

Paolo Falcone - Curriculum Vitae

2 luglio 2024

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- **Guida autonoma in ambienti urbani.** *Obiettivo:* sviluppare strategie di pianificazione e controllo del moto in ambienti urbani, laddove è necessario predire il comportamento di essere umani.
- **Guida cooperativa.** *Obiettivo:* sviluppare algoritmi di coordinazione per veicoli autonomi connessi che siano scalabili e robusti a incertezze di modello.
- **Apprendimento e predizione del comportamento di essere umani nel traffico cittadino.** *Obiettivo:* sviluppare metodologie per l'apprendimento e la predizione di sistemi multi-agente, con applicazione a scenari di traffico urbano dove è di interesse predire le traiettorie di moto di pedoni, ciclisti e guidatori, al fine di poter pianificare il comportamento di veicoli a guida autonoma.

I risultati della mia attività di ricerca sono in larga misura sperimentalmente dimostrati, grazie alla collaborazione con partner industriali.

2.2 Finanziamenti e progetti di ricerca

- Control of Connected Automated Vehicles over 5G network** 2019 - 2024
Finanziatore: Wallenberg Autonomous Systems Program (WASP)
Ruolo: Supervisore di studente di dottorato
Obiettivo: progetto di algoritmi per la coordinazione di veicoli autonomi connessi su rete cellulare 5G.
- 5G for Connected Autonomous Vehicles in Complex Urban Environments** 2019 - 2023
Finanziatore: Fordonsstrategisk Forskning och Innovation (FFI). Vinnova
Partners: Ericsson, Zenuity
Importo: 15.8MSEK
Ruolo: proponente e PI
Obiettivo: schedulazione della comunicazione e controllo di veicoli autonomi connessi, apprendimento del comportamento dei pedoni nel traffico utilizzando dispositivi di telefonia mobile.
- Joint communication and control for constrained systems** 2017 - 2021
Finanziatore: Wallenberg Autonomous Systems Program (WASP)
Ruolo: Supervisore di studente di dottorato
Obiettivo: progetto simultaneo di schedulazione della comunicazione e controllo per sistemi su rete vincolati, soggetti a limitazione delle risorse di rete.
- Autonomous driving in complex environments** 2016 - 2020
Finanziatore: Wallenberg Autonomous Systems Program (WASP)
Partners: Autoliv AB
Ruolo: Supervisore di studente di dottorato
Obiettivo: progetto di algoritmi per la pianificazione del moto di veicoli autonomi in ambienti complessi come, ad esempio, incroci cittadini.
- Experimental validation of cooperative driving algorithms at traffic intersections** 2016
Finanziatore: Fordonsstrategisk Forskning och Innovation (FFI). Vinnova
Importo: 500kSEK
Ruolo: Proponente
Obiettivo: validazione sperimentale di algoritmi di guida cooperativa.
- COPPLAR CampusShuttle cooperative perception & planning platform** 2016 - 2018
Finanziatore: Fordonsstrategisk Forskning och Innovation (FFI). Vinnova
Importo: 20MSEK
Ruolo: Co-proponente

Obiettivo: sviluppo di un prototipo di veicolo a guida autonoma in ambienti urbani, con capacità di coordinamento con altri veicoli connessi.

Vehicle motion control with performance and safety guarantees 2015 - 2019

Finanziatore: Fordonsstrategisk Forskning och Innovation (FFI). Vinnova

Importo: 9.6MSEK

Ruolo: Proponente, Supervisore di studente di dottorato

Obiettivo. Progetto di strategie di controllo del moto con garanzie di prestazioni e sicurezza.

Cooperative control autonomous vehicles 2013 - 2015

Finanziatore: Chalmers Area of Advance in Transportation

Importo: 0.5 MSEK

Ruolo: Proponente, Supervisore di post-doc

Obiettivo: sviluppo di strategie per il coordinamento di veicoli autonomi connessi in presenza di vincoli sulle risorse di comunicazione (data rate, perdita di informazione).

AdaptIVe. Automated Driving 2014 - 2017

Finanziatore: Unione Europea, FP7

Importo: 25M€

Ruolo: Co-investigatore

Obiettivo: sviluppo di strategie di controllo con capacità di adattamento delle prestazioni alle condizioni di traffico.

