

Laura Giarré
Curriculum Vitae
January 2011

Biographical Data

- Born: Firenze (Italy) 14 July 1960.
- Italian Citizen.
- Resident: piazza della Costituzione 1, I-50129 Firenze, Italy.
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Last Affiliation

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*I disagree with the claim that we don't do anything useful. **First of all the main mission of the university is to teach analysis, critical thinking, and creativity.** To achieve this goal successfully, I believe, that there must be research that is not bound completely by the desires and requirements of the society. It should draw inspiration from life, in all its forms, and in all its complexity. That's why in a university, people study poetry, literary criticism, cosmology, and yes, even pornography. The product of the university is the educated, analytical student, and not a transistor radio. Maybe a transistor radio can come out, and indeed it did, from a university research environment, but that is not the intended product it was just a nice byproduct. I try to model myself, if I can, after the young English teacher in David Lodge book. I argue constantly against my engineering colleagues in support of free thinking research in all aspects of university life including engineering. **I hate to think of the university as a factory.** If it turns into one I will take a very early retirement. ^a*

^aFrom *Legacy of M. Dahleh*, by M. A. Dahleh in **MULTIDISCIPLINARY RESEARCH IN CONTROL** Eds. L. Giarré and B. Bamieh, Springer-Verlag, 2003.

Education

Ph.D. Systems Engineering, Università di Bologna, 1992.

Laurea degree (magna cum laude) Electrical Engineering, Università di Firenze, 1986.

Professional Background

- 1998- present: Associate Professor (with tenure) of Control Systems (joint position of Electrical Engineering, Telecommunication and Computer Science), Università di Palermo, Palermo, Italy.
- Winter and Summer 2006, Winter-Spring 1999 (Fall 1996, Fall 1997)- Visitor Professor Engineering, University of California at Santa Barbara.
- February 1993- November 1998: Assistant Professor of Control (joint position in Mechanical, Electronic and Control Engineering), Politecnico di Torino, Torino, Italy
- 1990- 1993: Senior Engineer at Department of Computer Science and Systems, Università di Firenze, Firenze, Italy.
- 1987: Researcher at the *Austostrade* (Highway) Research Center

Research Interests

I. Identification

I.1. Nonlinear Systems Identification

I. 2. Set Membership Identification

II. Control

II.1 Networked Control

II.2 Predictive Control

III. (Other interests)

III.1 Educational:Research Methods and Interdisciplinarity

III.2 E-Health

MAIN RESEARCH CONTRIBUTION:

Laura Giarré has developed a comprehensive methodology for the robust identification and modeling of systems under unknown but bounded disturbances and model uncertainty. Her innovative work in the H_∞ approach to identification for robust control and model selection is well known and it is widely recognized. Her theoretical breakthrough inspired the subsequent development of similar methodologies within the popular H-infinity framework.

Laura Giarré's results are powerful because of the generality and simplicity of the derived methodology. Model selection is based on the quality of the model, measured in terms of prediction capability, and on the size of the uncertainty set. She has applied the set membership identification framework and the analysis and modeling of uncertainty to various innovative application fields, e.g. the Atomic Force Microscope.

Laura Giarré expanded the robust identification theory also to time-varying systems and nonlinear systems. She has solved the problem of Linear Parameter Varying (LPV) identification. This contribution is one of the few available in the literature. It has been employed in aeronautic, power systems, jet-turbine and also communication applications. She extended some classical and set membership identification schemes to LPV systems and to a particular class of nonlinear systems such as Hammerstein and Wiener, i.e. cascade systems of static nonlinearities and linear parts. She has also introduced a novel identification, validation and model reduction procedure for Systems Biology. The applicability and utility of the various identification techniques developed is supported by the number and high quality of citations of her papers as well as by the broad area of applications.

A third fundamental contribute of Laura Giarré is in the area of multiagents, networks and consensus protocols, where she developed distributed linear and nonlinear algorithms for switching networks with noise. Showing her broad and interdisciplinary interests she has applied these results to inventory systems and congestion games. Her innovative contribution stands in the reformulation of the problem according to a game theoretic approach and in solving the consensus problem in presence of UBB noise. Applications to wifi and sensor networks has been considered.

Laura Giarré is also very active in dissemination of technology for educational purpose and in sustaining women in engineering and academia.

Laura Giarré is also interested in projects related to e-health.

Teaching Experience

International

- Invited lecturer at *Summer School on Identification and Control of LPV-Systems*, organized by prof. Carsten Scherer, Peter Heuberger del Delft Center for Systems and Control (DCSC), june 2006.
- *Graduate course “Advanced Topics in Systems and Control Theory”*, Mechanical Engineering, University of California, Santa Barbara, (USA), Spring 1999.

