

Europass Curriculum Vitae



Personal information

First name / Surname Maria Domenica Di Benedetto

Address Dipartimento di Ingegneria Elettrica ed della Informazione, Universita' de L'Aquila, Via G. Gronchi, 18 I-67100 L'Aquila (AQ) - Italy

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Nationality Italian

Date of birth November 11, 1953

Gender Female

Occupational field Professor, Control Theory and Applications

Work experience

Dates 1994 onward

Occupation or position held Full Professor

Main activities and responsibilities

- Research and Teaching on
 - o Control Theory and Applications
 - o Distributed and Networked Control
 - o Hybrid Systems
 - o Wireless Sensor Networks
- Principal Investigator and Director of the Center of Excellence for Research "Architectures and Design methodologies for Embedded controllers, Wireless interconnect and System-on-Chip (DEWS)".
- Member of the Scientific Committee of the Center of Excellence for Research CETEMPS

Name and address of employer Dipartimento di Ingegneria Elettrica ed della Informazione, Universita' de L'Aquila, Via G. Gronchi, 18 I-67100 L'Aquila (AQ) - Italy

Type of business or sector Research and Education

Dates 1995-2002

Occupation or position held Adjunct Professor

Main activities and responsibilities

- Research and Teaching on
 - Control Theory and Applications
 - Hybrid Systems
 - Wireless Sensor Networks

Name and address of employer	Department of Electrical Engineering and Computer Science, University of California at Berkeley Cory Hall, Berkeley, CA 94720, USA
Type of Business or sector	Research and Education
Dates	1990-1995
Occupation or position held	McKay Professor
Main activities and responsibilities	Research and Teaching on • Nonlinear Control • Hybrid Systems
Name and address of employer	Department of Electrical Engineering and Computer Science, University of California at Berkeley Cory Hall, Berkeley, CA 94720, USA
Type of business or sector	Research and Education
Dates	1992
Occupation or position held	Chercheur Associé
Main activities and responsibilities	Research on Nonlinear Control
Name and address of employer	C.N.R.S., Poste Rouge, Ecole Nationale Supérieure de Mécanique, Nantes, France
Type of business or sector	Research
Dates	1988, 1989 and 1992
Occupation or position Held	Visiting Associate Professor
Main activities and responsibilities	Teaching and Research on Nonlinear Control
Name and address of employer	Department of Electrical Engineering and Computer Science, University of Michigan, 1301 Beal Avenue Ann Arbor, MI 48109, USA
Types of business or sector	Research and Education
Dates	1987
Occupation or position held	Visiting Scientist
Main activities and responsibilities	Research on Nonlinear Control
Name and address of employer	Department of Mechanical Engineering, MIT, 77 Massachusetts Avenue, Room 3-173, Cambridge, Massachusetts 02139
Type of business or sector	Research and Education
Dates	1990-1993
Occupation or position held	Associate Professor
Main activities and responsibilities	Research and teaching in Control Theory
Name and address of employer	Dipartimento di Informatica e Sistemistica, Università di Roma, La Sapienza, Via Eudossiana 18, 00185 Roma, Italy
Type of business or sector	Research and Education
Dates	1987-1990
Occupation or position held	Associate Professor

Main activities and responsibilities	Research and teaching in Control Theory
Name and address of employer	Istituto Universitario Navale of Naples, Via Agostino Depretis 145, 80133 Napoli, Italy
Type of business or sector	Research and Education
Dates	1983-1987
Occupation or position held	Assistant professor
Main activities and responsibilities	Research and teaching in Control Theory
Name and address of employer	Dipartimento di Informatica e Sistemistica, Universita' di Roma, La Sapienza, Via Eudossiana 18, 00185 Roma, Italy
Types of business or sector	Research and Education
Dates	1979-1983
Occupation or position held	Research engineer
Main activities and responsibilities	Research in control and voice synthesis
Name and address of employer	IBM, Paris and Rome Research Centers
Types of business or sector	Computing machines
Education and Training	
Dates	1987
Title of qualification awarded	Doctorat d'Etat, Sciences
Principal subjects/occupational skills covered	Advanced research in Control Theory, second level of PhD degree
Name and type of organisation providing education and training	Université de Paris-Sud, Orsay, Paris, France, University
Dates	1981
Title of qualification awarded	Docteur-Ingenieur (PhD)
Principal subjects/occupational skills covered	Research in Control Theory
Name and type of organisation providing education and training	Université de Paris-Sud, Orsay, Paris, France, University
Dates	1976
Title of qualification awarded	Dottore in Ingegneria
Principal subjects/occupational skills covered	Electrical engineering and computer science education at the undergraduate and master level