A-Drive 2013 - 2015

Finanziatore: Fordonsstrategisk Forskning och Innovation (FFI). Vinnova

Importo: 4.3MSEK

Ruolo: Co-proponente

Obiettivo: progetto di sistemi a guida autonoma per traffico autostradale.

Distributed Coordination of Networked Mobile Systems in Uncertain Environments 2013 - 2017

Finanziatore: Consiglio Nazionale delle Ricerche (Vetenskapsrådet (VR), Swedish Research Council) - Giovani Ricercatori

Importo: 3.2MSEK

Ruolo: Ricercatore principale, Supervisore di studente di dottorato

Obiettivo: progetto di strategie di controllo di sistemi multi-agente in ambienti complessi in presenza di vincoli sulle risorse di rete.

Non-Hit Car and Truck 2011 - 2016

Finanziatore: Fordonsstrategisk Forskning och Innovation (FFI). Vinnova

Importo: 30MSEK

Partners: Volvo Cars Corporation, Volvo AB, HiQ, Epsilon (Sweden)

Ruolo: Supervisore di studente di dottorato

Obiettivo: progetto di sistemi di assistenza alla guida avanzati.

Integrated Control of Propulsion, Braking and Steering of Long Modular Heavy Vehicle Combinat

2012 - 2015

Finanziatore: Fordonsstrategisk Forskning och Innovation (FFI). Vinnova

Importo: 9MSEK

Partners: Volvo AB (Sweden)

Ruolo: Supervisore di studente di dottorato

Obiettivo. Sviluppo di strategie di controllo delle dinamiche laterali e di imbardata nei rimorchi di veicoli pesanti mediante l'utilizzo combinato di frenata e angolo di sterzo.

- Energy Efficient Control of Vehicle Convoys** 2013 - 2015
Finanziatore: Chalmers Area of Advance in Transportation
Importo: 0.5 MSEK
Ruolo: Proponente, Supervisore di post-doc
Obiettivo. Sviluppo di strategie di controllo di stringhe di veicoli pesanti per la riduzione del consumo di carburante grazie alla riduzione di perdite aerodinamiche.
- Intelligent Dynamics For fully Electric Vehicles (ID4EV)** 2010 - 2012
Finanziatore: Unione Europea, FP7
Importo: 4.05M€
Partners: FKA (Germany), Continental Engineering Services (Germany), Renault (France), ZF AG (Germany), IDIADA (Spain), TNO (The Netherlands), ICOOR (Italy)
Ruolo: Ricercatore, co-proponente
Obiettivo. Sviluppo di strategie di massimizzazione della frenata rigenerativa in veicoli elettrici con l'obiettivo di preservare la stabilità della dinamica di imbardata.
- Optimization-Based Approaches to Regenerative Braking in Hybrid Vehicles** 2008 - 2009
Finanziatore: Ford Research Laboratory, Dearborn, USA
Importo: 20k\$
Partners: Ford (USA), Volvo Cars Corporation (Sweden)
Ruolo: Ricercatore principale
Obiettivo. Sviluppo di strategie di massimizzazione della frenata rigenerativa in veicoli elettrici, su superfici a basso attrito (ghiaccio), con l'obiettivo di preservare la stabilità della dinamica di imbardata.

2.3 Supervisione di post-doc

- Da assumere** 2019-2021
Progetto: Constrained optimal control of networked systems
- Mario Zanon** 2015-2017
Progetto: Constrained optimal control of networked systems
- Hakan Köroğlu** 2013-2015
Progetto: Energy Efficient Control of Vehicle Convoys
- Gabriel Garcia de Campos** 2012 - 2014
Progetto: Distributed Coordination of Vehicles in Unsignalled Cross Intersections

2.4 Supervisione di studenti di dottorato

In corso

- Da assumere** Inizio dottorato nel 2019
Progetto: 5G for connected autonomous vehicles
Argomento: Networked control systems
- Da assumere** Inizio dottorato nel 2019
Progetto: Motion planning in urban environment
Argomento: Constrained optimal control, autonomous driving
- Angel Molina** Inizio dottorato nel 2018
Progetto: Remote control of mobile robots for experimental validation of autonomous vehicles

