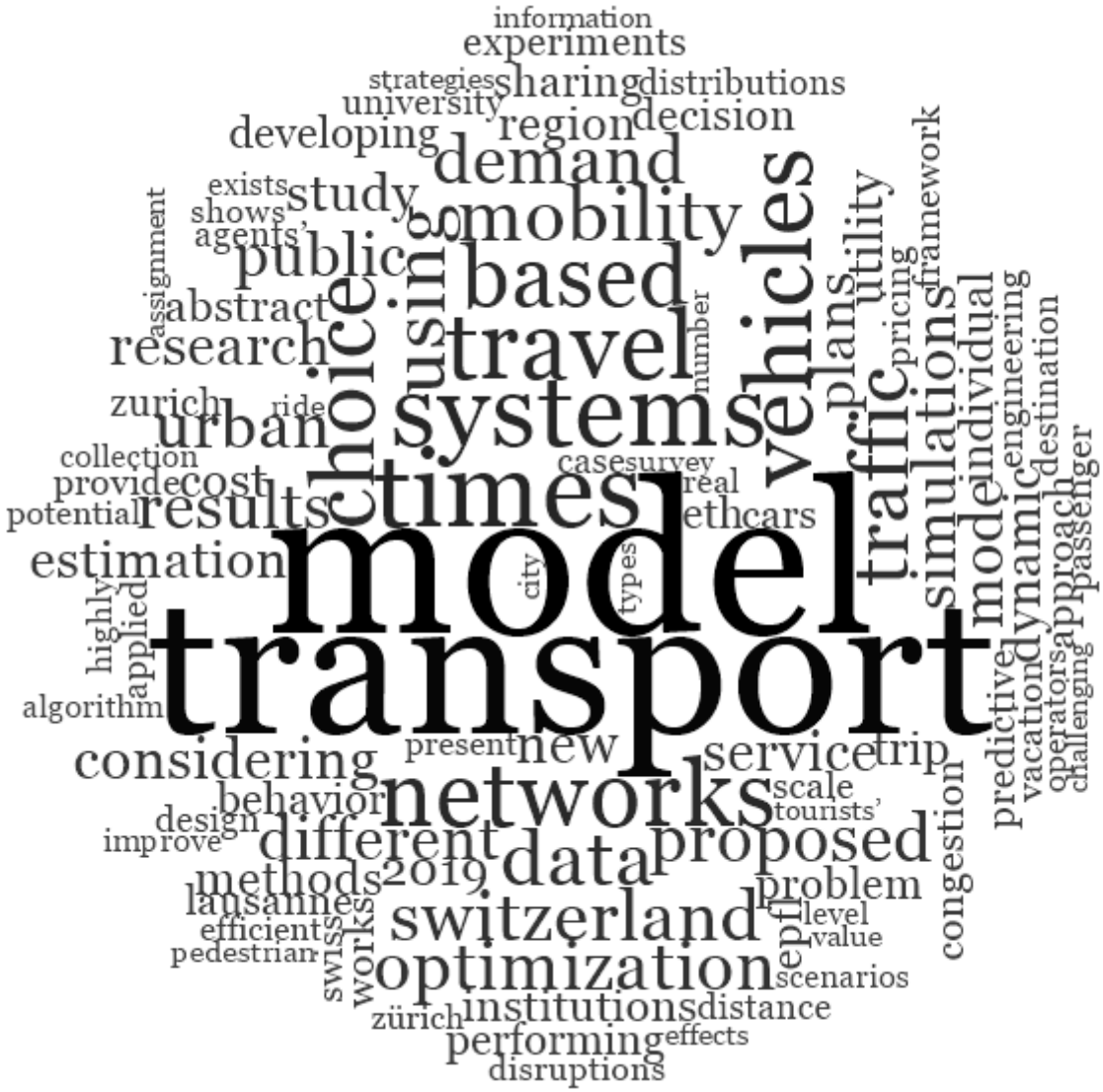
STRC | **19th Swiss Transport Research Conference**
Monte Verità / Ascona, May 15-17, 2019



