



Conference Program

STRC

23rd Swiss Transport Research Conference
Monte Verità / Ascona, May 10 – 12, 2023

It is our pleasure to welcome you to the 23rd 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, 69 presentations will cover a multiplicity of topics, including: discrete choice modelling, activity patterns, mobility on demand, game theory, optimization, computer vision, governance and AI security among others. These topics include user and case studies as well as modelling of mobility concerning trains, bikes, cars, ride sharing, and traffic flow. The following Keynote speakers have confirmed their attendance:

- **Satish V. Ukkusuri**, Purdue University
- **Jack Haddad**, Technion
- **Shadi sharif Azadeh**, Technische Universiteit Delft

On behalf of the STRC organizing committee, welcome!

Alexandre Alahi, Visual Intelligence for Transportation, EPFL

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General Information

Location

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

The venue is near Ascona and Locarno.

Arrival / Departure Shuttle bus

We recommend travelling by train as there are only a limited number of parking spots. On Wednesday 10th there will be a shuttle service from Locarno train station to Monte Verità. The first bus leaves at 10:05, with more buses at 11:00, 11:30, 12:00, 12:40, and 13:00. We thus recommend attendants plan their arrival at Locarno station before 13.00h.

For those staying outside of Monte Verità, the smaller buses (14/30 seats) will make additional stops based on demand on Wednesday. The bus driver must be informed before leaving.

Shuttle Service Schedule							
Wednesday 10th				Friday 12th			
From:	To:	Time:	Seats:	From:	To:	Time:	Seats:
Locarno Station	Monte Verità	11:00	30	Monte Verità	Locarno Station	12:30	50
Locarno Station	Monte Verità	11:30	14	Monte Verità	Locarno Station	13:10	50
Locarno Station	Monte Verità	12:00	30				
Locarno Station	Monte Verità	12:30	50				
Locarno Station	Monte Verità	13:00	14				

Check-in

Check-in is at the reception of the conference center. There you will find your name badge. For those staying outside of Monte Verità (La Perla and Luna Hotel), please check in **before** 20:00hrs.

Presentation

The presentation time this year is 12 minutes with 5 minutes for questions.

Dinner (Wednesday 10th) and Gala Dinner (Thursday 11th)

Dinner on Wednesday is at Monte Verità, starting at 19:20h. On Thursday 11th, our Gala Dinner is at Ristorante Grotto Brogginì (Via S. Materno 18, 6616 Losone), starting at 19:30h. There will be a shuttle service departing from Monte Verità from 19:00h and back from Grotto Brogginì at 22:00h, according to the schedule below.

Shuttle Service Schedule			
Thursday 11th			
From:	To:	Time:	Seats:
Monte Verità	Restaurant Grotto Brogginì	19:00	50
Restaurant Grotto Brogginì	Monte Verità	22:00	50

=> return bus stops near La Perla upon request

Information

The program as well as the papers of the conference will soon be accessible through the conference webpage: <http://www.strc.ch/>. 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: strc2023@epfl.ch.

For emergency cases, you can call:

Alex Alahi: +41 79 613 92 20

Keynote Speakers

Satish Ukkusuri

Satish Ukkusuri is a Reilly Professor in the Lyles School of Civil Engineering at Purdue University and Director of the Urban Mobility Networks and Intelligence (UMNI) Lab. His research is in the area of interdisciplinary transportation networks with current interests in data driven mobility solutions, disaster management, resilience of interdependent networks, connected and autonomous traffic systems, shared mobility platforms, and smart logistics. He is a University Faculty Scholar (2017-2022), ASCE Fellow, Fulbright Fellow, a selectee of the National Academy of Engineering (NAE) JAFOE conference (2016), a selectee of the National Academy of Science (NAS) Arab American Frontiers of Science, Engineering and Medicine in 2017 and a CUTC/ARTBA Faculty Award (2011) among other awards. He has published more than 350 peer reviewed papers in journals such as PNAS, Nature Communications and Transportation Research Part B. He is the Editor in Chief of the Journal Data Science for Transportation (Springer) and Editor in Chief of the ACM Journal of Autonomous Transportation.