Name and type of organisation providing education and training

Universita' di Roma, La Sapienza, Via Eudossiana 18, 00185 Roma

Honours

Dates

2002

Type of honour

IEEE Fellow

Service to the profession

Editorial activities

May 2007 onward

Member of the IEEE Control Systems Technical Fields Award Committee, IEEE Control Systems Society.

2006 onward,

Associate Editor at Large of the IEEE Transactions on Automatic Control.

1995 onward

Subject Editor of the International Journal of Robust and Nonlinear Control.

2003 - 2007,

Chair of the Standing Committee on Fellow Nominations, IEEE Control Systems Society.

1995 -1999,

Associate Editor of the IEEE Transactions of Automatic Control.

International activities

1994 onward

Principal Investigator of the University of L'Aquila for the trilateral scientific agreement among University of L'Aquila, University of Roma "La Sapienza" and University of California at Berkeley.

December 2009 – onward

President of the European Embedded Control Institute.

Industrial activities

1995 – onward

Co-founder and member of the Governing Board of WEST Aquila S.r.L.

2008 – onward

Member of the Board of Fondazione MIRROR, L'Aquila

Personal skills and competences

Mother tongue(s)

Italian and French

Other language(s)

English

Self-assessment

European level (*)

Language

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user

(*) [Common European Framework of Reference for Languages](#)

Annexes

Publication list (Selected Recent Publications)

Journal Papers (recent selected publications)