CONFERENCE PROGRAM

Okay, here is where we left off

STRC 2018│ Monte Verità

Index

Foreword

It is my pleasure to welcome you to the 19th 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, 60 presentations will cover a multiplicity of topics, including: traffic monitoring, modeling and control, automated and connected transport systems, demand modeling, logistics, land use data, public transport operations and infrastructure, big data for transport and mobility, pedestrian modeling, among others. The following Keynote speakers have confirmed their attendance:

- **Emma Frejinger**, Department of Computer Science and Operations Research, Université de Montréal
- **David Hensher**, Institute of Transport and Logistics Studies, The University of Sydney Business School
- **Martin Savelsbergh**, H. Milton Stewart School of Industrial and Systems Engineering, Georgia Tech

We encourage you to interact with members from the other groups. STRC has led to numerous collaborations in recent years and we hope that this tradition continues, especially with the groups attending for the first time this year.

On behalf of the STRC organizing committee, welcome!

Rico Maggi, IRE, USI Lugano

General Information

Location
Fondazione Monte Verità, Strada Collina 84, CH-6612 Ascona.
More details can be found: https://www.monteverita.org/en.

Arrival and departure
The venue is near Ascona and Locarno. We recommend to travel by train as there are only a limited number of parking spots. Information concerning travel times by train can be checked at: https://www.sbb.ch/en/home.html.

Locarno <> Monte Verità shuttle service
On Wednesday 15th, there will be a shuttle service from Locarno train station to Monte Verità.

- Departure time: 12.15 – 12.45 – 13.20.

On Friday 17th, there will be also shuttle services from Monte Verità to Locarno.

- Departure time: 12.40 – 13.20 – 14.00.

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

Conference material
The program as well as the papers of the conference can be accessed through the conference web page: http://www.strc.ch/.

Presentation
The presentation time this year is 20 minutes with 10 minutes for questions.

Questions
For other questions regarding the conference, please send us an e-mail: strc@usi.ch

For emergency cases please call:

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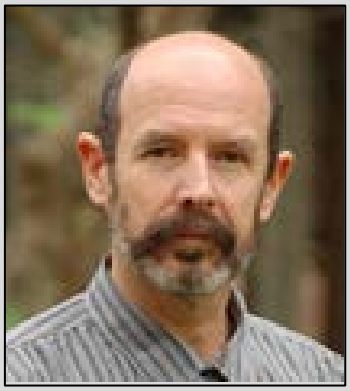
Keynote Speakers

May 15th 2019
Auditorium
14:00 – 15:00



Martin Savelsbergh
James C. Edenfield Chair & Professor
Director Supply Chain and Logistics Institute
H. Milton Stewart School of Industrial and Systems Engineering
Georgia Institute of Technology

Martin Savelsbergh is a logistics and optimization specialist with over 25 years of experience in mathematical modeling, operations research, optimization methods, algorithm design, performance analysis, transport, supply chain management, and production planning. He has published over 160 research papers in many of the top operations research and optimization journals and has supervised more than 30 Ph.D. students. Martin has a track record of creating innovative techniques for solving large-scale optimization problems in a variety of areas, ranging from service network design, to last-mile and crowdsourced delivery, to ridesharing. He has demonstrated an ability to design and implement highly sophisticated and effective optimization algorithms as well as an ability to analyze practical decision problems and translate the insights obtained into optimal business solutions. Martin holds the James C. Edenfield Chair in the H. Milton Stewart School of Industrial and Systems Engineering (ISyE) at Georgia Institute of Technology. He is co-director of The Supply Chain and Logistics Institute (SCL). SCL coordinates all supply chain and logistics activities on the Georgia Tech campus. Martin Savelsbergh is Editor-in-Chief of Transportation Science, one of the most prestigious academic journals in the area of transportation science and logistics.