Jack Haddad

Jack Haddad is an Associate Professor of Transportation Engineering with the Civil and Environmental Engineering faculty, the Technion – Israel Institute of Technology, and the Head of the Technion Sustainable Mobility and Robust Transportation (T-SMART) Laboratory. He received all his degrees B.Sc. (2003), M.Sc. (2006), and Ph.D. (2010) in Transportation Engineering from the Technion. He served as a post-doctoral researcher (2010-2013) at the Urban Transport Systems Laboratory (LUTS), EPFL, Switzerland. His current research interests include urban air mobility, autonomous vehicles, traffic flow modeling and control, large-scale complex networks, advanced transportation systems management, and public transportation. Dr. Haddad serves as an Associate Editor for two journals: Transportation Research Part C and IEEE Transactions on Intelligent Transportation Systems. He was a recipient of the European Union Marie Curie, Career Integration Grant (CIG), and a recipient of two Israel Science Foundation (ISF) grants. He is currently the head of the Technion Transportation Research Institute (TRI), and the Assistant to the Senior Executive Vice President for Equal Opportunities. He is also a Visiting Faculty Researcher at Google.

Shadi Sharif Azadeh

Shadi Sharif Azadeh is a tenured assistant professor at Civil Engineering and Geosciences faculty and the co-director of SUM (Sustainable Urban Multi-modal Mobility) lab at TU Delft in the department of Transport & Planning. Her areas of expertise include integration of operations research with behavioural models for transport, mobility and logistics networks (Choice Driven Optimization). More precisely, her current major projects are related to 1) combining pricing and assortment optimisation methods to model supply and demand interplay for last mile delivery and urban mobility systems and 2) developing real-time methods to be incorporated in combinatorial optimisation framework for large-scale transport problems. She is an editorial board editor at Transportation Research Part B: Methodological, editorial board member of Transportation Research Part C: Emerging Technologies and guest editor of three special issues at Transportation Science, EURO Journal of Transport and Logistics and OR Spectrum.

Schedule overview

	Wednesday 10th	Thursday 11th	Friday 12th
09:00		Breakfast 09:00	Breakfast 09:00
		09:00 Session 3A, 3B, 3C	09:00 Session 7A, 7B, 7C
10:00		10:00 Swiss Blue Sky Session	10:20 Coffee Break
		10:40 Coffee Break	11:00 Keynote 3
11:00		11:25 Session 4A, 4B, 4C	12:00 Closing the conference
12:00	12:00 registration and lunch	12:25 Lunch	12:30
13:00			
14:00	14:00 Keynote 1	14:00 Keynote 2	
	15:00 Coffee Break	15:00 Coffee Break	
15:00	15:45 Session 1A, 1B, 1C	15:45 Session 5A, 5B, 5C	
16:00	16:45 Break	16:45 Break	
17:00	17:00 Session 2A, 2B, 2C	17:00 Session 6A, 6B, 6C	
18:00	18:20 Comitee meeting	18:15 photo	
19:00	19:20 Dinner	19:30 Gala Dinner	
	21:00 Open Jam Session		

Sessions: May 10th 2023

Keynote 1				
Chair:			Room:	Auditorium
Start	End	Speaker	Title	
14:00	15:00	Satish V. Ukkusuri	Multi-Modal energy efficient mobility analytics at scale for transportation hubs	

Session 1A				
Chair:			Room:	Auditorium
Start	End	Speaker	Title	
15:45	16:05	Benjamin Gramsch	Exploring the impact of the social network geography on the individual's activity space	
16:05	16:25	Janody Pougala	From one-day to multiday activity scheduling: extending the OASIS framework	
16:25	16:45	Caroline Winkler	How similar are our activity-travel patterns from week to week? An intraindividual analysis using four weeks of GPS and diary data in Switzerland	

Session 1B				
Chair:			Room:	Balint
Start	End	Speaker	Title	
15:45	16:05	Minru Wang	Addressing ride-sourcing spatial demand asymmetry through the optimization of inter-region pooling proportions	
16:05	16:25	Pengbo Zhu	Hierarchical Control for Idle Vehicle Repositioning in Autonomous Mobility on Demand Systems	
16:25	16:45	Kagho Grace Orowo	Reliability of agent's decision-making parameters in on-demand mobility simulations.	

