

CURRICULUM VITAE

FREDRIK BRUZELIUS

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Mail work: Chalmers University of Technology
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PERSONAL DETAILS

Gender: Male

Date of birth: 20th of May, 1974

Marital status: Married

Place of birth: Kristinehamn, Sweden

Present Citizenship: Swedish

DEGREES

- 1993-1995 Electrical Engineering degree, University of Karlstad
- 1995-1999 Master of Science in Applied Mathematics, Linköping University
Thesis: *A discrete subdivision scheme for constructing a convex surface, using the Monge-Ampère operator*, Supervisor: Prof. Tommy Elfving
- 1999-2002 Licentiate of Engineering in Control Theory, Chalmers University of Technology
Thesis: *LPV-Based Gain Scheduling – An \mathcal{H}_∞ approach* Supervisor: Prof. Claes Breitholtz
- 1999-2004 Doctor of Philosophy in Control Theory, Chalmers University of Technology
Thesis: *Linear Parameter Varying Systems: An approach to Gain Scheduling*; Supervisor: Prof. Claes Breitholtz
- 2014 Docent in Vehicle Dynamics – Simulation & Estimation, Mechanics and Maritime Sciences, Chalmers University of Technology
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EMPLOYMENTS

- 1997–1998 Teaching assistant in Numerical Analysis at Linköping University
- 1997–1998 Teaching assistant in Mathematical Statistics at Linköping University
- 1999–2004 PhD student position at the Department of Signals and Systems at Chalmers University of Technology

- 2004–2008 Researcher in Vehicle Dynamics and Control at Volvo Technology
- 2008–2022 Research Associate in Vehicle Dynamics at the Swedish National Road and Transport Research Institute (VTI), Göteborg Sweden.
- 2011–2013 Researcher (Post Doc) at Vehicle Dynamics, Mechanics and Maritime Sciences, Chalmers University of Technology
- 2013 Project leader (Co-supervisor) at Vehicle Dynamics, Mechanics and Maritime Sciences, Chalmers University of Technology
- 2014–2022 Adjunct Professor in Vehicle Dynamics, Mechanics and Maritime Sciences, Chalmers University of Technology
- 2022– Senior Researcher (Associate Professor) Vehicle Dynamics, Mechanics and Maritime Sciences, Chalmers University of Technology
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TEACHING EXPERIENCE

- 1999 -2004 *Automatic Control for engineering physics students*, teaching assistant incl. classroom teaching, laboratory supervision, designing hand-in assignments, marking exams
- 1999-2004 *Adaptive and Optimal Control*, teaching assistant incl. classroom teaching, laboratory supervision, designing hand-in assignments, marking exams
- 2004 *Automatic control for vehicles*, lecturer of part of the course, co-author of compendium material.
- 2011 *Measurement techniques for automotive applications*, assistant lecturer supervisor.
- 2013–2022 *Tire and Vehicle dynamics* Biannual PhD student course. Main course responsible, designing course contents, major lecturer, examiner.
- 2022– *emphVehicle Dynamics*. Second level masters course, lecturer of module vertical dynamics.
- 2021–2023 *Vehicle Dynamics Advanced*. Second level masters course. lecturer of modules dynamics and tyre dynamics.
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SUPERVISION EXPERIENCE

MASTERS STUDENTS

GRADUATED

- 2003 Sara Åberg, *Linjär Parameter-variernade reglering av en Furutapendel* MSc thesis Signals and Systems 2003:36, Chalmers. Supervisor.
- 2011 Han Shi, *Automatic generation of OpenDrive roads from road measurements*, MSc thesis Computer Science 2011:41, Chalmers. Supervisor
- 2012 Arun Kumar Subbana, *Closed loop race driver modelling*, MSc thesis Applied Mechanics 2012:29, Chalmers. Supervisor, Examiner
- 2012 Jorge Gómez Fernández, *A Vehicle Dynamics model in Modelica language to be used in Driving Simulator*, MSc thesis Applied Mechanics 2012:26, Chalmers. Supervisor, Examiner.
- 2013 Emanuele Obialero, *A Refined Vehicle Dynamics Model for Driving Simulators*, MSc thesis Applied Mechanics 2013:10, Chalmers. Supervisor. Examiner
- 2013 Yulong Gao, *Longitudinal Velocity and Road Slope Estimation in Hybrid/Electric Vehicles*, MSc thesis Applied Mechanics 2013:52, Chalmers. Examiner.

