Curriculum Vitae

Personal Data

Name: Simone Formentin
Date of birth: February 23, 1984
Place of birth: Legnano (MI), Italy
Address: Via Vicinale del Lazzaretto, 27 - 21052 Busto Arsizio (VA), Italy
Family status: Married, father of Luna (June 16, 2014), Andrea (January 08, 2016) and Lisa (April 03, 2021)
E-mail: simone.formentin@polimi.it
Web: https://formentin.faculty.polimi.it

Current Position

October 2019 – Today
> Associate Professor. Italian qualification for full professorship, section 09/G1 (Automatica) obtained on May 2021.
> Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano, Italy

Previous Positions

March 2014 – September 2019
> Assistant Professor. Tenure-track since October 2016. Italian qualification for associate professorship, section 09/G1 (Automatica) obtained on April 2017.
> Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano, Italy

September–November 2015, May–July 2016
> Adjoint Lecturer
> Dipartimento di Scienze e Metodi dell'Ingegneria, University of Modena and Reggio Emilia, Italy

September 2012 – February 2014
> Post-doctoral Fellow
> Dipartimento di Ingegneria gestionale, dell'informazione e della produzione, Università degli studi di Bergamo, Italy

December 2011 – August 2012
> Post-doctoral Fellow
> Laboratoire d'Automatique, EPFL Lausanne, Switzerland

Education

Ph.D. in Information Technology (with Doctor Europæus certification)   **February 2012**
> Politecnico di Milano, Italy
> Thesis title: "Direct data-driven control system design: theory and applications" (in English)
> Advisor: Prof. Sergio M. Savaresi, Grade: A *summa cum laude*
> Reviewers: Prof. Michel Verhaegen (TU Delft), Prof. Lars Eriksson (Linkoping University)

Qualifier exam to practice the profession of ICT engineering   **September 2009**
> Politecnico di Milano, Italy

Master of Science in Automation and Control Engineering   **December 2008**
> Politecnico di Milano, Italy
> Thesis title: "Analisi e sviluppo di un sistema di controllo trazione per veicoli a due ruote" (in Italian)
> Advisor: Prof. Sergio M. Savaresi (with Aprilia S.p.A.), Grade: 110/110 *summa cum laude*

Bachelor of Science in Automation and Control Engineering   **September 2006**
> Politecnico di Milano, Italy
> Thesis title: "Dimensionamento e controllo di un microgeneratore ad energia alternativa" (in Italian)
> Advisor: Prof. Marco Mauri, Grade: 110/110 *summa cum laude*

Diploma di Maturità Scientifica   **July 2003**
> High-school diploma specializing in scientific studies
> Liceo Scientifico Galileo Galilei, Legnano (Milano), Italy, Grade: 100/100 *with honors*

VISITING APPOINTMENTS

January 2023

Visiting researcher at Institute for Automatic Control, Leibniz University Hannover, Germany (host: Prof. M. Müller)

November 2022

Visiting researcher at School of Engineering, University of British Columbia, Canada (host: Dr. K. van Heusden)

May 2022

Visiting researcher at J.C. Willems Center for Systems and Control, University of Groningen, The Netherlands (host: Prof. C. De Persis)

May 2019

Visiting researcher at Department of Engineering Cybernetics, NTNU Trondheim, Norway (host: Prof. D. Varagnolo)

May 2018

Visiting researcher at Department of Electrical and Electronic Engineering, Imperial College London, UK (host: Prof. A. Astolfi)

April 2018

Visiting researcher at Institute for Systems Theory and Automatic Control, University of Stuttgart, Germany (host: Prof. F. Allgöwer)

February 2018, August 2018, February 2019

Visiting researcher at Department of Information Engineering, University of Padova, Italy (host: Prof. A. Chiuso)

June 2017

Visiting professor at ELEC, Vrije Universiteit Brussels, Belgium (host: Prof. I. Markovsky)

April–May 2017

Visiting professor at GIPSA-Lab, Université Grenoble Alpes, France (host: Prof. O. Sename)

May 2015, June 2016

Visiting researcher at Department of Automatic Control, KTH Stockholm, Sweden (host: Prof. C. Rojas)

November 2012, September 2013

Visiting researcher at the Department of Electrical Engineering, TU Eindhoven, The Netherlands (host: Prof. R. Tóth)

June 2012, April 2015, April 2022

Visiting researcher at the Laboratoire d'Analyse et d'Architecture des Systémes, CNRS Toulouse, France (host: Prof. L. Zaccarian)

July 2010, January 2011, August 2011

Visiting scholar at the Laboratoire d'Automatique, EPFL Lausanne, Switzerland (host: Dr. A. Karimi)

March 2010

Visiting scholar at the Delft Center for Systems and Control, TU Delft, The Netherlands (host: Prof. M. Corno)

January 2009–December 2011

Adjoint scholar at the Institute for Design and Control of Mechatronical Systems, JKU Linz, Austria (host: Prof. L. Del Re)

RESEARCH ACTIVITY

1. Data-driven control system design

For many industrial applications, finding a model from physical laws that is both simple and reliable for control design is a tough undertaking. When a set of measurements is available, the control law can be computed from data without relying on knowledge of the underlying physics. Specifically, in "indirect" data-driven approaches, a model of the system is first derived from data and then a controller is computed based on such a model. In "direct" data-driven approaches, the controller is directly derived from experimental data, such that process dynamics are automatically considered relevant or not, depending only on their weight on the final control index. The main advantages of such techniques are that they are insensitive to modeling errors and less time-consuming.

The first aim of this research work is to develop mathematical tools so as to extend existing data-driven methods to a larger class of industrially relevant problems. These methodological extensions include
- extensions to learning, identification, control design, control-oriented optimization and estimation methods [B1, C64, C84, C69, C85, J36, C68, C61, C33, C62, C77, C76, J32, J33, C83, J47, J24, C27, C36, BC7, J54, C109, C89, J40, C101, J45, C110, C118, J58, C127, CS3, CS2, C142, J70, JS7, CS7]
- direct data-driven control of time-delay systems [J1, C1];
- mixed-sensitivity loop-shaping control design [J7, C11, C70, J62];
- data-driven control in the frequency domain [C58, C63];
- controller identification using closed-loop experiments [C19];
- one-shot tuning of cascade schemes [C10];
- data-driven control via moment matching [C79];
- PID tuning using deterministic VRFT [C34, J31];
- data-driven control of MIMO plants [J2, C7, C40, J50];
- data-driven nonlinear control systems [J17, C12, C18, C28, C41, J42, J59, C88, J4, C6, C39, C44, J21, C56, J26, C102, C100, J55, C107, C108, C114, C115, J69, C140];
- data-driven predictive control [J67, C123, J63, C135, C129, C138, J68, C132, C136, CS4, C141, **?**];
- robustification of data-driven tuning [J30, C51, C87, C103, C120, J72, J65, CS6, JS6, CS5].

Furthermore, since it is common belief that finding a good model of the plant is always the best way towards controller design, a secondary goal of this activity is to provide a quantitative assessment of direct data-driven techniques and show whether - and in which cases - they might be preferable (see [J14, C23]).

Finally, since it can be proven that the weak point of direct data-driven methods is their statistical performance, a third aim of this activity is to find mathematical solutions to improve the overall efficiency of the controller estimate. From this perspective, two directions are addressed, namely
- optimal experiment design [J6, C2, C17, BC2, C75];
- regularization [J10, C20, C47].

Some rigorous comparative analyses among different methods are also proposed, like [C50] or [C67].

2. Intelligent vehicles and transportation systems

Nowadays, vehicle systems are definitely among the most challenging platforms for research in automatic control. As a matter of fact, almost all categories of vehicles are now equipped with sophisticated sensors and electronic control units able to process the available information on engine and vehicle dynamics. It follows that this information can be exploited to act on the vehicle, *e.g.*, to increase the level of safety, decrease the fuel consumption, deal with environmental constraints. Moreover, "smart vehicles" can be used to communicate among each other towards the establishment of "smart cities" with sustainable transports and optimized traffic flows. In this interesting field, the research activity is specifically focused on:
- NO_x and exhaust manifold pressure estimation via in-cylinder pressure measurement [J9, J15, J3, J5, C16];
- estimation and classification of performance and safety-critical parameters [C73, C90, C82, J44, P6, J46, C98, J60, C105, C106, JS2, JS4, JS5, CS8];
- vehicle dynamics, [P1, BC1, C9, C3, C13, C30, C95, J38, C97, C99, J48, J49, C113, C111, J66, C121, J57, C133, C134, JS8];
- Diesel engine control [J15, J11, C14];
- electric/hybrid powertrains [C96, C72, C81, J43, C15, C5, C4, J19, J23, C32, C43, C42, C55, C37, J41, C94];

- traffic control [C119, C130, J61];
- vehicle sharing systems and green mobility [J12, C26, C38, C54, C92, C65, P4, P2, C86, J51];
- advanced driver assistance systems [C80, J37, C46, J34, J56, CS1];
- design and control of braking actuators [J20, C30, P5, C74, C91, C104, C112, J71];
- control of unmanned rotorcrafts [C8, C24, C45, C48];
- marine vehicle technology [J8, C22, J18];

3. Other research activities

- Robotics and mechatronics [C35, J14, C25, C66, C29, C31, J22, C52, C53, C59, J28, J39, C116, C117, J64]

- Business analytics and finance [C57, C71, C78, C93, J54, JS1, C128, C137, C131]

- Education [C122, C124]

- Water resources management [C126, C139]

TEACHING ACTIVITY

Lecturer

Course:	Learning to control (in English) **Ph.D. course**
Academic Year:	2022/2023
Class Hours per Year:	21
University:	2023 EECI International Graduate School on Control/ Imperial College London

Course:	Feedback control in Finance (in English, co-taught with A. Bemporad, B. Barmish) **Ph.D. course**
Academic Year:	2020/2021
Class Hours per Year:	20
University:	Politecnico di Milano

Course:	Learning to control (in English) **Ph.D. course**
Academic Year:	2020/2021
Class Hours per Year:	21
University:	2021 EECI International Graduate School on Control/ EPFL

Course:	Nonlinear system identification (in English, co-taught with L. Fagiano, S. Garatti, G. Panzani, L. Piroddi) **Ph.D. course**
Academic Year:	2018/2019
Class Hours per Year:	6
University:	Politecnico di Milano

Course:	Dynamical system identification (in English, co-taught with G. Panzani) **Ph.D. course**
Academic Year:	2017/2018
Class Hours per Year:	3
University:	University of Trento

Course:	Control-oriented identification (in English) **Ph.D. course**
Academic Year:	2016/2017
Class Hours per Year:	8
University:	Vrije Universiteit Brussels

Course:	Identification for control (in English)
	Ph.D. course
Academic Year:	2016/2017
Class Hours per Year:	6
University:	Université Grenoble Alpes

Course:	Data-driven control system design (in English)
	Ph.D. course
Academic Year:	2014/2015 - 2016/2017
Class Hours per Year:	20 - 20
University:	Politecnico di Milano

Course:	Optimal filtering and data analysis: from Kolmogorov-Wiener to Kalman (in English, co-taught with S. Bittanti, P. Bolzern, M. Farina, S. Garatti, G. De Nicolao, M. Prandini, S.M. Savaresi)
	Ph.D. course
Academic Year:	2015/2016
Class Hours per Year:	3
University:	Politecnico di Milano

Course:	Advanced data-driven methods for modeling and control (in English)
	Ph.D. course
Academic Year:	2014/2015
Class Hours per Year:	20
University:	Università degli studi di Bergamo

Course:	Control prerequisites (in English)
	Post-graduate Master program in Powertrain Engineering
Academic Year:	2017/2018 - 2018/2019 - 2019/2020
Class Hours per Year:	12 - 12 - 12
University:	IFP School, France

Course:	Modeling, Identification and Simulation (in Italian)
	Post-graduate Master program in Adaptive Manufacturing
Academic Year:	2014/2015 - 2015/2016
Class Hours per Year:	30 - 50
University:	Università di Modena e Reggio Emilia

Course:	Data-driven control system design (in English)
	M.Sc. course
Academic Year:	2018/2019
Class Hours per Year:	15
University:	Université Grenoble Alpes

Course:	Statistical Learning for Automation Systems (in English)
	M.Sc. course
Academic Year:	2018/2019 - 2019/2020 - 2020/2021 - 2021/2022 - 2022/2023 - 2023/2024
Class Hours per Year:	40 - 40 - 34 - 34 - 34 - 34
University:	Politecnico di Milano

Course:	Model Identification and Data Analysis (in Italian)
	M.Sc. course
Academic Year:	2012/2013 - 2013/2014 - 2014/2015 - 2015/2016 - 2016/2017
Class Hours per Year:	60 - 60 - 48 - 48 - 48
University:	Università degli studi di Bergamo

Course:	Model Identification and Data Analysis (in English)
	M.Sc. course
Academic Year:	2013/2014 - 2014/2015 - 2015/2016 - 2016/2017 - 2017/2018 - 2022/2023 - 2023/2024
Class Hours per Year:	32 - 32 - 30 - 30 - 30 - 30 - 30
University:	Politecnico di Milano
Course:	Model Identification and Adaptive Systems (in English)
	M.Sc. course
Academic Year:	2012/2013
Class Hours per Year:	30
University:	Politecnico di Milano
Course:	Fundamentals of Automatic Control (in Italian)
	B.Sc. course
Academic Year:	2016/2017 - 2017/2018 - 2018/2019 - 2019/2020 - 2020/2021 - 2021/2022
Class Hours per Year:	42 - 42 - 42 - 42 - 18 - 42
University:	Politecnico di Milano