Argomento: Networked control systems, motion control

Masoud Bahraini Inizio dottorato nel 2017

Progetto: Joint communication and control of constrained system under limited communication capacity

Argomento: Networked control systems

Angelos Toytziaridis Inizio dottorato nel 2016

Progetto: Data- driven humans' behavior prediction in urban traffic environments

Argomento: Autonomous driving

Ivo Batkovic Inizio dottorato nel 2016

Progetto: Decision-making and Control of Autonomous Vehicles in Urban Environment

Argomento: Autonomous driving

Ankit Gupta Inizio dottorato nel 2015

Progetto: Vehicle Motion Control with Performance and Safety Guarantees

Argomento: Model Predictive Control for Automotive Applications

Completati

Robert Hult Addottorato nel 2019

Progetto: Distributed Coordination of Networked Mobile Systems in Uncertain Environments

Argomento: Cooperative driving

Roozbeh Kianfar (*co-supervisione*) Addottorato nel 2014

Progetto: Machatronics Group Internal Project

Argomento: Control of Heterogeneous Vehicle Platoons

Josef Nilsson Addottorato nel 2014

Progetto: System Safety Through the Combination of HMI And DEpendable Systems (SHADES)

Argomento: Active Safety

Malin Sundbom Addottorato nel 2014

Progetto: Non-Hit Car and Truck

Argomento: Driver's State Estimation in Semi-Autonomous Vehicles

Mohammad Ali (*co-supervisione*) (best paper award in 2012 Intelligent Transportation Systems Conference) Addottorato nel 2012

Progetto: Systems for Roadway Departure Avoidance

Argomento: Semi-Autonomous Vehicles

3 Attività didattica e formazione pedagogica

3.1 Corsi di master

Model Predictive Control 2018 - presente

Programma: Master Program in *Systems, Control and Mechatronics of the Chalmers University of Technology*

Ruolo: Docente

Applied Mechatronic Design 2017 - presente

Programma: Master Program in *Mechanical Engineering*

Ruolo: Docente

Mechatronic Design (ora *Modeling and Control of Mechatronic Systems*) 2013 - 2015
Programma: Master Program in *Systems, Control and Mechatronics of the Chalmers University of Technology*
Ruolo: Docente

Modeling and Simulation 2008 - 2016
Programma: Master Program in *Systems, Control and Mechatronics of the Chalmers University of Technology*
Ruolo: Docente

System Theory and Control related courses 2003 - 2006
Programma: Ingegneria delle Telecomunicazioni e Ingegneria Informatica. Università del Sannio
Ruolo: Assistente alla didattica

3.2 Corsi di dottorato

Introduction to Model Predictive Control for Linear and Hybrid Systems 2010 - 2018
Ruolo: Docente

Vehicle Dynamics Control 2009
Ruolo: Docente

3.3 Corsi di pedagogia frequentati

Leadership training 2012
Istituto: Chalmers University of Technology
Docente: Peter Lysell (Sharing Insights)

Philosophies of learning (3 credits) 2010
Istituto: University of Gothenburg - Engineering Education Research (EER)
Docente: Prof. Sven Andersson

Supervision of research (3 credits) 2010
Istituto: University of Gothenburg - Engineering Education Research (EER)
Docente: Prof. Michael F. Christie

Theory and practice of science (3 credits) 2010
Istituto: University of Gothenburg - Engineering Education Research (EER)
Docente: Prof. Sven Andersson

Pedagogical project (6 credits) 2010
Istituto: University of Gothenburg - Engineering Education Research (EER)
Docente: Prof. Michael F. Christie, Elisabeth Saalman

4 Attività professionali

4.1 Commissione tesi di dottorato

Membro delle commissioni di dottorato per

- Pedro Lima, Royal Institute of Technology. *Advisor:* Bo Wahlberg
- Martin Sivertsson, Linköping University. *Advisor:* Lars Eriksson
- Kristoffer Lidström, Halmstad University. *Advisor:* Tony Larsson
- Andrea Dardanelli, Politecnico di Milano. *Advisor:* Sergio Savaresi

