

Maria Prandini

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Brief biography

Maria Prandini was born in Brescia in 1969. She obtained the Laurea degree in Electrical Engineering (Politecnico di Milano 1994), and the Ph.D. degree in Information Technology (Università degli Studi di Brescia 1998) with a dissertation on adaptive control of stochastic systems. After receiving her Ph.D., she was a visiting postdoctoral researcher at the Department of Electrical Engineering and Computer Sciences, University of California at Berkeley, from 1998 to 2000. She also held visiting positions at Delft University of Technology (1998), Cambridge University (2000), UC Berkeley (2005), and ETH Zurich (2006).

From December 2002 to January 2011, she was Assistant Professor at the Dipartimento di Elettronica e Informazione of the Politecnico di Milano. Starting from February 2011, she is Associate Professor at the same department, which is now named Dipartimento di Elettronica, Informazione e Bioingegneria.

She is currently principal investigator in the EC-funded H2020 project UnCoVerCPS “Unifying Control and Verification of Cyber-Physical Systems” (2015–2018).

Previously, she was involved in two EC-funded projects related to air traffic management and one on power networks applications. More specifically, she was workpackage leader in the FP5 project HYBRIDGE (2002–2005), principal investigator in the FP6 project iFly (2007–2011) and in the FP7 project MoVeS (2010–2013).

She is and has been active as associate editor in the editorial boards of leading journals in control. She is currently associate editor of Cyber Physical Systems (from 2014). She was discussion editor of European Journal of Control (2007–2013) and associate editor of IEEE Transactions on Automatic Control (2009–2013), IEEE Transactions on Control Systems Technology (2009–2015), and Nonlinear Analysis: Hybrid Systems (2011–2015).

She is senior member of IEEE since 2015. She is member of the IFAC Technical Committee on Discrete Event and Hybrid Systems (from 2008), and member of the IEEE Control Systems Society Conference Editorial Board (from 2007) and of the EUCA Conference Editorial Board (from 2013) as an Associate Editor.

From 2013 to 2015, she was editor for Electronic Publications of the IEEE Control Systems Society (CSS), and she was, among other things, responsible for the E-Letter on Systems, Control, and Signal Processing. She was elected member of the IEEE CSS Board of Governors in May 2014 for a triennium starting from January 1, 2015. Starting from January 2016, she is vice-president of the IEEE CSS for the conference activities.

She will be co-chairing the Hybrid Systems Computations and Control Conference 2018.

Personal Data

Name Maria Prandini
Work address Dipartimento di Elettronica, Informazione e Bioingegneria
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Date of birth September 8, 1969
Place of birth Brescia, Italy
Citizenship Italian

Education

Ph.D., Information Technology (Automatic Control)
Università degli Studi di Brescia, Italy, April 1998.
Ph.D. Advisor: Prof. Marco C. Campi.
Dissertation Title: *Adaptive LQG control: optimality analysis and robust controller design.*
Laurea, Electrical Engineering
Politecnico di Milano, Italy, February 1994.
GPA: 100/100 cum laude.

Work Experience

February 2011 – : Politecnico di Milano, Italy
Associate Professor, Dipartimento di Elettronica, Informazione e Bioingegneria
December 2002 – January 2011: Politecnico di Milano, Italy
Assistant Professor, Dipartimento di Elettronica e Informazione
September 2006: Swiss Federal Institute of Technology (ETH), Zurich, Switzerland
Visiting Researcher, Automatic Control Laboratory
Topics: approximate model checking for stochastic hybrid systems
August 2005: University of California at Berkeley, USA
Visiting Researcher, EECS Department
Topics: stochastic hybrid systems modeling; probabilistic invariance; maximally safe controller design
April 2000 – December 2002: Università degli Studi di Brescia, Italy
Research Assistant, Dipartimento di Elettronica per l'Automazione
Topics: probabilistic verification of hybrid systems with application to air traffic management; logic-based switching for the control of imprecisely modeled stochastic systems.
September 2001 – October 2001: University of Cambridge, UK
Visiting Researcher, Department of Engineering
Topics: Air traffic management systems modeling and analysis with application to aircraft conflict detection and resolution.
November 1999 – February 2000: University of California at Berkeley, USA
Postdoctoral Researcher, EECS Department
Topics: Coordination and control of multi-agent systems: probabilistic, multiple-agent pursuit-evasion games.
August 1999 – October 1999: Università degli Studi di Brescia, Italy
Postdoctoral Researcher, Dipartimento di Elettronica per l'Automazione
Topics: Adaptive control and identification: self-optimizing control schemes and penalized identification algorithms.

August 1998 – July 1999: University of California at Berkeley, USA
 Postdoctoral Researcher, EECS Department
 Topics: Air traffic management systems automation: probabilistic approach to aircraft conflict detection and resolution; optimal multiple aircraft conflict resolution.

Spring 1999: University of California at Berkeley, USA
 Instructor of the graduate level course EECS 223 on Stochastic Systems: Estimation and Control

March 1998 – July 1998: Delft University of Technology, The Netherlands
 Postdoctoral researcher, Mechanical Engineering Department
 Topics: Randomized methods for controller synthesis.

January 1994 – December 1997: Università degli Studi di Brescia, Italy
 Graduate Student Researcher, Dipartimento di Elettronica per l'Automazione
 Topics: blind equalization of digital communication channels, penalized identification methods for adaptive control, randomized algorithms for the synthesis of adaptive controllers.

Research Activity

Research Interests

Stochastic and hybrid systems, system verification, constrained control, system identification, game theory, distributed and stochastic optimization, randomized methods, with two main application domains: energy systems and air traffic management.

Research Programs

Principal Investigator

Unifying Control and Verification of Cyber-Physical Systems (UnCoVerCPS), European Commission, H2020, 2015-2018.

Modelling, verification and control of complex systems: From foundations to power network applications (MoVeS), European Commission, FP7, research contract FP7-ICT-2009-257005, 2010-2013.

Safety, Complexity and Responsibility based design and validation of highly automated Air Traffic Management (iFLY), European Commission, FP6, research contract TREN/07/FP6AE/S07.71574/037180, 2007-2011.

Workpackage leader

Distributed control and stochastic analysis of hybrid systems, supporting safety critical real-time systems design (HYBRIDGE), European Commission, Information Society Technologies (IST), FP5, research contract IST-2001-32460, 2002-2005. Leader of workpackage 3 on Reachability Analysis of Probabilistic Hybrid Systems.

Team Member

Innovative techniques and applications of system identification and adaptive control, Italian Ministry for Education, University and Research (MIUR), 2010–2011

Innovative techniques and applications of system identification and adaptive control, Italian Ministry for Education, University and Research (MIUR), 2007–2008

Innovative methods and algorithms for the identification and adaptive control of technological systems, Italian Ministry for Education, University and Research (MIUR), 2005–2006

Innovative methods for the identification and adaptive control of industrial systems, Italian Ministry for Education, University and Research (MIUR), 2003–2004

Identification and adaptive control of industrial systems, Italian Ministry for Education, University and Research (MIUR), 2001–2002

Adaptive and robust controllers design. Italian Ministry for Education, University and Research (MIUR), 1999–2000

Identification, control and adaptive predictors, Italian Ministry for Education, University and Research (MIUR), 1995–1997

Nonlinear and adaptive control, European Commission, Human Capital Mobility project, 1994–1996.