May 16th 2019
Auditorium
14:00 – 15:00

David Hensher
Founding Director
Institute of Transport and Logistics Studies
The University of Sydney

Professor David Hensher is Founding Director of the Institute of Transport and Logistics Studies at The University of Sydney. He is internationally renowned as a leading research pioneer who has dedicated his career to the analysis and improvement of infrastructure systems around the world. Educated in Kenya (Parklands, Lord Delamere), England (Lindfield, Oxford) and Australia (UNSW), David is a Fellow of the Australian Academy of Social Sciences, Recipient of the 2009 International Association of Travel Behaviour Research (IATBR) Lifetime Achievement Award in recognition for his long-standing and exceptional contribution to IATBR as well as to the wider travel behaviour community; Recipient of the 2006 Engineers Australia Transport Medal for lifelong contribution to transportation, recipient of the Smart 2013 Premier Award for Excellence in Supply Chain Management; Recipient of the 2014 Institute of Transportation Engineers (Australia and New Zealand) Transport Profession Award to an individual who has made a significant contribution to the development of the transport/traffic engineering profession over a sustained period, and the 2016 Award for Outstanding Research as part of the inaugural University of Sydney Vice-Chancellor's Awards for Excellence. He has published over 630 papers in leading international transport and economics journals as well as 18 books. He has over 49,000 citations of his contributions in Google scholar. David is the Executive Chair and Co-Founder of The International Conference in Competition and Ownership of Land Passenger Transport (the Thredbo Series http://www.thredbo-conference-series.org/), now in its 30th year. David has advised numerous government and industry agencies in Australia and globally in the broad areas of transport economics, demand forecasting, economic evaluation, policy, planning.

May 17th 2019
Auditorium
11:30 – 12:30

Emma Frejinger
Associate Professor
Department of Computer Science and Operations Research
Université de Montréal

Emma Frejinger holds a Ph.D. in Mathematics from EPFL and is Associate Professor in the Department of Computer Science and Operations Research at Université de Montréal. Her research activities lie at the intersection between operations research and machine learning with a particular focus on transport applications. Along with her students, she has won several international awards for research on predicting path choice behaviour in transport networks. Emma Frejinger is the holder of the Canadian National Railway Company (CN) Chair in Optimization of Railway Operations, she is a member of CIRRELT (www.cirrelt.ca) and an associate member of Mila (mila.quebec). She also holds a part-time position as scientific advisor of IVADO Labs (ivadolabs.com), a provider of AI-driven supply chain solutions.

Schedule overview

Time	May 15th, 2019
12:30 13:00 13:30	*Registration and lunch (sandwich)*
14:00 14:30	**Welcome** Prof. R. Maggi and **Keynote speech** Prof. M. Savelsbergh (Chair Prof. F. Corman) Auditorium
15:00	*Coffee break*
15:30 16:00 16:30 17:00 17:30	A1.1 / B1.1 / C1.1 A1.2 / B1.2 / C1.2 A1.3 / B1.3 / C1.3 A1.4 / B1.4 / C1.4 A1.5 / B1.5 / C1.5
18:00 18:30 19:00 19:30	*Free* ***STRC Committee meeting***
20:00 20:30	*Dinner at Monte Verità*

Time	May 16th, 2019
07:30 08:00	*Breakfast*
08:30 09:00 09:30 10:00	A2.6 / B2.6 / C2.6 A2.7 / B2.7 / C2.7 A2.8 / B2.8 / C2.8 A2.9 / B2.9 / C2.9
10:30	*Coffee break*
11:00 11:30 12:00 12:30	A3.10 / B3.10 / C3.10 A3.11 / B3.11 / C3.11 A3.12 / B3.12 / C3.12 A3.13 / B3.13 / C3.13
13:00 13:30	Lunch
14:00 14:30	**Keynote speech** Prof. D. Hensher (Chair Prof. Kay W. Axhausen) Auditorium
15:00	*Coffee break*
15:30 16:00 16:30 17:00 17:30	A4.14 / B4.14 / C4.14 A4.15 / B4.15 / C4.15 A4.16 / B4.16 / C4.16 A4.17 / B4.17 / C4.17 A4.18 / /
18:00	Official Photo
18:30 19:00	*Free*
19:30	Walk to Ascona
20:00 20:30	*Gala Dinner*

Time	May 17th, 2019
07:30 08:00 08:30	*Breakfast*
09:00 09:30 10:00 10:30	A5.19 / B5.19 A5.20 / B5.20 A5.21 / B5.21 A5.22 / B5.22
11:00	Coffee break
11:30 12:00	**Keynote speech** Prof. E. Frejinger and **Conclusion** Prof. N. Geroliminis (Chair Prof. M. Bierlaire) Auditorium
12:30 13:00	