- 2014 Patrik Hansson, Anders Stenbeck, *Prepositioning of a Driving Simulator Motion System*, MSc thesis Applied Mechanics 2014:20, Chalmers. Examiner.
- 2016 Stefano Sedran, *A truck dynamics model for driving simulators*, MSc thesis Applied Mechanics 2016:07, Chalmers, Supervisor
- 2016 Erik Watcher, *Vehicle dynamics control on the limit*, MSc thesis Applied Mechanics 2016:XX, Chalmers, Examiner
- 2018 Johan Lindqvist, *Desktop Simulator for System Simulation*, MSc thesis Applied Mechanics 2018:XX, Examiner
- 2018 Nikhil Baliga & Gokul Gouda Hiregoudar, *Modeling of Tire to snow interaction*, MSc thesis Applied Mechanics 2018:XX, Supervisor.
- 2019 Akshay Bharadwaj, *STEERING EFFECTS OF ACTIVE SUSPENSIONS – Modelling and Control of ARB system to mitigate yaw disturbances and decrease driver steering effort*, MSc thesis Applied Mechanics 2019:XX, Supervisor.
- 2019 Lydia Schenk, *Musculoskeletal Driver Model for the Steering Feedback Controller* Master's thesis 2020:59, Chalmers. Joint work with TU Delft and As. Prof. Barys Shyrokau, Examiner.
- 2020 Erik Nordström *Advanced Modelling and Energy Efficiency Prediction for Road Vehicles*. Master's Thesis in Engineering Physics, 30 ECTS, Umeå University. Supervisor.
- 2021 Jonas Johansson; Nicholas Nobling *Improving braking and cornering sensation in a driving simulator by developing an active seat belt tensioner*. MSc thesis Applied Mechanics 2021:14, Supervisor and Examiner.
- 2021 Chirag Rajopadhye; Bharath Govardhan Raju, *Influence of inflation pressure, speed, load and warm-up phase on rolling resistance of passenger car tyres* MSc thesis Applied Mechanics 2021:40, Examiner.
- 2021 Eva Skvor *Health Aware Optimisation of the Energy Management of a Fuel Cell - Battery Hybrid Electric Vehicle*. MSc thesis Applied Mechanics 2021:65, Supervisor and Examiner.
- 2022 Marcus Berg; Conny Ta, *Energy consumption prediction for heavy electric vehicles based on the operating cycle format* MSc thesis Applied Mechanics 2022:XX, Supervisor and Examiner.
- 2022 Manish Raathimiddi *Assessment of environmental parameters on energy efficiency for different heavy vehicles powertrains using the operating cycle format* , main supervisor, joint with Ad Oomen, HAN university of Applied Sciences The Netherlands.
- 2023 Carl Emvin *Assessing the feasibility of replacing a specific diesel truck with a Battery Electric Vehicle using the Operating Cycle format*, MSc thesis Applied Mechanics 2023, Supervisor.
- 2023 Jesper Ramberg *Objective tuning of semi-active dampers*. MSc thesis, Mechanics and Maritime Sciences, Chalmers Examiner.
- 2023 Johan Janson; Ossian *Development and Implementation of Torque Feedback for Steer-by-wire systems*, MSc thesis, Mechanics and Maritime Sciences, Chalmers, Supervisor & Examiner.
- 2023 Anton Gustafsson & Eric Olsson, *Electrically Propelled Semi-trailer*. MSc thesis, Mechanics and Maritime Sciences, Chalmers Examiner.
- ONGOING
- 2022 Varun, *Pickup dynamics and electric connectivity on electrified roads*. Supervisor & Examiner.
- 2023 Alexander Hägglund *Improving latencies in driving simulators*, Supervisor & Examiner.
- 2023 Aakash Rishi *Performance based standards for vehicle combinations with axle distributed propulsion*, Supervisor & Examiner.