Collaboration with industry

Two-year contract on “Studio e implementazione di algoritmi per la verifica di sistemi dinamici a tempo discreto affini a tratti e non lineari” with Electrical & Avionics Systems, Leonardo S.p.a., 2017–2018. In preparation.

Plenary speaker

“A big-data approach to decision making under uncertainty”, plenary lecture at the 16th International Conference on Control, Automation, and Systems (ICCAS), HICO, Gyeongju, Korea, 16-19 October 2016.

Invited presentations

Delft University of Technology, The Netherlands (1998, 2000); University of California at Berkeley, USA (1998, 1999); Simon Fraser University, Canada (1999); Stanford University, USA (2000); University of Pennsylvania, USA (2000); George Mason University, USA (2000); Swiss Federal Institute of Technology, Switzerland (2000, 2006); Royal Institute of Technology, Sweden (2001); Eurocontrol Experimental Centre, Bretigny-sur-Orge, France (2005); University of Belgrade, Belgrade, Serbia (2013); Lund University, Lund, Sweden (2014); Stuttgart University, Germany (2014); Genova, Italy (2015); TUM, Munich, Germany (2016); Oxford University, Oxford, UK (2016); TUM, Munich, Germany (2017).

Collaborations

Axel Busboom, GE Global Research, Munich, Germany; Marco C. Campi, Università degli Studi di Brescia, Italy; João P. Hespanha, University of California at Santa Barbara, USA; John Lygeros, ETH Zurich, Switzerland; Kostas Margellos, Oxford University, UK

Teaching Activity

PhD Courses

Hybrid Systems, Lund University, Sweden, 5-8 October 2015

Hybrid Systems, Politecnico di Milano, Italy, 3-9 May 2006, 8-12 June 2009, 16-21 June 2011, 8-15 July 2013, 15-19 June 2015, 20-24 February 2017

EECS 223 on Stochastic Systems: Estimation and Control, at University of California at Berkeley, USA, spring 1999

Invited lecturer of the following courses:

Optimal filtering and data analysis, Politecnico di Milano, Italy, September 12-16, 2016; 4th International Summer School on Modern Computational Science: Optimization, Oldenburg, Germany, August 20-31, 2012; Filtering, data analysis and optimization of uncertain systems, Politecnico di Milano, Italy, September 28-30, 2009; 1st HYCON (Hybrid Control: Taming Heterogeneity and Complexity of Networked Embedded Systems) Ph.D. school on Hybrid Systems, Siena, Italy, July 19-22, 2005; Filtering and estimation methods for stochastic systems, Politecnico di Milano, Italy, November 23-25, 2005; Hybrid Systems: A Formal Paradigm for Safety Critical Embedded Systems, University of Patras, Greece, September 22-24, 2004; CIRA (Centro Interuniversitario di Ricerca in Automatica) graduate summer school on Analysis and Control of Hybrid Systems, Bertinoro, Italy, July 17-19, 2003; Innovative methods of data analysis: Estimation and filtering, Politecnico di Milano, Italy, April – May, 2002

Master Courses

Hybrid Systems at Stuttgart University, Germany (I semester 2014-15)

Nonlinear control, Politecnico di Milano, Italy (2013-24 and 2014-15)

Undergraduate Courses

Fundamentals of Automatic Control (since 2002-03), project course on System Identification (2003-2004), and Automatica 1 (from 2005-06 to 2009-10) at the Politecnico di Milano, Italy

Automatic Control (2002-2003, 2003-2004) and Stochastic Processes (2004-05, 2005-06, 2006-07) at the Università degli Studi di Brescia, Italy

Activity as advisor

Post-Doc

- R. Vignali, Politecnico di Milano, Italy, 2016. Development of algorithms for verification and testing of piecewise affine and nonlinear discrete time systems.
- L. Deori, Politecnico di Milano, Italy, 2016. Distributed control techniques for systems affected by stochastic uncertainty, with application to charging control of multiple electric vehicles.
- A.V. Papadopoulos, Politecnico di Milano, Italy, 2016. Switched control for quantized control systems and microgrid modeling for optimal energy management.
- K. Margellos, Politecnico di Milano, Italy, 2015. Distributed model predictive control of large scale networked systems affected by stochastic uncertainty, with application to next generation power networks

PhD

- A. Falsone, Research Doctoral Program in Information Technology, Politecnico di Milano, Italy. Thesis: Stochastic distributed model predictive control with application to energy systems
- R. Vignali, Research Doctoral Program in Information Technology, Politecnico di Milano, Italy. Supported by AgustaWestland. Thesis: Automatic verification and input design for dynamical systems: an optimization-based approach to the detection of non-influential inputs
- G. Manganini, Research Doctoral Program in Information Technology, Politecnico di Milano, Italy. Thesis: Optimal control of large scale stochastic hybrid systems with a finite control space
- Y. Yang, visiting scholar from the School of Electronic and Information Engineering, Beihang University, China, from September 2013 to September 2014. Work on ATM related topics

After-Master

- A. Falsone, Politecnico di Milano, Italy, 2014. Randomized algorithms for nonlinear systems identification
- D. Ioli, Politecnico di Milano, Italy, 2015, 2016, 2017. Microgrid modeling and control for the energy management of next generation power networks

Other Professional Activities

Co-chair of the Hybrid Systems Computations and Control Conference 2018.

Vice-president of the IEEE CSS for conference activity, from January 1, 2016

Member elected of the IEEE CSS Board of Governors for a triennium starting on January 1, 2015

Editor of the electronic publications of the IEEE Control Systems Society, 2013 – 2015

Associate Editor of the IEEE Transactions on Control Systems Technology, 2009 – 2015

Associate Editor of Nonlinear Analysis: Hybrid Systems, 2011 – 2015

Associate Editor of the new journal Cyber Physical Systems (CPS), Taylor & Francis, from 2014

Associate Editor of the IEEE Transactions on Automatic Control, 2009 – 2013

Discussion Editor of the European Journal of Control, 2007 – 2013

Member of the IEEE Control Systems Society Conference Editorial Board as an associate editor, from 2007

Member of the EUCA Conference Editorial Board as an associate editor, from 2013

Member of the Review Panel NT-14 Signals and Systems of the Swedish Research Council, 2013, 2014, 2015, and 2016

Member of the IFAC Technical Committee on Stochastic Systems, 2003 – 2008

Member of the IFAC Technical Committee on Discrete Event and Hybrid Systems, from 2008

Member of the Program Committee of the following conferences/workshops:

International Conference on Cyber Physical Systems (ICCPS 2014, 2015, and 2016); International Workshop on Hybrid Systems: Computation and Control (HSCC 2002, 2006, 2007, 2008, 2015, 2016, and 2017); IFAC Conference on the Analysis and Design of Hybrid Systems (ADHS 2006, 2012, and 2015); IEEE International Symposium on Intelligent Control (ISIC 2004 and 2005); IEEE Conference on Automation Science and Engineering (IEEE CASE 2008); 18th IFAC Symposium on Automatic Control in Aerospace (ACA 2010); Mediterranean Conference on Control and Automation (MED 2011, 2012, 2015, 2016, and 2017); IFAC World Congress 2011 and 2017; European Control Conference 2013 (ECC 13); IEEE International Meeting on Analysis and Applications of Nonsmooth Systems (AANS 2014); Cyber-Physical Systems within the SPIE International Symposium on Microtechnologies 2015 (SPIE'15); 2016 IEEE First International Conference on Control, Measurement and Instrumentation (CMI2016); International Workshop on Symbolic and Numerical Methods for Reachability Analysis (SNR 2016 and 2017); 4th International Conference on Control, Decision and Information Technologies 2017 (CoDIT 2017).