4.2 Attività editoriali e di revisore

Attività editoriali

- Associate Editor per Control Engineering Practice e IEEE Transactions on Intelligent Transportation Systems
- Preso parte alle Program Committee delle seguenti conferenze
 - American Control Conference (ACC)
 - International Conference on Informatics in Control, Automation and Robotics (ICINCO)
 - IEEE Conference on Control Applications (CCA)

Attività di revisore

Revisore per le seguenti riviste

- IEEE Transactions on Automatic Control
- IEEE Transactions on Control Systems Technology
- IEEE Transactions on Intelligent Transportation Systems
- IEEE Transactions on Robotics
- IEEE/ASME Transactions on Mechatronics
- Automatica
- Control Engineering Practice
- International Journal of Robust and Nonlinear Control
- International Journal of Vehicle Autonomous Systems
- International Journal of Vehicle Systems Modeling and Testing

Revisore per conferenze, workshop e simposi, inclusi IEEE Conference on Decision and Control, American Control Conference, European Control Conference, IFAC World Congress.

4.3 Seminari su invito

Institute for Automation Engineering Control, Otto-von-Guericke University, Magdeburg

2019, May

Titolo: Coordination of Autonomous Vehicles at Traffic Junctions. Theory and Experiments

3rd IAVSD Workshop on Dynamics of Road Vehicles. Connected and Automated Vehicles

2019, April

Titolo: Coordination of Autonomous Vehicles at Traffic Junctions. Theory and Experiments

Engineering Department at University of Sannio, Italy

2018, May

Titolo: Control Invariance in Intelligent Transportation Systems

Hyundai Center of Excellence at UC Berkeley

2018, May

Titolo: Control Invariance in Intelligent Transportation Systems

The South Korean Research Council (NRF), Seoul, South Korea

2013, June

Titolo: Distributed Conflict Resolution at Road Intersections

- Linköping University, Linköping, Sweden** 2013, May
Titolo: Distributed Conflict Resolution at Road Intersections
- General Motors - Advanced Technical Center, Haifa, Israel** 2013, January
Titolo: Driver Modeling and Set-Based Approaches to Driving Mode Transition Logics in Semi-Autonomous Vehicles
- AAC Vehicle Control Workshop, Technion, Haifa, Israel** 2013, January
Titolo: Constrained Optimal Control Methods for Vehicle Control Problems in Intelligent Transportation Systems
- Volvo Group, Göteborg, Sweden** 2012, November
Titolo: Constrained Optimal Control Methods in Autonomous Driving
- Halmstad University, Halmstad, Sweden** 2012, September
Titolo: Control and Verification Problems in Intelligent Transportation Systems
- Penn State University, USA** 2012, April
Titolo: Research on Transportation Systems at the Department of Signals and Systems
- University of Trento, Italy** 2011, October
Titolo: Constrained Optimal Control Methods for Vehicle Control Problems in Intelligent Transportation Systems
- Volvo Construction Equipment, Göteborg, Sweden** 2011, May
Titolo: Model Predictive Control for Automotive Applications
- Vrije Universiteit Brussel, Brussels, Belgium** 2010, May
Titolo: An Introduction to Constrained Optimal Control for Automotive Applications
- 1st Workshop on Automotive Model Predictive Control, Linz, Austria** 2009, February
Titolo: Predictive Approaches to Vehicle Dynamics Control
- Department of Aeronautical and Vehicle Engineering, Kungliga Tekniska Högskolan (KTH), Stockholm** 2008, December
Titolo: Predictive Approaches to Global Chassis Control
- Delft Center for Systems and Control, TU Delft, The Netherlands** 2008, November
Titolo: Overview of a Predictive Controller in Chemical Reactors and a Receding Horizon Scheduler in a Multistage Production Plant
- Linköping University, Linköping, Sweden** 2008, November
Titolo: Predictive Approaches for Vehicle Dynamics Control
- Department of Mechanical Engineering, University of California at Berkeley, USA** 2008, February
Titolo: Formulation and Real-Time Implementation of MPC Approaches to Vehicle Dynamics Control
- Volvo Cars Corporation, Göteborg, Sweden** 2008, May
Titolo: Model Predictive Control for Fast Nonlinear Systems. A Vehicle Dynamics Control Application.
- SAAB Automobiles, Trollhättan, Sweden** 2008, June
Titolo: Model Predictive Control for Fast Nonlinear Systems. A Vehicle Dynamics Control Application.