- A. Borri, D. Bianchi, G. Burgio, M. D. Di Benedetto, S. Di Gennaro: Adaptive Integrated Vehicle Control using Active Front Steering and Rear Torque Vectoring, Special Issue of the *International Journal of Vehicle Autonomous Systems (IJVAS)* on "Autonomous and Semi-Autonomous Control for Safe Driving of Ground Vehicles", J. Lu, P. Tsiotras Eds., Georgia Institute of Technology, USA. 2009, to appear.
- E. Witrant, A. D'Innocenzo, G. Sandou, F. Santucci, M.D. Di Benedetto, A.J. Isaksson, K.H. Johansson, S.-I. Niculescu, S. Olaru, E. Serra, S. Tennina, U. Tiberi: Wireless Ventilation Control for Large Scale Systems: the Mining Industrial Case, *International Journal of Robust and Nonlinear Control*, Special Issue on Industrial Control over Wireless Networks (ICWN 08), M. D. Di Benedetto, K.H. Johansson, M. Johansson, F. Santucci Eds., Vol. 20, Issue 2, February 2010, pp. 119 - 251.
- A. Abate, A. D'Innocenzo, M. D. Di Benedetto, S. Sastry: Understanding deadlock and livelock behaviors in Hybrid Control Systems, *Nonlinear Analysis: Hybrid Systems* 3, 2009, pp. 150-162.
- M. D. Di Benedetto, S. Di Gennaro, A. D'Innocenzo: Discrete State Observability of Hybrid Systems, *International Journal of Robust and Nonlinear Control*, Special Issue on "Observability and Observer-Based Control of Hybrid Systems", 2009.
- A.A. Julius, A. D'Innocenzo, Maria D. Di Benedetto, G.J. Pappas: Approximate equivalence and synchronization of metric transition systems, *Systems and Control Letters*, Volume 58, Issue 2, February 2009, pp. 94-101.
- E. Witrant, A. D'Innocenzo, G. Sandou, F. Santucci, M.D. Di Benedetto, A.J. Isaksson, K.H. Johansson, S.-I. Niculescu, S. Olaru, E. Serra, S. Tennina, U. Tiberi: Wireless Ventilation Control for Large-Scale Systems: the Mining Industrial Case, *International Journal of Robust and Nonlinear Control*, Special Issue on "Industrial Control over Wireless Networks", 2009.
- E. De Santis, M.D. Di Benedetto, G. Pola: Stabilizability of linear switching systems, *Nonlinear Analysis: Theory, Methods and Applications*, Special Issue on Hybrid Systems 2, February 2008, pp. 750-764.
- S. Di Gennaro, B. Castillo-Toledo and M. D. Di Benedetto: Nonlinear Control of Electromagnetic Valves for Camless Engines, *International Journal of Control*, HYCON Special Issue on Automotive Control, Vol. 80, No. 11, November 2007, pp. 1796-1813.
- E. De Santis, M.D. Di Benedetto, G. Pola: A structural approach to detectability for a class of hybrid systems, *Automatica*, vol.45, n.5, May 2009, pp.2002-2009, 2009.
- A.A. Julius, A. D'Innocenzo, M. D. Di Benedetto, G.J. Pappas: Approximate equivalence and synchronization of metric transition systems, *Systems and Control Letters*, 2008.
- G. Pola, A. Van der Schaft, M.D. Di Benedetto: Equivalence of switching linear systems by bisimulation, *International Journal of Control*, vol. 79, n.1, January 2006, pp.74-92.
- M.-G. Di Benedetto, G. Giancola and M.D. Di Benedetto: Introducing Consciousness in UWB networks by Hybrid Modelling of Admission Control, Mobile Networks and Applications, ISSN:1383-469X. *ACM/Springer Journal on Special Topics in Mobile Networks and Applications*, Special Issue on "Ultra Wide Band for Sensor Networks", 2006, vol.11, no.4, pp. 521-534 .
- E. De Santis, M.D. Di Benedetto, G. Pola: Digital Idle Speed Control of Automotive Engines: A Safety Problem for Hybrid Systems, *Nonlinear Analysis: Theory, Methods and Applications*, Special Issue on Hybrid Systems and Applications, vol.65, n.7, October 2006, pp. 1705-1724.
- G. Pola, A. Van der Schaft, M.D. Di Benedetto: Equivalence of switching linear systems by bisimulation, *International Journal of Control*, vol. 79, n.1, January 2006, pp.74-92.
- E. Witrant, A. D'Innocenzo, G. Sandou, F. Santucci, M. D. Di Benedetto, A. J. Isaksson, K. H. Johansson, S.-I. Niculescu, S. Olaru, E. Serra, S. Tennina: Wireless Ventilation Control for Large-Scale Systems: the Mining Industrial Case, *International Journal of Robust and Nonlinear Control*, 2009
- M. Broucke, M.D. Di Benedetto, S. Di Gennaro, A.L. Sangiovanni-Vincentelli: Efficient solution of optimal control problems using hybrid systems, *SIAM Journal on Control and Optimization*, vol. 43, n.6, 2005, pp. 1923-1952.
- E. De Santis, M.D. Di Benedetto, L. Berardi, Computation of maximal safe sets for switching systems, *IEEE Trans. Automatic Control*, vol.AC-48, n.2, Feb. 2004, pp. 184-195.

M.-G. Di Benedetto, G. Giancola and M.D. Di Benedetto: Introducing Consciousness in UWB networks by Hybrid Modelling of Admission Control, Mobile Networks and Applications, ISSN:1383-469X. *ACM/Springer Journal on Special Topics in Mobile Networks and Applications*, Special Issue on "Ultra Wide Band for Sensor Networks" , 2006, vol.11, no.4, pp. 521-534 .

E. De Santis, M.D. Di Benedetto, G. Pola: Digital Idle Speed Control of Automotive Engines: A Safety Problem for Hybrid Systems, *Nonlinear Analysis: Theory, Methods and Applications*, Special Issue on Hybrid Systems and Applications, vol.65, n.7, October 2006, pp. 1705-1724.

G. Pola, A. Van der Schaft, M.D. Di Benedetto: Equivalence of switching linear systems by bisimulation, *International Journal of Control*, vol. 79, n.1, January 2006, pp.74-92.

M. Broucke, M.D. Di Benedetto, S. Di Gennaro, A.L. Sangiovanni-Vincentelli: Efficient solution of optimal control problems using hybrid systems, *SIAM Journal on Control and Optimization*, vol. 43, n.6, 2005, pp. 1923-1952.

E. De Santis, M.D. Di Benedetto, L. Berardi, Computation of maximal safe sets for switching systems, *IEEE Trans. Automatic Control*, vol.AC-48, n.2, Feb. 2004, pp. 184-195.

International Conference Proceedings and Book Chapters (recent selected publications)

M. D. Di Benedetto, G. Di Matteo, A. D'Innocenzo: Stochastic validation of ATM procedures by abstraction algorithms, *ICRAT 2010*, Budapest, June 2010.