Tutorial Classes

Course:	Fundamentals of Automatic Control (in Italian)
	B.Sc. Course – Teacher: Prof. P. Bolzern
Academic Year:	2015/2016
Class Hours per Year:	6
University:	Politecnico di Milano
Course:	Model Identification and Data Analysis II (in Italian)
	M.Sc. course – Teacher: Prof. S. Bittanti
Academic Year:	2013/2014
Class Hours per Year:	20
University:	Politecnico di Milano
Course:	Model Identification and Data Analysis (in Italian)
	M.Sc. Course – Teacher: Prof. S. Bittanti
Academic Year:	2012/2013 - 2014/2015 - 2015/2016
Class Hours per Year:	20 - 20 - 20
University:	Politecnico di Milano
Course:	Model Identification and Data Analysis (in English)
	M.Sc. Course – Teacher: Prof. S.M. Savaresi
Academic Year:	2012/2013
Class Hours per Year:	20
University:	Politecnico di Milano
Course:	Automatic Control (in Italian)
	M.Sc. Course – Teacher: Prof. N. Schiavoni
Academic Year:	2009/2010 - 2010/2011
Class Hours per Year:	37 - 34
University:	Politecnico di Milano
Course:	Model Identification and Data Mining (for Biomedical Engineering, in Italian)
	M.Sc. Course – Teacher: Prof. S.M. Savaresi
Academic Year:	2009/2010 - 2010/2011 - 2014/2015
Class Hours per Year:	28 - 12 - 28
University:	Politecnico di Milano

Course:	Advanced process control (in Italian until 2014/2015, then in English)
	M.Sc. Course – Teacher: Prof. F. Casella
Academic Year:	2008/2009 - 2009/2010 - 2010/2011 - 2012/2013 - 2014/2015 - 2015/2016
Class Hours per Year:	8 - 6 - 6 - 8 - 6 - 4
University:	Politecnico di Milano

Industrial courses

Course:	System identification (in Italian)
Academic Year:	2021/2022
Class Hours:	15
Company:	Pirelli Spa

Course:	Introduction to statistical learning (in Italian)
Academic Year:	2021/2022
Class Hours:	6
Company:	Leonardo Spa

Course:	System identification (in Italian, co-taught with G. Panzani)
Academic Year:	2021/2022
Class Hours:	9
Company:	Dana Rexroth Spa

Course:	An introduction to artificial intelligence for control systems design (in Italian)
Academic Year:	2021/2022
Class Hours:	10
Company:	Ferrari Spa

Course:	Data analytics (in Italian, co-taught with S.C. Strada and M. Tanelli)
Academic Year:	2018/2019
Class Hours:	12
Company:	Italtel Spa

Ph.D. Theses Advisor or Co-Advisor

- *A control theoretical approach to financial engineering* - Ph.D. program in Information Technology, Politecnico di Milano. Student: F. Abbracciavento. **Main advisor.** Politecnico di Milano, May 2022.

- *Modeling, control and automatic calibration of a semi-active suspension system for high-performance cars* - Ph.D. program in Information Technology, Politecnico di Milano. Student: G. Savaia. Politecnico di Milano, January 2021.

- *Control-oriented learning in veicles* - Ph.D. program in Information Technology, Politecnico di Milano. Student: D. Savaresi. **Main advisor.** Politecnico di Milano, January 2021.

- *Advances in propulsion systems modeling, optimization, and control* - Ph.D. program in Information Technology, Politecnico di Milano. Student: G. Pozzato. Politecnico di Milano, February 2020.

- *Regularized kernel-based learning for system identification* - Ph.D. program in Engineering and Applied Sciences, Università degli studi di Bergamo. Student: M. Scandella. Università degli studi di Bergamo, November 2019.

- *Optimal asset allocation: a data-driven feedback control approach* - Ph.D. program in Engineering and Applied Sciences, Università degli studi di Bergamo. Student: G. Maroni. Università degli studi di Bergamo, November 2019.

- *Innovative approaches to the lateral control problem in cars* - Ph.D. program in Information Technology, Politecnico di Milano. Student: O. Galluppi. Politecnico di Milano, February 2019.

- *Automatic systems for unsafe lane change detection and avoidance* - Ph.D. program in Information Technology, Politecnico di Milano. Student: A. Amodio. Politecnico di Milano, February 2019.

- *Learning meets control: data analytics for dynamical systems* - Ph.D. program in Engineering and Applied Sciences, Università degli studi di Bergamo. Student: M. Mazzoleni. Università degli studi di Bergamo, November 2017.

- *Robustness in data-driven control: theory and automotive applications* - Ph.D. program in Information Technology, Politecnico di Milano. Student: G. Rallo. Politecnico di Milano, November 2017.

- *Optimal energy management of series hybrid electric vehicles* - Ph.D. program in Information Technology, Politecnico di Milano. Student: J. Guanetti. Politecnico di Milano, December 2015.

M.Sc. Theses Advisor or Co-Advisor

- *Sound Signal Model Identification for Virtual Sensing Active Noise Cancelling Applications (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: M. Riva. **Main advisor.** Academic Year 2022-2023.

- *Stima del carico verticale nei veicoli agricoli tramite sensore ToF (in Italian)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: M. Radice. **Main advisor.** Academic Year 2022-2023.

- *Twin-in-the-Loop Control for Active Yaw-Rate Tracking (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: F. Pavanello. **Main advisor.** Academic Year 2022-2023.

- *Duckrace: Iterative Learning Control for Autonomous Racing (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: G. Vaccari. **Main advisor.** Academic Year 2022-2023.

- *Data-driven design of model-predictive controls for portfolio optimization (in English)* - M.Sc. program in Mathematical Engineering, Politecnico di Milano. Student: G. Cesaro. **Main advisor.** Academic Year 2020-2021.

- *Controllo automatico di un mulinello da casting (in Italian)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: M. Griffa. Academic Year 2020-2021.

- *Command filtered adaptive backstepping control with disturbance estimation by least-squares support vector regression (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: L. Cuoghi. **Main advisor.** Academic Year 2020-2021.

- *Energy consumption forecasting for steel pipe production optimization (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: R.G. Cestari. **Main advisor.** Academic Year 2020-2021.

- *Active preference learning for automotive suspension calibration (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: A. Dubbini. **Main advisor.** Academic Year 2020-2021.

- *Model Predictive Control per la gestione energetica di un trattore ibrido parallelo (in Italian)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Students: L. Trezza, R. Zenga. Academic Year 2020-2021.

- *Direct tire force feedback for vehicle dynamics control: a comparative analysis (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: L. Mozzarelli. Academic Year 2019-2020.

- *Data-driven tuning of semi-active suspensions via active learning (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: P. Scala. Academic Year 2019-2020.

- *Design and implementation of a rear steer MPC-based controller for high performance vehicles (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: F. Paganelli Azza. Academic Year 2019-2020.

- *Learning model predictive control for multi-period portfolio optimization (in English)* - M.Sc. program in Mathematical Engineering, Politecnico di Milano. Student: F. Tappi. **Main advisor.** Academic Year 2019-2020.

- *Direct data-driven design of switching controllers for constrained systems (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: A. Sassella. **Main advisor.** Academic Year 2019-2020.

- *Energy Consumption Estimation and Optimization via Data-Driven modeling tools: an EAF case study (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: R. Busetto. **Main advisor.** Academic Year 2019-2020.

- *Optimal Energy Management for an Hybrid Electric Tractor (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Students: D. Provinciali, R. Marrella. Academic Year 2019-2020.

- *On Optimal Gear Shifting in City Bikes (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Students: F. Dettú, C. Benzoni. Academic Year 2019-2020.

- *Extended Kalman filtering with switched covariance matrices: an application to roll angle estimation (in English)* - M.Sc. program in Computer Science and Engineering, Politecnico di Milano. Student: A. Castiglioni. Academic Year 2018-2019.

- *MPC-based Torque Vectoring Control for High Performance Electric Vehicles: a Bayesian Optimization Approach (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: A. Lucchini. Academic Year 2018-2019.

- *Braking Pressure Control Design of a Brake-by-Wire Actuator for a Formula E (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: S. Raddrizzani. Academic Year 2018-2019.

- *Needs and locations of charging stations for electric mobility: a car-telematics data analysis (in English)* - M.Sc. program in Computer Science and Engineering, Politecnico di Milano. Student: F. Zinnari. Academic Year 2018-2019.

- *Identification and robust control of a brake-by-wire actuator: a randomized approach (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: G. Riva. Academic Year 2018-2019.

- *Sviluppo e validazione di algoritmi per la stima della pressione pneumatici in motoveicoli (in Italian)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: S. Imbesi. Academic Year 2017-2018.

- *Data-driven center of gravity estimation in road vehicles (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Students: M. Falchi, G. Cavalieri. Academic Year 2017-2018.

- *Analisi, sviluppo e sperimentazione di metodi per la stima real-time della massa in veicoli a due ruote (in Italian)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Students: D. Isgrò, G. Mantegazza. Academic Year 2017-2018.

- *Analysis and comparison of model-based and model-free side-slip angle estimators (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Students: L. Callegaro, P. Sanfelice. Academic Year 2017-2018.

- *Optimal Energy Management of a Range-Extended Electric Bus (in English)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: Daniele D'Orto. Academic Year 2017-2018.

- *Identificazione semi-supervisionata per modelli NARX (in Italian)* - M.Sc. program in Computer Science and Engineering, Università degli Studi di Bergamo. Student: G. Bergamelli. Academic Year 2016-2017.

- *Analisi e sviluppo di un metodo di approssimazione stocastica delle matrici di covarianza del rumore nel filtraggio alla Kalman (in Italian)* - M.Sc. program in Computer Science and Engineering, Politecnico di Milano. Student: A. Meazzi. Academic Year 2016-2017.

- *A Kalman Filtering approach for traffic matrix estimation in computer networks (in English)* - M.Sc. program in Computer Science and Engineering, Politecnico di Milano. Student: G. Pozzi. Academic Year 2016-2017.

- *Direct data-driven control of cavity tuners in particle accelerators (in English)* - M.Sc. program in Engineering Physics, Politecnico di Milano. Student: R. Loddo. Academic Year 2016-2017.

- *Stock trading via feedback control: an extremum seeking approach (in English)* - M.Sc. program in Management Engineering, Politecnico di Milano. Student: C. Cantaro. **Unique advisor.** Academic Year 2015-2016.

- *Identificazione semi-supervisionata di modelli NFIR (in Italian)* - M.Sc. program in Computer Science and Engineering, Università degli Studi di Bergamo. Student: M. Scandella. Academic Year 2015-2016.

- *Analisi e sviluppo di un sistema di monitoraggio della pressione pneumatici per veicoli a due ruote (in Italian)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: S. Della Pietra. Academic Year 2015-2016.

- *Il filtro particellare per la diagnostica dei guasti in ambito aerospaziale (in Italian)* - M.Sc. program in Computer Science and Engineering, Università degli Studi di Bergamo. Student: G. Maroni. Academic Year 2014-2015.

- *Analisi e sviluppo di un sensore virtuale della pressione dei pneumatici per veicoli stradali (in Italian)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: L. Onesto. Academic Year 2014-2015.

- *Analisi e sviluppo di un sistema per la valutazione dello stile di guida nei trattori agricoli (in Italian)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: R. Tassetti. Academic Year 2014-2015.

- *Controllo MIMO D^2-IBC: teoria e applicazione al controllo di stabilità di un autoveicolo a guida autonoma (in Italian)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: O. Galluppi. Academic Year 2014-2015.

- *Modelli dinamici per l'interpretazione e la predizione di dati di ascolto televisivo (in Italian)* - M.Sc. program in Computer Science and Engineering, Politecnico di Milano. Student: A. Mosconi. Academic Year 2013-2014.

- *Approcci data-based diretti per il progetto di controllori robusti con applicazione in ambito automotive (in Italian)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: M. Vanoncini. Academic Year 2013-2014.

- *Algoritmi real-time per l'ottimizzazione della velocità di una barca a vela (in Italian)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: A. Testa. Academic Year 2013-2014.

- *Analisi dinamica di devices di rete: modellistica e predizione (in Italian)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Students: P. Giambi and E. Zappella. Academic Year 2012-2013.

- *Modellistica di un electric power steering e sviluppo di algoritmi per la riduzione della coppia di cogging (in Italian)* - M.Sc. program in Automation and Control Engineering, Politecnico di Milano. Student: M. Martines. Academic Year 2011-2012.

- *Analisi, sviluppo e ottimizzazione energetica del sistema elettronico di controllo di uno scooter elettrico (in Italian)* - M.Sc. program in Electronic Engineering, Politecnico di Milano. Students: M. Bongiorni, C. Rainato. Academic Year 2009-2010.

- *Progetto e analisi di efficienza di un azionamento per motore brushless di una bicicletta a pedalata assistita (in Italian)* - M.Sc. program in Electronic Engineering, Politecnico di Milano. Student: L. Visconti. Academic Year 2008-2009.

Mathematics and Physics Tutor

- Individually tutored high school students in Mathematics and Physics - Period: 2002-2008

Industrial Collaborations

- *Economic optimization of claims management*, within a research contract between Politecnico di Milano and Europ Assistance Italia Spa (Milano, Italy) - 2022.

- *Vertical force estimation via optical sensing*, within a research contract between Politecnico di Milano and CNH Industrial NV (London, UK) - 2022.

- *The Twin-in-the-loop approach for vehicle dynamics estimation and control*, within a research contract between Politecnico di Milano and Vi-grade GmbH (Darmstadt, Germany) - 2021/2022.

- *Vehicle dynamics control with force measurements*, within a research contract between Politecnico di Milano and Pirelli Spa (Milano, Italy) - 2020.

- *Open-loop active steering control in high performance vehicles*, within a research contract between Politecnico di Milano and Ferrari Spa (Maranello - MO, Italy) - 2020.

- *Feedback control tools for stock trading*, within a research contract between Politecnico di Milano and ENEL Spa (Roma, Italy) - 2019/2020.

- *Torque vectoring for electrical vehicles with in-wheel motors*, within a research contract between Politecnico di Milano and Maserati Spa (Modena, Italy) - 2019.