Sessions: May 15th 2019

	Session A.1		
	Room Auditorium Chair Prof. Maggi		
		Presentation	**Discussant**
15:30	**Prospects of on-demand Urban Air Mobility in Zurich** *Milos Balac, Raoul Rothfeld and Sebastian Hörl*	A1.1	A1.3
16:00	**Destination choice modeling with spatially distributed constraints** *Basil Janis Vitins and Alexander Erath*	A1.2	A1.4
16:30	**Uncertainty Estimation in Perception Tasks for Self-driving Vehicles** *Lorenzo Bertoni, Sven Kreiss and Alexandre Alahi*	A1.3	A1.1
17:00	**A demand-based optimization approach to find market equilibria in oligopolies** *Stefano Bortolomiol, Michel Bierlaire and Virginie Lurkin*	A1.4	A1.2
17:30	**Risky mode choice behavior with heterogeneous attitudes to risk: a latent class perspective** *Matthieu de Lapparent, Maurin Baillif and Hélène Bouscasse*	A1.5	A4.18

	Session B.1		
	Room: Balint Chair Prof. Geroliminis		
		Presentation	**Discussant**
15:30	**A learning large neighborhood search for the dynamic electric autonomous dial-a-ride problem** *Claudia Bongiovanni, Mor Kaspi, Jean-François Cordeau and Nikolas Geroliminis*	B1.1	B1.3
16:00	**Human Trajectory Prediction using Adversarial Loss** *Parth Kothari and Alexandre Alahi*	B1.2	B1.4
16:30	**An Agent-Based MATSim Scenario for Lagos, Nigeria** *Grace O. Kagho and Kay W. Axhausen*	B1.3	B1.1
17:00	**Towards High Performance Mobility Simulations** *Rodrigo Bruno, Michel Müller and Gustavo Alonso*	B1.4	B1.2
17:30	**Stochastic Optimization with Adaptive Batch Size: Discrete Choice Models as a Case Study** *Gael Lederrey, Virginie Lurkin, Tim Hillel and Michel Bierlaire*	B1.5	C3.13

	Session C.1		
	Room: Eranos Chair Prof. Axhausen		
		Presentation	**Discussant**
15:30	**Understanding long-term multimodal mobility demand to inform MaaS service bundling** *Daniel J. Reck and Kay W. Axhausen*	C1.1	C1.3
16:00	**Modeling uncertainty dynamics in public transport networks** *Alessio Trivella, Francesco Corman*	C1.2	C1.4
16:30	**Alternative non-additively separable utility functions for random utility maximization-based multiple discrete continuous models** *Andrea Pellegrini, Shobhit Saxena, Abdul R. Pinjari and Thijs Dekker*	C1.3	C1.1
17:00	**Variational Bayesian Inference for Mixed Logit Models with Unobserved Inter- and Intra-Individual Heterogeneity** *Rico Krueger, Prateek Bansal, Michel Bierlaire, Ricardo A. Daziano and Taha H. Rashidi*	C1.4	C1.2
17:30	**An open-source R package for estimating complex choice models on large datasets** *Joseph Molloy, Basil Schmid, Felix Becker and Kay W. Axhausen*	C1.5	C1.3

Sessions: May 16th 2019

	Session A.2		
	Room Auditorium		
	Chair Prof. Axhausen		
		Presentation	**Discussant**
08:30	**Decomposition of the value of travel time savings into the value of leisure and the value of time assigned to travel** *Basil Schmid, J. Molloy, S. Jokubauskaite, F. Aschauer, S. Peer, R. Hoessinger, R. Gerike, S. Jara-Diaz and Kay W. Axhausen*	A2.6	A2.8
09:00	**Motility as a tool to uncover mobility practices** *Eloi Bernier, Alexis Gumy, Guillaume Drevon and Vincent Kaufmann*	A2.7	A2.9
09:30	**How does rail perform against autonomous buses? Two case studies in Switzerland** *Marc Sinner and Ulrich Weidman*	A2.8	A2.6
10:00	**What remains from vacations? Relevance and value of vacation memories** *Eva Vroegop*	A2.9	A2.7