G. Pola, P. Pepe, M. D. Di Benedetto, P. Tabuada: A symbolic model approach to the digital control of nonlinear time-delay systems, *IEEE Conference on Decision and Control, 48th IEEE Conference on Decision and Control (CDC'09)*, Shangai (China), 2009.

D. Bianchi, A. Borri, G. Burgio, M. D. Di Benedetto, S. Di Gennaro: Adaptive Integrated Vehicle Control using Active Front Steering and Active Rear Differential, *48th IEEE Conference on Decision and Control (CDC'09)*, Shangai (China), 2009.

R. Bajcsy, A. Borri, A. Giani, M.D. Di Benedetto, C. Tomlin: Classification of Physical Interactions between Two Subjects, *Body Sensor Network 2009*, Berkeley CA), June 3-5, 2009.

A. Borri, M. D. Di Benedetto, M.G. Di Benedetto, Hybrid Modelling, Power Management and Stabilization of Cognitive Radio Networks, *Hybrid Systems: Computation and Control*, San Francisco, CA, USA, LNCS, Springer Verlag, 13-15 April 2009.

E. De Santis, Maria D. Di Benedetto, G. Pola, "Observability of linear switching systems", in Chapter 4 "Switched and Piecewise Affine Systems" of *Handbook of Hybrid Systems Control - Theory, Tools - Applications*, Jan Lunze and F. Lamnabhi-Lagarigue Eds., Cambridge University Press, Cambridge 2009.

A. Bicchi, Maria D. Di Benedetto, A. D'Innocenzo, F. Santucci, A. Robertsson, A. Tzes, K. Johansson, U. Tiberi, "Networked Control", Chapter 16 in *Handbook of Hybrid Systems Control - Theory, Tools - Applications*, Jan Lunze and F. Lamnabhi-Lagarigue Eds., Cambridge University Press, Cambridge 2009.

A. Abate, A. D'Innocenzo, M.D. Di Benedetto, S. Sastry: Set-Chains as abstractions of Stochastic Hybrid Systems, *Hybrid Systems: Computation and Control (HSCC08)*, Lecture Notes in Control and Information Sciences, Springer-Verlag, St Louis, April 22-25, 2008.

A. D'Innocenzo, M.D. Di Benedetto, S. Di Gennaro: Fault diagnosis in a wireless network, *17th World Congress of IFAC*, Seoul, 6-11 July 2008.

M. D. Di Benedetto, A. D'Innocenzo, E. Serra, E. Witrant: Automatic Verification of Wireless Control in a Mining Ventilation System, *4th IEEE Conference on Automation Science and Engineering (IEEE-CASE 2008)*, Key Bridge Marriott, Washington DC, August 23-26, 2008.

M. D. Di Benedetto, A. D'Innocenzo, A. Petriccone, Automatic verification of temporal properties of Air Traffic Management procedures using Hybrid Systems, *EUROCONTROL INNO Workshop*, Brétigny, France, 2-4 Dec. 2008.

M. D. Di Benedetto, S. Di Gennaro, A. D'Innocenzo: Diagnosability of hybrid automata with measurement uncertainty, *47th IEEE Conference on Decision and Control (CDC'08)*, Cancun, Mexico, Dec. 2008.