National

- *Advance Topics in System Theory* (Ph.D) Control and Mathematics Ph.D. Program, Università di Palermo (2010-2011).
- *Control Theory* (undergraduate course) Communication and Computer Science Engineering, Università di Palermo (2004-2005), (2006-2007), (2007-2008), (2009-2009), (2009-2010).
- *Identification* (graduate course), Control, Communication and Computer Science Engineering, Università di Palermo (2004-2005), (2006-2007), (2007-2008), (2009-2009), (2009-2010),(2010-2011).
- *Control and Systems Theory (undergraduate course)* Computer Science Engineering, Università di Palermo (2006-2007, 2003-2004, 2002-2003, 2001-2002).
- *System Theory (graduate course)* Mechanical, Electronics and Computer Science Engineering, Università di Palermo (2004-2005,2003-2004,2003-2003, 22001-2002, 2000-2001, 1999-2000). (Student Evaluation: mean value 8.5/10).
- *Control Theory/Applied Electronic (graduate course)*, Mechanical Engineering, Politecnico di Torino, Vercelli (1997-1998, 1996-1997, 1995-1996, 1994-1993, 1993-1994).
- *System Theory (undergraduate course)*, Electrical and Computer Science Engineering, Politecnico di Torino, Ivrea, (1996-1997, 1995-1996, 1994-1993).
- *Process Control (graduate course)* Electrical Engineering, Politecnico di Torino Vercelli (1995-1996, 1996-1997).
- *Control Theory (graduate Course)* Electrical Engineering, Politecnico di Torino, Vercelli (1993-1994).

Honors

- Elected *IEEE* Senior Member, 1999.

Professional Activities

International Program Committee and Boards

- Member of the *Editorial Board* of *Systems and Control Letters*, 2001-present
- Member of the IEEE CSS Technical committee on Identification and Adaptive Control, 2006
- Member of the IEEE CSS Technical committee on System Biology, 2007

- She is VICE Chair of the conference *SING6*, Palermo, Italy, 2010.
- She is member of the International Program Committee, *IFAC NECSYS*, Annecy, 2010.
- She is member of the International Program Committee della *IEEE Multi-conference on Systems and Control (MSC201)*, Tokio, Japan, 2010.
- She is member of the International Program Committee della *IEEE Region 8 Conference, MELECON 2010*, La Valletta, Malta, 2010.
- She is member of the International Program Committee della *IEEE Workshop on Health Care Management (WHCM)*, Venice, Italy, 2010.
- She is member of the International Program Committee, *1st IFAC WORKSHOP ON ESTIMATION AND CONTROL OF NETWORKED SYSTEMS*, Venice, 2009.
- She is member of the International Program Committee, III Conference on Interdisciplinary Education, 2007, Athens
- She is member of the IPC of *II Conference on Interdisciplinary Education*. Athens, 2006.
- She is member of the IPC of *14th Mediterrean Conference on Control and Automation*, Ancona, 2006.
- She is member of the IPC of *IEEE Second International Symposium on Communications, Control and Signal Processing*, Marrakesh, 2006.
- She has been memmber of the IPC of *IFAC SYmposium on System IDentification*, 2000.

Conferences, Scientific Events, Invited Sessions

- She is the vice-chair and local organizer of the conference "SING 6" under the auspices of IEEE, that will be in PALERMO in july 2010.
- She organized the invited session on "Networks: estimation and control" at the conference IEEE ISCCSP, Malta, 2008.
- She organized the invited session on "Systems Biology" at the Conference IEEE Mediterrean Conference on Control and Automation, 2006.
- She co-organized the Poster Session for Ph. D. Students at the Conference CIRA Tropea, 2005.
- She co-organized the Poster Session for Ph. D. Students at the Conference CIRA Cagliari, 2004.
- She organized the invited session "Quality of Service and Control of Network" for the First *IEEE Symposium on Control, Communications and Signal Processing*, marzo 2004.
- She co-organized the Poster Session for Ph. D. Students at the Conference CIRA Modena, 2003
- Co-organizer of the Symposium *The Mohammed Dahleh Symposium*, Santa Barbara, February 2002.
- Organizer and chairperson of an invited session "Linear Parameter Varying systems: identification for gain scheduling control" for *ECC 2001*, Porto, Portogallo, 2001
- Organizer and chairperson of an invited session "Dynamical Systems Methods in the Control of Mechanical Systems" for *37th IEEE Conf. on Decision and Control*, Tampa, Florida, 1998.
- Paper Reviews for
 - *IEEE Transactions on Circuits and Systems I , II*