PHD STUDENTS

GRADUATED LICENTIATE

- 2015 Anton Albinsson, *Online State Estimation in Electrified Vehicles Linked to Vehicle Dynamics*, Chalmers University of Technology, Thesis for Licentiate of Engineering no 2015:18, ISSN 1652-8565, main supervisor.
- 2016 Björn Blissing, *Driving in Virtual Reality – Investigations in Effects of Latency and Level of Virtuality*, Licentiate thesis, Linköping University, ISSN 978-91-7685-673-4, co-supervisor.
- 2016 Artem Kusachov, *Motion Perception and Tire Models for Winter Conditions in Driving Simulators*, Chalmers University of Technology, Thesis for Licentiate of Engineering no 2016:22, ISSN 1652-8565, main supervisor.
- 2019 Tushar Chugh, *Haptic Feedback Control Methods for Steering Systems* Chalmers University of Technology, Thesis for the degree of Licentiate – Department of Mechanics and Maritime Sciences: 2019:05, main supervisor.
- 2021 Luigi Romano, *Mathematical modelling of operating cycles for road vehicles* Chalmers University of Technology, Thesis for the degree of Licentiate – Department of Mechanics and Maritime Sciences: 2021:09, main supervisor.

GRADUATED PHD

- 2018 Anton Albinsson, *Online and Offline Identification of Tyre Model Parameters* Chalmers University of Technology, Doktorsavhandlingar vid Chalmers tekniska högskola. Ny serie: 4401, ISBN 978-91-7597-720-1, main supervisor
- 2019 Pär Pettersson, *Operating cycle representations for road vehicles*. Doktorsavhandlingar vid Chalmers tekniska högskola. Ny serie: 4677, ISSN 0346-718X, co-supervisor.
- 2020 Björn Blissing, *Driving in Virtual Reality - Requirements for automotive research and development*, PhD thesis, Linköping University Electronic Press, co-supervisor.
- 2021 Weitao Chen, *Virtual prototyping of vehicular electric steering assistance system using co-simulations* Doktorsavhandlingar vid Chalmers tekniska högskola. Ny serie: 4991, ISBN 978-91-7905-524-0, co-supervisor.
- 2021 Tushar Chugh, *Steering control for haptic feedback and active safety functions* Doktorsavhandlingar vid Chalmers tekniska högskola. Ny serie: 4988, ISBN 978-91-7905-521-9, main supervisor.
- 2023 Luigi Romano, *The operating cycle representation of road transport missions* Doktorsavhandlingar vid Chalmers tekniska högskola. Ny serie: 5354, ISBN 978-91-7905-888-3, main supervisor.

ONGOING

- 2022– Yixiao Wang, Mechatronics, Chalmers Univ. of Technology, co-supervisor
- 2022– Tianyou Li, Traffic safety/Vehicle dynamics, Chalmers Univ. of Technology, co-supervisor.
- 2023– Mikael Askerdal, Mechatronics, Chalmers Univ. of Technology, co-supervisor
- 2023– Carl Emvin, Vehicle dynamics, Chalmers Univ. of Technology, main supervisor
- 2023– Zhaohui Ge, Vehicle dynamics, Chalmers Univ. of Technology, main supervisor

COURSES/PERSONAL DEVELOPMENT

- 2013 Supervision of Research, Division of Engineering Education Research, Chalmers University of Technology, 3 ECTS
- 2023 Diversity and Inclusion for Learning in Higher Education (CLS930), Chalmers University of Technology, 2 ECTS.
- 2023 University Teaching and Learning Course (CLS928), Chalmers University of Technology, 3 ECTS.
- 2015,-19,-23 Handledarforum, Phd supervision development, Chalmers University of Technology