Evaluator of FP6 IST Proposals on Embedded Systems (2003)

Member of panel session

“The role of robustness in hybrid systems”, 17th International Conference on Hybrid Systems: Computation and Control (HSCC 2014), Berlin, Germany (April 2014).

International Workshops

Lecturer at the following workshops:

“Unmanned Air Vehicles: Coordination, Sensing, and Control”, 38th Conference on Decision and Control, Phoenix, USA (December 1999).

“Unmanned Air Vehicles: Coordination, Sensing, and Control”, IEEE International Conference on Control Applications & IEEE International Symposium on Computer-Aided Control Systems Design, Anchorage, Alaska, USA (September 2000).

“Stochastic and Hybrid Systems: Theory and Applications to Air Traffic Management”, European Control Conference, Cambridge, UK (September 2003).

“Stochastic hybrid systems: theory and applications”, 43rd Conference on Decision and Control, Paradise Island, Bahamas (December 2004).

“Innovative approaches to handling uncertainty in air traffic management”, tailored to experts in ATM (Air Traffic Management), Eurocontrol Experimental Centre, Bretigny-sur-Orge, France (February 2005).

“Airborne self separation in air transportation”, 4th International Conference on Research in Air Transportation, Budapest, Hungary (June 2010).

Thematic Workshop on “Automation of air traffic processes and air transportation systems”, Belgrade, Serbia (June 19-21, 2013).

“Verification and Control of Stochastic Hybrid Systems”, European Control Conference, Zurich, Switzerland (July 2013).

Co-organizers of the following workshops:

Verification and control of cyber-physical systems: theory and applications, IEEE Conference on Decision and Control 2016, Las Vegas, USA, December 11, 2016 (with A. Busboom)

Distributed and Stochastic Optimization: Theory and Applications, European Control Conference 2016, Aalborg, Denmark, June 28, 2016 (with K. Margellos)

2nd Workshop on Formal Methods for Aerospace (FMA@CDC'2010) at the 49th IEEE Conference on Decision and Control, Atlanta, USA, December 14, 2010

Co-organizer of the following full-day tutorials:

Randomized methods for analysis and design of control systems at the IFAC World Conference, Cape Town, South Africa, August 24, 2014

Cooperative and noncooperative decision making in multi-agent systems: An operator theoretic perspective at the IFAC World Congress, Toulouse, France, July 8, 2017

Co-organizer of the Mini-symposium on Stochastic Systems and Applications at the 2015 SIAM Conference on Control and Its Applications (CT15), Paris, France, July 8-10, 2015

Co-organizer of the invited sessions:

“A learning approach to identification and control”, IFAC World Congress, Barcelona, Spain, July 2002 (with Marco Campi)

“New Developments in Stochastic Systems, Identification and Control”, IEEE Conference on Decision and Control, Maui, Hawaii, December 2012 (with Bozenna Pasik-Duncan)

“Developments in Stochastic Systems, Control and Their Applications”, IEEE Conference on Decision and Control, Florence, Italy, December 2013 (with Bozenna Pasik-Duncan)

“Developments in Stochastic Systems, Control and Their Applications”, IEEE Conference on Decision and Control, Los Angeles, USA, December 2014 (with Bozenna Pasik-Duncan)

“New Developments in Stochastic Systems, Control and Their Applications”, IEEE Conference on Decision and Control, Osaka, Japan, December 2015 (with Bozenna Pasik-Duncan)

“Challenges for Optimization and Control in Power Systems and Networks” and “Coordination and Communication Issues in Energy Networks”, American Control Conference, Boston, USA, July 2016 (with L. Piroddi)

“Advances in control, game theory, and identification for stochastic systems”, IEEE Conference on Decision and Control, Las Vegas, USA, December 2016 (with Bozenna Pasik-Duncan)

“Multi-agent and networked systems”, 20th IFAC World Congress, Toulouse, France, July 2017 (with S. Grammatico and K. Margellos)

Reviewer for, among others, Automatica, European Journal of Control, IEEE Control Systems Magazine, IEEE Transactions on Automatic Control, IEEE Transactions on Control Systems Technology, IEEE Transactions on Intelligent Transportation Systems, International Journal of Adaptive Control and Signal Processing, Journal of Complexity

Other Activities

Domain chair of tenure-track selection committee

Domain chair in Computer Engineering of the tenure-track selection committee for the Faculty of Informatics at the Vienna University of Technology, Austria, 2014

Evaluation committee for promotion to Associate Professor

Member as an expert of the committee for the evaluation of the application of Dimos Dimarogonas for promotion to Associate Professor in Automatic Control at the Royal Institute of Technology, Stockholm, Sweden, 2013

ECC best student paper award selection committee

Member of the ECC best student paper award, 2016.

Hugo Schuck selection committee

Member of the Hugo Schuck selection committee for the best two papers presented at the American Control Conference 2013 and 2015, one award is for a paper emphasizing contributions to theory and the other emphasizing significant or innovative applications.

CDC-ECC 2011 best student paper award selection committee

Member of the selection committee for the CDC-ECC 2011 best student paper award.

Ph.D. Examiner

Cambridge University, UK, Ph.D. candidate O.J. Watkins, Thesis title “Stochastic Reachability, Conflict Detection and Air Traffic Management”, April 29, 2005

ETH Zurich, Switzerland, Ph.D. candidate K. Margellos, Thesis title “Constrained Optimal Control for Complex Systems - Analysis and Applications”, November 9, 2012

Uppsala University, Sweden, Ph.D. candidate P. Mattsson, Thesis title “Modeling and identification of nonlinear and impulsive systems with applications”, November 25, 2016

Politecnico di Milano, Ph.D. candidates in Automatica, Dipartimento di Elettronica e Informazione,

April 2009

Università degli Studi di Brescia, Ph.D. candidates in Ingegneria Informatica e Automatica, 12 Marzo 2013

Ph.D. committee

Member of the Committee of the Ph.D. program in Information Technology (Automatic Control) of the Dipartimento di Elettronica e Informazione, Politecnico di Milano, Italy, 2011 – 2012

International study programs coordinator

Departmental coordinator for the international study programs in Automation and Control Engineering, from November 2011 to February 2015

Vice-coordinator of study programme

Vice-Coordinator of the study programme in Automation and Control Engineering, since March 2015.