	Session B.2		
	Room: Balint		
	Chair Prof. de Lapparent		
		Presentation	**Discussant**
08:30	**Passenger satisfaction maximization within a demand-based optimization framework** *Pacheco Paneque, Sharif Azadeh and Michel Bierlaire*	B2.6	B2.8
09:00	**Applications of the Learning Mutlinomial Logit in Transportation: Comparing Prediction and Interpretation** *Brian Sifringer, Virginie Lurkin and Alexandre Alahi*	B2.7	B2.9
09:30	**How Technology Commitment affects Willingness to Use AVs - Results from Realistic Mode Choice Experiment for a Self-Driving Shuttle Service** *Michael Wicki, Sergio Guidona, Felix Becker, Kay W. Axhausen and Thomas Bernauera*	B2.8	B2.6
10:00	**Hybrid modeling framework for large-scale dial-a-ride problems** *Martí Montesinos, Yanfeng Ouyang and Nikolas Geroliminis*	B2.9	B2.7

	Session C.2		
	Room: Eranos		
	Chair Prof. Corman		
		Presentation	**Discussant**
08:30	**Utilizing a swarm of drones for large-scale traffic measurements** *Emmanouil Barmpounakis and Nikolaos Geroliminis*	C2.6	C2.8
09:00	**3D-MFD-based traffic assignment** *Allister Loder and Kay W. Axhausen*	C2.7	C2.9
09:30	**Estimating distances, passenger-vehicle matching and positioning for ridesourcing systems** *Caio Vitor Beojone, Nikolas Geroliminis*	C2.8	C2.6
10:00	**Analyzing the impact of different degrees of disruptions in multimodal public transport** *Alessio D. Marra, Francesco Corman*	C2.9	C2.7

	Session A.3		
	Room: Auditorium Chair Prof. Alahi		
		Presentation	**Discussant**
11:00	**Exploiting the Knowledge in a Discriminator of Generative Adversarial Networks** *Yuejiang Liu, Parth Kothari and Alexandre Alahi*	A3.10	A3.12
11:30	**Simulation-based design and analysis of on-demand mobility services** *Iliya Markov, M. Laumanns, R. Guglielmetti, R. de Souza, S. Ehsani and A Fernández-Antolín*	A3.11	A3.13
12:00	**Integrated and coordinated control for highway networks** *Kimia Chavoshi and Anastasios Kouvelas*	A3.12	A3.10
12:30	**Nonlinear model predictive variable speed limit control of freeway systems** *Işık İlber Sirmatel and Nikolas Geroliminis*	A3.13	A3.11

	Session B.3		
	Room: Balint Chair Prof. Bierlaire		
		Presentation	**Discussant**
11:00	**Comparison of short-term prediction algorithms for predict traffic demand using taxi data** *Aoyong Li, Kai W. Axhausen*	B3.10	B3.12
11:30	**Digital and physical methods to monitor mobility: Pully case study** *Janody Pougala and Pierre-Yves Gilliéron*	B3.11	B3.13
12:00	**Next Steps for Social Force with Big Data** *Sven Kreiss and Alexandre Alahi*	B3.12	B3.10
12:30	**Bus Running Time Distributions on a Section Level** *Beda Büchel and Francesco Corman*	B3.13	B3.11

	Session C.3		
	Room: Eranos Chair Prof. Maggi		
		Presentation	**Discussant**
11:00	**Understanding camping guests' attitudes and behavior towards green initiatives: a SP experiment in the Swiss context.** *Riccardo Curtale*	C3.10	C3.12
11:30	**Effects of free destination cards on tourists' visiting behavior: A Swiss case study** *Igor Sarman and Stefano Scagnolari*	C3.11	C3.10
12:00	**A ticket-based public transport pricing model for Switzerland** *Sebastian Hörl, Joseph Molloy and K. W. Axhausen*	C3.12	C3.11
12:30	**Long-distance buses in Switzerland: An examination of their substitution effects for long-distance travel** *Thomas Schatzmann, Reto Tanner and Kay W. Axhausen*	C3.13	C3.11

