

Publication List

Journal Articles as First Author

- A. Kesting, M. Treiber, D. Helbing: *Enhanced Intelligent Driver Model to access the impact of adaptive driving strategies on traffic capacity*
submitted to Proceedings of the Royal Society A: Mathematical, Physical, Engineering Sciences, 2009
- A. Kesting, M. Treiber, D. Helbing: *Connectivity statistics of store-and-forward inter-vehicle communication*
accepted for publication, IEEE Transactions on Intelligent Transportation Systems, 2009
- A. Kesting, M. Treiber: *Datengestützte Analyse der Stauentstehung und -ausbreitung auf Autobahnen*
in print, Straßenverkehrstechnik, 01/2010
- A. Kesting, M. Treiber, M. Schönhof, D. Helbing: *Adaptive cruise control design for active congestion avoidance*
Transportation Research Part C: Emerging Technologies, 16 (6), 668-683, 2008
- A. Kesting, M. Treiber: *How reaction time, update time, adaptation time influence the stability of traffic flow*
Computer-Aided Civil and Infrastructure Engineering, 23 (2), 125-137, 2008
- A. Kesting, M. Treiber: *Calibrating car-following models by using trajectory data: Methodological study*
Transportation Research Record: Journal of the Transportation Research Board, Vol. 2088, 148-156, 2008
- A. Kesting, M. Treiber, M. Schönhof, D. Helbing: *Extending adaptive cruise control (ACC) towards adaptive driving strategies*
Transportation Research Record: Journal of the Transportation Research Board, Vol. 2000, 16-24, 2007
- A. Kesting, M. Treiber, D. Helbing: *General lane-changing model MOBIL for car-following models*
Transportation Research Record: Journal of the Transportation Research Board, Vol. 1999, 86-94, 2007
- A. Kesting, C. Timm: *Topological doping of repulsive Hubbard models*
Physica B 339, 51-59, 2003

Journal Articles as Co-Author

- M. Treiber, A. Kesting, R. Eddie Wilson: *Reconstructing the traffic state by fusion of heterogeneous data*
submitted to Computer-Aided Civil and Infrastructure Engineering (2009)
- F. Kranke, H. Poppe, A. Kesting, M. Treiber: *Der Baustellenlotse – ein stauvermeidendes Fahrerassistenzsystem auf Grundlage von Fahrzeugsensordaten und Fahrzeug-Infrastruktur-Kommunikation*
in print, Straßenverkehrstechnik 01/2010
- D. Helbing, M. Treiber, A. Kesting, M. Schönhof: *Theoretical vs. Empirical classification and prediction of congested traffic states*
The European Physical Journal B 69, 583-598, 2009
- C. Thiemann, M. Treiber, A. Kesting: *Longitudinal hopping in intervehicle communication: Theory and simulations on modeled and empirical trajectory data*
Physical Review E 78, 036102, 2008
- C. Thiemann, M. Treiber, A. Kesting: *Estimating acceleration and lane-changing dynamics based on NGSIM trajectory data*
Transportation Research Record: Journal of the Transportation Research Board, Vol. 2088, 90-101, 2008
- S. Hamdar, M. Treiber, H. Mahmassani, A. Kesting: *Modeling driver behavior as a sequential risk taking task*
Transportation Research Record: Journal of the Transportation Research Board, Vol. 2088, 208-217, 2008
- M. Schönhof, M. Treiber, A. Kesting, D. Helbing: *Autonomous detection and anticipation of jam-fronts from messages propagated by inter-vehicle communication*
Transportation Research Record: Journal of the Transportation Research Board, Vol. 1999, 3-12, 2007
- M. Treiber, A. Kesting, D. Helbing: *Influence of reaction times and anticipation on stability of vehicular traffic flow*
Transportation Research Record: Journal of the Transportation Research Board, Vol. 1999, 23-29, 2007
- M. Treiber, A. Kesting, D. Helbing: *Understanding widely scattered traffic flows, the capacity drop, and platoons as effects of variance-driven time gaps*
Physical Review E 74, 016123, 2006
- M. Treiber, A. Kesting, D. Helbing: *Delays, inaccuracies and anticipation in microscopic traffic models*
Physica A, 360 (1), 71-88, 2006
- D. Helbing, M. Treiber, A. Kesting: *Understanding arrival and departure time statistics from interactions in queuing systems*
Physica A, 363 (1), 62-72, 2006
- M. Schönhof, A. Kesting, M. Treiber, D. Helbing: *Coupled vehicle and information flows: message transport on a dynamic vehicle network*
Physica A, 363 (1), Pages 73-81, 2006

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Doctoral Thesis

- A. Kesting: *Microscopic modeling of human and automated driving: Towards traffic-adaptive cruise control*
OpenAccess: <http://nbn-resolving.de/urn:nbn:de:bsz:14-ds-1204804167720-57734>
Book Publication: Verlag Dr. Müller, Saarbrücken, ISBN 978-3-639-05859-8, 2008