- *Data-driven control design for brake-by-wire actuators*, within a research contract between Politecnico di Milano and Brembo Spa (Curno - BG, Italy) - 2019.

- *On-line prediction of salary costs in maintenance companies*, within a research contract between Politecnico di Milano and Rekeep Spa (Zola Predosa - BO, Italy) - 2019.

- *Randomized control of brake-by-wire actuators*, within a research contract between Politecnico di Milano and Brembo Spa (Curno - BG, Italy) - 2018.

- *Preliminary analysis of a modeling approach for prediction of salary costs in maintenance companies*, within a research contract between Politecnico di Milano and Rekeep Spa (Zola Predosa - BO, Italy) - 2018.

- *Black-box aging estimation in vehicle dampers*, within a research contract between Politecnico di Milano and Maserati Spa (Modena, Italy) - 2017.

- *Data-driven energy consumption estimation in steel furnaces*, within a research contract between Politecnico di Milano, E-Novia Spa and ORI Martin Spa (Brescia - Italy) - 2017.

- *Data-driven estimation of a vehicle COG via suspension and inertial measurements*, within a research contract between Politecnico di Milano and Maserati Spa (Modena, Italy) - 2017.

- *GPS and inertial measurement based speed and heading estimation in boats*, within a research contract between Politecnico di Milano and Astrayacht Srl (Monfalcone - GO, Italy) - 2017.

- *Mixed cost/noise optimization for extended range electric vehicles*, within a research contract between Politecnico di Milano and Steyr Motors GmbH (Steyr, Austria) - 2017.

- *Black-box vehicle modeling for sideslip angle estimation*, within a research contract between Politecnico di Milano and Ferrari Spa (Maranello - MO, Italy) - 2017.

- *Data-driven mass estimation in tilting vehicles*, within a research contract between Politecnico di Milano and Piaggio Spa (Pontedera - PI, Italy) - 2017.

- *Clamping force estimation in brake-by-wire actuators*, within a research contract between Politecnico di Milano and Brembo Spa (Curno - BG, Italy) - 2017.

- *Automatic calibration of power-meters for high performance bikes*, within a research contract between Politecnico di Milano and Favero Electronics Srl (Arcade - TV, Italy) - 2016.

- *Clamping force estimation in electric parking brakes*, within a research contract between Politecnico di Milano and Brembo Spa (Curno - BG, Italy) - 2016.

- *Indirect TPMS for two-wheeled vehicles*, within a research contract between Politecnico di Milano and Ducati Spa (Borgo Panigale - BO, Italy) - 2016.

- *Driving style estimation in tractors*, within a research contract between Politecnico di Milano, E-Novia Srl and Argo Tractors Spa (Fabbrico - RE, Italy) - 2015/2016.

- *Advanced business analytics with system identification techniques*, within a research contract between Politecnico di Milano, E-Novia Spa and Pastificio Rana Spa (Verona - Italy) - 2015.

- *Indirect and hybrid TPMS via advanced estimation techniques*, within a research contract between Politecnico di Milano and Maserati Spa (Modena, Italy) - 2014/2015.

- *Automatic MOB (Man On Board) recovery*, within a research contract between Politecnico di Milano and Blupassion Srl (Santa Maria la Longa - UD, Italy) - 2014.

- *Energy optimization for extended range electric vehicles*, within a research contract between Politecnico di Milano and EP Tender Sas (Poissy Cedex, France) - 2013/2014.

- *Feedback control of gravimetric blenders for polymer processes*, within a research contract between Università degli studi di Bergamo and Doteco Spa (Mirandola - MO, Italy) - 2013.

- *Data-driven corrections of wind sensor errors in sailboats*, within a research contract between Politecnico di Milano and Astrayacht Srl (Monfalcone - GO, Italy) - 2013.

- *Data-driven emission modeling for Diesel engines*, within a research contract between Johannes Kepler University of Linz and Liebherr GmbH (Linz, Austria) - 2011.

- *Innovative control algorithms for lightweight electric vehicles*, within a research contract between Politecnico di Milano and Italiainmoto Srl (Osio Sopra - BG, Italy) - 2009/2010.

- *Traction control for drive-by-wire applications in racing motorbikes*, within a research contract between Politecnico di Milano and Aprilia Spa (Noale - VE, Italy) - 2008.

GRANTS AND CONTRACTS

- *IFAC Activity fund* for the project "Teaching Analytics: a feedback control approach to aid student self-assessment in higher education", 5k€, 2020

- *Advanced reactive trading strategies for oil&gas commodities*, joint project between Politecnico di Milano and ENEL Spa, 35.05k€, 2020

- *Data-driven design of constrained control systems* (coordinator of the Milan unit), PRIN project funded by Italian Ministry of University and Research (MIUR), 420k€, 2019

- *Reactive trading strategies for oil&gas commodities*, joint project between Politecnico di Milano and ENEL Spa, 29.12k€, 2019

- *Advanced data analytics in manufacturing*, joint project between Politecnico di Milano and Tenaris Spa (Dalmine - BG, Italy), funded by Tenaris Spa, 30k€per year, 2018-2020

- *Modeling and prediction of salary costs in maintenance companies*, joint project between Politecnico di Milano and Manutencoop Spa (Zola Predosa - BO, Italy), funded by Manutencoop Spa, 34.5k€, 2018

- *Finanziamento delle Attività Base di Ricerca (FFABR)*, funded by Italian Ministry of University and Research (MIUR), 3k€, 2017

- *Learning to Control (L2C)*, funded by Fondazione Cariplo and Lombardia Region ($\sim$ 18% acceptance rate), 99k€, 2017

- One-month visiting fellowship (1st ranked over 25 candidates) at Université Grenoble Alpes (UGA), France, funded by UGA, 2017

PARTICIPATION IN REGIONAL, NATIONAL AND INTERNATIONAL RESEARCH PROJECTS

- *A data-driven cooperative framework for the management of distributed energy and water resources*
  Period: 9/2023-9/2025
  Partners: Politecnico di Milano, University of Brescia
  Funded by: MIUR (Italian Ministry for University and Research)

- *Data-driven design of constrained control systems*
  Period: 4/2019-4/2022
  Partners: Politecnico di Milano, University of Padova, IMT Lucca
  Funded by: MIUR (Italian Ministry for University and Research)

- *Learning to Control (L2C)*
  Period: 2/2018-2/2020
  Partner: Politecnico di Milano
  Funded by: Fondazione Cariplo and Lombardia Region

- *i-Share*
  Period: 11/2016-4/2018
  Partners: E-novia Spa, Zed Milano Srl, Politecnico di Milano
  Funded by: Regione Lombardia

- *Adaptive Suspension Control for Bicycle*
  Period: 7/2016-12/2017
  Partners: E-shock Srl, Bertone Design Srl, Politecnico di Milano
  Funded by: Regione Lombardia (Smart Fashion and Design call)

- *New methods for Identification and Adaptive Control for Industrial Systems*
  Period: 1/2009-12/2011
  Partner: Politecnico di Milano
  Funded by: MIUR (Italian Ministry for University and Research)

- *Methods and tools of self-optimizing control of complex mechatronical systems*
  Period: 1/2009-12/2011
  Partners: Johannes Kepler University of Linz, Politecnico di Milano, Imperial College London, Katholieke Universiteit Leuven.
  Funded by: ACCM (Austrian Center of Competence in Mechatronics)

SCIENTIFIC EVENTS

Organization

   - Local arrangements chair of the 63th IEEE Conference on Decision and Control, Milan, Italy, December 17-19, 2024.
   - Program co-chair of the international program committee of the 20th IFAC Symposium on System Identification (SYSID), Boston, MA (US), July 17-19, 2024.
   - NOC co-chair of the 2nd IFAC Workshop on Control Methods for Water Resource Systems, Milan, Italy, September 22-23, 2022.
   - NOC chair of the 4th IFAC Workshop on Linear Parameter Varying Systems (LPVS), Milan, Italy, July 19-20, 2021.
   - Organizer of the invited session (together with D. Piga and M. Forgione) on "Data-Driven linear modelling and control for nonlinear systems" at 19th IFAC Symposium on System Identification (SYSID), Padova, Italy, July 14-16, 2021.
   - Chair of the 1st international workshop "YPIES: Young People In Estimation and System identification", Milan, Italy, January 16-17, 2020.

Program committees

   - Member of the international program committees of the IFAC Cyber-Physical Human Systems (CPHS) conference, Milan, Italy, December 12-15, 2024.
   - Technical Associate Editor of the international program committees of the 22nd IFAC World Congress, Yokohama, Japan, July 09-14, 2023.
   - Member of the international program committees of the Joint 8th IFAC Symposium on System Structure and Control, 17th IFAC Workshop on Time Delay Systems, 5th IFAC Workshop on Linear Parameter Varying Systems, Montreal, Canada, September 27-30, 2022.
   - Member of the international program committees of the 10th IFAC Symposium on Robust Control Design (ROCOND), Kyoto, Japan, August 30 - September 2, 2022.
   - Member of the international program committees of the 14th IFAC International Workshop on Adaptation and Learning in Control and Signal Processing (ALCOS), Casablanca, Morocco, June 29 - July

1, 2022.
- Member of the international program committee of the 19th IFAC Symposium on System Identification (SYSID), Padova, Italy, July 14-16, 2021.
- Technical Associate Editor of the international program committees of the 21st IFAC World Congress, Berlin, Germany, July 11-17, 2020.
- Member of the international program committees of the 3rd IFAC Workshop on Linear Parameter Varying Systems (LPVS), Eindhoven, The Netherlands, November 4-6, 2019.
- Member of the international program committee of the 18th IFAC Symposium on System Identification (SYSID), Stockholm, Sweden, July 9-11, 2018.
- Member of the international program committees of the 9th IFAC/IEEE Symposium on Robust Control Design (ROCOND) and the 2nd IFAC Workshop on Linear Parameter Varying Systems (LPVS), Florianópolis, Brasil, September 3-5, 2018.
- Member of the international program committee of the 1st IFAC workshop on Linear Parameter Varying Systems (LPVS), Grenoble, France, September 7-9, 2015.
- Member of the national program committee of the Annual Conference of the Italian Society of Teachers and Researchers in Automatic Control (S.I.D.R.A.), Bergamo, Italy, September 8-10, 2014.

Attendance to international conferences/workshops
- "61st IEEE Conference on Decision and Control", Cancún, Mexico, December 6-9, 2022.
- "29th ERNSI Workshop", Leuven, Belgium, September 18-21, 2022.
- "28th ERNSI Workshop", Padova, Italy, September 20-21, 2021 (partially virtual conference due to the COVID-19 pandemic).
- "IEEE American Control Conference", New Orleans, LA, USA, May 25-28, 2021 (virtual conference due to the COVID-19 pandemic).
- "4th IEEE Conference on Control Technology and Applications", Montréal, Canada, August 24-26, 2020 (virtual conference due to the COVID-19 pandemic).
- "21st IFAC World Congress", Berlin, Germany, July 13-17, 2020 (virtual conference due to the COVID-19 pandemic).
- "2nd Conference on Learning for Decision and Control", Berkeley, CA, USA, June 11-12, 2020 (virtual conference due to the COVID-19 pandemic).
- "19th European Control Conference", Saint Petersburg, Russia, May 12-15, 2020 (virtual conference due to the COVID-19 pandemic).
- "1st YPIES: Young People In Estimation and System identification", Milan, Italy, January 16-17, 2020.
- "58th IEEE Conference on Decision and Control", Nice, France, December 11-13, 2019.
- "27th ERNSI Workshop", Maastricht, The Netherlands, September 22-25, 2019.
- "18th European Control Conference", Napoli, Italy, June 24-28, 2019.
- "57th IEEE Conference on Decision and Control", Miami Beach, FL, USA, December 17-19, 2018.
- "26th ERNSI Workshop", Cambridge, UK, September 23-26, 2018.
- "18th IFAC Symposium on System Identification", Stockholm, Sweden, July 9-11, 2018.
- "31st Annual Conference on Learning Theory", Stockholm, Sweden, July 6-9, 2018.
- "17th European Control Conference", Limassol, Cyprus, June 13-15, 2018.
- "56th IEEE Conference on Decision and Control", Melbourne, Australia, December 12-15, 2017.
- "25th ERNSI Workshop", Lyon, France, September 24-27, 2017.
- "BITFEST: Perspectives on System Identification and Control Science", Como, Italy, July 17-18, 2017.
- "20th IFAC World Congress", Toulouse, France, July 9-14, 2017.
- "55th IEEE Conference on Decision and Control", Las Vegas, NV, USA, December 12-14, 2016.
- "24th ERNSI Workshop", Cison di Valmarino, Italy, September 25-28, 2016.
- "17th IFAC Symposium on System Identification", Beijing, China, October 19-21, 2015.
- "1st IFAC Workshop on Linear Parameter Varying Systems", Grenoble, France, October 7-9, 2015.
- "53rd IEEE Conference on Decision and Control", Los Angeles, CA, USA, December 15-17, 2014.
- "22nd ERNSI Workshop", Ostend, Belgium, September 21-24, 2014.
- "19th IFAC World Congress", Cape Town, South Africa, August 25-29, 2014.
- "52nd IEEE Conference on Decision and Control", Firenze, Italy, December 10-13, 2013.

- "ASME Dynamic Systems and Control Conference 2013", Stanford, CA, USA, October 21-23, 2013.
- "12th European Control Conference", Zurich, Switzerland, July 17-19, 2013.
- "16th IFAC Symposium on System Identification", Brussels, Belgium, July 11-13, 2012.
- "50th IEEE Conference on Decision and Control", Orlando, FL, USA, December 12-15, 2011.
- "18th IFAC World Congress", Milano, Italy, August 28 - September 2, 2011.
- "49th IEEE Conference on Decision and Control", Atlanta, GA, USA, December 13-15, 2010.
- "8th IFAC Symposium on Nonlinear Control Systems", Bologna, Italy, September 1-3, 2010.

