

Curriculum Vitae

Giancarlo Ferrari Trecate

Born: 22.10.1970, Casorate Primo, Italy

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EDUCATION

- 1999, 23 Apr. Ph.D. in Electronics, Computer Science and Electrical Engineering, *Università degli Studi di Pavia*. Thesis: *Bayesian methods for nonparametric regression with neural networks*. Advisor: Prof. Giuseppe de Nicolao.
- 1995, 26 Jan. Laurea in Computer Engineering, *Università degli Studi di Pavia*, with a mark of 110/110 and honors. Thesis: *Definizione e proprietà degli zeri di sistemi lineari e periodici*. Advisor: Prof. Giuseppe De Nicolao.

ACADEMIC AND RESEARCH EMPLOYMENT

- From Sep. 2016 Adjoint Professor at the Ecole Polytechnique Fédérale de Lausanne
- Jan. 2014 Italian national scientific qualification (“Abilitazione Scientifica Nazionale”) as full professor in the area of Automatic Control.
- Nov. 2005 - Aug. 2016 Professore associato (Associate Professor). *Dipartimento di Ingegneria Industriale e dell'Informazione (DIII)*, *Università degli Studi di Pavia*, Italy.
- Mar. 2005 - Oct. 2005 Researcher (fellowship “Rientro dei cervelli”, Ministero dell'Istruzione, dell'Università e della Ricerca). *Dipartimento di Elettronica ed Informazione, Politecnico di Milano*, Italy.
- Jan. 2003 - April 2009 Chargé de recherche de première classe (senior researcher - on leave from Mar. 2005). *INRIA*, Rocquencourt, France.
- Jan. 2002 - Dec. 2002 Chargé de recherche de deuxième classe (researcher). *INRIA*, Rocquencourt, France.
- Jan. 2001 - Dec. 2001 Oberassistent. *Institut für Automatik (IfA)*, *Eidgenössische Technische Hochschule (ETH)*, Zürich, Switzerland.
- Apr. 1999 - Dec. 2001 Researcher (fellowship “Assegno di Ricerca” Ministero dell'Istruzione, dell'Università e della Ricerca). *Dipartimento di Informatica e Sistemistica, Università degli Studi di Pavia*, Italy.
- Nov. 1998 - Dec. 2000 Postdoctoral researcher. *IfA, ETH*, Zürich, Switzerland.
- Jan. 1998 - Apr. 1998 Visiting researcher. *Neural Computing Research Group (NCRG)*, *Department of computer science and applied mathematics, Aston University*, Birmingham, UK.

TEACHING

Undergraduate and M.Sc. level

Lecturer Winter 2007-2015
Facoltà di Ingegneria, Università degli Studi di Pavia, Italy. Course title: Automazione industriale (Industrial automation - in English since the winter semester 2012). M.Sc. level (50 hours).

Lecturer Winter 2010-2015
Facoltà di Ingegneria, Università degli Studi di Pavia, Italy. Course title: Automazione e controllo avanzati (Advanced automation and control - in English since the winter semester 2012). M.Sc. level (100 hours).

Lecturer Spring 2007-2016
Facoltà di Ingegneria, Università degli Studi di Pavia, Italy. Course title: Fondamenti di automatica (System and control theory). Bachelor level (100 hours).

Lecturer Spring 2006
Facoltà di Ingegneria, Università degli Studi di Pavia, Italy. Course title: Automatica (Control systems). Bachelor level (50 hours).

Lecturer Spring 2006
Facoltà di Ingegneria, Università degli Studi di Pavia, Italy. Course title: Identificazione dei modelli e analisi dei dati (System identification and data analysis). Bachelor level (50 hours).

Lecturer Spring 2005, 2006
Facoltà di Ingegneria Industriale, Politecnico di Milano, Italy. Course title: Automatica (Control systems). Bachelor level (50 hours).

Lecturer Spring 2003, 2004
Maîtrise en Électronique, Électrotechnique, Automatique. Université Paris-sud 11, Orsay, France. Course title: Asservissements nonlinéaires (Nonlinear control). Bachelor level (50 hours).

Lecturer Spring 2003, 2004
Diplôme d'études supérieures spécialisées en Ingénierie Mathématique (DESS). Université Paris-sud 11, Orsay, France. Course title: Systèmes hybrides (Hybrid systems). M.Sc. level (21 hours).