- Volvo Cars Corporation, Göteborg, Sweden** 2008, January
Titolo: Formulation and Real-Time Implementation of MPC Approaches for Vehicle Dynamics Control
- Ford Research Lab, Dearborn, USA** 2007, October
Titolo: Formulation and Real-Time Implementation of MPC Approaches for Vehicle Dynamics Control
- Department of Aerospace Engineering and Mechanics, University of Minnesota, USA** 2006, November
Titolo: A Real-Time Model Predictive Control Approach for Autonomous Active Steering

5 Pubblicazioni

H-index: 26

Source: Google Scholar, 2 luglio 2024

Articoli su rivista

- [1] Robert Hult, Mario Zanon, Gianluca Frison, Sébastien Gross, and Paolo Falcone. Experimental validation of a semi-distributed sqp method for optimal coordination of automated vehicles at intersections. Accepted for publication on *Optimal Control Applications & Methods*, 2020.
- [2] Ivo Batkovic, Mohammad Ali, Paolo Falcone, and Mario Zanon. Safe trajectory tracking in uncertain environments. *Submitted to IEEE Transactions on Automatic Control*, 2020. arXiv preprint arXiv:2001.11602.
- [3] Masoud Bahraini, Mario Zanon, Paolo Falcone, and Alessandro Colombo. Receding-horizon robust online communication scheduling for constrained networked control systems. *Submitted to IEEE Transactions on Automatic Control*, 2020.
- [4] Emil Klintberg, Magnus Nilsson, Ankit Gupta, Lars Johannesson Mårdh, and Paolo Falcone. Tree-structured polyhedral invariant set calculations. *IEEE Control Systems Letters*, 4(2):426–431, 2019.
- [5] Ankit Gupta, Hakan Köroğlu, and Paolo Falcone. Computation of low-complexity control-invariant sets for systems with uncertain parameter dependence. *Automatica*, 101:330 – 337, 2019.
- [6] A. Gupta and P. Falcone. Full-complexity characterization of control-invariant domains for systems with uncertain parameter dependence. *IEEE Control Systems Letters*, 3(1):19–24, Jan 2019.
- [7] Marco Di Vaio, Paolo Falcone, Robert Hult, Alberto Petrillo, Alessandro Salvi, and Stefania Santini. Design and experimental validation of a distributed interaction protocol for connected autonomous vehicles at a road intersection. *IEEE Transactions on Vehicular Technology*, 68(10):9451–9465, 2019.
- [8] Luca Maria Castiglione, Paolo Falcone, Alberto Petrillo, Simon Pietro Romano, and Stefania Santini. Cooperative intersection crossing over 5g. *Submitted to IEEE/ACM Transactions on Networking*, 2019. arXiv preprint arXiv:1907.07643.
- [9] Mario Zanon, Themistoklis Charalambous, Henk Wymeersch, and Paolo Falcone. Optimal scheduling of downlink communication for a multi-agent system with a central observation post. *IEEE Control Systems Letters*, 2(1):37–42, 2018.
- [10] Hakan Köroğlu, Maryam Mirzaei, Paolo Falcone, and Siniša Krajnović. Platoon control under a novel leader and predecessor following scheme with the use of an advanced aerodynamic model. *Journal of Dynamic Systems, Measurement, and Control*, 140(4):041006, 2018.

