henrick Becker, Francesco Ciari Kay W. Axhausen</td><td>Comparing Car-Sharing Schemes in Switzerland: User Groups and Usage Patterns</td></tr>
<tr><td>16:20</td><td>16:40</td><td>Marija Nikolic, Michel Bierlaire</td><td>Data-driven characterization of pedestrian flows</td></tr>
<tr><td>16:40</td><td>17:00</td><td>Valerio De Martinis Ulrich Weidmann</td><td>The use of on-board monitoring data for the evaluation of potential energy savings: an application to freight trains.</td></tr>
<tr><td colspan="4">Session 1B: Route choice</td></tr>
<tr><td colspan="4">Chair: Francesco Ciari Room: Balint</td></tr>
<tr><td>Start</td><td>End</td><td>Authors</td><td>Title</td></tr>
<tr><td>16:00</td><td>16:20</td><td>Mehmet Yildirimoglu Nikolas Geroliminis</td><td>Observing and reconstructing aggregated dynamic route choice patterns for large-scale networks</td></tr>
<tr><td>16:20</td><td>16:40</td><td>Evanthia Kazagli, Michel Bierlaire</td><td>Assessing complexe route choice models using mental representations</td></tr>
<tr><td>16:40</td><td>17:00</td><td>Meritxell Pacheo Paneque Shadi Sharif Azadeh Michel Bierlaire</td><td>A new mathematical representation of demand using choice-based optimization method</td></tr>
<tr><td colspan="4">Session 1C: Urban road congestion</td></tr>
<tr><td colspan="4">Chair: Mireia Roca-Riu Room: Eranos</td></tr>
<tr><td>Start</td><td>End</td><td>Authors</td><td>Title</td></tr>
<tr><td>16:00</td><td>16:20</td><td>Leonardo Bellocchi</td><td>Dynamical efficiency in congested road networks</td></tr>
<tr><td>16:20</td><td>16:40</td><td>Lucas Meyer Oliver Schümperlin Milos Balac</td><td>Road pricing: An analysis of equity effects with MATSim</td></tr>
<tr><td>16:40</td><td>17:00</td><td>Javier Ortigosa Monica Menendez</td><td>Analytical formulations of congestion propagation</td></tr>
</table>

Thursday 19th morning (first part)

Session 2A: Logistics

Chair: Mehmet Yildirimoglu   **Room:** Auditorium

Start	End	Authors	Title
09:00	09:20	Paolo Todesco, Ulrich Weidmann Ueli Haefeli	Logistics Sprawl in the Region Zurich
09:20	09:40	Mireia Roca-Riu, Elena Fernández Monica Menendez	Urban Parking Facilities with pre-booking system
09:40	10:00	Iliya Markov, Yousef Maknoon, Jean-François Cordeau, Sacha Varone, Michel Bierlaire	Inventory routing with non-stationary stochastic demands
10:00	10:20	Albert Mancera, Thorsten Klaas Ulrich Weidmann	Technical approach to measure customer orientation for freight transportation

Session 2B: Car usage

Chair: Riccardo Scarinci   **Room:** Balint

Start	End	Authors	Title
09:00	09:20	Dong Ding, Kay W. Axhausen Bin Shuai	A speed limit scheme to enhance carpooling in the presence of HOV lanes in degradable network
09:20	09:40	Anna Fernández, Matthieu de Lapparent Michel Bierlaire	Uncovering substitution patterns in new car sales using a cross nested logit model
09:40	10:00	Antonio Borriello	Pleasure of driving components: a partial least square – path modeling approach.
10:00	10:20	Stefano Scagnolari Antonio Borriello, Rico Maggi	Is the pleasure of driving a constraint for leaving the car?