Lecturer May, 2001
Scuola per le Applicazioni della Matematica nell'Industria (SAMI), Università di Milano Bicocca, Italy. Short course titled: Le reti neurali: una metodologia per l'apprendimento automatico (Neural networks). M.Sc. level. (15 hours).

Head Assistant Summer semester 2000, 2001
Department of electrical engineering, ETH, Zürich, Switzerland. Course 35-216 titled Regelsysteme II (Control systems II). Bachelor level.

Assistant Winter Semester 1999, 2000
Department of electrical engineering, ETH, Zürich, Switzerland. Course 36-311 titled Model predictive control. M.Sc. level.

Assistant 1997, 1998, 1999
Facoltà di Ingegneria, Università degli Studi di Pavia, Italy. Course title: Identificazione dei modelli e analisi dei dati (System identification and data analysis). M.Sc. level.

Assistant 1995
Facoltà di Ingegneria, Università degli Studi di Pavia, Italy. Course title: Controlli automatici (Control systems). M.Sc. level.

Organization of Ph.D. schools and courses

1. *HYGEIA PhD School on Hybrid Systems Biology (co-organized with J. Lygeros)*
Siena, Italy, July 2007.

Lectures in Ph.D. schools and courses

1. *Plug-and-play control and monitoring of large-scale systems (4 hours)*
Tutorial at SafeProcess15, Paris, France, September 2015.
2. *Decentralized and distributed control (10 hours)*
EECI-HYCON2 Graduate School on Control, Supélec, France, February 2012, 2013 and 2015.
3. *Distributed algorithms for estimation and control (10 hours)*
Politecnico di Milano, Italy, July 2012.
4. *MPC for hybrid systems*
Ph.D. course on Model Predictive Control, Politecnico di Milano, Italy, October 2007.
5. *Identification of deterministic piecewise affine models of genetic regulatory networks*
HYGEIA PhD School on Hybrid Systems Biology, Siena, Italy, July 2007.
6. *Identification algorithms for hybrid systems*
2nd HYCON Ph.D. school on hybrid systems, Siena, Italy, July 2007.
7. *MPC for hybrid systems*
Ph.D. course on Model Predictive Control, Politecnico di Milano, Italy, October 2005.
8. *Identification algorithms for hybrid systems*
1st HYCON Ph.D. school on hybrid systems, Siena, Italy, July 2005.
9. *Moving horizon estimation for hybrid systems*
CIRA summer school, Bertinoro, Italy, July 2002.

STUDENT ADVISING

Master students

1. Alberto Froldi, *PnP control of DC islanded microgrids: a coupling-independent approach*, Tesi di Laurea Magistrale, Università degli Studi di Pavia, Italy, 2016.
2. Paolo Brega, *Voltage and frequency regulation in islanded microgrids: a comparison of droop and plug-and-play controllers*, Tesi di Laurea Magistrale, Università degli Studi di Pavia, Italy, 2016.
3. Giuseppe Tagliaferri, *Plug-and-Play control of DC microgrids: analysis of bus-connected topologies and integration of photovoltaic sources*, Tesi di Laurea Magistrale, Università degli Studi di Pavia, Italy, 2015.
4. Davide Riccardi, *Plug-and-Play control of DC microgrids: modeling of power sources and integration of batteries*, Tesi di Laurea Magistrale, Università degli Studi di Pavia, Italy, 2015.
5. Alessandro Floriduz, *Plug-and-Play control of microgrids with general topologies and electrical network reduction methods*, Tesi di Laurea Magistrale, Università degli Studi di Pavia, Italy, 2015.
6. Michele Tucci, *Control of battery energy storage systems based on dynamic programming*, Tesi di Laurea Magistrale, Università degli Studi di Pavia, Italy, 2014. Co-advisor: Dr. Jan Poland (ABB CRC, Switzerland).
7. Simone Mancini, *Stochastic model predictive control of windfarms*, Tesi di Laurea Magistrale, Università degli Studi di Pavia, Italy, 2014. Co-advisor: Dr. Stefano Rivero.