- [11] R. Hult, M. Zanon, S. Gros, and P. Falcone. Optimal coordination of automated vehicles at intersections: Theory and experiments. *IEEE Transactions on Control Systems Technology*, pages 1–16, 2018.
- [12] R. Hult, F. E. Sancar, M. Jalalmaab, A. Vijayan, A. Severinson, M. Di Vaio, P. Falcone, B. Fidan, and S. Santini. Design and experimental validation of a cooperative driving control architecture for the grand cooperative driving challenge 2016. *IEEE Transactions on Intelligent Transportation Systems*, 19(4):1290–1301, April 2018.
- [13] Hakan K roĝlu and Paolo Falcone. Robust static output feedback synthesis for platoons under leader and predecessor feedback. *International Journal of Robust and Nonlinear Control*, 27(10):1726–1756, 2017.
- [14] R. Hult, G. R. Campos, E. Steinmetz, L. Hammarstrand, P. Falcone, and H. Wymeersch. Coordination of cooperative autonomous vehicles: Toward safer and more efficient road transportation. *IEEE Signal Processing Magazine*, 33(6):74–84, Nov 2016.
- [15] M. di Bernardo, P. Falcone, A. Salvi, and S. Santini. Design, analysis, and experimental validation of a distributed protocol for platooning in the presence of time-varying heterogeneous delays. *IEEE Transactions on Control Systems Technology*, 24(2):413–427, March 2016.
- [16] Julia Nilsson, Paolo Falcone, Mohammad Ali, and Jonas Sj  Receding horizon maneuver generation for automated highway driving. *Control Engineering Practice*, 41:124 – 133, 2015.
- [17] Roozbeh Kianfar, Paolo Falcone, and Jonas Fredriksson. A control matching model predictive control approach to string stable vehicle platooning. *Control Engineering Practice*, 45:163 – 173, 2015.
- [18] J. Nilsson, P. Falcone, and J. Vinter. Safe Transitions From Automated to Manual Driving Using Driver Controllability Estimation. *IEEE Transactions on Intelligent Transportation Systems*, 1:1 – 11, 2014.
- [19] R. Kianfar, P. Falcone, and J. Fredriksson. Safety Verification of Automated Driving Systems. *IEEE Intelligent Transportation Systems Magazine*, 5:73 – 86, 2013.
- [20] M. Ali, P. Falcone, C. Olsson, and J. Sjöberg. Predictive Prevention of Loss of Vehicle Control for Roadway Departure Avoidance. *IEEE Transactions on Intelligent Transportation Systems*, 14(1):56 – 68, 2013.
- [21] R. Kianfar, B. Augusto, A. Ebadighajari, U. Hakeem, J. Nilsson, A. Reza, R. Tabar, N. V. Irukulapati, C. Englund, P. Falcone, S. Papanastasiou, L. Svensson, and H. Wymeersch. Design and Experimental Validation of a Cooperative Driving System in the Grand Cooperative Driving Challenge. *IEEE Transactions on Intelligent Transportation Systems*, 13(3):994 –1007, September 2012.
- [22] P. Falcone, M. Ali, and J. Sjöberg. Predictive Threat Assessment via Reachability Analysis and Set Invariance Theory. *IEEE Transactions on Intelligent Transportation Systems*, 12(4):1352 – 1361, December 2011.
- [23] P. Falcone, F. Borrelli, E. H. Tseng, J. Asgari, and D. Hrovat. Experimental Validation of Integrated Steering and Braking Model Predictive Control. *International Journal on Vehicle Autonomous Systems*, 7(3/4):292– 309, November 2009.
- [24] F. Borrelli, P. Falcone, J. Pekar, and G. E. Stewart. Reference Governor for Constrained Piecewise Affine Systems. *Journal of Process Control*, 8(19):1229– 1237, September 2009.

- [25] P. Falcone, E. H. Tseng, F. Borrelli, J. Asgari, and D. Hrovat. MPC-Based Yaw and Lateral Stabilization Via Active Front Steering and Braking. *Vehicle System Dynamics*, 7(3/4):611 – 628, November 2008.
- [26] P. Falcone, F. Borrelli, E. H. Tseng, J. Asgari, and D. Hrovat. Linear Time Varying Model Predictive Control and its Application to Active Steering Systems: Stability Analysis and Experimental Validation. *International Journal of Robust and Nonlinear Control*, 18(8):862 – 875, May 2008.
- [27] P. Falcone, F. Borrelli, J. Asgari, E. H. Tseng, and D. Hrovat. Predictive Active Steering Control for Autonomous Vehicle Systems. *IEEE Transactions on Control Systems Technology*, 15(3):566 – 580, May 2007.
- [28] F. Borrelli, P. Falcone, and C. Del Vecchio. Event-Based Receding Horizon Control for Two-Stage Multi-Product Production Plants. *Control Engineering Practice*, 15(12):1556 – 1568, December 2007.
- [29] P. Falcone, F. Borrelli, T. Keviczky, J. Asgari, and D. Hrovat. MPC-based approach to active steering for autonomous vehicle systems. *International Journal on Vehicle Autonomous Systems*, 3(2/3/4):265– 291, November 2005.