GRADING COMMITTEES/OPPOSITIONS

- 2015 PhD defense Mitra Pourabdollah Chalmers, suppliant in grading committee
- 2016 PhD defense Isabelle Stockman *Safety for Children in Cars – Focus on Three Point Seatbelts in Emergency Events*, Chalmers, grading committee
- 2017 PhD defense Mohammad Mehdi Davari, *Exploiting over-actuation to reduce tyre energy losses in vehicle manoeuvres*, KTH, grading committee
- 2017 MSc thesis, Katrik Poovendran, Pretoria South Africa, external examiner
- 2019 PhD defense Liang Shao, *Tire-Road Friction Estimation based on Vehicle Lateral Dynamics*, TU Graz, Austria, opponent
- 2019 PhD defense Robert Hult, *Optimization-based coordination strategies for connected and autonomous vehicles* Mechatronics, Chalmers, suppliant in grading committee
- 2019 PhD defense Christian-Nils Boda *Driver interaction with vulnerable road users: Modelling driver behaviour in crossing scenarios*, Traffic Safety, Chalmers, grading committee
- 2021 PhD defense Tenghao Niu, *Measurement and Modelling of Human Car Driving with Steering Torque Feedback*, Department of Engineering, University of Cambridge, External examiner.

SELECTED MAJOR RESEARCH GRANTS

- 2011 Project: Everyday Safety for Electric Vehicles (EVERSAFE)
Budget: 1.9 M€ / VTI 3.5 MSEK
Funder: Era-Net electro-mobility
Main appl.: Fredrik Bruzelius (VTI)
Co-appl.: Volvo Cars, Royal Institute of Technology, Technische Universität Chemnitz, Fraunhofer-Gesellschaft, Bundesanstalt für Strassenwesen
- 2011 Project: Next Generation Test Methods for Active Safety system
Budget: 55 MSEK / VTI 5.5 MSEK
Funder: FFI - Fordons- & trafiksäkerhet
Main appl.: Christian Grante (Volvo GTT)
Co-appl.: Fredrik Bruzelius (VTI), Volvo Cars, Autoliv, Höskolan i Halmstad, Chalmers, SP
- 2012 Project: Torque Sensing for Vehicle State Estimation (TorqSens)
Budget: 8 MSEK / Chalmers 3.1 MSEK
Funder: FFI - Fordonsutveckling
Main appl.: Mats Jonasson (Volvo Cars, Project leader), Fredrik Bruzelius (Chalmers, main composer of application)
Co-appl.: BorgWarner TorqTransfer Systems

2014	Project:	Winter testing in driving simulator (WinterSim)
	Budget:	5.6 MSEK/ VTI 4.4 MSEK
	Funder:	ViP competence center, Test Site Sweden
	Main appl.:	Fredrik Bruzelius (VTI)
	Co-appl.:	Volvo Cars, Volvo GTT
2016	Project:	Tyre Sensing for Tyre Model Parametrization TYRESENS
	Budget:	4.616 MSEK/ VTI 0.7 MSEK
	Funder:	FFI - EMK
	Main appl.:	Fredrik Bruzelius (VTI)
	Co-appl.:	Volvo Cars, Chalmers University of Technology
2016	Project:	Utveckling och demonstration av avancerad cykel- simulator CYKELSIM
	Budget:	2 MSEK
	Funder:	FFI - Cyklar och andra fordon i säker och smart samverkan/Länsförsäkringar
	Main appl.:	Fredrik Bruzelius (VTI)
2017	Project:	Sustainable traffic of autonomous vehicles in smart- parking managementSMARTPARK
	Budget:	2.5 MSEK/ VTI 0.7 MSEK
	Funder:	FFI - EMK
	Main appl.:	Fredrik Bruzelius (VTI)
	Co-appl.:	Stockholm Stad, Stockholm Parkering, Swarco, Högskolan i Skövde
2018	Project:	Steer by wire Opportunities, performance and sys- tem safety SWOPPS
	Budget:	11.6 MSEK/ VTI 0.8 MSEK
	Funder:	FFI - EMK
	Main appl.:	Fredrik Bruzelius (VTI)
	Co-appl.:	Volvo Cars, Chalmers University of Technology, Royal Institute of Technology
2023	Project:	Trust and Utility of Battery Electric Vehicles (UFEEL)
	Budget:	13 MSEK
	Funder:	FFI - EMK
	Main appl.:	Volvo Trucks
	Co-appl.:	Volvo Cars, Chalmers University of Technology, SCANIA, VTI, RISE

REVIEWER ASSIGNMENTS

2008–	The International Journal of Vehicle Systems Modelling and Testing (IJVSMT).
2008–	The International Journal of Vehicle System Dynamics (IJVSD)
2008–	Proceedings of the Institution of Mechanical Engineers, Part D, Journal of Automobile Engineering

INTERNATIONAL COLLABORATIONS

2002–2004 Professor Guisheng Zhai, Osaka Prefecture University, Japan.