Attendance to national conferences/workshops
- Annual Conference of the Italian Society of Teachers and Researchers in Automatic Control (S.I.D.R.A.), Milan, Italy, September 11-13, 2017.
- Annual Conference of the Italian Society of Teachers and Researchers in Automatic Control (S.I.D.R.A.), Bergamo, Italy, September 8-10, 2014.
- Annual Conference of the Italian Society of Teachers and Researchers in Automatic Control (S.I.D.R.A.), Palermo, Italy, September 16-18, 2013.
- Annual Conference of the Italian Society of Teachers and Researchers in Automatic Control (S.I.D.R.A.), Benevento, Italy, September 12-14, 2012.
- Annual Conference of the Italian Society of Teachers and Researchers in Automatic Control (S.I.D.R.A.), L'Aquila, Italy, September 13-15, 2010.

EDITORIAL ACTIVITY

Editorships
- Since 2022, he is an Associate Editor of Automatica.
- Since 2021, he is an Associate Editor of Frontiers in Control Engineering (AI and Machine Learning Control section).
- Since 2020, he is an Associate Editor of the European Journal of Control.
- Since 2015, he is an Associate Editor of the Conference Editorial Board of the IEEE Control System Society.

Reviews
Since 2009, he has served as a reviewer for Automatica, IEEE Transactions on Automatic Control, International Journal of Adaptive Control and Signal Processing, Control Engineering Practice, IEEE Transactions on Control Systems Technology and for several IFAC/IEEE conferences.

Memberships
- Since 2020, he has been Chair of the IEEE CSS technical committee (TC) on System Identification and Adaptive Control.
- Since 2016, he has been the Social Media representative for the IFAC TC on Robust Control.
- He is a Senior member of the Institute of Electrical and Electronics Engineers (IEEE) since October 11, 2023.
- He is a member of the Italian Society of Teachers and Researchers in Automatic Control (S.I.D.R.A.).
- He is a member of the following TCs: IEEE CSS TC on System Identification and Adaptive Control, IFAC TC on Modelling, Identification and Signal Processing, IFAC TC on Robust Control.

AWARDS

"Best Young Author Journal Paper Award" of the Italy Chapter of the IEEE Control Systems Society for the paper "Robust Linear Static Anti-Windup With Probabilistic Certificates". Motivation: *"The paper proposes a novel and promising paradigm for approaching robust static anti-windup design and performance analysis for saturated linear closed loops in the presence of nonlinear probabilistic parameter uncertainties via randomized techniques".* Milan, Italy   **June 2017**

"Technical innovation Prize" for the driving style estimator developed with Argo Tractors Spa at EIMA International Exposition 2016, Bologna, Italy   **November 2016**

Best oral presentation award at the Annual Conference of the Italian Society of Teachers and Researchers
in Automatic Control (S.I.D.R.A.), Bergamo, Italy   **September 2014**

"Famiglia Legnanese" award for best students in AltoMilanese funded by Quaglia & Colombo s.r.l.,
Legnano, MI (Italy)   **December 2008**

INVITED TALKS

- *The Twin-in-the-loop approach for vehicle dynamics estimation and control.*
  University of Mälardalen, Västerås, Sweden, March 21, 2023.

- *Data-driven predictive control of stochastic systems.*
  Virtual study day of the French Identification group, January 19, 2023.

- *Learning to control: history and challenges of direct data-driven design.*
  Leibniz University Hannover, Germany, January 18, 2023.

- *Learning to control: history and challenges of direct data-driven design.*
  University of Poitiers, France, November 09, 2021.

- *Learning to control: history and challenges of direct data-driven design.*
  Institute for Design and Control of Mechatronical Systems, JKU Linz, Austria, September 06, 2021.

- *Direct data-driven design of constrained control systems.*
  Department of Engineering Cybernetics, NTNU Trondheim, Norway, May 21, 2019.

- *Direct data-driven design of switching controllers.*
  Dynamical Systems Control and Optimization (DYSCO) research unit, IMT Lucca, Italy, May 13, 2019.

- *Direct data-driven design of linear control systems with constraints.*
  Institute for Systems Theory and Automatic Control, University of Stuttgart, Germany, April 18, 2018.

- *Robust anti-windup augmentation via randomized optimization.*
  GIPSA-Lab, Université Grenoble Alpes, France, May 18, 2017.

- *Direct design of LPV controllers from data.*
  Department of Automatic Control, Lund University, Sweden, August 26, 2015.

- *Direct data-driven control of linear parameter-varying systems.*
  Dynamical Systems Control and Optimization (DYSCO) research unit, IMT Lucca, Italy, July 08, 2015.

- *Recent results and open issues in direct data-driven control system design*
  Department of Automatic Control, KTH Stockholm, Sweden, May 04, 2015.

- *Direct control system design from data: overview and new challenges*
  ONERA DCSD, Toulouse, France, April 16, 2015.

- *On robust static anti-windup augmentation with probabilistic certificates*
  Laboratoire d'Analyse et d'Architecture des Systémes, CNRS Toulouse, France, April 14, 2015.

- *Learning controllers from data: overview and new perspectives*
  EECS, UC Berkeley, California (USA), October 24, 2013.

- *"To model or not to model": an insight into control system design using experimental data*
  Department of Electrical Engineering, TU Eindhoven, The Netherlands, September 11, 2013.

- *A comparison between model-based and data-driven control system design*
  Laboratoire d'Automatique, EPFL Lausanne, Switzerland, April 12, 2013.

- *Tuning controllers from data: a statistical perspective*
  Laboratoire d'Analyse et d'Architecture des Systémes, CNRS Toulouse, France, June 12, 2012.

September 2018 – Today

Member of the admissions committee to the M.Sc. program in Automation and Control Engineering at Politecnico di Milano

September 2022 – June 2023

Member of the admissions committee to the Ph.D. program in Information Technology at Politecnico di Milano

September 2018 – Today

Vice-President of the final examination committee for the M.Sc. program in Automation and Control Engineering at Politecnico di Milano

PERSONAL SKILLS, COMPETENCES AND ACTIVITIES

Languages

Italian (Mother tongue), English (C1 level, TOEFL iBT 2008), French (B1 level, DELF 2003)

Computer skills and competences

Operative systems: Windows, Mac OS
Software packages: Office, Matlab/Simulink, CarSim
Programming: C, Python

Sports

Judo (black belt I Dan), Ninjitsu Koshiki Ryu (black belt I Dan), Running, Swimming, Skiing

Artistic skills and competences

Bass-guitar, organ

Voluntary work

Fellow of the italian association of blood donors (AVIS) since 2002

Driving licence

Car licence (international)

PUBLICATIONS

Books

[B1] C. Novara, S. FORMENTIN (ed.)
Data-Driven modeling, filtering and control: methods and applications.
IET Control, Robotics and Sensors, September 2019.

International Journals

Published/accepted

[J72] T.O. de Jong, V. Breschi, M. Schoukens, S. FORMENTIN
Data-driven model-reference control with closed-loop stability: the output-feedback case.
IEEE Control Systems Letters. Accepted.

[J71] F. Dettú, S. FORMENTIN, S.M. Savaresi
The Twin-in-the-Loop approach for vehicle dynamics control.
IEEE/ASME Transactions on Mechatronics. Accepted.

[J70] V. Breschi, S. FORMENTIN
AutoDDC: hyperparameter tuning for direct data-driven control.
IEEE Control Systems Magazine. Accepted.

[J69] V. Breschi, L. Zaccarian, S. FORMENTIN
Data-driven stabilization of saturated systems.
IEEE Control Systems Letters. Accepted.

[J68] V. Breschi, A. Sassella, S. FORMENTIN
Data-driven design of explicit predictive controllers with structural priors.
IEEE Control Systems Letters. Accepted.

[J67] A. Sassella, V. Breschi, S. FORMENTIN
On the design of regularized explicit predictive controllers from input-output data.
IEEE Transactions on Automatic Control. Accepted.

[J66] E. Catenaro, A. Dubbini, S. FORMENTIN, M. Corno, S.M. Savaresi
Active Preference Learning for vehicle suspensions calibration.
IEEE Transactions on Control Systems Technology, vol. 31, no. 6, pages 2961–2967, November 2023.

[J65] D. Masti, V. Breschi, S. FORMENTIN, A. Bemporad
Auto-tuning of reference models in direct data-driven control.
Automatica, vol. 155, pages 1–11, September 2023.

[J64] R. Busetto, A. Lucchini, S. FORMENTIN, S.M. Savaresi
Data-driven optimal tuning of BLDC motors with safety constraints: a set membership approach.
IEEE/ASME Transactions on Mechatronics, vol. 28, no. 4, pages 1975-1983, August 2023.

[J63] V. Breschi, A. Chiuso, S. FORMENTIN
Data-driven predictive control in a stochastic setting: a unified framework.
Automatica, vol. 152, pages 1–16, June 2023.

[J62] N. Valceschini, M. Mazzoleni, S. FORMENTIN, F. Previdi
Data-driven mixed-sensitivity control with automated weighting functions selection.
International Journal of Robust and Nonlinear Control, vol. 33, no. 6, pages 3458–3470, April 2023.

[J61] F. Abbracciavento, F. Zinnari, S. FORMENTIN, A.G. Bianchessi, S.M. Savaresi
Multi-intersection traffic signal control: a decentralized MPC-based approach.
IFAC Journal of Systems and Control, vol. 23, pages 1–10, March 2023.

[J60] D. Savaresi, F. Dettú, C. Benzoni, S. FORMENTIN, S.M. Savaresi
On optimal gear shifting in city bikes.
IFAC Journal of Systems and Control, vol. 22, pages 1–11, December 2022.

[J59] A. Sassella, V. Breschi, S. FORMENTIN, S.M. Savaresi
A data-driven switching control approach for braking systems with constraints.
Nonlinear Analysis: Hybrid Systems, vol. 46, pages 1–19, November 2022.

[J58] M. Mazzoleni, A. Chiuso, M. Scandella, S. FORMENTIN, F. Previdi
Kernel-based system identification with manifold regularization: a Bayesian perspective.
Automatica, vol. 142, pages 1–9, August 2022.

[J57] G. Riva, S. FORMENTIN, M. Corno, S.M. Savaresi
Model predictive control of high-performance braking systems: a force-based approach.
IEEE Control Systems Letters, vol. 6, pages 2383–2388, 2022.

[J56] F. Dettú, S. FORMENTIN, S.M. Savaresi
Driving style assessment system for agricultural tractors: design and experimental validation.
Agronomy, vol. 12, no. 3, pages 1–22, 2022.

[J55] M. van Meer, V. Breschi, T. Oomen, S. FORMENTIN
Direct data-driven design of LPV controllers with soft performance specifications.
Journal of the Franklin Institute, vol. 359, no. 6, pages 816–836, 2022.

[J54] M. Scandella, M. Mazzoleni, S. FORMENTIN, F. Previdi
       Kernel-based identification of asymptotically stable continuous-time linear dynamical systems.
       International Journal of Control, vol. 95, no. 6, pages 1668–1681, 2022.

[J54] F. Abbracciavento, S. FORMENTIN, S.M. Savaresi
       Data-driven stock trading in financial markets: an adaptive control approach.
       International Journal of Control, vol. 95, no. 4, pages 1032–1041, 2022.

[J52] M. Mazzoleni, G. Maroni, S. FORMENTIN, F. Previdi
       A kernel-based control approach for multi-period assets allocation based on lower partial moments.
       IFAC Engineering Applications of Artificial Intelligence, vol. 110, pages 1–11, April 2022.

[J51] F. Zinnari, S.C. Strada, M. Tanelli, S. FORMENTIN, S.M. Savaresi
       Electrification potential of fuel-based vehicles and optimal placing of charging infrastructure:a large-scale vehicle-telematics approach.
       IEEE Transactions on Transportation Electrification, vol. 8, no. 1, pages 466–479, March 2022.

[J50] P. Kergus, S. FORMENTIN, M. Giuliani, A. Castelletti
       Learning-based hierarchical control of water reservoir systems.
       IFAC Journal of Systems and Control, vol. 19, pages 1–10, March 2022.

[J49] G. Savaia, S. FORMENTIN, G. Panzani, M. Corno, S.M. Savaresi
       Enhancing skyhook for semi-active suspension control via machine learning.
       IFAC Journal of Systems and Control, vol. 17, pages 1–10, September 2021.

[J48] G. Savaia, Y. Sohn, S. FORMENTIN, M. Corno, G. Panzani, S.M. Savaresi
       Experimental automatic calibration of a semi-active suspension controller via Bayesian optimization.
       Control Engineering Practice, vol. 112, pages 1–11, July 2021.

[J47] S. FORMENTIN, A. Chiuso
       Control-oriented regularization for linear system identification.
       Automatica, vol. 127, pages 1–10, May 2021.

[J46] S. FORMENTIN, L. Onesto, T. Colombo, S.M. Savaresi
       h-TPMS: a hybrid tire pressure monitoring system for road vehicles.
       IFAC Mechatronics, vol. 74, pages 1–9, April 2021.

[J45] M. Scandella, M. Mazzoleni, S. FORMENTIN, F. Previdi
       A note on the numerical solutions of kernel-based learning problems.
       IEEE Transactions on Automatic Control, vol. 66, no. 2, pages 940–947, February 2021.

[J44] V. Breschi, S. FORMENTIN, G. Rallo, M. Corno, S.M. Savaresi
       Vehicle sideslip estimation via kernel-based LPV identification: theory and experiments.
       Automatica, vol. 122, pages 1–8, December 2020.

[J43] G. Pozzato, S. FORMENTIN, G. Panzani, S.M. Savaresi
       Least costly energy management for extended-range electric vehicles: an economic optimization framework.
       European Journal of Control, vol. 56, pages 218–230, November 2020.