Session 1C				
Chair:			Room:	Eranos
Start	End	Speaker	Title	
15:45	16:05	Patrick Stokkink	Multi-Modal Ride-Matching with Transfers	
16:05	16:25	Florian Fuchs	Addressing uncertain vehicle availability in line planning	
16:25	16:45	Caio Vitor Beojone	Using revenue forecasting to reposition vehicles in ride-sourcing	

Session 2A

Chair:		Simon Elias Bibri	Room:	Auditorium
Start	End	Speaker	Title	
	17:00	17:20 Florian Lichtin	The future of public transport design in a postpandemic world	
	17:20	17:40 Jascha Grübel	"CH on the move": Introducing the Prototype Digital Twin of The Swiss Mobility System	
	17:40	18:00 Noah Balthasar	Public transportation price reduction vouchers for pupils: Methodology and first results	
	18:00	18:20 Hauke Fehlberg	FEDRO presentation - Legal adjustments to AV driving and future focal points of research in smart mobility	

Session 2B

Chair:		Vera Fischer	Room:	Balint
Start	End	Speaker	Title	
	17:00	17:20 Thomas Schatzmann	Preferences in Tradeable Credit Schemes - An empirical study for Munich, Germany	
	17:20	17:40 Marko Maljkovic	Determining optimal charging prices for electric ride-hailing fleets via Contextual Bandits	
	17:40	18:00 Heinonen Sanelma	The E-biking in Switzerland (EBIS) study: Methods and dataset	
	18:00	18:20 Marco Miotti	A detailed atlas on urban form in Switzerland to understand travel demand across scales	

Session 2C

Chair:		Cloe Cortes Balcells	Room:	Eranos
Start	End	Speaker	Title	
	17:00	17:20 David Micallef	Towards an automated, open, and reproducible synthetic population of Switzerland	
	17:20	17:40 Marija Kukic	Hybrid Simulator for Capturing Dynamics of Synthetic Population	
	17:40	18:00 Klasovita Viera	Line Planning with Passenger Demand Uncertainty	
	18:00	18:20 Rezvany Negar	From domestic energy demand to household activity patterns	

Sessions: May 11th 2023

Session 3A				
Chair:		Mordan Taylor	Room:	Auditorium
Start	End	Speaker	Title	
	09:00	09:20 Laura Christine Schwab	Reducing Transportation Externalities through Nudging: Results from a GPS-Tracked Experiment	
	09:20	09:40 Mariana de Almeida Costa	Insights into Travel Behaviour and Commuting Patterns: a GPS tracking study with Public Transport and Private Mode Trips	
	09:40	10:00 Lukas Ballo	Modelling road space allocation on street networks for radical sustainable mobility transitions	

Session 3B				
Chair:		Benjamin Gramsch	Room:	Balint
Start	End	Speaker	Title	
	09:00	09:20 David Zani	Overcoming challenges in cost-benefit analysis of urban cycling infrastructure	
	09:20	09:40 Ni Ying-Chuan	Three-dimensional Macroscopic Fundamental Diagrams for Dedicated Bicycle and Car Traffic in an Actuated Signal Control Network	
	09:40	10:00 Lucas Meyer de Freitas	Route Choice Preferences of Cyclists in Switzerland A SP-Survey as part of the EBIS Project	