- 2008– PhD Ari Tuononen, Researcher, Alto University, Finland.
- 2009– Mikko Liukkula, Development manager, Nokian Tyres, Finland
- 2012– PhD Martin Fischer, Researcher, The German Aerospace Center (DLR)
- 2016– Assistant Professor Baris Shyrokau TU Delft, The Netherlands
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PROJECTS

- 2004–2007 Assisted steering control algorithm development at Volov Cars, project member, algorithm development
- 2004–2007 *Road Friction Estimation I*, IVSS Intelligent Vehicle Safety Systems program, project member
- 2007–2010 *Road Friction Estimation II*, IVSS Intelligent Vehicle Safety Systems, acting project coordinator
- 2008–2010 *eVALUE*, 7:th European Union Frame-program, project leader for VTI, project leader for work package on physical testing
- 2011–2013 *Driver response to lateral disturbances*, Chalmers fakultetsmedel, project member.
- 2012–2015 *NG Test methods*, FFI, project lead for VTI, supervisor of PhD student
- 2013–2017 *WinterSim*, ViP competence centre/TSS, project leader, supervisor of PhD student
- 2013–2017 *Torque Sensing for Vehicle State Estimation*, project lead for Chalmers, supervision of PhD student.
- 2017–2018 *Tyre Sensing for Tyre Model Parametrization*, project leader, supervision of PhD student.
- 2018– *Steer by wire Opportunities, performance and system safety*, project leader, supervision of PhD student.
- 2019– *COVER*, project lead for VTI, supervision of PhD student.
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PUBLICATIONS

VEHICLE DYNAMICS

JOURNALS

- [J37] Luigi Romano, **Fredrik Bruzelius**, Bengt J H Jacobson, *Transient tyre models with a flexible carcass*, Vehicle System Dynamics, Vol 11, 2023.
- [J36] Luigi Romano, **Fredrik Bruzelius** and Bengt J H Jacobson *Development of the Västra Götaland operating cycle for long-haul heavy-duty vehicles*. IEEE Access 2022.
- [J35] Luigi Romano, Francesco Timpone, **Fredrik Bruzelius** and Bengt Jacobson. *Transient tire slip losses using the brush theory*. Tire Science and Technology. Vol. 2022.
- [J34] Romano, Luigi, Pär Johannesson, Erik Nordström, **Fredrik Bruzelius**, Rickard Andersson, and Bengt Jacobson. *A classification method of road transport missions and applications using the operating cycle format*. IEEE Access (2022).
- [J33] L. Romano, **F. Bruzelius** and B. Jacobson *An extended LuGre-brush tyre model for large camber angles and turning speeds* Vehicle System Dynamics. Vol. In Press, 2022.
- [J32] L. Romano, **F. Bruzelius** and B. Jacobson *Rolling, tilting and spinning spherical wheels: Analytical results using the brush theory*. Mechanism and Machine Theory. Vol. Volume 173 (0094-114X)