Session 2C: Traffic flow and control

Chair: Shadi Sharif Azadeh   **Room:** Eranos

Start	End	Authors	Title
09:00	09:20	Mohammadreza Saeedmanesh Nikolas Geroliminis	Contiguity-constrained partitioning of heterogeneous urban networks
09:20	09:40	Marco Rothenfluh Monica Menendez	How intersection operations affect crashes on road inlets
09:40	10:00	Anastasios Kouvelas Mohammadreza Saeedmanesh Nikolas Geroliminis	A convex formulation for model predictive perimeter flow control in multi-region cities
10:00	10:20	Kaidi Yang Monica Menendez	Robustness of a signal control algorithm in a connected vehicle environment

Thursday 19th morning (second part)

Session 3A: Railway			
Chair: Javier Ortigosa **Room:** Auditorium			
Start	**End**	**Authors**	**Title**
10:40	11:00	Wolfang Scherr	Calibration of the Swiss Rail Model Using Longitudinal Demand Observation
11:00	11:20	Martin Sojka, Ulrich Weidmann	The railway level crossing: Synergy effects between rail and road infrastructure capacity
11:20	11:40	Tomas Robenek, Yousef Maknoon, Shadi Sharif Azadeh Michel Bierlaire	Impacts of Cyclicity in Passenger Railway Timetables
11:40	12:00	Daniel Emery	Green indication in the Speed Info Area of the ETCS-DMI

Session 3B: Demand modeling			
Chair: Matthieu De Lapparent **Room:** Balint			
Start	**End**	**Authors**	**Title**
10:40	11:00	Alireza Mahpour, Kay W. Axhausen, Amirreza Mamdoohi, Taha Hossein Rashidi	Are there latent effects in shopping destination choice? Survey methods and response behavior
11:00	11:20	Riccardo Curtale	Family decisions in tourism activities: the influence of the children
11:20	11:40	Andrea Pellegrini	Transportation mode and overnights stays: sequential or simultaneous choices?
11:40	12:00	Basil Schmid, Simon Schmutz Kay W. Axhausen	Post-car World: Exploring the choice between in-store and online shopping

Session 3C: Autonomous vehicles and on-demand transportation			
Chair: Yousef Maknoon **Room:** Eranos			
Start	**End**	**Authors**	**Title**
10:40	11:00	Marc Sinner, Ulrich Weidmann	Defining bus and train in the light of upcoming automation
11:00	11:20	Sofia Samoili, Monica Menendez	The impact of autonomous vehicles in highways and freeways
11:20	11:40	Lukas Ambühl, Francesco Ciari, Monica Menendez	What about space? A simulation based assessment of potential AVs impact on road space in urban areas
11:40	12:00	Pooya Khaligh, Ulrich Weidmann	A Conceptual Framework for the Interactions of Autonomous Public Transport Systems and Urban Planning Guidelines