Capitoli

- [1] P. Falcone. Lane keeping. In John Baillieul and Tariq Samad, editors, *Encyclopedia of Systems and Control*, pages 1–7. Springer London, 2014.
- [2] D. Hrovat, H. E. Tseng, J. Lu, J. Deur, F. Assadian, F. Borrelli, and P. Falcone. Vehicle Controls. In William S. Levine, editor, *The Control Handbook, Second Edition. Control System Applications*, chapter 1. Taylor&Francis/CRC Press, December 2011.
- [3] P. Falcone, F. Borrelli, E. H. Tseng, and D. Hrovat. On Low Complexity Predictive Approaches to Control of Autonomous Vehicles. In F. Allgöwer, L. Glielmo, C. Guardiola, and I. Kolmanovsky, editors, *Automotive Model Predictive Control*, Lecture Notes in Control and Information Sciences, pages 195 – 210. Springer, January 2010.

Articoli a conferenza

- [1] A. Toytzariadis, P. Falcone, and J. Sjöberg. A data-driven markovian framework for multi-agent pedestrian collision risk prediction. In *2019 IEEE Intelligent Transportation Systems Conference (ITSC)*, pages 777–782, Oct 2019.
- [2] Ankit Gupta, Magnus Nilsson, Paolo Falcone, Emil Klintberg, and Lars Johansson Mårdh. A framework for vehicle lateral motion control with guaranteed tracking and performance. In *2019 IEEE Intelligent Transportation Systems Conference (ITSC)*, pages 3607–3612. IEEE, 2019.
- [3] Ivo Batkovic, Mario Zanon, Mohammad Ali, and Paolo Falcone. Real-time constrained trajectory planning and vehicle control for proactive autonomous driving with road users. Submitted to *European Control Conference (ECC)*, 2019.
- [4] Ivo Batkovic, Mario Zanon, Mohammad Ali, and Paolo Falcone. Real-time constrained trajectory planning and vehicle control for proactive autonomous driving with road users. In *2019 18th European Control Conference (ECC)*, pages 256–262. IEEE, 2019.
- [5] Masoud Bahraini, Mario Zanon, Alessandro Colombo, and Paolo Falcone. Receding-horizon robust online communication scheduling for constrained networked control systems. In *2019 18th European Control Conference (ECC)*, pages 2969–2974. IEEE, 2019.

- [6] Robert Hult, Mario Zanon, Sébastien Gros, and Paolo Falcone. Experimental validation of distributed optimal vehicle coordination (i). In *European Control Conference (ECC)*, 2018.
- [7] Robert Hult, Mario Zanon, Sébastien Gros, and Paolo Falcone. Energy-optimal coordination of autonomous vehicles at intersections. In *European Control Conference (ECC)*, 2018.
- [8] R. Hult, M. Zanon, S. Gras, and P. Falcone. An miqp-based heuristic for optimal coordination of vehicles at intersections. In *2018 IEEE Conference on Decision and Control (CDC)*, pages 2783–2790, Dec 2018.
- [9] Ankit Gupta and Paolo Falcone. Low-complexity explicit mpc controller for vehicle lateral motion control. Submitted to *IEEE 57th Conference on Decision and Control (CDC)*, 2018.
- [10] Ankit Gupta and Paolo Falcone. Full-complexity characterization of control-invariant domains for systems with uncertain parameter dependence. Submitted to *IEEE 21st International Conference on Intelligent Transportation Systems (CDC)*, 2018.
- [11] A. Colombo, M. Bahraini, and P. Falcone. Measurement scheduling for control invariance in networked control systems. In *2018 IEEE Conference on Decision and Control (CDC)*, pages 3361–3366, Dec 2018.
- [12] Ivo Batkovic, Mario Zanon, Nils Lubbe, and Paolo Falcone. A computationally efficient model for pedestrian motion prediction. *European Control Conference (ECC)*, 2018.
- [13] Mario Zanon, Sébastien Gros, P. Falcone, and H Wymeersch. An asynchronous algorithm for optimal vehicle coordination at traffic intersections. In *20th IFAC World Congress*, 2017.
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