Session 3C				
Chair:		Michael Nold	Room:	Eranos
Start	End	Speaker	Title	
	09:00	09:20 Johannes Brunner	A New Microscopic Bicycle Simulation Model Considering Non-lane-based Traffic Characteristics	
	09:20	09:40 Clarissa Livingston	Analysis, Comparison, and Constructive Critique of Cycling Norms	
	09:40	10:00 Eduardo Bobrow Falbel	Spatial out-of-sample estimation of cycling OD Matrices	

Swiss Blue Sky Session				
Chair:		Alexandre Alahi	Room:	Auditorium
Start	End	Speaker	Title	
	10:00	10:10 Dario Küng Swiss Post	With full speed to E-Mobility: Available Technology, operational processes, and development topics	
	10:10	10:20 Fabian Heil Swiss Post	Pioneering On-Demand Mobility: Insights and Challenges by PostAuto, Leader of On-Demand Mobility in Switzerland	
	10:20	10:30 Sylvain Guillaume-Gentil Transitec	Introducing Transitec	

Session 4A

Chair:	Lucas Meyer de Freitas		Room:	Auditorium
Start	End	Speaker	Title	
11:25	11:45	Michael van Eggermond	Quantifying the effect of street design on driving speed on urban arterials	
11:45	12:05	Alessio Marra	Assessing real-time information systems during disruptions in public transportation	
12:05	12:25	Jacob Trepap Borecka	Computational Evaluation of Geographic Decomposition Choices in Railway Traffic Planning	

Session 4B

Chair:	Aurore Sallard		Room:	Balint
Start	End	Speaker	Title	
11:25	11:45	Mohamed Abdelfattah	Contrastive Learning for Robust Semi-Supervised Skeleton-based Action Recognition	
11:45	12:05	Linghang Sun	Exploring Antifragility in Traffic Networks: Anticipating Disturbances with Reinforcement Learning	
12:05	12:25	Mousavi Shimaossadat	A Mixed H2/H ∞ Controller Design for a Platoon with Multiple Human-Driven and Connected and Automated Vehicles	

Session 4C

Chair:	Kathrin Grosse		Room:	Eranos
Start	End	Speaker	Title	
11:25	11:45	Vera Fischer	An alternative system for waste collection with satellite vehicles and intermediate disposal facilities	
11:45	12:05	Fabian A. Torres Duran	Static Elevator Dispatching Problem with Destination Control	
12:05	12:25	Zheng Liang	Towards walkability enhancement: A systematic review and future directions	

Keynote 2

Chair:	Nikolas Geroliminis		Room:	Auditorium
Start	End	Speaker	Title	
14:00	15:00	Jack Haddad	Traffic Flow of Urban Air Mobility: Modeling, Control, and Simulation	

Session 5A

Chair:	Kaouther Messaoud		Room:	Auditorium
Start	End	Speaker	Title	
15:45	16:05	Yura Tak	Deep learning-based Vehicle Re-identification Using Temporal Information in Urban Traffic	
16:05	16:25	Aurore Sallard	A comparison between Bayesian networks and statistical matching for travel demand generation	
16:45	16:45	Charles Corbiere	Zero-Shot Pedestrian Action Recognition Using Vision-Language Models	

Session 5B

Chair:	Clarissa Livingston		Room:	Balint
Start	End	Speaker	Title	
15:45	16:05	Michael Nold	Calibration of train energy simulations	
16:05	16:25	Kathrin Grosse	A relative AI security risk assessment of autonomous vehicles	
16:45	16:45	Megh Hiren Shukla	A Study Of Deep Learning Based Covariance Estimation	

Session 5C

Chair:	Caio Vitor Beojone		Room:	Eranos
Start	End	Speaker	Title	
15:45	16:05	Jakob Roth	Mobility Pricing to Promote E-biking and Reduce Transportation Externalities: A GPS-Tracked Experiment	
16:05	16:25	Tom Haering	A Spatial Branch and Bound Algorithm for Continuous Pricing with Advanced Discrete Choice Demand Modeling	
16:45	16:45	Evangelos Paschalidis	Sampling of alternatives in migration aspiration models	