- [J31] L. Romano, **F. Bruzelius** and B. Jacobson, *Development and analysis of the two-regime transient tyre model for combined slip* Vehicle System Dynamics. Vol. In Press, 2021.
- [J30] B. Blissing, **F. Bruzelius**, O. Ericsson, *The effects on driving behavior when using a head-mounted display in a dynamic driving simulator*. ACM Transactions on Applied Perception, Volume 19, Issue 1, January 2022.
- [J29] W. Chen, **F. Bruzelius**, M. Klomp and B. Jacobson, *A Method to Improve Stability and Transparency for Mechanical Hardware-in-the-Loop Simulation* Submitted.
- [J28] T. Chugh, **F. Bruzelius**, Balázs Adam Kulcsár and M. Klomp, *Robust H-infinity Position Control for Vehicle Steering*. Submitted.
- [J27] T. Chugh, **F. Bruzelius**, M. Klomp and B. Jacobson, *Steering Feedback Transparency Using Rack Force Observer*. IEEE/ASME Transactions on Mechatronics. Vol. X, 2022.
- [J26] Luigi Romano, Francesco Timpone, **Fredrik Bruzelius**, Bengt J H Jacobson, *Analytical results in transient brush tyre models: theory for large camber angles and classic solutions with limited friction* Meccanica, Vol. 57 (1), p. 165-191, 2022.
- [J25] L. Romano, P Johannesson, **F. Bruzelius** and B. Jacobson *An enhanced stochastic operating cycle description including weather and traffic models* Transportation Research Part D: Transport and Environment, Vol. 97 art. no 102878 2021.
- [J24] Schenk, Lydia; Chugh, Tushar; **Bruzelius, Fredrik**; Shyrokau, Barys. 2021. *Musculoskeletal Driver Model for the Steering Feedback Controller* Vehicles 3, no. 1: 111-126. 2021. <https://doi.org/10.3390/vehicles3010007>
- [J23] Luigi Romano, **Fredrik Bruzelius**, Bengt J H Jacobson, *Brush tyre models for large camber angles and steering speeds* Vehicle System Dynamics. Vol. In Press, 2020.
- [J22] Luigi Romano, **Fredrik Bruzelius** and Bengt Jacobson, *Unsteady-State Brush Theory*. Vehicle system dynamics, DOI: 10.1080/00423114.2020.1774625, 2020.
- [J21] T. Chugh, **F. Bruzelius**, M. Klomp and B. Shyrokau, *An Approach to Develop Haptic Feedback Control Reference for Steering Systems Using Open-loop Driving Maneuvers* Vehicle System Dynamics, DOI: 10.1080/00423114.2019.1662923
- [J20] Pär Pettersson, Pär Johannesson, Bengt J H Jacobson, **Fredrik Bruzelius**, Lars Fast, Sixten Berglund *A statistical operating cycle description for prediction of road vehicles' energy consumption* Transportation Research Part D: Transport and Environment 1361-9209 (ISSN) Vol. 73 pp. 205-22, 2019.
- [J19] Albinsson, A., **Bruzelius, F.**, Jacobson, B. and Ran, S. *Validation of vehicle based tyre testing methods*. Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering, Vol 233, Issue 1, 2019.
- [J18] **Bruzelius, F.**, Kharrazi, S. *Low Speed Performance Based Standards for Nordic Countries*. International Journal of Heavy Vehicle Systems, Vol. 28, No. 1, 2021.
- [J17] A. Albinsson, **F. Bruzelius**, B. Jacobson, Els, P.S., Bakker, E. *Tire Vibration Considerations in Vehicle Based Tire Testing*. Journal of Tire Science and Technology, Volume 47, Issue 3 2019.
- [J16] B. Blissing **F. Bruzelius**, Eriksson, O. *Driver behavior in mixed- and virtual reality – a comparative study* Transportation Research Part F: Traffic Psychology and Behaviour. <https://doi.org/10.1016/j.trf.2017.08.005>. 2017.
- [J15] Albinsson, A., **Bruzelius, F.**, Jacobson, B. and Bakker, E. *Evaluation of vehicle based tyre testing methods*. Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering, Vol 233, Issue 1, 2019.
- [J14] A. Kusachov **F. Bruzelius**, M. Hjort *A double interaction brush model for snow conditions*, Journal of Tire Science and Technology, Vol. 47 Issue 2 p. 118-140 2019.