[J42] V. Breschi, S. FORMENTIN
       Direct data-driven design of switching controllers.
       International Journal of Robust and Nonlinear Control, vol. 30, no. 15, pages 6042–6072, October 2020.

[J41] G. Pozzato, M. Müller, S. FORMENTIN, S.M. Savaresi
       Economic MPC for online least costly energy management of hybrid electric vehicles.
       Control Engineering Practice, vol. 102, pages 1–13, September 2020.

[J40] S. Mariano, F. Blanchini, S. FORMENTIN, L. Zaccarian
Asymmetric state feedback for linear plants with asymmetric input saturation.
IEEE Control Systems Letters, vol. 4, no. 3, pages 608-613, July 2020.

[J39] M. Parigi Polverini, S. FORMENTIN, L. Merzagora, P. Rocco
Mixed data-driven and model-based robot implicit force control: a hierarchical approach.
IEEE Transactions on Control Systems Technology, vol. 28, no. 4, pages 1258–1271, July 2020.

[J38] A. Lucchini, S. FORMENTIN, M. Corno, D. Piga, S.M. Savaresi
Torque vectoring for high-performance electric vehicles: a data-driven MPC approach.
IEEE Control Systems Letters, vol. 4, no. 3, pages 725–730, July 2020.

[J37] S. Gelmini, S. FORMENTIN, S.C. Strada, M. Tanelli, S.M. Savaresi
fierClass: a multi-signal, cepstrum-based, time series classifier.
IFAC Engineering Applications of Artificial Intelligence, vol. 87, pages 1–11, January 2020.

[J36] F. Bianchi, S. FORMENTIN, L. Piroddi
Process noise covariance estimation via stochastic approximation.
International Journal of Adaptive Control and Signal Processing, vol. 34, pages 63-76, January 2020.

[J35] O. Galluppi, S. FORMENTIN, C. Novara, S.M. Savaresi
Multivariable D^2-IBC and application to vehicle stability control.
ASME Journal of Dynamic Systems, Measurement and Control, vol. 141, no. 10, pages 1-12, October 2019.

[J34] A. Amodio, M. Ermidoro, D. Maggi, S. FORMENTIN, S.M. Savaresi
Automatic detection of driver impairment based on pupillary light reflex.
IEEE Transactions on Intelligent Transportation Systems, vol. 20, no. 8, pages 3038-3048, August 2019.

[J33] D. Piga, M. Forgione, S. FORMENTIN, A. Bemporad
Performance-oriented model learning for data-driven MPC design.
IEEE Control Systems Letters, vol. 3, no. 3, pages 577–582, July 2019.

[J32] S. FORMENTIN, M. Mazzoleni, M. Scandella, F. Previdi
Nonlinear system identification via data augmentation.
Systems and Control Letters, vol. 128, pages 56–63, June 2019.

[J31] S. FORMENTIN, M.C. Campi, A. Caré, S.M. Savaresi
Deterministic continuous-time Virtual Reference Feedback Tuning (VRFT) with application to PID design.
Systems and Control Letters, vol. 127, pages 25–34, May 2019.

[J30] S. FORMENTIN, S. Garatti, G. Rallo, S.M. Savaresi
Robust direct data-driven controller tuning with an application to vehicle stability control.
International Journal of Robust and Nonlinear Control, vol. 28, no. 12, pages 3752–3765, August 2018.

[J29] D. Piga, S. FORMENTIN, A. Bemporad
Direct data-driven control of constrained systems.
IEEE Transactions on Control Systems Technology, vol. 26, no. 4, pages 1422–1429, July 2018.

[J28] G. Rallo, S. FORMENTIN, M. Corno, S.M. Savaresi
Real-time cycling cadence estimation via wheel speed measurement.
International Journal of Adaptive Control and Signal Processing, vol. 32, no. 7, pages 1052–1066, July 2018.

[J27] G. Rallo, S. FORMENTIN, S.M. Savaresi
On-line model-based wheel speed filtering for geometrical error compensation.
IFAC Mechatronics, vol. 50, pages 189–195, April 2018.

[J26] C. Novara, S. FORMENTIN
Data-driven inversion-based control of nonlinear systems with guaranteed closed-loop stability.
IEEE Transactions on Automatic Control, vol. 63, no. 4, pages 1147–1154, April 2018.

[J25] J. Guanetti, S. FORMENTIN, M. Corno, S.M. Savaresi
Optimal energy management in series hybrid bicycles.
Automatica, vol. 81, pages 96–106, July 2017.

[J24] S. FORMENTIN, F. Dabbene, R. Tempo, L. Zaccarian, S.M. Savaresi
Robust linear static anti-windup with probabilistic certificates.
IEEE Transactions on Automatic Control, vol. 62, no. 4, pages 1575–1589, April 2017 (**Best Young Author Journal Paper Award of the Italian Chapter of the IEEE CSS**).

[J23] J. Guanetti, S. FORMENTIN, S.M. Savaresi
Energy management for an electric vehicle with a rental range extender: a least-costly approach.
lEEE Transactions on Intelligent Transportation Systems, vol. 17, no. 11, pages 3022–3034, November 2016.

[J22] M. Ermidoro, A.L. Cologni, S. FORMENTIN, F. Previdi
Fixed-order gain-scheduling control of overhead bridge cranes.
lFAC Mechatronics, vol. 39, pages 237–247, November 2016.

[J21] C. Novara, S. FORMENTIN, S. M. Savaresi, M. Milanese
Data-driven design of two degree-of-freedom nonlinear controllers: the D^2-IBC approach.
Automatica, vol. 72, pages 19–27, October 2016.

[J20] F. Todeschini, S. FORMENTIN, G. Panzani, M. Corno, S. M. Savaresi, L. Zaccarian
Nonlinear pressure control for BBW systems via dead zone and anti-windup compensation.
IEEE Transactions on Control Systems Technology, vol. 24, no. 4, pages 1419–1431, July 2016.

[J19] S. FORMENTIN, J. Guanetti, S. M. Savaresi
Least costly energy management for series hybrid electric vehicles.
Control Engineering Practice, vol. 48, pages 37–51, March 2016.

[J18] M. Corno, S. FORMENTIN, S. M. Savaresi
Data-Driven online speed optimization in autonomous sailboats.
IEEE Transactions on Intelligent Transportation Systems, vol. 17, no. 3, pages 762–771, March 2016.

[J17] S. FORMENTIN, D. Piga, R. Tóth, S. M. Savaresi
Direct learning of LPV controllers from data.
Automatica, vol. 65, no. 1, pages 98–110, March 2016.

[J16] S. FORMENTIN, C. Novara, S. M. Savaresi, M. Milanese
Active braking control system design: the D^2-IBC approach.
IEEE/ASME Transactions on Mechatronics, vol. 20, no. 4, pages 1573–1584, August 2015.

[J15] C. Benatzky, S. Stadlbauer, S. FORMENTIN, A. Schilling and D. Alberer
Indicated Pressure-based Data Driven Diesel Engine NO_x Modeling.
International Journal of Engine Research, vol. 15, no. 8, pages 934–943, December 2014.

[J14] S. FORMENTIN, A. L. Cologni, F. Previdi, S. M. Savaresi
A data-driven approach to control of batch processes with an application to a gravimetric blender.
IEEE Transactions on Industrial Electronics, vol. 61, no. 11, pages 6383–6390, November 2014.

[J14] S. FORMENTIN, K. van Heusden, A. Karimi
A comparison of model-based and data-driven controller tuning.
International Journal of Adaptive Control and Signal Processing, vol. 28, no. 10, pages 882–897, October 2014.

[J12] A. G. Bianchessi, G. Cugola, S. FORMENTIN, A. Morzenti, C. Ongini, E. Panigati, M. Rossi, S. M. Savaresi, F. Schreiber, L. Tanca, E. Vannutelli Depoli
Green Move: a platform for highly configurable, heterogeneous electric vehicle sharing.
IEEE Intelligent Transportation Systems Magazine. vol. 6, no. 3, pages 96–108, October 2014.

[J11] T. E. Passenbrunner, S. FORMENTIN, S. M. Savaresi, L. Del Re
Direct multivariable controller tuning for internal combustion engine test benches.
Control Engineering Practice, vol. 29, pages 115–122, August 2014.

[J10] S. FORMENTIN, A. Karimi
Enhancing statistical performance of data-driven controller tuning via L2-regularization.
Automatica, vol. 50, no. 5, pages 1514—1520, May 2014.

[J9] S. FORMENTIN, M. Corno, D. Alberer, C. Benatzky, S. M. Savaresi
NO_x-estimation in Diesel engines via in-cylinder pressure measurement.
IEEE Transactions on Control Systems Technology. vol. 22, no. 1, pages 396 – 403, January 2014.

[J8] S. FORMENTIN, D. Berretta, N. Urbano, I. Boniolo, P. De Filippi, S. M. Savaresi
A parking assistance system for small-scale boats.
IEEE/ASME Transactions on Mechatronics. vol. 18, no. 6, pages 1844 – 1849, December 2013.

[J7] S. FORMENTIN, A. Karimi
A data-driven approach to mixed-sensitivity control with application to an active suspension system.
IEEE Transactions on Industrial Informatics. vol. 9, no. 4, pages 2293 – 2300, November 2013.

[J6] S. FORMENTIN, A. Karimi, S. M. Savaresi
Optimal input design for direct data-driven tuning of model-reference controllers.
Automatica, vol. 49, no. 6, pages 1874 – 1882, June 2013.

[J5] S. Bottelli, H. Waschl, S. M. Savaresi, L. Del Re, S. FORMENTIN
Data-driven estimation of exhaust manifold pressure by use of in-cylinder pressure information.
SAE International Journal of Engines, vol. 6, no. 1, pages 659 – 668, May 2013.

[J4] S. FORMENTIN, P. De Filippi, M. Corno, M. Tanelli, S. M. Savaresi
Data-driven design of braking control systems.
IEEE Transactions on Control Systems Technology, vol. 21, no. 1, pages 186 – 193, January 2013.

[J3] S. Stadlbauer, D. Alberer, M. Hirsch, S. FORMENTIN, C. Benatzky, L. Del Re
Evaluation of virtual NO_x sensor models for off road heavy duty Diesel engines.
SAE International Journal of Commercial Vehicles, vol. 5, no. 1, pages 128 – 140, July 2012.

[J2] S. FORMENTIN, S. M. Savaresi, L. Del Re
Noniterative direct data-driven tuning of multivariable controllers: theory and application.
IET Control Theory and Applications, vol. 6, no. 9, pages 1250 – 1257, June 2012.

[J1] S. FORMENTIN, M. Corno, S. M. Savaresi, L. Del Re
Direct data-driven control of linear time-delay systems.
Asian Journal of Control, vol. 14, no. 3, pages 652 – 663, May 2012.

Submitted

[JS8] F. Dettú, S. FORMENTIN, S. Varisco, S.M. Savaresi
Optimization tools for Twin-in-the-Loop vehicle control design: analysis and yaw-rate tracking case study.
European Journal of Control.

[JS7] R. Busetto, V. Breschi, S. FORMENTIN
Meta-learning for model-reference data-driven control.
Automatica.

[JS6] L. Anh Dao, L. Roveda, M. Maccarini, M. Lavit Nicora, M. Meregalli Falerni, M. Mondellini, P. Veer-
       appan, L. Mantovani, D. Piga, S. FORMENTIN, M. Malosio
       *Experience in engineering complex systems: active preference learning with multiple outcomes and cer-
       tainty levels.*
       IEEE Transactions on Human-Machine Systems.

[JS5] F. Dettú, S.C. Strada S. FORMENTIN, S.M. Savaresi
       Physics-aware learning of vehicle speed from accelerometer data.
       IEEE Sensors.

[JS4] F. Dettú, S. FORMENTIN, S.M. Savaresi
       Joint vehicle state and parameters estimation via Twin-in-the-Loop observers.
       Vehicle System Dynamics.

[JS3] S.C. Strada, E. Costantini, S. FORMENTIN, S.M. Savaresi, C. De Tommasi
       Machine Learning based Car Accident Risk Prediction for Usage-Based Insurance.
       Expert Systems With Applications.

[JS2] G. Riva, S. FORMENTIN, M. Corno, S.M. Savaresi
       Twin-in-the-loop state estimation for vehicle dynamics control: theory and experiments.
       IFAC Journal of Systems and Control.

[JS1] F. Abbracciavento, F. Tappi, S. FORMENTIN
       Model predictive control for multi-period portfolio optimization: a trading-oriented learning approach.
       IEEE Transactions on Control Systems Technology.

Book Chapters

[BC7] D. Arzelier, F. Dabbene, S. FORMENTIN, D. Peaucelle, L. Zaccarian
       Robust Static Output Feedback Design with Deterministic and Probabilistic Certificates.
       In: "Uncertainty in Complex Networked Systems", T. Başar ed., Springer, 2018.

[BC6] S. FORMENTIN, C. Ongini, S.M. Savaresi
       A smartphone-based energy-oriented driving assistance system.
       In: "Electric Vehicle Sharing Services for Smarter Cities", D.F. Bignami, A. Colorni Vitale, A. Lué, R.
       Nocerino, M. Rossi, S.M. Savaresi ed., Springer, 2017.

[BC5] S. FORMENTIN, A.G. Bianchessi, S.M. Savaresi
       Automatic fleet balancing in one-way VSSs via closed-loop dynamic pricing.
       In: "Electric Vehicle Sharing Services for Smarter Cities", D.F. Bignami, A. Colorni Vitale, A. Lué, R.
       Nocerino, M. Rossi, S.M. Savaresi ed., Springer, 2017.