Awards

Outstanding reviewer of the IEEE Transactions on Automatic Control (2005)

Outstanding reviewer of Automatica (2004, 2005, and 2006)

List of Publications

Maria Prandini

Journal Publications

1. L. Deori, S. Garatti, M. Prandini. 4-D flight trajectory tracking: a receding horizon approach integrating feedback linearization and scenario optimization, 2017. Submitted.
2. L. Deori, K. Margellos, M. Prandini. Regularized Jacobi iteration for decentralized convex optimization with separable constraints, 2017. Submitted.
3. F. Terraneo, A.V. Papadopoulos, A. Leva, M. Prandini. Quantization-Aware Clock Synchronization for Wireless Sensor Networks, 2017. Submitted.
4. A.V. Papadopoulos, F. Terraneo, A. Leva, M. Prandini. Switched control for quantized feedback systems: invariance and limit cycles analysis, 2017. Submitted.
5. L. Deori, K. Margellos, M. Prandini. Nash equilibria in electric vehicle charging control games: Decentralized computation and connection with social optima, 2016. Submitted.
6. L. Deori, S. Garatti, M. Prandini. A relaxation technique to ensure feasibility in stochastic control with input and state constraints, 2016. Submitted.
7. R. Vignali and M. Prandini. Optimal robust control of uncertain piecewise affine systems subject to reachability specifications, 2016. Submitted.
8. D. Ioli, A.Falsone, A.V. Papadopoulos, M. Prandini. A compositional modeling framework for the optimal energy management of a district network, 2016. Submitted.
9. F. Belluschi, A. Falsone, D. Ioli, K. Margellos, S. Garatti, M. Prandini. Energy management for building district cooling: a distributed approach to resource sharing, 2016. Submitted.
10. K. Margellos, A. Falsone, S. Garatti, M. Prandini. Distributed constrained optimization and consensus in uncertain networks via proximal minimization, 2016. Submitted.
11. A. Falsone, K. Margellos, S. Garatti, M. Prandini. Dual decomposition for multi-agent distributed optimization with coupling constraints. *Automatica*. Accepted, May 2017.
12. A. Falsone and M. Prandini. A randomized approach to the prediction of critical situations for air traffic due to an uncontrolled space debris reentry. *IEEE Transactions on Intelligent Transportation Systems*, DOI:10.1109/TITS.2017.2654511, accepted 2017 (available online)
13. F. Borghesan, R. Vignali, L. Piroddi, M. Strelec, M. Prandini. Energy management of a building cooling system with thermal storage: an approximate dynamic programming solution. *IEEE Transactions on Automation Science and Engineering*, DOI: 10.1109/TASE.2016.2635109, accepted 2016 (available online)
14. A. Brankovic, A. Falsone, M. Prandini, L. Piroddi. Randomised Algorithm for Feature Selection and Classification. *IEEE Transactions on Cybernetics*, accepted, 2017.
15. A. Falsone, K. Margellos, S. Garatti, M. Prandini. Finite time distributed averaging over gossip-constrained ring networks, *IEEE Transactions on Control of Network Systems*, DOI: 10.1109/TCNS.2017.2653418, 2017.
16. F. Bianchi, A. Falsone, M. Prandini, L. Piroddi. A randomized approach for NARX model identification based on a multivariate Bernoulli distribution. *International Journal of Systems Science*, DOI: 10.1080/00207721.2016.1244309, accepted 2016 (available online)

17. L. Deori, S. Garatti, M. Prandini. Trading performance for state constraint feasibility in stochastic constrained control: A randomized approach. *Journal of the Franklin Institute*, 354(1):501-529, 2017. DOI: 10.1016/j.jfranklin.2016.10.019, 2016.
18. R. Vignali and M. Prandini. Minimum resource commitment for reachability specifications in a discrete time linear setting. *IEEE Transactions on Automatic Control*, accepted 2016. DOI: 10.1109/TAC.2016.2606082. Published online on September 5, 2016.
19. Y. Yang, J. Zhang, K. Cai, M. Prandini. Multi-aircraft conflict detection and resolution based on probabilistic reach sets. *IEEE Transactions on Control Systems Technology* 25(1):309-316, 2017. ISSN: 1063-6536 DOI: 10.1109/TCST.2016.2542046. Published online on April 1, 2016.
20. A.V. Papadopoulos and M. Prandini. Model reduction of switched affine systems. *Automatica* 70: 57-65, 2016. DOI:10.1016/j.automatica.2016.03.019
21. G. Manganini, M. Pirodda, M. Restelli, L. Piroddi, M. Prandini. Policy search for the optimal control of Markov decision processes: a novel particle-based iterative scheme *IEEE Transactions on Cybernetics*, vol. 46(11):2643-2655, 2016. Published online on October 26, 2015. DOI: 10.1109/TCYB.2015.2483780
22. A. Falsone, L. Piroddi, M. Prandini. A randomized algorithm for nonlinear model structure selection. *Automatica*, vol. 60(10):227238, 2015.
23. K. Margellos, M. Prandini, J. Lygeros. On the Connection Between Compression Learning and Scenario Based Optimization *IEEE Transactions on Automatic Control*, vol. 60(10): 2716-2721, 2015.
24. M. Prandini, S. Garatti, R. Vignali. Performance assessment and design of abstracted models for stochastic hybrid systems through a randomized approach. *Automatica*, vol. 50(11):2852-2860, 2014.
25. D. Bopardikar, A. Borri, J. Hespanha, M. Prandini, M.D. Di Benedetto. Randomized Sampling for Large Zero-Sum Games. *Automatica*, vol. 49(5):1184-1194, 2013
26. M. Prandini, V. Putta, J. Hu. Air traffic complexity in future Air Traffic Management systems. *Journal of Aerospace Operations*, Special issue associated to the INO 2010 Workshop, vol. 1:281-299, 2012
27. M. Prandini, L. Piroddi, S. Puechmorel, S.L. Brázdilová. Toward air traffic complexity assessment in new generation air traffic management systems. *IEEE Transactions on Intelligent Transportation Systems*, vol. 12(3):809-818, 2011
28. J. Lygeros and M. Prandini. Stochastic hybrid systems: a powerful framework for complex, large scale applications. *European Journal of Control*, introductory paper to the special issue on Stochastic hybrid systems, vol. 16(6):583-594, 2010
29. A. Abate, J.P. Katoen, J. Lygeros, M. Prandini. Approximate model checking of stochastic hybrid systems. *European Journal of Control*, special issue on Stochastic hybrid systems, vol. 16(6): 624-641, 2010
30. M. Prandini, V. Putta, J. Hu. A probabilistic measure of air traffic complexity in three-dimensional airspace. *International Journal of Adaptive Control and Signal Processing*, special issue on Air Traffic Management: Challenges and opportunities for advanced control, vol. 24(10): 813829, 2010
31. M.C. Campi, S. Garatti, M. Prandini. The scenario approach for systems and control design. *Annual Reviews in Control*, vol. 33(2): 149-157, 2009
32. M. Prandini and J. Hu. Application of reachability analysis for stochastic hybrid systems to aircraft conflict prediction. *IEEE Transactions on Automatic Control*, vol. 54 (4): 913-917, 2009
33. A. Abate, M. Prandini, J. Lygeros, S. Sastry. Probabilistic reachability and safety for controlled discrete time stochastic hybrid systems. *Automatica*, vol. 44 (11): 2724-2734, 2008