- [J13] M. Hjort, O. Ericsson, **F. Bruzelius**, *Comprehensive Study of the Performance of Winter Tires on Ice, Snow, and Asphalt Roads: The Influence of Tire Type and Wear*. Tire Science and Technology, TSTCA, Vol. 45, No. 3, 2017, pp. 175–199.
- [J12] Wachter, Erik & Alirezaei, M. & **Bruzelius, Fredrik** & Schmeitz, A. *Path control in limit handling and drifting conditions using State Dependent Riccati Equation technique*. Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering. 095440701985073. 10.1177/0954407019850737.2019.
- [J11] Albinsson, A., **Bruzelius, F.**, Jacobson, B. and Fredriksson, J. *Design of Tyre Force Excitation for Tyre-Road Friction Estimation*. Vehicle System Dynamics, Vol. 55, Issue 2,, 208–230. 2016.
- [J10] Blissing, B. **Bruzelius, F.** & Eriksson, O. *Effects of visual latency on vehicle driving behavior*. ACM Transaction on Applied Perception, Vol 14, No 1, 2016.
- [J9] Albinsson, A., **Bruzelius, F.**, Pettersson, P., Jonasson, M. & Jacobson, B. *Estimation of the inertial parameters of vehicles with electric propulsion*, Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering. 2015.
- [J8] P. Hansson, A. Stenbeck, A. Kusachov, **F. Bruzelius**, B. Augusto *Prepositioning of driving simulator motion systems* International Journal of Vehicle Systems Modelling and Testing, Vol. 10, No 3, 2015.
- [J7] **F. Bruzelius** *A Theoretical Justification of the Sine With Dwell Maneuver* Vehicle System Dynamics. Vol. 5, Issue 4, p. 493–505, 2015.
- [J6] M. Klomp, G. Yunlong, **F. Bruzelius** *Longitudinal Velocity and Road Slope Estimation in Hybrid Electric Vehicles Employing Early Detection of Excessive Wheel Slip* Vehicle System Dynamics. Vol. 52 (2014) p. 172–188
- [J5] **F. Bruzelius**, J. Gomez Fernandez, B. Augusto *A Basic Vehicle Dynamics Model for Driving Simulators*. International Journal of Vehicle Systems Modelling and Testing, Vol. 8, No. 4, pp 364–385, 2013.
- [J4] **Bruzelius, Fredrik**; Hjort, Mattias; Svendenius Jacob *Validation of a basic combined slip tyre model for use in friction estimation applications* In Proc. IMechE, Part D: Journal of Automobile Engineering, 2014, Vol. 228(13), pp. 1622-1629.
- [J3] **F. Bruzelius**, D. Uystepuyst, B. Jacobson, S. Krajnović *A simple real-time aerodynamic model for vehicles in overtaking situations* International Journal of Vehicle Systems Modelling and Testing, Vol. 8, No. 3, pp 241–259, 2013.
- [J2] **Bruzelius, Fredrik**; Svendenius, Jacob; Yngve, Simon; Casselgren, Johan; Rönnerberg, Johan; Olsson Gunnar *Evaluation of Tire to Road Friction Estimators, Test Methods and Metrics*, In International Journal of Vehicle Systems Modelling and Testing, Vol 5. Nos 2/3 pp 213–236, 2010.
- [J1] Jacob Svendenius, Magnus Gäfvert, **Fredrik Bruzelius**, Johan Hultén *Experimental Validation of the Brush Tire Model*. Journal of Tire Science and Technology, vol. 37, pp 122–137, 2009.

CONFERENCE PROCEEDINGS

- [[C40] Mattias Hjort, **Fredrik Bruzelius**, Sogol Kharrazi, Anders Ydenius *All-season tires – investigation of braking performance in summer and winter conditions* 28th IAVSD International Symposium on Dynamics of Vehicles on Roads and Tracks, 2023.
- [C39] Yanru Suo, Dang Lu, **Fredrik Bruzelius** et al *Research on Prediction of Tire Camber-Sideslip Combined Mechanical Characteristics* 28th IAVSD International Symposium on Dynamics of Vehicles on Roads and Tracks, 2023.
- [C38] Matthijs Klomp, **Fredrik Bruzelius**, Ossian Bergström et al *Steer-by-wire – The challenge of angles and torque* 28th IAVSD International Symposium on Dynamics of Vehicles on Roads and Tracks, 2023.