Thursday 19ᵗʰ afternoon

Keynote by Nathalie Picard			
Chair: Rico Maggi **Room:** Auditorium			
Start	**End**	**Author**	**Title**
14:00	15:00	Nathalie Picard	Transportation economics and the family
Session 4A: Public transportation			
Chair: Mireia Roca-Riu **Room:** Auditorium			
Start	**End**	**Authors**	**Title**
15:20	15:40	Claudia Bongiovanni Nikolas Geroliminis	Autonomous Dial-a-Ride Transit Systems: Optimization and adaptive network design strategies for large complex networks
15:40	16:00	Ulrich Wehres, Shadi S. Azadeh, Y. Maknoon, M. Bierlaire	Modelling Uncertainty for a Catenary-free Electrical Bus
16:00	16:20	Philipp Froehlich, Claude Weis, Milenko Vrtic	Value of Reliability in Swiss Transport Systems
16:20	16:40	Christian Marti, Ulrich Weidmann	Understanding public transport and built environment integration at the neighbourhood scale: Towards a method for holistic quantitative assessment
16:40	17:00	Mikhail Murashkin Nikolas Geroliminis	How searching taxis will distribute around the city – static and dynamic modeling
Session 4B: Traffic flow and control 2			
Chair: Francesco Ciari **Room:** Balint			
Start	**End**	**Authors**	**Title**
15:20	15:40	Allister Loder, Kay W. Axhausen	Urban mode and subscription choice - An application of the three-dimensional MFD
15:40	16:00	Manuel Jakob, Monica Menendez	Macroscopic model for off-street parking and on-street parking: traffic effects
16:00	16:20	Jin Cao, Monica Menendez	Parking condition and parking search in the city of ZH
16:20	16:40	Işik İlber Sirmatel Nikolas Geroliminis	Model Predictive Control of Urban Networks with Perimeter Control and Route Guidance
16:40	17:00	Georgios Sarlas, Kay W. Axhausen	Exploring spatial methods for prediction of traffic volumes
Session 4c: Railway and freeway			
Chair: Christian Laesser **Room:** Balint			
Start	**End**	**Authors**	**Title**
15:20	15:40	Haitao He, Monica Menendez	Empirical comparison between longer and shorter weaving sections in Switzerland
15:40	16:00	Stefan Binder, Yousef Maknoon Michel Bierlaire	Exploring Pareto solutions of the multi-objective railway disruption management plan
16:00	16:20	Nuannuan Leng, Ulrich Weidmann	Passenger oriented timetable rescheduling in disrupted railway network
16:20	16:40	Ambra Toletti, Ulrich Weidmann	Modelling customer inconvenience in train rescheduling

Friday 20th morning

Session 5A: Data			
Chair: Yousef Maknoon **Room:** Auditorium			
Start	**End**	**Authors**	**Title**
09:00	09:20	Thomas Giger, Philippe Marti Mark Reinhard	The Federal Statistical Office's Transport Statistics System
09:20	09:40	Raphaël Lamotte, Anastasios Kouvelas, Romain Meyer Nikolas Geroliminis	Estimation of macroscopic traffic variables in urban environments with big but sparse multi-sensor data
09:40	10:00	Maxim Janzen, Kay W. Axhausen	Using GSM Data to calibrate a Continuous Long-Term Travel Demand Microsimulation
10:00	10:20	Qiao Ge, Monica Menendez	Application framework for global sensitivity analysis in traffic simulation

Session 5B: Land use			
Chair: Matthieu de Lapparent **Room:** Balint			
Start	**End**	**Authors**	**Title**
09:00	09:20	Patrick Schirmer	Residential location choice Switzerland
09:20	09:40	Thibaut Dubernet Kay W. Axhausen	Using a Joint Destination-Mode Choice Model for Developping Accessibility Measures
09:40	10:00	Ilka Ehreke, Gianmarco Ruppelt Kay W. Axhausen	The choice of workplace and residential location in Germany
10:00	10:20	Raphaël Fuhrer	Ex-post Analyses of Spatial Effects due to Changes in Transport Supply, a Literature Review

Session 5C: Agent based simulation			
Chair: Riccardo Scarinci **Room:** Eranos			
Start	**End**	**Authors**	**Title**
09:00	09:20	Philipp Fuchs, Flavio Poletti Patrick Bösch	The influence of railroad crossings on networks in the MATSim environment
09:20	09:40	Kirill Müller, Kay W. Axhausen	Updating the Switzerland population for MATSim
09:40	10:00	Milos Balac, Kay W. Axhausen	Implementing induced and suppressed demand in MATSim – first insights
10:00	10:20	Patrick Bösch, Kirill Müller Francesco Ciari	The IVT 2012 Baseline Scenario

Keynote by Jaume Barceló			
Chair: Monica Menendez **Room:** Auditorium			
Start	**End**	**Author**	**Title**
10:40	11:40	Jaume Barcelò	Bi-level optimization models for adjustment of time-sliced OD matrices
11.40 Conference closure by Michel Bierlaire			

Acknowledgment

Many thanks go to the following sponsors

STRC 2016 organizing committee

Mónica Menéndez, Javier Ortigosa, Marco Rothenfluh

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