34. J. Hu, M. Prandini, C. Tomlin. Conjugate Points in Formation Constrained Optimal Multi-Agent Coordination: A Case Study. *SIAM Journal on Control and Optimization*, vol. 45 (6): 2119-2137, 2007
35. J. Hu, M. Prandini, S. Sastry. Aircraft conflict prediction in presence of a spatially correlated wind field. *IEEE Transactions on Intelligent Transportation Systems*, vol. 6 (3): 326-340, 2005
36. M.C. Campi, J.P. Hespanha, M. Prandini. Cautious hierarchical switching control of stochastic linear systems. *International Journal of Adaptive Control and Signal Processing*, special issue "New approaches to adaptive control", 18 (4): 319-333, 2004
37. R. Leonardi, P. Migliorati, M. Prandini. Semantic indexing of soccer audio-visual sequences: a multi-modal approach based on controlled Markov chains. *IEEE Transactions on Circuits and Systems for Video Technology*, 14 (5): 634-643, 2004
38. J. Hu, M. Prandini, S. Sastry. Optimal coordinated motions for multiple agents moving on a plane. *SIAM Journal on Control and Optimization*, 42 (2): 637-668, 2003
39. M.C. Campi, M. Prandini. Randomized algorithms for the synthesis of cautious adaptive controllers. *Systems & Control Letters*, 49: 21-36, 2003
40. J. Hu, M. Prandini, S. Sastry. Optimal Coordinated Maneuvers for Three Dimensional Aircraft Conflict Resolution. *AIAA Journal of Guidance, Control and Dynamics*, vol. 25 (5): 888-900, 2002
41. M. Prandini, M.C. Campi. Adaptive LQG control of input-output systems - A cost-biased approach. *SIAM Journal on Control and Optimization*, 39 (5): 1499-1519, 2001
42. M. Prandini, J. Hu, J. Lygeros, S. Sastry. A probabilistic approach to aircraft conflict detection. *IEEE Transactions on Intelligent Transportation Systems*. Special issue on Air Traffic Control - Part I, 1 (4): 199-220, 2000
43. M. Prandini, M.C. Campi. A new recursive identification algorithm for singularity free adaptive control. *Systems & Control Letters*, 34 (4): 177-183, 1998
44. M. Prandini, S. Bittanti, M.C. Campi. A penalized identification criterion for securing controllability in adaptive control. *Journal of Mathematical Systems, Estimation, and Control*, 8 (4): 1-19, 1998
45. M. Prandini, M.C. Campi, R. Leonardi. Optimal delay estimation and performance evaluation in blind equalization. *International Journal of Adaptive Control and Signal Processing*, 11: 621-640, 1997

Edited Volume Publications

1. A.V. Papadopoulos and M. Prandini. Fondamenti di Automatica. Esercizi. *Pearson*, 2016, in Italian
2. S. Garatti and M. Prandini. Design in the presence of uncertainty: the scenario approach. Chapter of the *Lecture Notes Modern Computational Science 2012 Optimization*, 2012
3. J. Lygeros, M. Prandini. Stochastic hybrid systems. In *The HYCON Handbook of Hybrid Systems Control: Theory, Tools, Applications*, pp. 249-278, Cambridge University Press, 2009
4. A. Abate, M. Prandini, J. Lygeros, S. Sastry. Approximation of General Stochastic Hybrid Systems by Switching Diffusions with Random Hybrid Jumps. In *Hybrid Systems: Computation and Control*, Lecture Notes in Computer Science vol. 4981:598-601, Springer-Verlag, 2008
5. S. Bittanti, M.C. Campi, M. Prandini. How many experiments are needed to adapt? In *Modeling, Estimation and Control. Festschrift in Honor of Giorgio Picci on the Occasion of his Sixty-Fifth Birthday*, LNCIS series, vol. 364: 7-17, Springer Verlag, 2007

6. A. Abate, S. Amin, M. Prandini, J. Lygeros, S. Sastry. Computational approaches to reachability analysis of stochastic hybrid systems. In *Hybrid Systems: Computation and Control*, Lecture Notes in Computer Science vol. 4416: 4-17, Springer-Verlag, 2007
7. M. Farina and M. Prandini. Hybrid models for gene regulatory networks: The case of lac operon in E. Coli. In *Hybrid Systems: Computation and Control*, Lecture Notes in Computer Science vol. 4416: 693-697, Springer-Verlag, 2007
8. M. Prandini, M.C. Campi, S. Garatti. Controller design through random sampling: An example. In *Advances in Control Theory and Applications* LNCIS series, vol. 353: 201-212, Springer Verlag, 2007
9. M. Prandini and J. Hu. Stochastic reachability: Theory and numerical approximation. In *Stochastic hybrid systems*, Automation and Control Engineering Series vol. 24: 107-138, Taylor & Francis Group/CRC Press, 2006
10. S. Amin, A. Abate, M. Prandini, J. Lygeros, S. Sastry. Reachability analysis for discrete time stochastic hybrid systems. *Hybrid Systems: Computation and Control*, Lecture Notes in Computer Science, vol. 3927: 49-63, Springer-Verlag, 2006
11. M. Prandini and J. Hu. A stochastic approximation method for reachability computations. In *Stochastic hybrid systems: theory and safety applications*, Lecture Notes in Control and Information Sciences, vol. 337: 107-139, Springer-Verlag, 2006
12. J. Hu, M. Prandini, K.H. Johansson, S. Sastry. Hybrid Geodesics as Optimal Solutions to the Collision-Free Motion Planning Problem. In *Hybrid Systems: Computation and Control*, Lecture Notes in Computer Science, vol. 2034: 305-318, Springer-Verlag, 2001

Theses

1. M. Prandini. Adaptive linear quadratic Gaussian control: optimality analysis and robust controller design. *Ph.D. Thesis*, Università degli Studi di Brescia, Italy, February 1998
2. R. Magni and M. Prandini. Endogenous currents in bones: measurements and modeling. *Laurea thesis*, Politecnico di Milano, Italy, February 1994 (in Italian)

Conference Publications

1. Bastian Schürmann, Riccardo Vignali, Maria Prandini, Matthias Althoff. Set-Based Controller Design for Piecewise-Affine Systems with Disturbances and Constraints. In *56th IEEE Conference on Decision and Control*, Melbourne, Australia, December 2017, submitted.
2. Alessandro Falsone, Kostas Margellos, Simone Garatti, Maria Prandini. Linear programs for resource sharing among heterogeneous agents: a probabilistic analysis of the maximum capacity in terms of number of agents. In *56th IEEE Conference on Decision and Control*, Melbourne, Australia, December 2017, submitted.
3. Alessandro Falsone, Luca Deori, Daniele Ioli, Simone Garatti, Maria Prandini. Optimally shaping the stationary distribution of a constrained discrete time stochastic linear system via disturbance compensation. In *56th IEEE Conference on Decision and Control*, Melbourne, Australia, December 2017, submitted.
4. Stefano Mutti, Alessandro Falsone, Kostas Margellos, Maria Prandini. A proximal minimization based distributed approach to power control in wireless networks: Performance and comparative analysis. In *56th IEEE Conference on Decision and Control*, Melbourne, Australia, December 2017, submitted.