8. Federico Vecchietti, *Simulation environments for islanded microgrids: a comparison between Simulink and PSCAD*, Tesi di Laurea Magistrale, Università degli Studi di Pavia, Italy, 2013. Co-advisor: Dr. Stefano Rivero.
9. Francesca Bordonali, *Re-identification of linear black-box models based on closed-loop data*, Tesi di Laurea Magistrale, Università degli Studi di Pavia, Italy, 2013. Co-advisor: Dr. Jan Poland (ABB CRC, Switzerland).
10. Michele Brera, *Non linear model predictive control of a power electronics line converter*, Tesi di Laurea Magistrale, Università degli Studi di Pavia, Italy, 2013.
11. Simone Mancini, *Stochastic model predictive control of wind farms*, Tesi di Laurea Magistrale, Università degli Studi di Pavia, Italy, 2013. Co-advisor: Dr. Stefano Rivero.
12. Fabio Sarzo, *Plug-and-play decentralized voltage control for islanded microgrids*, Tesi di Laurea Magistrale, Università degli Studi di Pavia, Italy, 2013. Co-advisor: Dr. Stefano Rivero.
13. Valentina Leoni, *Model predictive balancing strategies for induction motor drives comprising multi-level voltage source converters*, Tesi di Laurea Magistrale, Università degli Studi di Pavia, Italy, 2012. Co-advisors: Dr. Georgios Papafotiou, Dr. Tobias Geyer (ABB, Switzerland).
14. Alberto Battocchio, *A Matlab toolbox for modeling and control of large-scale constrained systems*, Tesi di Laurea Magistrale, Università degli Studi di Pavia, Italy, 2012. Co-advisor: Dr. Stefano Rivero.
15. Daria Rubini, *Osservatori di stato distribuiti per sistemi complesso*, Tesi di Laurea Specialistica, Università degli Studi di Pavia, Italy, 2012. Co-advisor: Dr. Stefano Rivero.
16. Nicola Simeone, *Mixed-effects modelling and identification of biochemical regulatory networks: The case of arabinose uptake dynamics in Escherichia coli*, Tesi di Laurea Specialistica, Università degli Studi di Pavia, Italy, 2012. Co-advisor: Dr. Eugenio Cinquemani.
17. Ilaria Molina, *Analisi e confronto di metodi di controllo predittivo distribuito*, Tesi di Laurea Specialistica, Università degli Studi di Pavia, Italy, 2011. Co-advisor: Prof. Ilaria Perugia.
18. Massimiliano Sturla, *Revamping del sistema di controllo di un processo per la didattica in automatica*, Tesi di Laurea Specialistica, Università degli Studi di Pavia, Italy, 2011. Co-advisor: Gianluca De Felici.
19. Alessandro Schito, *An automated interlocking tester for electrical substations*, Tesi di Laurea Specialistica, Università degli Studi di Pavia, Italy, 2010. Co-advisor: Prof. Hubert Kirmann (ABB, Switzerland).
20. Lorenzo Santoro, *Generazione automatica di modelli: sviluppo del software e casi di studio industriali*, Tesi di Laurea Specialistica, Università degli Studi di Pavia, Italy, 2010. Co-advisor: Prof. Jan Poland (ABB CRC, Switzerland).
21. Andrea de Amici, *GODEL: un simulatore per modelli di reti genetiche basate su equazioni differenziali*, Tesi di Laurea Specialistica, Università degli Studi di Pavia, Italy, 2009.
22. Dario Montagna, *Strategie di obstacle avoidance per sistemi multiagente*, Tesi di Laurea Specialistica, Università degli Studi di Pavia, Italy, 2008. Co-advisor: Prof. A. Ferrara, Dr. C. Vecchio.
23. Luca Galbusera and Marco Pietro Enrico Marciandi, *Tecniche di controllo decentralizzate per problemi di consenso in sistemi multiagente*, Tesi di Laurea Specialistica, Politecnico di Milano, Italy, 2006. Co-advisors: Prof. P. Bolzern, Prof. R. Scattolini.
24. Riccardo Porreca, *Algoritmi di filtraggio non lineare per il riconoscimento delle commutazioni in modelli affini a tratti di reti genetiche*, Tesi di Laurea Specialistica, Università degli Studi di Pavia, Italy, 2006. Co-advisor: Prof. L. Magni.
25. Mehdi Gati, *Modélisation et compensation des jeux dans les engrenages*, Mémoire de DEA, Université Paris-sud 11, Orsay, France, 2002. Co-advisor: Dr. M. Sorine.