[BC4] A.G. Bianchessi, G. Cugola, S. FORMENTIN, A. Morzenti, C. Ongini, E. Panigati, M. Rossi, F.A.
       Schreiber, S.M. Savaresi, L. Tanca, E.G. Vannutelli Depoli
       Architecture of the Green Move System.
       In: "Electric Vehicle Sharing Services for Smarter Cities", D.F. Bignami, A. Colorni Vitale, A. Lué, R.
       Nocerino, M. Rossi, S.M. Savaresi ed., Springer, 2017.

[BC3] S. FORMENTIN, G. Panzani, S. M. Savaresi
       Virtual Reference Feedback Tuning (VRFT) for LPV systems: application to automotive control
       In: "Robust and LPV methods : theory and applications to vehicle dynamics", O. Sename, P. Gaspar
       and J. Bokor ed., Lecture Notes in Control and Information Sciences, Vol. 437, Springer. 2013.

[BC2] M. Hirsch, D. Alberer, L. Del Re, S. FORMENTIN, S.M. Savaresi
       Direct and indirect methods for DoE of automotive systems.
       In: "Design of Experiments (DoE) in Engine Development: Innovative Development Methods for Vehicle
       Engines", Karsten Ropke ed., Expert-Verlag, 2011.

[BC1] S. FORMENTIN, S. M. Savaresi
An overview on system-identification problems in vehicle chassis control
In: "Identification for Automotive Systems", D. Alberer, H. Hjalmarsson and L. Del Re ed., Springer-Verlag, 2011.

International Conferences

Published/accepted

[C142] R. Busetto, V. Breschi, S. FORMENTIN
Meta-SMGO-Δ: similarity as a prior in black-box optimization.
62nd IEEE Conference on Decision and Control, Marina Bay Sands, Singapore, 2023. Accepted.

[C141] V. Breschi, A. Chiuso, M. Fabris, S. FORMENTIN
On the impact of regularization in data-driven predictive control.
62nd IEEE Conference on Decision and Control, Marina Bay Sands, Singapore, 2023. Accepted.

[C140] A. Sassella, V. Breschi, S. FORMENTIN
Model-based and Koopman-based predictive control: a braking control systems comparison.
3rd Modeling, Estimation and Control Conference, Lake Tahoe (NV), USA, 2023. Accepted.

[C139] R.G. Cestari, A. Castelletti, S. FORMENTIN
Scenario-based model predictive control of water reservoir systems.
3rd Modeling, Estimation and Control Conference, Lake Tahoe (NV), USA, 2023. Accepted.

[C138] V. Breschi, T. Bou Hamdan, G. Mercère, S. FORMENTIN
Some practical guidelines for the tuning of data-driven predictive control.
3rd Modeling, Estimation and Control Conference, Lake Tahoe (NV), USA, 2023. Accepted.

[C137] F. Abbracciavento, E. Catenaro, A. Ticozzi, S. FORMENTIN
Cross-Coupled SLS for pairs trading: an adaptive control approach.
7th IEEE Conference on Control Technology and Applications, Bridgetown, Barbados, 2023. Accepted.

[C136] V. Breschi, M. Fabris, S. FORMENTIN, A. Chiuso
Uncertainty-aware data-driven predictive control in a stochastic setting.
22nd IFAC World Congress, Yokohama, Japan, 2023. Accepted.

[C135] A. Sassella, V. Breschi, S. FORMENTIN
A practitioner's guide to noise handling strategies in data-driven predictive control.
22nd IFAC World Congress, Yokohama, Japan, 2023. Accepted.

[C134] G. Delcaro, F. Dettú, S. FORMENTIN, S.M. Savaresi
Dealing with the curse of dimensionality in Twin-in-the-loop observer design.
22nd IFAC World Congress, Yokohama, Japan, 2023. Accepted.

[C133] F. Dettú, S. FORMENTIN, S.M. Savaresi
Randomized tuning of Twin-in-the-Loop vehicle dynamics controls.
22nd IFAC World Congress, Yokohama, Japan, 2023. Accepted.

[C132] R. Busetto, V. Breschi, G. Vaccari, S. FORMENTIN
Practical considerations in reinforcement learning-based MPC for mobile robots.
22nd IFAC World Congress, Yokohama, Japan, 2023. Accepted.

[C131] R. Busetto, S. FORMENTIN
Continuous-time modeling of financial returns based on Limit Order Book data.
22nd IFAC World Congress, Yokohama, Japan, 2023. Accepted.

[C130] A. Sassella, F. Abbracciavento, S. Formentin, A.G. Bianchessi, S.M. Savaresi
On queue length estimation in urban traffic intersections via inductive loops.
IEEE American Control Conference, San Diego (CA), USA, 2023. Accepted.

[C129] A. Sassella, V. Breschi, S. Formentin
Data-driven explicit predictive control.
61st IEEE Conference on Decision and Control, Cancún, Mexico, 2022. Accepted.

[C128] F. Dettú, F. Abbracciavento, S. Formentin
Kelly-based stock trading via feedback control.
61st IEEE Conference on Decision and Control, Cancún, Mexico, 2022. Accepted.

[C127] A. Leva, S. Formentin, S. Seva
Overlapping-horizon model predictive control: a novel approach to computational constraints.
Workshop on Next Generation Real-Time Embedded Systems (NG-RES), Budapest, Hungary, 2022.
Accepted.

[C126] R.G. Cestari, A. Castelletti, S. Formentin
Hourly operation of a regulated lake via Model Predictive Control.
1st IFAC Workshop on Control Methods for Water Resource Systems, Milan, Italy, 2022. Accepted.

[C125] G. Riva, S. Formentin, M. Corno, S.M. Savaresi
Experimental assessment of neural networks for tire-road force estimation.
IEEE Conference on Control Technology and Applications, Trieste, Italy, 2022. Accepted.

[C124] T.N. Larsen, R. Busetto, D. Varagnolo, S. Formentin, A. Rasheed
A receding-horizon approach for curriculum management in higher education.
13th IFAC Symposium on Advances in Control Education, Hamburg, Germany, 2022. Accepted.

[C123] A. Sassella, V. Breschi, S. Formentin
Noise handling in data-driven predictive control: a strategy based on dynamic mode decomposition.
4th Annual Conference on Learning for Dynamics and Control, Stanford (CA), USA, 2022, Accepted.

[C122] R. Busetto, T.N. Larsen, A. Rasheed, D. Varagnolo, S. Formentin
A receding-horizon estimation and control framework for the content sequencing problem.
European Control Conference (ECC), London, UK, 2022. Accepted.

[C121] E. Catenaro, S. Formentin, M. Corno, S.M. Savaresi
Auto-calibration with stability margins for active damping control in electric drivelines.
European Control Conference (ECC), London, UK, 2022. Accepted.

[C120] V. Breschi, C. De Persis, S. Formentin, P. Tesi
Direct data-driven model-reference control with Lyapunov stability guarantees.
60th IEEE Conference on Decision and Control, Austin (TX), USA, 2021. Accepted.

[C119] F. Abbracciavento, F. Zinnari, S. Formentin, A.G. Bianchessi, S.M. Savaresi
Real-time optimal traffic management in signal-controlled intersections: a receding-horizon approach.
60th IEEE Conference on Decision and Control, Austin (TX), USA, 2021. Accepted.

[C118] M. Mazzoleni, M. Scandella, S. Formentin, F. Previdi
Nonparametric continuous-time identification of linear systems: theory, implementation and experimental results.
Modeling, Estimation and Control Conference, Austin (TX), USA, 2021. Accepted.

[C117] F. Dettú, M. Centurioni, S. Formentin, S.M. Savaresi
Model-based estimation of the line tension in a fishing reel.
Modeling, Estimation and Control Conference, Austin (TX), USA, 2021. Accepted.

[C116] D. Savaresi, M. Centurioni, S. FORMENTIN, S.M. Savaresi
On speed estimation from incremental encoders with tunable error bounds.
3rd IFAC Conference on Modelling, Identification and Control of Nonlinear Systems, online, 2021. Accepted.

[C115] G. Papa, V. Breschi, M. Tanelli, S. FORMENTIN, S.M. Savaresi
Direct data-driven LPV control for active braking in aircraft.
4th IFAC Symposium on Linear Parameter Varying Systems (LPVS), Milan, Italy, 2021. Accepted.

[C114] V. Breschi, M. van Meer, T. Oomen, S. FORMENTIN
On data-driven design of LPV controllers with flexible reference models.
4th IFAC Symposium on Linear Parameter Varying Systems (LPVS), Milan, Italy, 2021. Accepted.

[C113] A. Lucchini, F. Paganelli Azza, M. Corno, S. FORMENTIN, S.M. Savaresi
Design and implementation of a MPC-based rear-wheel steering controller for sports cars.
5th IEEE Conference on Control Technology and Applications, San Diego (CA), USA, 2021. Accepted.

[C112] G. Riva, S. FORMENTIN, S.M. Savaresi
Force estimation in electro-mechanical systems: theory and experiments.
5th IEEE Conference on Control Technology and Applications, San Diego (CA), USA, 2021. Accepted.

[C111] G. Riva, L. Mozzarelli, S. FORMENTIN, M. Corno, S.M. Savaresi
Direct longitudinal force feedback for high-performance vehicle dynamics control systems.
ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, online, 2021. Accepted.

[C110] F. Abbracciavento, S. FORMENTIN, J. Balocco, A. Rota, V. Manzoni, S.M. Savaresi
Anomaly detection via distributed sensing: a VAR modeling approach.
19th IFAC Symposium on System Identification, Padova, Italy, 2021, pages 85–90.

[C109] M. Mazzoleni, V. Breschi, S. FORMENTIN
Piecewise nonlinear regression with data augmentation.
19th IFAC Symposium on System Identification, Padova, Italy, 2021, pages 421–426.

[C108] A. Sassella, V. Breschi, S. FORMENTIN
Data-driven design of switching reference governors: theory and brake-by-wire application.
3rd Annual Conference on Learning for Dynamics and Control, Zurich, Switzerland, 2021, pages 99–110.

[C107] A. Sassella, V. Breschi, S. FORMENTIN
Direct data-driven design of switching controllers for constrained systems.
IEEE American Control Conference, New Orleans (LA), USA, 2021, pages 2355–2360.

[C106] D. Savaresi, M. Chini, S. FORMENTIN, M. Konishi, S.M. Savaresi
On damping ratio estimation in electronic semi-active suspensions.
IEEE American Control Conference, New Orleans (LA), USA, 2021, pages 1589–1594.

[C105] D. Savaresi, S. FORMENTIN, S.M. Savaresi
Data-driven mass estimation in continuously variable transmission agricultural tractors.
IEEE American Control Conference, New Orleans (LA), USA, 2021, pages 1529–1534.

[C104] G. Riva, F. Ruiz, S. FORMENTIN, S.M. Savaresi
Model-reference design of fixed-order controllers for brake-by-wire actuators.
IEEE American Control Conference, New Orleans (LA), USA, 2021, pages 130–135.

[C103] V. Breschi, S. FORMENTIN
Proper closed-loop specifications for data-driven model-reference control.
24th International Symposium on Mathematical Theory of Networks and Systems, Cambridge, UK, 2021, pages 46–51.

[C102] V. Breschi, D. Masti, S. FORMENTIN, A. Bemporad
NAW-NET: neural anti-windup control for saturated nonlinear systems.
59th IEEE Conference on Decision and Control, Jeju Island, Republic of Korea, 2020, pages 3335–3340.

[C101] A. Chiuso, S. FORMENTIN, F. Zanini
Non-iterative control-oriented regularization for linear system identification.
59th IEEE Conference on Decision and Control, Jeju Island, Republic of Korea, 2020, pages 2252–2257.

[C100] D. Masti, V. Breschi, S. FORMENTIN, A. Bemporad
Direct data-driven design of neural reference governors.
59th IEEE Conference on Decision and Control, Jeju Island, Republic of Korea, 2020, pages 4955–4960.

[C99] S. Radrizzani, D. Todeschini, G. Riva, G. Panzani, S. FORMENTIN, S.M. Savaresi
A data-driven approach for fast controller calibration in brake-by-wire actuators.
4th IEEE Conference on Control Technology and Applications, Montréal, Canada, 2020, pages 561–566.

[C98] D. Savaresi, F. Dettú, S. FORMENTIN, S.M. Savaresi
Comfort-oriented gear shifting in city bicycles.
4th IEEE Conference on Control Technology and Applications, Montréal, Canada, 2020, pages 436–441.

[C97] D. Savaresi, F. Dettú, S. FORMENTIN, S.M. Savaresi
On the drivability of DC brushless motors with faulty hall sensors during braking maneuvers.
4th IEEE Conference on Control Technology and Applications, Montréal, Canada, 2020, pages 219–224.

[C96] G. Pozzato, S. FORMENTIN, S.M. Savaresi
Explicit online least costly energy management for hybrid electric vehicles.
4th IEEE Conference on Control Technology and Applications, Montréal, Canada, 2020, pages 706–711.

[C95] G. Savaia, S. FORMENTIN, S.M. Savaresi
Semi-active suspension control design via bayesian optimization.
21st IFAC World Congress, Berlin, Germany, 2020, pages 14312–14317.

[C94] G. Pozzato, M. Müller, S. FORMENTIN, S.M. Savaresi
On strict dissipativity of systems modeled by convex difference inclusions: theory and application to hybrid electric vehicles.
21st IFAC World Congress, Berlin, Germany, 2020, pages 14211–14216.

[C93] F. Abbracciavento, S. FORMENTIN, S.M. Savaresi
Modeling and prediction for optimal Human Resources management.
21st IFAC World Congress, Berlin, Germany, 2020, pages 16996–17001.

[C92] G. Savaia, S. FORMENTIN, S.C. Strada, S.M. Savaresi
On the real range-need of electric cars: a telematic-box data-driven analysis.
21st IFAC World Congress, Berlin, Germany, 2020, pages 14097–14102.

[C91] G. Riva, D. Nava, S. FORMENTIN, S.M. Savaresi
Robust force control for brake-by-wire actuators via scenario optimization.
21st IFAC World Congress, Berlin, Germany, 2020, pages 1–6.