5. Vedad Causevic, Alessandro Falsone, Daniele Ioli, Maria Prandini. Energy management in a multi-building setup via distributed stochastic optimization. In *56th IEEE Conference on Decision and Control*, Melbourne, Australia, December 2017, submitted.
6. Giorgio Manganini, Alessandro Falsone, Jan Siroky, Maria Prandini. A data-based approach to power capacity optimization. In *56th IEEE Conference on Decision and Control*, Melbourne, Australia, December 2017, submitted.
7. D. Ioli, A. Falsone, M. Hartung, A. Busboom, M. Prandini. A smart-grid energy management problem for data-driven design with probabilistic reachability guarantees. In *Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH 2017)*, Pittsburgh, USA, April 12, 2017.
8. D. Ioli, L. Deori, A. Falsone, M. Prandini. A two-layer decentralized approach to the optimal energy management of a building district with a shared thermal storage. In *20th World Congress of the International Federation of Automatic Control (IFAC 2017)*, Toulouse, France, July, 2017.
9. L. Deori, K. Margellos, M. Prandini. On the connection between Nash equilibria and social optima in electric vehicle charging control games. In *20th World Congress of the International Federation of Automatic Control (IFAC 2017)*, Toulouse, France, July, 2017.
10. Y. Yang, M. Prandini, X. Cao, W. Du. A Multi-Criteria Decision-Making Scheme for Multi-Aircraft Conflict Resolution. In *20th World Congress of the International Federation of Automatic Control (IFAC 2017)*, Toulouse, France, July, 2017.
11. L. Bascetta, I. Mendizabal Arrieta, M. Prandini. Flat-RRT*: A sampling-based optimal trajectory planner for differentially flat vehicles with constrained dynamics. In *20th World Congress of the International Federation of Automatic Control (IFAC 2017)*, Toulouse, France, July, 2017.
12. F. Terraneo, A.V. Papadopoulos, A. Leva, M. Prandini. FLOPSYNC-QACS: Quantization-Aware Clock Synchronization for Wireless Sensor Networks. In *4th IEEE International Workshop on Real-Time Computing and Distributed systems in Emerging Applications (REACTION 2016)*, Porto, Portugal, November 29, 2016.
13. M. Ragaglia, M. Prandini, L. Bascetta. Multi-agent Poli-RRT*: Optimal Constrained RRT-based Planning for Multiple Vehicles with Feedback Linearisable Dynamics. In *Modelling and Simulation for Autonomous Systems: Third International Workshop, MESAS 2016*, Rome, Italy, June 15-16, 2016, Revised Selected Papers
14. Luca Deori, Simone Garatti, Maria Prandini. A stochastic strategy integrating wind compensation for trajectory tracking in aircraft motion control. In *55th IEEE Conference on Decision and Control*, Las Vegas, USA, December 2016.
15. Luca Deori, Kostas Margellos, Maria Prandini. On decentralized convex optimization in a multi-agent setting with separable constraints and its application to optimal charging of electric vehicles. In *55th IEEE Conference on Decision and Control*, Las Vegas, USA, December 2016.
16. A. Falsone, K. Margellos, S. Garatti, M. Prandini. Distributed constrained optimization and consensus via dual decomposition and proximal minimization. In *55th IEEE Conference on Decision and Control*, Las Vegas, USA, December 2016.
17. Riccardo Vignali and Maria Prandini A method for detecting relevant inputs while satisfying a reachability specification for piecewise affine systems. In *2016 IEEE Conference on Control Applications (CCA) (IEEE Multi-conference on Systems and Control 2016)*, Buenos Aires, Argentina, September 19-22, 2016.

18. Caterina Brocchini, Alessandro Falsone, Giorgio Manganini, Ondrej Holub, Maria Prandini. A Chance-Constrained Approach to the Quantized Control of a Heat Ventilation and Air Conditioning System with Prioritized Constraints. In *Symposium on Mathematical Theory of Networks and Systems*, Minneapolis, MN, USA, July 11-15, 2016.
19. D. Ioli, A. Falsone, S. Schuler, M. Prandini. A compositional framework for energy management of a smart grid: a scalable stochastic hybrid model for cooling of a district network. In *12th IEEE International Conference on Control & Automation*, Kathmandu, Nepal, June 1-3, 2016.
20. D. Ioli, A. Falsone, M. Prandini. Energy management of a building cooling system with thermal storage: a randomized solution with feedforward disturbance compensation. In *2016 American Control Conference*, Boston, USA, July 6-8, 2016.
21. A. Belloni, L. Piroddi, M. Prandini. A stochastic optimal control solution to the energy management of a microgrid with storage and renewables. In *2016 American Control Conference*, Boston, USA, July 6-8, 2016.
22. P. Dimitrov, L. Piroddi, M. Prandini. Distributed allocation of a shared energy storage system in a microgrid. In *2016 American Control Conference*, Boston, USA, July 6-8, 2016.
23. K. Margellos, A. Falsone, S. Garatti, M. Prandini. Proximal minimization based distributed convex optimization. In *2016 American Control Conference*, Boston, USA, July 6-8, 2016.
24. K. Margellos, A. Falsone, S. Garatti, M. Prandini. Constrained optimal control of stochastic switched affine systems using randomization. In *European Control Conference*, Aalborg, Denmark, June 29 - July 1, 2016
25. Riccardo Vignali and Maria Prandini. Model reduction of discrete time hybrid systems: A structural approach based on observability. In *2nd International Workshop on Symbolic and Numerical Methods for Reachability Analysis (SNR'16)*, satellite event of CPS Week 2016, Vienna, Austria, April 11, 2016.
26. Giorgio Manganini, Luigi Piroddi, Maria Prandini. A Classification-Based Approach to the Optimal Control of Affine Switched Systems In *54th IEEE Conference on Decision and Control*, Osaka, Japan, December 2015.
27. Daniele Ioli, Alessandro Falsone, Maria Prandini. An Iterative Scheme to Hierarchically Structured Optimal Energy Management of a Microgrid. In *54th IEEE Conference on Decision and Control*, Osaka, Japan, December 2015.
28. Luca Deori, Simone Garatti, Maria Prandini. Stochastic Control with Input and State Constraints: A Relaxation Technique to Ensure Feasibility. In *54th IEEE Conference on Decision and Control*, Osaka, Japan, December 2015.
29. G. Manganini, A. Falsone, M. Prandini. A majority voting classifier with probabilistic guarantees. In *IEEE Conference on Control Applications (CCA)*, Sydney, Australia, September 2015.
30. J. Lygeros, K. Margellos, M. Prandini. Compression learning for chance constrained stochastic MPC. In *IFAC Conference on Nonlinear Model Predictive Control* (semi-plenary paper). Seville, Spain, September 2015.
31. M. Ragaglia, M. Prandini, L. Bascetta Poli-RRT*: optimal RRT-based planning for constrained and feedback linearisable vehicle dynamics. In *European Control Conference*, Linz, Austria, July, 2015
32. A. Falsone and M. Prandini An Iterative Scheme for the Approximate Linear Programming Solution to the Optimal Control of a Markov Decision Process. In *European Control Conference*, Linz, Austria, July, 2015