26. Matteo Spedicato, *Modellizzazione di impianti cogenerativi mediante sistemi ibridi*, Tesi di Laurea (Erasmus project ETH - Università degli Studi di Pavia), 2001. Co-advisors: Prof. R. Scattolini and Prof. M. Morari.
27. Paolo Letizia, *Controllo di impianti cogenerativi mediante sistemi ibridi*, Tesi di Laurea (Erasmus project ETH - Università degli Studi di Pavia), 2001. Co-advisors: Prof. E. Bassi and Prof. M. Morari.
28. Dario Castagnoli, *Modellizzazione di una centrale idroelettrica ad acqua fluente mediante sistemi ibridi*, Tesi di Laurea (Erasmus project ETH - Università degli Studi di Pavia), 2000. Co-advisors: Prof. R. Scattolini and Prof. M. Morari.
29. Marco Franzosi, *Soluzione esplicita del problema di deconvoluzione mediante tecniche variazionali*, Tesi di Laurea, Università degli Studi di Pavia, Italy, 1997. Co-advisors: Prof. G. De Nicolao and Prof. L. Faravelli.
30. Fabio Filigheddu, *Controllo adattativo neurale di un sistema idraulico*, Tesi di Laurea, Università degli Studi di Pavia, Italy, 1998. Co-advisor: Prof. G. De Nicolao.
31. Andrea Lecchini, *Un approccio bayesiano alle reti neurali RBF*, Tesi di Laurea, Università degli Studi di Pavia, Italy, 1997. Co-advisor: Prof. G. De Nicolao.

Ph.D. students

1. M. Tucci. Ph.D. subject: *Scalable control of microgrids*, 2014-present.
2. A.M. Gonzalez Vargas. *Modeling of biological processes in cell populations*, January 13, 2015.
3. S. Rivero. *Distributed and plug-and-play control for constrained systems*, January 28, 2014.
4. R. Porreca. *Identification of nonlinear dynamical models of genetic regulatory networks*. February 19, 2010.
5. S. Drulhe. *Identification de réseaux de régulation génique à partir de données d'expression : une approche basée sur les modèles affines par morceaux*. December 10, 2008. Co-advisor: Dr. Hidde de Jong.
6. Mehdi Gati. Thesis title: *Modélisation, observation et commande de systèmes dynamiques hybrides : application à l'automobile (Modeling, observability and control of hybrid systems: automotive applications)*. June 16, 2006. Co-advisor: dr. Michel Sorine.
7. Partial supervision of the Ph.D. activities of Aleksandar Juloski (August-September 2003), Tolga Ayav (2003) and Michael Schinkel (2001).

INVITED LECTURES, SEMINARS, COLLOQUIA

1. United Technologies Research Center, Cork, Ireland, May 2016.
2. EPFL, Switzerland, June 2015.
3. Supélec, France, February 2015.
4. University of Aalborg, Denmark, December 2014.
5. INRIA Rhône-Alpes, France, February 2014.
6. Workshop IDAMAP (Intelligent Data Analysis in bioMedicine and Pharmacology). "Inference of dynamical models of genetic networks from population-level and single-cell data" (**keynote presentation**). Pavia, Italy, November 2012.
7. EPFL, Switzerland, November 2012.

8. University of Zürich, Switzerland, October 2012.
9. Lund University, Sweden, May 2012.
10. ETH Zürich, Switzerland, December 2011.
11. Workshop Data 2 Dynamics "Structural identification of genetic regulatory networks" (**keynote lecture**) Freising, Germany, September 2009.
12. NDNS+ Workshop "Control theory for systems biology", Groningen, The Netherlands, November 2007.
13. ABB Corporate Resesarch, Baden - Dättwil, Switzerland, September 2007.
14. Dipartimento di Elettronica e Informatica, Università di Padova, Italy, October 2006.
15. Dipartimento di Matematica, Politecnico di Torino, Italy, October 2006.
16. BIOFORUM 2006, Milano, Italy, September 2006.
17. Dipartimento di Ingegneria, Università degli Studi del Sannio, Benevento, Italy, September 2005.
18. Workshop *Centro Interuniversitario di Ricerca in Automatica (CIRA)*, Tropea, Italy. September 2005.
19. Dipartimento di Elettronica e Informazione, Politecnico di Milano, Italy, November 2004.
20. University of Cambridge, UK, October 2004.
21. ETH Zürich, Switzerland, June 2004.
22. INRIA Rhône-Alpes, France, September 2003.
23. INRIA Rocquencourt, France, March 2001.
24. Workshop *Matematica e Neuroscienze: Metodi, Modelli e Simulazione (NEUROMAT II)*, Pavia, Italy, June 2001.
25. INRIA Rennes, France. November 2000.
26. Workshop *Matematica e Neuroscienze: Metodi, Modelli e Simulazione (NEUROMAT)*, Milano, Italy, October 2000.
27. Institute of Electronic Circuits, CNR, Genova, Italy, June 2000.
28. Institute of Numerical Analysis, CNR, Pavia, Italy, May 2000.
29. Workshop *Centro Interuniversitario di Ricerca in Automatica (CIRA)*, Como, Italy, October 1999.
30. Institute for Operations Research, ETH, Zürich, Switzerland, September 1999.
31. Institut für Automatik, ETH, Zürich, Switzerland, June, 1998.
32. NCRG, Aston University, Birmingham, January 1998.