[C90] V. Breschi, S. FORMENTIN, D. Todeschini, A.L. Cologni, S.M. Savaresi
Data-driven on-line load monitoring in garbage trucks.
21st IFAC World Congress, Berlin, Germany, 2020, pages 14300–14305.

[C89] M. Mazzoleni, M. Scandella, S. FORMENTIN, F. Previdi
Black-box continuous-time transfer function estimation with stability guarantees: a kernel-based approach.
2nd Annual Conference on Learning for Dynamics and Control, Berkeley (CA), USA, 2020, pages 1–10.

[C88] V. Breschi, S. FORMENTIN
       Direct data-driven control with embedded anti-windup compensation.
       2nd Annual Conference on Learning for Dynamics and Control, Berkeley (CA), USA, 2020, pages 1–9.

[C87] V. Breschi, S. FORMENTIN
       Virtual Reference Feedback Tuning with data-driven reference model selection.
       2nd Annual Conference on Learning for Dynamics and Control, Berkeley (CA), USA, 2020, pages 1–9.

[C86] F. Zinnari, S.C. Strada, M. Tanelli, S. FORMENTIN, G. Savaia, S.M. Savaresi
       Mining the electrification potential of fuel-based vehicles mobility patterns: a data-based approach.
       1st IEEE International Conference on Human-Machine Systems, Rome, Italy, 2020, pages 1–6.

[C85] F. Bianchi, S. FORMENTIN, L. Piroddi
       Structure selection of noise covariance matrices for linear Kalman filter design.
       European Control Conference (ECC), Saint Petersburg, Russia, 2020, pages 552–557.

[C84] M. Mazzoleni, M. Scandella, S. FORMENTIN, F. Previdi
       Enhanced kernels for nonparametric identification of a class of nonlinear systems.
       European Control Conference (ECC), Saint Petersburg, Russia, 2020, pages 540–545.

[C83] A. Scampicchio, A. Chiuso, S. FORMENTIN, G. Pillonetto
       Bayesian kernel-based linear control system design.
       58th IEEE Conference on Decision and Control, Nice, France, 2019, pages 822–827.

[C82] D. Savaresi, F. Favalli, S. FORMENTIN, S.M. Savaresi
       On-line damping estimation in road vehicle semi-active suspension systems.
       9th IFAC International Symposium on Advances in Automotive Control (AAC), Orléans, France, 2019,
       pages 679–684.

[C81] G. Pozzato, S. FORMENTIN, G. Panzani, S.M. Savaresi
       *Least Costly Energy Management for Extended-Range Electric Vehicles with Noise Emissions Charac-
       terization.*
       9th IFAC International Symposium on Advances in Automotive Control (AAC), Orléans, France, 2019,
       pages 586–591.

[C80] S. Gelmini, S. FORMENTIN, S.C. Strada, M. Tanelli, S.M. Savaresi
       Automatic driver phone hand-usage detection: A cepstrum-based approach.
       European Control Conference (ECC), Naples, Italy, 2019, pages 710–715.

[C79] V. Breschi, S. FORMENTIN, G. Scarciotti, A. Astolfi
       Simulation-driven fixed-order controller tuning via moment matching.
       European Control Conference (ECC), Naples, Italy, 2019, pages 2307–2312.

[C78] G. Maroni, S. FORMENTIN, F. Previdi
       A robust design strategy for stock trading via feedback control.
       European Control Conference (ECC), Naples, Italy, 2019, pages 477–482.

[C77] S. FORMENTIN, A. Chiuso
       CoRe: Control-oriented Regularization for System Identification.
       57th IEEE Conference on Decision and Control, Miami Beach (FL), USA, 2018, pages 2253–2258.

[C76] M. Mazzoleni, M. Scandella, S. FORMENTIN, F. Previdi
       Classification of light charged particles via learning-based system identification.
       57th IEEE Conference on Decision and Control, Miami Beach (FL), USA, 2018, pages 6053–6058.

[C75] G. Rallo, S. FORMENTIN, C. Rojas, S.M. Savaresi
       Robust Experiment Design for Virtual Reference Feedback Tuning.
       57th IEEE Conference on Decision and Control, Miami Beach (FL), USA, 2018, pages 2271–2276.

[C74] S. FORMENTIN, G. Rallo, S.M. Savaresi
       Data-driven clamping force control for an Electric Parking Brake without speed measurement.
       57th IEEE Conference on Decision and Control, Miami Beach (FL), USA, 2018, pages 5128–5133.

[C73] D. Isgrò, G. Mantegazza, S. FORMENTIN, G. Panzani, S.M. Savaresi
       On-line data-based load classification in narrow-track vehicles.
       21st IEEE Conference on Intelligent Transportation Systems (ITSC), Maui, Hawaii, USA, 2018, pages
       3724–3729.

[C72] G. Pozzato, S. FORMENTIN, G. Panzani, S.M. Savaresi
       Least Costly Energy Management for Extended Range Electric Vehicles with Start-up Characterization.
       IEEE Conference on Control Technology and Applications, Copenhagen, Denmark, 2018, pages 1020–
       1025.

[C71] S. FORMENTIN, F. Previdi, G. Maroni, C. Cantaro
       Stock trading via feedback control: an extremum seeking approach.
       26th Mediterranean Conference on Control and Automation, Zadar, Croatia, 2018, pages 523–528.

[C70] A. Zanchettin, S. FORMENTIN, R. Loddo, R. Paparella
       Direct Data-Driven Control of Cavity Tuners in Particle Accelerators.
       IFAC Symposium on System Identification, Stockholm, Sweden, 2018, pages 138–143.

[C69] G. Pozzi, S. FORMENTIN, P. Lluka, S. Bittanti
       A Kalman filtering approach to traffic flow estimation in computer networks.
       IFAC Symposium on System Identification, Stockholm, Sweden, 2018, pages 37–42.

[C68] M. Mazzoleni, S. FORMENTIN, M. Scandella, F. Previdi
       Identification of nonlinear dynamical system with synthetic data: a preliminary investigation.
       IFAC Symposium on System Identification, Stockholm, Sweden, 2018, pages 622–627.

[C67] S. FORMENTIN, I. Markovsky
       *A comparison between structured low-rank approximation and correlation approach for data-driven output
       tracking.*
       IFAC Symposium on System Identification, Stockholm, Sweden, 2018, pages 1068–1073.

[C66] F. Reghenzani, S. FORMENTIN, G. Massari, W. Fornaciari
       A constrained extremum-seeking control for CPU thermal management.
       4th Workshop on design of Low Power Embedded Systems, Ischia, Italy, 2018, pages 320–325.

[C65] D. Nava, S. FORMENTIN, S.M. Savaresi
       Online power meter calibration for accurate cyclist power control.
       European Control Conference (ECC), Limassol, Cyprus, 2018, pages 3038–3043.

[C64] M. Mazzoleni, S. FORMENTIN, M. Scandella, F. Previdi
       Semi-supervised learning of dynamical systems: a preliminary study.
       European Control Conference (ECC), Limassol, Cyprus, 2018, pages 2824–2829.

[C63] P. Kergus, S. FORMENTIN, C. Poussot-Vassal, F. Demourant
       Data-driven control design in the Loewner framework: dealing with stability and noise.
       European Control Conference (ECC), Limassol, Cyprus, 2018, pages 1704–1709.

[C62] G.Rallo, S. FORMENTIN, C. Rojas, T. Oomen, S.M. Savaresi
       Data-driven $\mathcal{H}_\infty$-norm estimation via expert advice.
       56th IEEE Conference on Decision and Control, Melbourne, Australia, 2017, pages 1560–1565.

[C61] S. FORMENTIN, S. Garatti, M.C. Campi, S.M. Savaresi
       Tuning regularization via scenario optimization.
       56th IEEE Conference on Decision and Control, Melbourne, Australia, 2017, pages 635–640.

[C60] S. Sabatini, S. FORMENTIN, G. Panzani, J. de-J. Lozoya Santos, S.M. Savaresi
Motorcycle tire rolling radius estimation for TPMS applications via GPS sensing.
IEEE Conference on Control Technology and Applications, Kohala Coast, Hawaii, USA, 2017, pages 1892–1897.

[C59] M. Mazzoleni, G. Maroni, Y. Maccarana, S. FORMENTIN, F. Previdi
Fault detection in airliner electro-mechanical actuators via hybrid particle filtering.
20th IFAC World Congress, Toulouse, France, 2017, pages 2915–2920.

[C58] P. Kergus, C. Poussot-Vassal, F. Demourant, S. FORMENTIN
Frequency domain data-driven control design in the Loewner framework.
20th IFAC World Congress, Toulouse, France, 2017, pages 2131–2136.

[C57] M. Mazzoleni, S. FORMENTIN, F. Previdi, S. M. Savaresi
Control-oriented modeling of SKU-level demand in retail food market.
20th IFAC World Congress, Toulouse, France, 2017, pages 13545–13550.

[C56] O. Galluppi, S. FORMENTIN, C. Novara, S. M. Savaresi
Nonlinear stability control of autonomous vehicles: a MIMO D^2-IBC solution.
20th IFAC World Congress, Toulouse, France, 2017, pages 3754–3759.

[C55] G. Rallo, S. FORMENTIN, M. Corno, S. M. Savaresi
Real-time pedaling rate estimation via wheel speed filtering.
20th IFAC World Congress, Toulouse, France, 2017, pages 6184–6189 (**Best student paper award, finalist, and best interactive paper award, finalist**).

[C54] O. Galluppi, S. FORMENTIN, S. M. Savaresi
A vehicle-user matching tool to encourage electric mobility.
IEEE Intelligent Vehicles Symposium, Redondo Beach (CA), USA, 2017 pages 1625–1630.

[C53] M. Parigi Polverini, S. FORMENTIN, L. Anh Dao, P. Rocco
Data-Driven Design of Implicit Force Control for Industrial Robots.
IEEE International Conference on Robotics and Automation, Marina Bay Sands, Singapore, 2017, pages 2322–2327 (**Best student paper award, finalist**).

[C52] A.L. Cologni, M. Ermidoro, S. FORMENTIN, F. Previdi
Anti-sway fixed-order control of bridge cranes with varying rope length.
IEEE International Conference on Mechatronics, Latrobe, Australia, 2017, pages 56–61.

[C51] G. Rallo, S. FORMENTIN, S. Garatti, S. M. Savaresi
Vehicle stability control via VRFT with probabilistic robustness guarantees.
55th IEEE Conference on Decision and Control, Las Vegas, NV, USA, 2016, pages 7165–7170.

[C50] G. Rallo, S. FORMENTIN, S. M. Savaresi
On data-driven control design for non-minimum-phase plants: a comparative view.
55th IEEE Conference on Decision and Control, Las Vegas, NV, USA, 2016, pages 7159–7164.

[C49] S. FORMENTIN, L. Luini, C. Capsoni, R. Nebuloni, D. Liberati
Modeling rain fields for earth space propagation applications by an autoregressive modeling approach.
8th Advanced Satellite Multimedia Systems Conference and 14th Signal Processing for Space Communications Workshop, Palma de Mallorca, Spain, 2016, pages 1–4.

[C48] D. Invernizzi, P. Panizza, F. Riccardi, S. FORMENTIN, M. Lovera
Data-driven attitude control law of a variable-pitch quadrotor: a comparison study.
20th IFAC Symposium on Automatic Control in Aerospace (ACA), Sherbrooke, Quebec, Canada, 2016, pages 236–241.

[C47] G. Rallo, S. FORMENTIN, A. Chiuso, S. M. Savaresi
Virtual Reference Feedback Tuning with bayesian regularization.
European Control Conference (ECC), Aalborg, Denmark, 2016, pages 507–512.

[C46] A. Lucchetti, C. Ongini, S. FORMENTIN, S. M. Savaresi, L. Del Re
Automatic recognition of driving scenarios for ADAS design.
8th IFAC International Symposium on Advances in Automotive Control, Norrköping, Sweden, 2016, pages 109–114.

[C45] P. Panizza, D. Invernizzi, F. Riccardi, S. FORMENTIN, M. Lovera
Data-driven attitude control law design for a variable-pitch quadrotor.
IEEE American Control Conference (ACC), Boston (MA), USA, 2016, pages 4434–4439.

[C44] C. Novara, S. FORMENTIN, S. M. Savaresi, M. Milanese
A data-driven approach to nonlinear braking control.
54th IEEE Conference on Decision and Control, Osaka, Japan, 2015, pages 1453–1458.

[C43] J. Guanetti, S. FORMENTIN, S. M. Savaresi
Least costly energy management for electric vehicles with plug-in range extenders.
54th IEEE Conference on Decision and Control, Osaka, Japan, 2015, pages 638–643.

[C42] J. Guanetti, S. FORMENTIN, M. Corno, S. M. Savaresi
Optimal energy management in series hybrid electric bicycles.
54th IEEE Conference on Decision and Control, Osaka, Japan, 2015, pages 869–874.

[C41] S. FORMENTIN, D. Piga, R. Tóth, S. M. Savaresi
Nonparametric LPV data-driven control.
1st IFAC Symposium on Linear Parameter Varying Systems (LPVS), Grenoble, France, 2015, pages 146–151.

[C40] S. FORMENTIN, A. Bisoffi, T. Oomen
Asymptotically exact direct data-driven multivariable controller tuning.
IFAC Symposium on System Identification, Beijing, China, 2015, pages 1349–1354.

[C39] S. FORMENTIN, C. Novara, S. M. Savaresi, M. Milanese
Data-driven inversion-based control of nonlinear systems.
IFAC Symposium on System Identification, Beijing, China, 2015, pages 1343–1348.

[C38] S. FORMENTIN, A.G. Bianchessi, S.M. Savaresi
On the prediction of future vehicle locations in free-floating car sharing systems.
IEEE Intelligent Vehicles Symposium, COEX, Seoul, Korea, 2015, pages 1006–1011.