33. L. Deori, S. Garatti, M. Prandini A model predictive control approach to aircraft motion control. In *American Control Conference*, Chicago, USA, July 2015
34. D. Ioli, A. Falsone, M. Prandini Optimal Energy Management of a Building Cooling System with Thermal Storage: A Convex Formulation In *ADCHEM 2015 International Symposium on Advanced Control of Chemical Processes* Whistler, British Columbia, Canada, June 2015
35. F. Terraneo, A. Leva, M. Prandini. Poster: A switched control scheme to handle quantisation in the design of high-precision computing system components. In *ICCPs '15: ACM/IEEE 6th International Conference on Cyber-Physical Systems (CPS Week 2015)*, Seattle, USA, April 2015.
36. A. Falsone and M. Prandini. Approximate linear programming for optimal control design: a solution based on function approximation and randomization. In *86th Annual Meeting of the International Association of Applied Mathematics and Mechanics*, Lecce, Italy, March 2015.
37. A. Falsone, L. Piroddi, M. Prandini. A novel randomized approach to nonlinear system identification. In *53rd IEEE Conference on Decision and Control*, Los Angeles, USA, December 2014.
38. A. Petretti and M. Prandini. An approximate linear programming solution to the probabilistic invariance problem for stochastic hybrid systems. In *53rd IEEE Conference on Decision and Control*, Los Angeles, USA, December 2014.
39. K. Margellos, M. Prandini, J. Lygeros. A compression learning perspective to scenario based optimization. In *53rd IEEE Conference on Decision and Control*, Los Angeles, USA, December 2014.
40. L. Deori, L. Giulioni, M. Prandini. Optimal building climate control: a solution based on nested dynamic programming and randomized optimization. In *53rd IEEE Conference on Decision and Control*, Los Angeles, USA, December 2014.
41. R. Vignali and M. Prandini. Input design for a cascading system: an approach based on system decomposition and non-influential input detection. In *2014 IEEE Multi-conference on Systems and Control*, Antibes, France, October 2014.
42. Yang Yang, Jun Zhang, Kai-quan Cai, Maria Prandini A stochastic reachability analysis approach to aircraft conflict detection and resolution In *2014 IEEE Multi-conference on Systems and Control*, Antibes, France, October 2014.
43. L. Deori, S. Garatti, M. Prandini. Computational approaches to robust Model Predictive Control: a comparative analysis In *Proceedings of the IFAC World Congress 2014*, Cape Town, South Africa, August 2014.
44. A. Falsone, F. Noce, M. Prandini. A randomized approach to space debris footprint characterization. In *Proceedings of the IFAC World Congress 2014*, Cape Town, South Africa, August 2014.
45. M. Pirodda, G. Manganini, L. Piroddi, M. Prandini, M. Restelli. A particle-based policy for the optimal control of Markov decision processes. In *Proceedings of the IFAC World Congress 2014*, Cape Town, South Africa, August 2014.
46. R. Vignali, L. Deori, M. Prandini. Control input design: detecting non influential inputs while satisfying a reachability specification. In *Proceedings of the IFAC World Congress 2014*, Cape Town, South Africa, August 2014.
47. A.V. Papadopoulos and M. Prandini. Model reduction of switched affine systems: a method based on balanced truncation and randomized optimization. In *Hybrid Systems: Computation and Control (HSCC 2014)*, Berlin, April 2014.
48. F. Borghesan, R. Vignali, L. Piroddi, M. Strelec, M. Prandini. Micro-grid energy management: a computational approach based on simulation and approximate discrete abstraction. In *52nd IEEE Conference on Decision and Control*, Firenze, Italy, Dec. 2013.

49. F. Borghesan, R. Vignali, L. Piroddi, M. Strelec, M. Prandini. Approximate dynamic programming-based control of a building cooling system with thermal storage. In *IEEE ISGT 2013*, Copenhagen, Denmark, Oct. 2013.
50. V. Rostampour, K. Margellos, M. Vrakopoulou, M. Prandini, G. Andersson, J. Lygeros. Reserve Requirements in AC Power Systems with Uncertain Generation. In *IEEE ISGT 2013*, Copenhagen, Denmark, Oct. 2013.
51. L. Deori, S. Garatti, M. Prandini Stochastic constrained control: trading performance for state constraint feasibility In *European Control Conference 2013*, Zurich, Switzerland, July 2013
52. N.M. Ceriani, R. Vignali, L. Piroddi, M. Prandini An approximate dynamic programming approach to the energy management of a small-scale micro-grid In *European Control Conference 2013*, Zurich, Switzerland, July 2013
53. K. Margellos, V. Rostampour, M. Vrakopoulou, M. Prandini, G. Andersson, J. Lygeros Stochastic unit commitment and reserve scheduling: A tractable formulation with probabilistic certificates In *European Control Conference 2013*, Zurich, Switzerland, July 2013
54. M. Prandini, S. Garatti, J. Lygeros. A Randomized Approach to Stochastic Model Predictive Control. In *51st IEEE Conference on Decision and Control*, Maui, Hawaii, Dec. 2012.
55. M. Prandini and L. Piroddi. A self-recovery approach to the probabilistic invariance problem for stochastic hybrid systems. In *51st IEEE Conference on Decision and Control*, Maui, Hawaii, Dec. 2012.
56. A. Abate and M. Prandini. Approximate abstractions of stochastic systems: a randomized method. In *50th IEEE Conference on Decision and Control and European Control Conference*, Orlando, USA, Dec. 2011.
57. A. Abate, J.P. Katoen, J. Lygeros, M. Prandini. A two-step scheme for approximate model checking of stochastic hybrid systems. In *IFAC World Congress*, Milano, Italy, August-September 2011.
58. M. Prandini, H. Blom, B. Bakker. Air traffic complexity and the interacting particle system method: An integrated approach for collision risk estimation. In *American Control Conference*, San Francisco, USA, June-July 2011.
59. M. Prandini, V. Putta, J. Hu. Air traffic complexity in advanced automated Air Traffic Management systems. In *INO workshop*, Eurocontrol Experimental Centre, Bretigny-sur-Orge, France, Dec. 2010
60. S.D. Bopardikar, A. Borri, J.P. Hespanha, M. Prandini, M.D. Di Benedetto. Randomized Sampling for Large Zero-Sum Games. In *49th Conference on Decision and Control*, Atlanta, USA, Dec. 2010.
61. Luigi Piroddi and Maria Prandini. A geometric approach to air traffic complexity evaluation for strategic trajectory management In *49th Conference on Decision and Control*, Atlanta, USA, Dec. 2010.
62. M. Prandini and M.C. Campi. Constrained control design via a simulation-based scenario approach. In *19th Int. Symposium on Mathematical Theory of Networks and Systems*, Budapest, Hungary, July 2010.
63. S. Bittanti, M.C. Campi, and M. Prandini. Adaptation and the effort needed to adapt. In *48th Conf. on Decision and Control*, Shanghai, China, Dec. 2009.
64. M. Prandini and J. Hu. A probabilistic approach to air traffic complexity evaluation. In *48th Conf. on Decision and Control*, Shanghai, China, Dec. 2009.

65. M. Prandini, L. Piroddi, J. Lygeros. A two-step approach to aircraft conflict resolution combining optimal deterministic design with Monte Carlo stochastic optimization. In *European Control Conference 2009*, Budapest, Hungary, August 23-26, 2009
66. I. Boniolo, S. Savaresi, M. Prandini, G. Borghi, B. Garavelli, S. Bittanti. Performance Analysis of a Digital Compass for the Heading Estimation in Nautical Application. In *5th IFAC Symposium on System Identification*, Saint-Malo, France, July 6-8, 2009.
67. A. Abate, M. Prandini, J. Lygeros, S. Sastry. An approximate dynamic programming approach to probabilistic reachability for stochastic hybrid systems. In *47th IEEE Conference on Decision and Control*, Cancun, Messico, 2008.
68. M. Prandini, J. Hu. Application of reachability analysis for stochastic hybrid systems to aircraft conflict prediction. In *47th IEEE Conference on Decision and Control*, Cancun, Messico, 2008.
69. M. Tanelli, M. Prandini, F. Codecà, A. Moia, S.M. Savaresi. Analysing the interaction between braking control and speed estimation: the case of two-wheeled vehicles. In *47th IEEE Conference on Decision and Control*, Cancun, Messico, 2008.
70. M.C. Campi, S. Garatti, M. Prandini. The Scenario Approach for Systems and Control Design. In *17th IFAC World Congress*, Seoul, Korea, July 2008
71. M. Prandini and J. Hu. A numerical approximation scheme for reachability analysis of stochastic hybrid systems with state-dependent switchings. In *IEEE Conference on Decision and Control*, New Orleans, Louisiana, USA, Dec. 2007
72. M. Prandini and M.C. Campi. A new approach to controller design in presence of constraints. In *IEEE Conference on Decision and Control*, New Orleans, Louisiana, USA, Dec. 2007
73. A. Abate, S. Amin, M. Prandini, J. Lygeros, S. Sastry. Probabilistic Reachability and Safe Sets Computation for Discrete Time Stochastic Hybrid Systems. In *IEEE Conference on Decision and Control*, San Diego, USA, 2006
74. M. Prandini. A Self-Optimizing Switching Control Scheme for Uncertain ARMAX Systems. In *Joint CDC-ECC*, Seville, Spain, 2005
75. A. Danelli, M. Pozzi, P. Colaneri, A. De Marco, E. Musazzi, M. Prandini. Stabilization of high voltage transmission network in emergency conditions. In *40th International Universities Power Engineering Conference*, Cork, Ireland, 2005
76. M. Prandini. Adaptive stabilization of ARMAX systems via logic-based switching. In *20th IEEE International Symposium on Intelligent Control*, Cyprus, 2005
77. J. Hu, M. Prandini, C. Tomlin. Interesting conjugate points in formation constrained. In *American Control Conference*, Portland, Oregon, USA, 2005
78. M. Prandini. Piecewise affine systems identification: a learning theoretical approach. In *IEEE Conference on Decision and Control*, Paradise Island, Bahamas, 2004
79. J. Hu, M. Prandini, S. Sastry. Probabilistic safety analysis in three-dimensional aircraft flight. In *IEEE Conference on Decision and Control*, Maui, Hawaii, USA, 2003
80. J. Hu, M. Prandini. Aircraft conflict detection: a method for computing the probability of conflict based on Markov chain approximation. In *European Control Conference*, Cambridge, UK, 2003
81. M. Prandini, J.P. Hespanha, M.C. Campi. Hysteresis-based Switching Control of Stochastic Linear Systems. In *European Control Conference*, Cambridge, UK, 2003