PROFESSIONAL ACTIVITIES

Editorial Boards

- | | |
|-------------------|--|
| Jan. 2016 onwards | Associate Editor of Nonlinear Analysis: Hybrid Systems |
| Mar. 2010 onwards | Associate Editor of Automatica. |

Aug. 2007 - Aug. 2010 Associate Editor of the Conference Editorial Board, IEEE Control Systems Society.

Participation to committees

- Jan. 2009 onwards Member of the Technical Committee on Systems Biology of the IEEE SMC society.
- Nov. 2005 onwards Member of the IFAC Technical Committee 2.1 (Control Design). From 2005 to 2008: Vice-chair and responsible of the working group on Systems and Synthetic Biology.
- Nov. 2002 - Nov. 2005 Member of the IFAC Technical Committee 6.3 (Power Plants and Power Systems)

Special Issues

Guest Editor (together with M. Sznaier) for the Special Issue on "System Identification for Biological Systems", *International Journal of Robust and Nonlinear Control*, Vol. 22, N. 10, July 2012.

Guest Associate Editor for the Special Issue on "Structured DC Microgrids", *IEEE Journal of Emerging and Selected Topics in Power Electronics*, 2016.

Organization of invited sessions, workshops and conferences

1. Co-organizer (with Thomas Parisini) of the invited session *Scalable Design of Control and Monitoring Systems*, 54th IEEE Conference on Decision and Control, Osaka, Japan, December 15-18, 2015.
2. Co-organizer (with Eric Bullinger and Rolf Findeisen) of the invited session *Modeling and Identification in Systems Biology: Advances and Challenges*, 18th IFAC World Congress, Milan, Italy, August 28 - September 2, 2011.
3. Co-organizer (with Eric Bullinger and Rolf Findeisen) of the invited session *Identification in Systems Biology*, 17th IFAC World Congress, Seoul, Korea, July 6-11, 2008.
4. Co-organizer (with Alexandar Juloski, Rene Vidal and Simone Paoletti) of the minitutorial session *Identification of Hybrid Systems*, European Control Conference 2007, Kos, Greece, July 2-5, 2007.
5. Co-organizer (with John Lygeros) of the workshop *Hybrid Systems Biology*, 45th IEEE Conference on Decision and Control, San Diego, CA, US, December 13-15, 2006.
6. Co-organizer (with Alexandar Juloski) of the workshop *Identification of Hybrid Systems*, 44th IEEE Conference on Decision and Control and European Control Conference 2005, Seville, Spain, December 12-15, 2005.
7. Organizer of the invited session *Modeling and identification of hybrid systems*, IFAC Conference on the Analysis and Design of Hybrid Systems (ADHS'03), Saint Malo, France, June 16-18, 2003.
8. Member of the organizing committee for the IFAC Workshop on Time Delay Systems (TDS'03), Rocquencourt, France, September 6-8, 2003.

Program committees

1. 6th International Conference Foundations of Systems Biology in Engineering, (FOSBE 2016), Magdeburg, Germany, October 9-12, 2016.
2. 5th IFAC Workshop on Estimation and Control of Networked Systems (NecSys'15), Philadelphia, USA, September 10-11, 2015.
3. The 4th International Workshop on Hybrid Systems Biology (HSB 2015), Madrid, Spain, September 4-5, 2015.