Session 6A				
Chair:	Jakob Roth		Room:	Auditorium
Start	End	Speaker	Title	
17:00	17:20	Nicola Ortelli	LSH-based adaptive batch size gradient descent for discrete choice models	
17:20	17:40	Antonin Danalet	Modelling foreign tourists in Switzerland	
17:40	18:00	Brian Sifringer	Embedding Images in DCM: A case study on correlated tabular/image data	

Session 6B				
Chair:	Megh Hiren Shukla		Room:	Balint
Start	End	Speaker	Title	
17:00	17:20	Lordieck Jan	Towards a new disruption management framework in railways by applying chaos theory	
17:20	17:40	Tzu-Hao Yan	Scheduling Tamping Actions with Consideration of Drivers Response Failures	
17:40	18:00	Zhenyu Yang	Tailored Priority Allocation in the Bottleneck Model with General User Heterogeneity	

Session 6C				
Chair:	Charles Corbiere		Room:	Eranos
Start	End	Speaker	Title	
17:00	17:20	Thomas Spaninger	Predicting Train Delays with Confidence: A Comparative Analysis to Quantify the Uncertainty of Train Delay Predictions	
17:20	17:40	Lynn Fayed	Space allocation in multi-modal networks with ondemand high-occupancy services	
17:40	18:00	Ahmad Rahimi	Social Causality: Towards Causally-aware Neural Representations of Multi-agent Interactions	

Sessions: May 12th 2023

Session 7A				
Chair:			Room:	Auditorium
Start	End	Speaker	Title	
09:00	09:20	Patrick Stokkink Gustav Nilsson	Macroscopic Rebalancing of Ride-hailing Vehicles Through a Convex MPC Approach	
	09:20	09:40 Alexander Erath	Analysis of the relevance of trip-based and tour-based mode choice approaches in assessing transport planning measures	
	09:40	10:00 Kenan Zhang	Routing and charging game in ride-hailing service with electric vehicles	
	10:00	10:20 Selin Ataç	Integrating MATSim and rebalancing operations strategies in car sharing systems: case studies from Switzerland	

Session 7B				
Chair:			Room:	Balint
Start	End	Speaker	Title	
09:00	09:20	Bastien van Delft Georg Anagnostopoulos	Formulation of time to collision for elliptical agents	
	09:20	09:40 Yue Hu	Travel simulation modelling and analysis of urban transport in Shanghai	
	09:40	10:00 Beat Hintermann	Pigovian Transport Pricing in Practice	
	10:00	10:20 Sebastiano Papini	Predicting Bike Accident Frequencies on the Urban Street Network in Switzerland	

Session 7C				
Chair:			Room:	Eranos
Start	End	Speaker	Title	
09:00	09:20	Antonin Danalet Muratori Corrado	Planning and Visual Tools for an optimal linking of On-demand services & Public Transit	
	09:20	09:40 Daniel Heimgartner	To consider or not to consider? An endogenous choice set formation approach to model the home office frequency decision	
	09:40	10:00 Cloe Cortes Balcells	Modeling the spreading of an infectious disease by capturing activity-travel behavior.	
	10:00	10:20 Mengyi Wang	Initial comparisons between Multiple Discrete-Continuous Extreme Value (MDCEV) model and Optimization-based Activity Scheduling Integrating Simultaneous choice	

Keynote 3				
Chair:			Room:	Auditorium
Start	End	Speaker	Title	
11:00	12:00	Michel Bierlaire Shadi Sharif Azadeh	Feeding the Future: Operations Research and Reinforcement Learning for Next-Generation Real-Time Decisions (e.g., On-Demand Meal-Delivery)	

Acknowledgments

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STRC 2023 organizing committee

Alexandre Alahi

Simon Elias Bibri

Celine Demonsant

Kathrin Grosse

Brian Sifringer

VITA – Visual Intelligence for Transport

EPFL