82. R. Leonardi, P. Migliorati, M. Prandini. Semantic indexing of sport program sequences by audio-visual analysis. In *IEEE International Conference on Image Processing*, Barcelona, Spain, 2003
83. J. Hu, M. Prandini, S. Sastry. Aircraft conflict detection in presence of spatially correlated wind perturbations. In *AIAA Guidance, Navigation and Control Conference*, Austin, Texas, 2003
84. R. Leonardi, P. Migliorati, M. Prandini. A Markov chain model for semantic indexing of sport program sequences. In *International Workshop on Image Analysis for Multimedia Interactive Services*, London, UK, 2003
85. J. Lygeros, M. Prandini. Aircraft and Weather Models for Probabilistic Collision Avoidance in Air Traffic Control. In *IEEE Conference on Decision and Control*, Las Vegas, USA, 2002
86. R. Leonardi and P. Migliorati and M. Prandini. Modelling of visual features by Markov chains for sport content characterization. In *European Signal Processing Conference*, Toulouse, France, 2002
87. M.C. Campi, J.P. Hespanha, M. Prandini. Cautious hierarchical switching control of stochastic linear systems. In *Mathematical Theory of Networks and Systems Conference*, South Bend, Indiana, USA, 2002
88. J.P. Hespanha, M. Prandini. Optimal Pursuit under Partial Information. In *Mediterranean Conference on Control and Automation*, Lisbon, Portugal, 2002
89. M. Prandini. Switching Control of Stochastic Linear Systems: Stability and Performance Results. In *VI Congresso Nazionale della Società Italiana di Matematica Applicata e Industriale*, Chia Laguna, Cagliari, Italy, 2002
90. M. Prandini, M.C. Campi. Logic-based switching for the stabilization of stochastic systems in presence of unmodeled dynamics. In *IEEE Conference on Decision and Control*, Orlando, FL, USA, 2001
91. J.P. Hespanha, M. Prandini. Nash equilibria in partial-information games on Markov chains. In *IEEE Conference on Decision and Control*, Orlando, FL, USA, 2001
92. M. Prandini, J.P. Hespanha, G.J. Pappas. Greedy control for hybrid pursuit-evasion games. In *European Control Conference*, Porto, Portugal, 2001
93. J. Hu, M. Prandini, A. Nilim, S. Sastry. Three dimensional coordinated maneuvers for aircraft conflict avoidance. In *AIAA Guidance, Navigation and Control Conference*, Montreal, Canada, 2001
94. S. Bittanti, M.C. Campi, M. Prandini. Penalized identification for self-tuning control: an overview. In *IFAC Workshop on Adaptation and Learning in Control and Signal Processing*, Como, Italy, 2001
95. J.P. Hespanha, M. Prandini, S. Sastry. Probabilistic Pursuit-Evasion Games: A one-step Nash Approach. In *IEEE Conference on Decision and Control*, Sydney, Australia, 2000
96. M. Prandini, M.C. Campi. A self-optimizing adaptive LQG control scheme for input-output systems. In *IEEE Conference on Decision and Control*, Sydney, Australia, 2000
97. J. Hu, M. Prandini, S. Sastry. Optimal maneuver for multiple aircraft conflict resolution: a braid point of view. In *IEEE Conference on Decision and Control*, Sydney, Australia, 2000
98. M. Prandini, L. Bardella. Identification of a Constitutive Model for Epoxy Resins. In *XIII Convegno Italiano di Meccanica Computazionale*, Brescia, Italy, 2000
99. M.C. Campi, P. Fogazzi, F. Genna, M. Prandini. Identification of a Model for the Stress-Strain Behavior of the Periodontal Ligament. In *XIII Convegno Italiano di Meccanica Computazionale*, Brescia, Italy 2000

100. J. Hu, J. Lygeros, M. Prandini, S. Sastry. A probabilistic framework for highway safety analysis. In *IEEE Conference on Decision and Control*, Phoenix, AZ, USA, 1999
101. M. Prandini, J. Lygeros, A. Nilim, S. Sastry. Randomized algorithms for probabilistic aircraft conflict detection. In *IEEE Conference on Decision and Control*, Phoenix, AZ, USA, 1999
102. J. Hu, J. Lygeros, M. Prandini, S. Sastry. Aircraft conflict detection and resolution using Brownian motion. In *IEEE Conference on Decision and Control*, Phoenix, AZ, USA, 1999
103. M. Prandini, J. Lygeros, A. Nilim, S. Sastry. A probabilistic framework for aircraft conflict detection. In *AIAA Guidance, Navigation and Control Conference*, Portland, OR, USA, 1999
104. M. Prandini, S. Bittanti, M.C. Campi. The stabilizability issue in least squares estimation: a penalized approach. In *Mathematical Theory of Networks and Systems Conference*, Padova, Italy, 1998
105. M.C. Campi, M. Prandini. Randomized algorithms for the synthesis of adaptive controllers. In *Mathematical Theory of Networks and Systems Conference*, Padova, Italy, 1998
106. M. Prandini, M.C. Campi. Adaptive pole placement by means of a simple, singularity free, identification algorithm. In *IEEE Conference on Decision and Control*, San Diego, CA, USA, 1997
107. S. Bittanti, M.C. Campi, M. Prandini. Self-tuning control based on penalized least squares identification techniques. In *IEEE Conference on Decision and Control*, Kobe, Japan, 1996
108. M. Prandini, M.C. Campi, R. Leonardi. A new algorithm for the automatic search of the best delay in blind equalization. In *IEEE Digital Signal Processing Workshop*, Loen, Norway, 1996
109. M. Prandini, M.C. Campi, R. Leonardi. New results on the evaluation of equalizers performance. In *IEEE Digital Signal Processing Workshop*, Loen, Norway, 1996

Patents

1. S.M. Savaresi, I. Boniolo, M. Prandini, S. Bittanti, G. Borghi, B. Garavelli. Metodo e dispositivo per determinare automaticamente un corretto angolo di rotta di un veicolo. Italian patent MI2008A001107, 18 June 2008.

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