4. 5th IFAC Conference on Analysis and Design of Hybrid Systems (ADHS'15), Atalanta, USA, October 14-16, 2015.
5. 4th IFAC Workshop on Estimation and Control of Networked Systems (NecSys'13), Koblenz, Germany, September 25-26, 2013.
6. Invited session chair of the European Control Conference 2013, Zürich, Switzerland, July 17-19, 2013.
7. 3rd IFAC Workshop on Estimation and Control of Networked Systems (NecSys'12), Fess Parkers Doubletree Resort, Santa Barbara, California, USA, September 14-15, 2012.
8. 4th IFAC Conference on Analysis and Design of Hybrid Systems (ADHS 2012:), Eindhoven, The Netherlands, June 6-8, 2012.
9. 2nd IFAC Workshop on Estimation and Control of Networked Systems (NecSys'10), Annecy, France, September 13-14, 2010.
10. 1st IFAC Workshop on Estimation and Control of Networked Systems (NecSys'09), Venice, Italy, September 24-26, 2009.
11. 6th IFAC Symposium on Robust Control Design (ROCOND06), Haifa, Israel, June 16-18, 2009.
12. Conference Editorial Board of the IEEE Control Society (2007 - onwards)
13. 2nd IFAC Conference on Analysis and Design of Hybrid Systems (ADHS'06), Alghero, Italy, June 7-9, 2006.
14. IFAC Symposium on Power Plants and Power Systems Control 2006, Kananaskis, Canada, June 25-28, 2006.
15. BIOSYS 2005 - Sistemi di ingegneria biomedica, Milan, Italy, June 9-10, 2005.
16. HSCC05 - Hybrid Systems: Computation and Control, ETH, Zürich, Switzerland, March 9-11, 2005.
17. IFAC Conference on Analysis and Design of Hybrid Systems (ADHS'03), Saint-Malo, France, June 16-18, 2003.

Proposal reviewer

1. EU's Sixth Framework Programme (FP6), 2005.
2. Dutch National Science Foundation (NWO), 2003.

External Ph.D. thesis committee member

- Lexuang Meng. University of Aalborg, Denmark, October 2015.
- Mahdieh Sadat Sad Abadi. EPFL, Switzerland, September 2015.
- Chiara Colantuono, Gianfranco Fiore, Giuseppe Petrosino. Giovanni Scala, Università di Napoli Federico II, Italy, April 2015.
- Qobad Shafiee. University of Aalborg, Denmark, December 2014.
- Diana Stefan. INRIA, France, June 2014.
- Andrea Schirru. Università degli Studi di Pavia, Italy, January 2012.
- Alli Giovanni, De Filippi Pierpaolo, Delvecchio Diego, Formentin Simone, Maggio Martina, Panzani Giulio, Zanchettin Andrea Maria. Politecnico di Milano, Italy, February 2012.
- Urban Mader. ETH, Zürich, Switzerland, September 2010.
- Konstantinos Koutroumpas. ETH, Zürich, Switzerland, May 2010.
- Davide Raimondo and Claudio Vecchio. Università degli Studi di Pavia, Italy, January 2009.
- Ruggero Carli, Luca Burrelli, Maura Pasquotti. Università di Padova, Italy, November 2008.

Alessandro Abate and Giuseppe Notarstefano. Università di Padova, Italy, April 2007.

Frank J. Christophersen. ETH, Zürich, Switzerland September 2006.

Alexandar Juloski. Eindhoven University of Technology, The Netherlands, November 2004.

Participation to other committees

Committee for tenure track evaluation, Politecnico di Torino (code 20082706AIF043201), March 2014.

Committee for the selection of a junior researcher, Politecnico di Milano, January 2014.

Committee for the assignment of 7 post-doc grants “assegni di ricerca”, Università di Padova, October 2013

Committee for the HDR (Habilitation à Diriger des Recherches) of Dr. Antoine Chaillet. Université Paris-sud 11, Orsay, France, November 2012.

RESEARCH FUNDING

Project CoFlex - Scalable Control for Flexible Microgrids

Swiss National Science Foundation

Role: Principal Investigator

Starting date: tba.

Network of excellence HYCON2 - Highly-complex and networked control systems

EU's Seventh Framework Programme

Role: coordinator of the team at the Università degli Studi di Pavia

September 1, 2010 - November 30, 2014.

Sviluppo e analisi di procedure innovative per l'alert preventivo basate sulla classificazione degli stili di guida

Contract with OctoTelematics (Rome, Italy),

Role: principal investigator

2011-2012.

IMPROVE - Implementing manufacturing science solutions to increase equipment productivity and fab performance

European Nanoelectronics Initiative Advisory Council

Role: participant

January 1, 2009 - June 30, 2012.

