

# CURRICULUM VITAE

LATEST UPDATE: JANUARY 13, 2022

## PERSONAL DATA

*Name:* Simone Formentin

*Date of birth:* February 23, 1984

*Place of birth:* Legnano (MI), Italy

*Address:* Via Tortona, 2 - 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](mailto: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 (Linköping 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

**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**

Visiting researcher at the Laboratoire d'Analyse et d'Architecture des Systèmes, 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 system 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, J50, C109, C89, J40, C101, J45, C110, C118, JS2, CS4]
- direct data-driven control of time-delay systems [J1, C1];
- mixed-sensitivity loop-shaping control design [J7, C11, C70];
- 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, J55];
- data-driven nonlinear control systems [J17, C12, C18, C28, C41, J42, JS4, C88, J4, C6, C39, C44, J21, C56, J26, C102, C100, J52, C107, C108, C114, C115];
- data-driven predictive control [JS5, JS8];
- robustification of data-driven tuning [J30, C51, C87, C103, C120, JS7].

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<sub>x</sub> 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, JS1, C105, C106, JS6];
- vehicle dynamics control, [P1, BC1, C9, C3, C13, C30, C95, J38, C97, C99, 48, J49, C113, C111, JS3, CS1, JS9];
- Diesel engine control [J15, J11, C14];
- electric and hybrid powertrains [C96, C72, C81, J43, C15, C5, C4, J19, J23, C32, C43, C42, C55, C37, J41, C94];
- traffic control [C119, CS2, JS12];
- vehicle sharing systems and green mobility [J12, C26, C38, C54, C92, C65, P4, P2, C86, J53];
- advanced driver assistance systems [C80, J37, C46, J34, JS11];
- design and control of braking actuators [J20, C30, P5, C74, C91, C104, C112];
- 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]
- Business analytics and finance [C57, C71, C78, C93, J51]

- Education [CS3]

## TEACHING ACTIVITY

**Lecturer**

- 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 Doctoral School
- 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 (UNIMORE)

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  
 Class Hours per Year: 40 - 40 - 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  
 Class Hours per Year: 32 - 32 - 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  
 Class Hours per Year: 42 - 42 - 42 - 42 - 18  
 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: 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**

- *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

- *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. Radrizzani. 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<sup>2</sup>-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. Bongiorno, 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

- *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

- *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 (~ 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

- *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 mechatronic 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

- General 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. Forgone) on “Data-Driven Linear Modelling and Control for Nonlinear Systems” at 19th IFAC Symposium on System Identification (SYSID), to be held in 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 10th IFAC Symposium on Robust Control Design (ROCOND), to be held in Kyoto, Japan, August 30 - September 2, 2022.
- Member of the international program committee of the 19th IFAC Symposium on System Identification (SYSID), to be held in 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

- “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 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 member of the Institute of Electrical and Electronics Engineers (IEEE) and 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

- *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 Systèmes, 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 Systèmes, CNRS Toulouse, France, June 12, 2012.

#### UNIVERSITY SERVICES

##### September 2018 – Today

Member of the admissions committee to the M.Sc. program in Automation and Control Engineering 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), 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*

- [J55] P. Kergus, S. FORMENTIN, M. Giuliani, A. Castelletti  
*Learning-based hierarchical control of water reservoir systems.*  
IFAC Journal of Systems and Control. Accepted.
- [J54] 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. Accepted.
- [J53] 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. DOI: 10.1109/TTE.2021.3114497.
- [J52] 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. DOI: 10.1016/j.jfranklin.2021.04.052.
- [J51] F. Abbracciavento, S. FORMENTIN, S.M. Savaresi  
*Data-driven stock trading in financial markets: an adaptive control approach.*  
International Journal of Control. DOI: 10.1080/00207179.2020.1837395.
- [J50] M. Scandella, M. Mazzoleni, S. FORMENTIN, F. Previdi  
*Kernel-based identification of asymptotically stable continuous-time linear dynamical systems.*  
International Journal of Control. DOI: 10.1080/00207179.2020.1868580.
- [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.
- [48] 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.*  
IEEE 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.*  
IFAC 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.
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- [JS11] F. Dettú, S. FORMENTIN, S.M. Savaresi  
*Driving style assessment system for agricultural tractors: design and experimental validation.*  
Agronomy.
- [JS10] G. Riva, S. FORMENTIN, M. Corno, S.M. Savaresi  
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- [JS9] G. Riva, S. FORMENTIN, M. Corno, S.M. Savaresi  
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- [JS4] A. Sassella, V. Breschi, S. FORMENTIN, S.M. Savaresi  
*A data-driven switching control approach for braking systems with constraints.*  
Nonlinear Analysis: Hybrid Systems.
- [JS3] E. Catenaro, A. Dubbini, S. FORMENTIN, M. Corno, S.M. Savaresi  
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- [JS2] M. Mazzoleni, A. Chiuso, M. Scandella, S. FORMENTIN, F. Previdi  
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*On optimal gear shifting in city bikes.*  
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**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.*  
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- [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  
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- [BC3] S. FORMENTIN, G. Panzani, S. M. Savaresi  
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- [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.*  
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- [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 Characterization.*  
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. Lluca, 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.
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