Book Contributions

- A. Kesting, M. Treiber, D. Helbing: *Agents for traffic simulation*
in: Agents, Simulation and Applications, Chapter 11, p. 325-356, A. Uhrmacher, D. Weyns (Ed.), CRC, 2009
- M. Treiber, A. Kesting: *Models for traffic flow and vehicle motion*
in: Handbook on Vehicular Networks, Chapter 2 (29 pages), M. Weigle, S. Olariu (Ed.), Chapman&Hall/CRC, 2009
- A. Kesting, M. Schönhof, S. Lämmer, M. Treiber, D. Helbing: *Decentralized approaches to adaptive traffic control*
in: Managing Complexity. Insights, Concepts, Applications, p. 179-199, D. Helbing (Ed.), Springer, 2007
- M. Treiber, A. Kesting, D. Helbing: *Verkehr verstehen und beherrschen*
in: Für eine neue deutsche Verkehrspolitik (Edition Internationales Verkehrswesen), p. 76–85, U.Stopka, W. Pällmann (Ed.), Deutscher Verkehrs-Verlag, 2005

Conference Proceedings

- A. Kesting, M. Treiber: *Online traffic state estimation based on floating car data*
Traffic and Granular Flow '09, Shanghai, 2009
- M. Treiber, A. Kesting: *On the nature of instabilities of traffic flow - what traffic data and mathematics can tell us*
Traffic and Granular Flow '09, Shanghai, 2009
- M. Treiber and A. Kesting: *Microscopic simulation of car-to-infrastructure communication and online traffic state estimation*
mobilTUM 2008 - International Scientific Conference on Mobility and Transport, München, 2009
- A. Kesting, M. Treiber: *Calculating travel times from reconstructed spatiotemporal traffic data*
Proceedings of the 4th International Symposium "Networks for Mobility", Stuttgart, 2008
- A. Kesting, M. Treiber, D. Helbing: *Model of a traffic-adaptive cruise control system*
Proceedings of the 4th International Symposium "Networks for Mobility", Stuttgart, 2008
- M. Treiber, A. Kesting: *Impact of traffic congestion on fuel consumption and emissions*
Proceedings of the 4th International Symposium "Networks for Mobility", Stuttgart, 2008
- M. Treiber, A. Kesting, C. Thiemann: *How much does traffic congestion increase fuel consumption and emissions? Applying a fuel consumption model to the NGSIM trajectory data*
Annual Meeting of the Transportation Research Board (TRB), Washington, D.C., 2008
- A. Kesting, M. Treiber: *Calibration of car-following models using floating car data*
Traffic and Granular Flow '07, p. 117-128, Springer, 2009

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- M. Treiber, A. Kesting: *Modelling and simulating several time-delay mechanisms in human and automated driving*
Traffic and Granular Flow '07, p. 413-420, Springer, 2009
- M. Treiber, A. Kesting: *Modeling lane-changing decisions with MOBIL*
Traffic and Granular Flow '07, p. 211-222, Springer, 2009
- A. Kesting, M. Treiber, M. Schönhof, C. Thiemann, D. Helbing: *Analytic and simulated statistics and applications of inter-vehicle communication*
First open Workshop on Simulation of the Car2Car Communication Consortium and the COMe-Safety project, Braunschweig, 2007
- A. Kesting, M. Treiber, M. Schönhof, F. Kranke, D. Helbing: *Jam-avoiding adaptive cruise control (ACC) and its impact on traffic dynamics*
Traffic and Granular Flow '05, p. 633-643, Springer, 2007
- M. Schönhof, A. Kesting, M. Treiber, D. Helbing: *Inter-vehicle communication on highways: Statistical properties of information propagation*
Traffic and Granular Flow '05, 645-655, Springer, 2007
- M. Treiber, A. Kesting, D. Helbing: *Variance-driven traffic dynamics and statistical aspects of single-vehicle data*
Traffic and Granular Flow '05, p. 551-557, Springer, 2007
- A. Kesting, M. Treiber: *Influence of reaction times and anticipation on the stability of vehicular traffic flow*
Sixth IFAC Workshop on Time-Delayed Systems, Italy, 2006
- A. Kesting, M. Treiber, S. Lämmer, M. Schönhof, D. Helbing: *Decentralized approaches to adaptive traffic control and an extended level of service concept*
17th International Conference on the Applications of Computer Science and Mathematics in Architecture and Civil Engineering (IKM), Weimar, 2006
- F. Kranke, H. Poppe, M. Treiber, A. Kesting: *Fahrerassistenzsysteme zur aktiven Stauvermeidung*
VDI-Berichte zur 22. VDI/VW Gemeinschaftstagung Integrierte Sicherheit und Fahrerassistenzsysteme, VDI-Verlag, 2006