	Session A.4		
	Room: Auditorium Chair Prof. Laesser		
		Presentation	Discussant
15:30	**Logistic deliveries with Drones. State of the art of research and practice** *Mireia Roca-Riu and Monica Menendez*	A4.14	A4.16
16:00	**Efficient and sustainable waste collection** *Vera Fischer*	A4.15	A4.17
16:30	**Dynamic prediction-based relocation policies in one-way station-based car-sharing systems with complete journey reservations** *Martin Repoux, Mor Kaspi, Burak Boyaci and Nikolas Geroliminis*	A4.16	A4.14
17:00	**Pedestrian Image Generation for self-driving cars** *Saeed Saadatnejad and Alexandre Alahi*	A4.17	A4.15
17:30	**Review and Evaluation of Approaches to Modeling Autonomous Transport Modes using MATSim: A Case Study for Switzerland** *Clarissa V. Livingston, Sebastian Hoerl, Kay W. Axhausen*	A4.18	A1.5

	Session B.4		
	Room: Balint Chair Prof. Alahi		
		Presentation	Discussant
15:30	**Confidently Revisiting Visual Similarity Model** *George Adaimi, Sven Kreiss, Alexander Alahi,*	B4.14	B4.16
16:00	**Feed-forwards meet recurrent networks in vehicle trajectory prediction** *M. Bahari and A. Alahi*	B4.15	B4.17
16:30	**Online fleet management for on-demand capacitated ride sharing problems** *Zahra Ghandeharioun, Anastasios Kouvelas*	B4.16	B4.14
17:00	**Traffic forecasting for freeway networks by a localized linear regression time series model with a graph data dimensional reduction method** *Semin Kwak and Nikolas Geroliminis*	B4.17	B4.15

	Session C.4		
	Room: Eranos Chair Prof. Corman		
		Presentation	Discussant
15:30	**Integrated charging station design for electric taxis** *Zhengchao Wang, Yuki Oyama, Michel Bierlaire, Nikolas Geroliminis*	C4.14	C4.16
16:00	**Avoiding stranded bicycles in free-floating bicycle-sharing systems using survival analysis to derive operational rules for rebalancing** *S. Guidon, C. Tchervenkov, H. Becker, Kay W. Axhausen*	C4.15	C4.17
16:30	**Model-based analysis of electrification in railway - Understanding the impact of track, operations, and uncertainties** *Florian Mueller, K. Schmidt, M. Guerster, N. Obrenovic and M. Bierlaire*	C4.16	C4.14
17:00	**Metering-based priority with departure time choice** *Raphael Lamotte, André de Palma, Nikolas Geroliminis*	C4.17	C4.15

Sessions: May 17th 2019

	Session A.5		
	Room: Auditorium Chair Prof. Bierlaire		
		Presentation	**Discussant**
09:00	**MOBi.Plans: a Microscopic, Activity-Based Travel Demand Model of Switzerland** *Wolfgang Scherr, P. Manser, C. Joshi, N. Frischknecht and D. Métrailler*	A5.19	A5.21
09:30	**A distributed Agent-Based Freight Simulation for Large Scale Road Network** *Penazzi Stefano, Amar Ramudhin*	A5.20	A5.22
10:00	**The impact on pedestrian walking times of counterflow** *Nicholas Molyneaux, Michel Bierlaire*	A5.21	A5.19
10:30	**An optimization framework for a vehicle sharing system** *Selin Atac, Michel Bierlaire, Nikola Obrenovic*	A5.22	A5.20

	Session B.5		
	Room: Balint Chair Prof. Kouvelas		
		Presentation	**Discussant**
09:00	**Dynamic congestion pricing for multi-region networks: A traffic equilibria approach** *Alexander Genser, Anastasios Kouvelas*	B5.19	B5.21
09:30	**Optimizing Dedicated Bus Lane allocation in bi-modal networks with dynamic congestion** *Dimitrios Tsitsokas, Nikolas Geroliminis*	B5.20	B5.22
10:00	**Impact of vehicle automation and electric propulsion on production costs for mobility services worldwide** *Henrik Becker, Felix Becker and Kay W. Axhausen*	B5.21	B5.19
10:30	**Optimal control of inflow for a zone with heterogeneous trip length and trapezoidal production-MFD** *Mikhail Murashkin, Nikolas Geroliminis*	B5.22	B5.20

Notes

Acknowledgments

Many thanks to the following sponsors

Schweizerische Eidgenossenschaft
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