[C37] A. Brankovic, D. Berretta, S. FORMENTIN, M. Corno, S.M. Savaresi
Modeling and speed limitation control of an electric kick scooter.
European Control Conference (ECC), Linz, Austria, 2015, pages 697–702.

[C36] S. FORMENTIN, F. Dabbene, R. Tempo, L. Zaccarian, S.M. Savaresi
Scenario optimization with certificates and applications to anti-windup design.
53rd IEEE Conference on Decision and Control, Los Angeles (CA), USA, 2014, pages 2810 - 2815.

[C35] M. Mazzoleni, S. FORMENTIN, F. Previdi, S.M. Savaresi
Fault Detection via modified Principal Direction Divisive Partitioning and application to aerospace electro-mechanical actuators.
53rd IEEE Conference on Decision and Control, Los Angeles (CA), USA, 2014, pages 5770 - 5775.

[C34] S. FORMENTIN, M.C. Campi, S.M. Savaresi
Virtual Reference Feedback Tuning for industrial PID controllers.
19th IFAC World Congress, Cape Town, South Africa, 2014, pages 11275 - 11280.

[C33] S. FORMENTIN, S. Bittanti
       An insight into noise covariance estimation for Kalman filter design.
       19th IFAC World Congress, Cape Town, South Africa, 2014, pages 2358 - 2363.

[C32] J. Guanetti, S. FORMENTIN, S.M. Savaresi
       Total cost minimization for next generation hybrid electric vehicles.
       19th IFAC World Congress, Cape Town, South Africa, 2014, pages 4819 - 4824.

[C31] S. FORMENTIN, A.L. Cologni, F. Previdi, S.M. Savaresi
       On batch process control using feature extraction with application to a gravimetric blender.
       IEEE American Control Conference (ACC), Portland (OR), USA, 2014, pages 1138 - 1143.

[C30] F. Todeschini, S. FORMENTIN, G. Panzani, M. Corno, S.M. Savaresi, L. Zaccarian
       Deadzone compensation and anti-windup design for brake-by-wire systems.
       IEEE American Control Conference (ACC), Portland (OR), USA, 2014, pages 572 - 577.

[C29] M. Ermidoro, S. FORMENTIN, A. Cologni, F. Previdi, S.M. Savaresi
       On time-optimal anti-sway controller design for bridge cranes.
       IEEE American Control Conference (ACC), Portland (OR), USA, 2014, pages 2809 - 2814.

[C28] S. FORMENTIN, D. Piga, R. Tóth, S. M. Savaresi
       Direct data-driven control of linear parameter-varying systems.
       52nd IEEE Conference on Decision and Control, Firenze, Italy, 2013, pages 4110 - 4115.

[C27] S. FORMENTIN, S. M. Savaresi, L. Zaccarian, F. Dabbene
       Randomized analysis and synthesis of robust linear static anti-windup.
       52nd IEEE Conference on Decision and Control, Firenze, Italy, 2013, pages 4498 - 4503.

[C26] A. G. Bianchessi, S. FORMENTIN, S. M. Savaresi
       Active Fleet Balancing in Vehicle Sharing Systems via Feedback Dynamic Pricing.
       16th IEEE Conference on Intelligent Transportation Systems (ITSC), The Hague, The Netherlands,
       2013, pages 1619 - 1624.

[C25] A. Cologni, S. FORMENTIN, F. Previdi, S. M. Savaresi
       Polymer flow control in continuous gravimetric blenders.
       ASME Dynamic Systems and Control Conference (DSCC), Stanford, Palo Alto (CA), USA, 2013, pages
       1837 - 1844.

[C24] F. Riccardi, M. F. Haydar, S. FORMENTIN, M. Lovera
       Control of variable-pitch quadrotors.
       19th IFAC Symposium on Automatic Control in Aerospace, Würzburg, Germany, 2013, pages 206 - 211.

[C23] S. FORMENTIN, K. van Heusden, A. Karimi
       Model-based and data-driven model-reference control: a comparative analysis.
       European Control Conference (ECC), Zurich, Switzerland, 2013, pages 1410 - 1415.

[C22] D. Berretta, N. Urbano, S. FORMENTIN, I. Boniolo, P. De Filippi, S. M. Savaresi
       Modeling, identification and control of a Boat Parking Assistance system.
       European Control Conference (ECC), Zurich, Switzerland, 2013, pages 3012 - 3017.

[C21] S. FORMENTIN, A. Karimi
       Direct data-driven design of sparse controllers.
       IEEE American Control Conference (ACC), Washington DC, USA, 2013, pages 3099 - 3104.

[C20] S. FORMENTIN, A. Karimi
       On L2-regularization for Virtual Reference Feedback Tuning.
       IEEE American Control Conference (ACC), Washington DC, USA, 2013, pages 3105 - 3110.

[C19] T. E. Passenbrunner, S. FORMENTIN, S. M. Savaresi and L. del Re
       Direct data-driven control of internal combustion engine test benches using closed-loop experiments.
       51st IEEE Conference on Decision and Control, Maui, Hawaii, USA, 2012, pages 3765 - 3770.

[C18] G. Panzani, S. FORMENTIN, S.M. Savaresi
       Active motorcycle braking via direct data-driven load transfer scheduling.
       IFAC Symposium on System Identification, Brussels, Belgium, 2012, pages 1257 - 1262.

[C17] S. FORMENTIN, A. Karimi, S.M. Savaresi
       On input design for direct data-driven controller tuning.
       IFAC Symposium on System Identification, Brussels, Belgium, 2012, pages 1466 - 1471.

[C16] S. FORMENTIN, D. Alberer, M. Corno, L. Del Re, S.M. Savaresi
       NO_x estimation via in-cylinder pressure feature extraction.
       IFAC Symposium on System Identification, Brussels, Belgium, 2012, pages 739 - 744.

[C15] G. Alli, S. FORMENTIN, S.M. Savaresi
       A range-bounding strategy for electric scooters.
       IEEE International Electric Vehicle Conference, Greenville, South Carolina USA, 2012, pages 1 - 7.

[C14] S. FORMENTIN, M. Hirsch, S.M. Savaresi, L. Del Re
       Direct data-driven control of a Diesel engine airpath.
       IEEE American Control Conference, Montreal, Canada, 2012, pages 4198 - 4203.

[C13] S. FORMENTIN, I. Boniolo, P. Lisanti, C Spelta, S.M. Savaresi
       Fault detection in roll angle estimation for two-wheeled vehicles.
       13th IFAC Symposium on Control in Transportation Systems, Sofia, Bulgaria, 2012, pages 54 - 59.

[C12] S. FORMENTIN, S.M. Savaresi
       Virtual Reference Feedback Tuning for linear parameter-varying systems.
       18th IFAC World Congress, Milano (Italy), 2011, pages 10219 - 10224.

[C11] S. FORMENTIN, A.Karimi, S.M. Savaresi
       Direct data-driven $\mathcal{H}_2 - \mathcal{H}_\infty$ loop-shaping.
       18th IFAC World Congress, Milano (Italy), 2011, pages 11423 - 11428.

[C10] S. FORMENTIN, D. Belloli, A. Cologni, F. Previdi, S.M. Savaresi
       Fast tuning of cascade control systems.
       18th IFAC World Congress, Milano (Italy), 2011, pages 10243 - 10248.

[C9]   P. De Filippi, S. FORMENTIN, S.M. Savaresi
       A comparison between model-based and data-driven design of an active stability control system for two-wheeled vehicles.
       ASME Dynamic Systems and Control Conference, Arlington, VA, USA, 2011, pages 823 - 830.

[C8]   S. FORMENTIN, M. Lovera
       Flatness-based control of a quadrotor helicopter via feed-forward linearization.
       50th IEEE Conference on Decision and Control, Orlando (FL), USA, 2011, pages 6171 - 6176.

[C7]   S. FORMENTIN, S.M. Savaresi
       Noniterative data-driven design of multivariable controllers.
       50th IEEE Conference on Decision and Control, Orlando (FL), USA, 2011, pages 5106 - 5111.

[C6]   S. FORMENTIN, P. De Filippi, M. Tanelli, S.M. Savaresi
       Model-free control for active braking systems in sport motorcycles.
       8th IFAC Symposium on Nonlinear Control Systems, Bologna (Italy) 2010, pages 873 - 878.

[C5] G. Alli, S. FORMENTIN, S.M. Savaresi
      On the suitability of EPACs in urban use.
      IFAC Mechatronics, Boston (MA), USA, 2010, pages 277 - 284.

[C4] S. FORMENTIN, G. Alli, S.M. Savaresi, F. Castelli Dezza
      Analysis and design of hardware architectures and control algorithms for an EPAC.
      ASME Dynamic Systems and Control Conference, Boston (MA), USA, 2010, pages 481 - 488.

[C3] S. FORMENTIN, P. De Filippi, S.M. Savaresi
      Optimal design of experiment for the identification of throttle-to-slip dynamics in two-wheeled vehicles.
      IEEE Multi-Conference on Systems and Control, Yokohama, Japan, 2010, pages 142 - 147.

[C2] S. FORMENTIN, S.M. Savaresi, M. Hirsch, L. Del Re
      On the experimental protocol in Virtual Reference Feedback Tuning.
      49th IEEE Conference on Decision and Control, Atlanta (GA), USA, 2010, pages 5554 - 5559.

[C1] S. FORMENTIN, M. Corno, S.M. Savaresi, L. Del Re
      Virtual Reference Feedback Tuning of Internal Model Controllers.
      49th IEEE Conference on Decision and Control, Atlanta (GA), USA, 2010, pages 5542 - 5547.

Submitted

[CS9] G. Singer, S. FORMENTIN, L. Del Re
       Context-aware management of multi-objective adaptive cruise control.
       IEEE American Control Conference, Toronto, Canada, 2024.

[CS8] V. Breschi, S. FORMENTIN, A. Leva
       Model predictive control with dynamic move blocking.
       IEEE American Control Conference, Toronto, Canada, 2024.

[CS7] R.G. Cestari, A. Lucchini, E. Leati, M. Norgia, S. FORMENTIN, S.M. Savaresi
       Vertical load estimation in tractors via in-wheel optical sensing.
       20th IFAC Symposium on System Identification, Boston (MA), USA, 2024.

[CS6] A. Sassella, V. Breschi, S. FORMENTIN
       Data-driven explicit predictive control with limited resources: an exploration-based strategy.
       20th IFAC Symposium on System Identification, Boston (MA), USA, 2024.

[CS5] R. G. Cestari, G. Maroni, L. Cannella, D. Piga, S. FORMENTIN
       Split-boost neural networks.
       20th IFAC Symposium on System Identification, Boston (MA), USA, 2024.

[CS4] T. Ickenroth, V. Breschi, T. Oomen, S. FORMENTIN
       Iterative Feedback Tuning with automated reference model selection.
       20th IFAC Symposium on System Identification, Boston (MA), USA, 2024.

[CS3] F. Dettú, B. Lakshminarayanan, S. FORMENTIN, C. R. Rojas
       From data to control: a two-stage simulation-based approach.
       European Control Conference, Stockholm, Sweden, 2024.

[CS2] G. Yang, M. Scandella, S. FORMENTIN, T. Parisini
       Automated data-driven tuning of learning-based model predictive control: a maximum-likelihood approach.
       European Control Conference, Stockholm, Sweden, 2024.

[CS1] L. Anh Dao, L. Roveda, M. Maccarini, M. Lavit Nicora, M. Meregalli Falerni, M. Mondellini, P. Veerappan, L. Mantovani, D. Piga, S. FORMENTIN, M. Malosio
       Active Preference Learning with multiple outcomes and certainty levels for collaborative robots.
       16th International Workshop on Human-Friendly Robotics, Munich, Germany, 2023.

Patents

[P6] T. Colombo, S. FORMENTIN, A. Pozzato, S.M. Savaresi
Procedimento per la stima della pressione degli pneumatici di un veicolo.
Applicant: Maserati S.p.A. and Politecnico di Milano
Patent number (Italian Patent): 102018000020212. December 19, 2018.

[P5] S. Dossi, A. Tarantini, G. Calamai, G. Rallo, S. FORMENTIN, S.M. Savaresi
Metodo di stima di una forza frenante esercitabile tra pastiglia e disco freno da un sistema elettrico di frenatura di stazionamento di un veicolo e sistema elettrico di frenatura di stazionamento di un veicolo implementante tale metodo.
Applicant: Brembo S.p.A. and Politecnico di Milano
Patent number (Italian Patent): 102017000086468. July 27, 2017.

[P4] S.M. Savaresi, G. Favero, S. FORMENTIN, D. Nava
Dispositivo e metodo per la determinazione della potenza impressa sui pedali di una bicicletta.
Applicant: Favero Electronics S.r.l. and Politecnico di Milano
Patent number (Italian Patent): 102017000043114. April 20, 2017.

[P3] S. FORMENTIN, M. Corno, S.M. Savaresi, G. Rallo
Dispositivo per la determinazione di una grandezza cinematica di una bicicletta e della cadenza di pedalata esercitata sui pedali di detta bicicletta.
Applicant: E-Novia S.r.l. and Politecnico di Milano
Patent number (Italian Patent): 102015000076011. November 24, 2015.

[P2] S.M. Savaresi, S. FORMENTIN, A.G. Bianchessi
Metodo per la predizione della distanza utente-veicolo in servizi car-sharing on-demand.
Applicant: Politecnico di Milano
Patent number (Italian Patent): VI2014A000187. July 14th, 2014.
European extension: July 7, 2015.

[P1] S.M. Savaresi, M. Corno, S. FORMENTIN, L. Fabbri
Sistema e metodo di controllo della trazione in un veicolo a due ruote.
Applicant: Piaggio Group S.p.A. and Politecnico di Milano
Patent number (Italian Patent): MI2009A0010134. June 9, 2009.

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