- [C37] Luigi Romano, **Fredrik Bruzelius** and Bengt Jacobson, *A method to build energy-metric-optimal (EMO) classification systems for road transport missions* IEEE Vehicle Power and Propulsion Conference, 2023.
- [C36] Luigi Romano, Carl Emvin, **Fredrik Bruzelius** and Bengt Jacobson, *Stochastic modeling of mission stops and variable cargo weight for heavy-duty trucks*. IEEE Vehicle Power and Propulsion Conference, 2023.
- [C35] Sogol Kharrazi, **Fredrik Bruzelius**, Bruno Augusto, Mattias Hjort, *Wheelbase influence on performance of tractor-semitrailer combinations*. The 27th International Symposium on Dynamics of Vehicles on Road and Tracks (IAVSD21), St. Peterburg, Russia. 2021.
- [C34] Bruno Augusto, Sogol Kharrazi, **Fredrik Bruzelius**, BoLennarth Svensson, *REQUIREMENTS ON COUPLING STRENGTH OF B-TRIPLE AND TRUCK B-DOUBLE COMBINATIONS*. The 16th international symposium on heavy vehicle transport & technology (HVTT16). 2021.
- [C33] **Fredrik Bruzelius**, Sogol Kharrazi, Bruno Augusto, Mattias Hjort, *TRACTOR LENGTH INFLUENCE ON TRAFFIC SAFETY AND EFFICIENCY*. The 16th international symposium on heavy vehicle transport & technology (HVTT16). 2021.
- [C32] Alireza Marzbanrad, **Fredrik Bruzelius**, Bengt J H Jacobson, Edo Drenth *Enhanced Sliding Mode Wheel Slip Controller for Heavy Goods Vehicles*, EuroBrake Vol. EB2020- IBC-012
- [C31] Pär Pettersson, Bengt J H Jacobson, **Fredrik Bruzelius**, Pär Johannesson & Lars Fast *Intrinsic differences between backward and forward vehicle simulation models* 21st IFAC World Congress Berlin, Germany, 2020
- [C30] Luigi Romano, Fredrik Bruzelius and Bengt Jacobson, *A Brush Tyre Model with Standstill Handler for Energy Efficiency Studies*, 6th. Internationales Commercial Vehicle Technology Symposium, Kaiserslautern, Germany, 2020.
- [C29] Erik Wachter, Antoine Schmeitz, **Fredrik Bruzelius**, Mohsen Alirezaei *Path control in limits of vehicle handling: A sensitivity analysis* The 26th International Symposium on Dynamics of Vehicles on Road and Tracks (IAVSD19), Guthenburg, Sweden.
- [C28] Sharifzadeh, Mojtaba, **Bruzelius, Fredrik**, Jacobson, Bengt and Senatore, Adolfo *Tyre Models for Online Identification in ADAS Applications* 23rd International Conference on Mechatronics Technology, ICMT 2019, Institute of Electrical and Electronics Engineers (IEEE), 2019.
- [C27] Shenjin Zhu, Leon Henderson, Edo Drenth, **Fredrik Bruzelius**, Bengt Jacobson *An Investigation of Longitudinal Tyre Force Observation for Slip Control System Development* The 26th International Symposium on Dynamics of Vehicles on Road and Tracks (IAVSD19), Guthenburg, Sweden. 2019.
- [C26] T. Chugh, **F. Bruzelius**, M. Klomp, S. Ran, *Design of Haptic Feedback Control for Steer-by-Wire* The 21st IEEE International Conference on Intelligent Transportation Systems, Maui, Hawaii, US, 2018.
- [C25] B. Blissing, **F. Bruzelius**, *Exploring the suitability of virtual reality for driving simulation* Driving Simulation Conference & Exhibition (DSC18), Antibes, France 2018.
- [C24] T. Chugh, **F. Bruzelius**, M. Klomp, S. Ran, *Comparison of Steering Feel Control Strategies in Electric Power Assisted Steering* the 14th International Symposium on Advanced Vehicle Control, (AVEC'18), Beijing, China, 2018.
- [C23] A. Albinsson, **F. Bruzelius**, S. Ran *Scaling tire models to different road surfaces using an external IMU and K&C measurements* the 14th International Symposium on Advanced Vehicle Control, (AVEC'18), Beijing, China, 2018.
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Göteborg, September 4, 2023