Network of excellence HYCON - Taming heterogeneity and complexity of networked embedded systems

EU's Sixth Framework Programme

Role: coordinator of the INRIA team

15/09/2004 - 14/09/2008.

STREP HYGEIA - Hybrid systems for biochemical network modeling and analysis

EU's Sixth Framework Programme

Role: coordinator of the INRIA team (until 30/06/06) and coordinator of the team at the Università degli Studi di Pavia (from 01/07/07)

January 1, 2005 - December 31, 2008.

Advanced control methodologies for hybrid dynamical systems

PRIN project, Ministero dell'Università e della Ricerca Scientifica e Tecnologica, Italy

Role: participant

2005-2006.

Contribution au co-design de systemes mecaniques hybrides et de leurs controleurs

Contract with Renault Technocenter (Guyancourt, France), Ref. INRIA 1 02 D0321 00 21102 012

Role: Participant

2003-2006.

Gdyn - Analyse dynamique de réseaux de régulation génique

Action de Recherche Coopérative, INRIA, France

Role: participant

2003-2004.

Simulation du contrôleur du système cardio-vasculaire à l'aide d'un système neuromimétique, AAC (Autonomous Adaptive Control)

French-Russian Lyapunov institute

Role: participant

2002-2004.

Satellite communications and related laboratories project

Institut Aéronautique et Spatial (France) and the Yzmir University (Turkey)

Role: participant

2003.

Hybrid Systems: modeling, optimization and controller design

ABB, Baden, Switzerland

Role: Researcher leader 2000-2001.

Tecniche avanzate di identificazione e controllo

Fondo Ateneo Ricerche, Università degli Studi di Pavia, Italy

Role: participant

2000-2001.

Tecniche di identificazione e controllo di processi industriali

Fondo Ateneo Ricerche, Università degli Studi di Pavia, Italy

Role: participant

1998-1999.

Identificazione e controllo di sistemi industriali

Ministero dell'Università e della Ricerca Scientifica e Tecnologica (MURST), Italy

Role: participant

1998.

Metodi di controllo e di stima per sistemi non lineari

Project MURST 60%, MURST and Università degli Studi di Pavia, Italy

Role: participant

1996-1997.

Tecniche avanzate di identificazione e controllo digitale

Progetto Nazionale di Ricerca 40% within the project *Identificazione di modelli, controllo di sistemi, elaborazione di segnali*, MURST, Italy

Role: participant

1995-1996.

Metodi di controllo e di stima per sistemi affetti da incertezza

Project MURST 60%, MURST and Università degli Studi di Pavia, Italy

Role: participant

1995-1996.

PUBLICATIONS

I am coauthor of more than 100 papers, 47 of which have been published in international journals. In particular, journal papers include 14 full papers (7 on the IEEE Trans. on Automatic Control, 2 on Automatica, 1 on the IEEE Trans. on Neural Networks, 3 on the IEEE Trans. on Control Systems Technology and 1 on the IEEE Trans. on Smart Grids). In 2012 I have been Guest Editor of the International Journal of Robust and Nonlinear Control for the special issue "System Identification for Biological Systems". I am currently Guest

Associate Editor for the "Special Issue on Structured DC Microgrids" of the IEEE Journal of Emerging and Selected Topics in Power Electronics.

Bibliometric profiles

- Google Scholar: <http://scholar.google.it/citations?user=lpzo7fUAAAAJ&hl=en>
- Scopus: <https://www.scopus.com/authid/detail.uri?authorId=6603923286>

My research interests embrace plug-and-play control, control of microgrids, distributed control and estimation, control of multi-agent systems, modeling and analysis of biochemical networks, hybrid systems, Bayesian learning and periodic systems.

Journal papers

- [J-1] S. Rivero, F. Boem, G. Ferrari-Trecate, and T. Parisini. Plug-and-play fault detection and control-reconfiguration for a class of nonlinear large-scale constrained systems. *IEEE Transactions on Automatic Control*, doi: 10.1109/TAC.2016.2535724, (To appear), 2016. **Full paper.**
- [J-2] S. Rivero, S. Mancini, F. Sarzo, and G. Ferrari-Trecate. Model predictive controllers for reduction of mechanical fatigue in wind farms. *IEEE Transactions on Control Systems Technology*, doi: 10.1109/TCST.2016.2572170, 2016. **Full paper.**
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