- C. Acosta Lua, B. Castillo Toledo, M. D. Di Benedetto, S. Di Gennaro: Output Feedback Regulation of Electromagnetic Valves for Camless Engines, *2007 American Control Conference, ACC07*, New York City, 11- 13 July 2007.
- M. D. Di Benedetto, S. Di Gennaro, A. D'Innocenzo: Diagnosability of hybrid automata with measurement uncertainty, *47th IEEE Conference on Decision and Control (CDC'08)*, Cancun, Mexico, Dec. 2008.
- A. D'Innocenzo, A. Abate, M. D. Di Benedetto, Approximate Abstractions of Discrete-Time Controlled Stochastic Hybrid Systems, *47th IEEE Conference on Decision and Control (CDC'08)*, Cancun, Mexico, Dec. 2008.
- E. De Santis, M. D. Di Benedetto, G. Pola: Observability of discrete-time Linear Switching Systems, *1st IFAC Workshop on Dependable Control of Discrete Systems, DCDS'07*, Special Session on Dependable Control, Cachan - Paris, France, June 13-15, 2007.
- C. Acosta Lua, B. Castillo Toledo, M. D. Di Benedetto, S. Di Gennaro: Output Feedback Regulation of Electromagnetic Valves for Camless Engines, *European Control Conference 2007*, Kos (Greece), 2-5 July 2007.
- C. Acosta Lua, B. Castillo Toledo, M. D. Di Benedetto, S. Di Gennaro: Output Feedback Regulation of Electromagnetic Valves for Camless Engines, *2007 American Control Conference, ACC07*, New York City, 11- 13 July 2007.
- M.D. Di Benedetto, A. D'Innocenzo, C. Rinaldi, F. Santucci, E. Serra: Modeling and design of control algorithms over wireless networks, invited session on "Industrial control over wireless networks", *IEEE Multi-conference on Systems and Control (MSC), the (16th IEEE Conference on Control Applications (CCA) and the 22nd IEEE International Symposium on Intelligent Control (ISIC)) CCA-ISIC07*, Singapore, 1– 3 October 2007.
- E. De Santis, M. D. Di Benedetto: Observer design for discrete-time Linear Switching Systems, *3rd IFAC Symposium on System, Structure and Control, IFAC-SSSC07*, Foz do Iguaçu, Brazil, 17-19 October, 2007.
- A. D'Innocenzo, A.A. Julius, G. Pappas, M. D. Di Benedetto, S. Di Gennaro: Verification of Temporal Properties on Hybrid Automata by Simulation Relations, *46th IEEE Conference on Decision and Control (CDC'07)*, New Orleans, U.S.A., Dec. 2007.
- A. D'Innocenzo, A.A. Julius, M. D. Di Benedetto: Approximate timed abstractions of Hybrid Systems, *46th IEEE Conference on Decision and Control (CDC'07)*, New Orleans, U.S.A., Dec. 2007.
- M.D. Di Benedetto, S. Di Gennaro, A. D'Innocenzo: Diagnosability Verification for Hybrid Automata and Durational Graphs, *46th IEEE Conference on Decision and Control (CDC'07)*, New Orleans, U.S.A., Dec. 2007.
- M.-G. Di Benedetto, G. Giancola, E. De Santis, M.D. Di Benedetto: Hybrid Modelling of Ultra Wide Band Self-organizing Networks, *2006 Second International Symposium on Communications, Control and Signal Processing (ISCCSP 2006)*, Marrakech, Morocco, 13-15 March 2006.
- E. De Santis, M. D. Di Benedetto, G. Pola: Stabilizability-based state space reductions for hybrid systems, *ADHS06: 2nd IFAC Conference on Analysis and Design of Hybrid Systems 2006*, Invited session on "Structural properties of hybrid systems", June 7-9, 2006, Alghero , Italy.
- M. D. Di Benedetto, S. Di Gennaro, A. D'Innocenzo: Critical States Detection with Bounded Probability of False Alarm and Application to Air Traffic Management, *ADHS06: 2nd IFAC Conference on Analysis and Design of Hybrid Systems 2006*, June 7-9, 2006, Alghero , Italy.
- A. Balluchi, L. Benvenuti, M. D. Di Benedetto, T. Villa, A. Sanviovanni-Vincentelli: Idle Speed Control - A Benchmark for Hybrid System Research, *ADHS06: 2nd IFAC Conference on Analysis and Design of Hybrid Systems 2006*, June 7-9, 2006, Alghero , Italy.
- M. D. Di Benedetto, M. Prandini: Safety Analysis Methods in Air Traffic Management, Workshop "ACARE Italia e sistema universitario: la collaborazione per la ricerca aeronautica", Naples, 14 July 2006.
- G. Pola, J. Lygeros, M.D. Di Benedetto: Invariance in Stochastic Dynamical Control Systems, *Int. Symposium on Mathematical Theory of Networks and Systems MTNS06*, Kyoto, July 24-28, 2006.
- M. D. Di Benedetto, A. D'Innocenzo, G. Pola, C. Rinaldi, F. Santucci: A Theoretical Framework for Control Over Wireless Networks, Invited Mini-Symposium on "Distributed decision-making over ad-hoc networks", *Int. Symposium on Mathematical Theory of Networks and Systems MTNS06*, Kyoto, July 24-28, 2006.