- *IEEE Transaction on Automatic Control.*
- *Automatica.*
- *International Journal of Robust and Nonlinear Control.*
- *International Journal of Adaptive Control and Signal Processing.*
- *Physica A.*
- *IEEE Transactions on Control Systems Technology*
- *International Journal of Control*
- *SIAM Journal on Control and Optimization*
- *IEEE Control Conf. on Decision and Control, IFAC European Control Conference, IFAC SYmposium on System IDentification, IEEE American Control Conference.*

Grants and Contracts

Intramural

- Local Grant “Dynamical games for networks applications : a consensus approach”, Principal Investigator Laura Giarré Università di Palermo, 2007-2008.
- Local Grant “Study on the interactions on routing for overlay networks”, Principal Investigator Laura Giarré Università di Palermo, 2005-2006.
- Local Grant “A controllistic and game theoretic approach to congestion control on multiservice networks”, Principal Investigator Laura Giarré Università di Palermo, 2003-2004.
- Local grant: “Validation and Estimation of Approximated Models for Complex Systems” Principal investigator L. Giarré 2001-2002
- Local Grant “Nonlinear and uncertain System Identification”, Principal investigator L. Giarré 1999-2000.

Extramural

- Coordinator for the University of Palermo of the thematic project Erasmus : ”ESTIA-EARTH, To Sustain the Womens Careers as Academics, Researchers and Professionals in Engineering, Computers and Sciences”. 2008-2011. ESTIA-Net is coordinated by the National Technical University of Athens, Greece.
- Participant to the project ”Komputer + Kunst = Kjrlighet”, principal investigator Letizia Jaccheri, NTNU, Trondheim, Norway. The Project aims at encouraging students of age 13 to 15 to work in meaningful cooperative projects, with the goal of producing novel forms of new media art and contributing to strengthen the knowledge and the interest for science and technology.
- Coordinator for the University of Palermo of the thematic project Erasmus: ”ESTIA-NET Opening up Electrical Engineering, Computer Technologies and Applied Sciences to Successful Women Careers”. 2004-2007. ESTIA-Net is coordinated by the National Technical University of Athens, Greece.
- Scientific collaboration Project “Complex Systems Identification”, between Università di Palermo, Scientific Corrdinator L. Giarré and the Massachussets Institue of Technology, Scientific Coordinator M.A. Dahleh, 2003.
- Scientific collaboration Project “Robust Identification and Control for smart structures with applications to micro-electro-mechanical-systems”, between the Università di Palermo, Scientific Coordinator L. Giarré and the Center for Control Engineering and Computation, University of California at Santa Barbara, Scientific Coordinator B. Bamieh, 2000.

- Italian Research ministry National grant, “Robust Technique for the Control of Uncertain Systems”, Principal Investigator A. Vicino, 2000-2001.
- National Strategic Project CNR, “Logistic Systems: Control and Evaluation”, Principal Investigator W. Ukovic, 2000-2001.
- Italian Research ministry National grant, “Algorithms and Architectures for the robust control and identification of Uncertain Systems”, Principal Investigator G. Picci, 1998-2000 and 1996-1998.
- National Special project CNR “Algorithms for the robust control and identification of Uncertain Systems”, Principal Investigator A. Vicino, 1995-1997.
- National Special project CNR “Algorithms for the robust control and identification of Uncertain Systems”, Principal Investigator M. Milanese, 1993-1995.

International Collaboration

- International collaboration Project “Robust Identification and Control for smart structures with applications to micro-electro-mechanical-systems”, Università of Palermo, Principal Investigator: L. Giarré and Center for Control Engineering and Computation, University of California at Santa Barbara, Principal Investigator B. Bamieh, 2000.
- International Collaborator, Nato grant CRG 970532, “Modeling, Identification and Control of Piezo-Electric Micro-actuators”, with M. Milanese and L. Giarré, Project Budget \$6000/year, Politecnico di Torino, 1997-1998
- NSF research grant, “The Atomic Force Microscope as a machine tool: modeling, robust control design and hardware”, Principal Investigator M. Dahleh, UCSB, 1996-1999.
- European Project, “System Identification Modeling Network - SIMoNet”, Principal Investigator R. Guidorzi 1994-1996. European network of the following unit: Università’ di Bologna (R. Guidorzi), Politecnico di Milano (S. Bittanti), Politecnico di Torino (M. Milanese), University of Birmingham (J.P. Norton), Uppsala University (T. Soderstrom), Universidade Technica de Lisboa (J. Da Costa), Eindhoven University of Technology (S. Weiland), Technische Universiteit Delft (P. Van den Hof), Katholieke Universiteit Leuven (B. De Moor), Ecole Supérieure d’Electricite’ (E. Walter), Rhur Univeristat Bochum (H. Unbehauen), University of Athens (N. Kaluptidis).

Invited Seminars and Special Workshops

- *Model Identification, validation and reduction for systems biology*, Invited seminar, Inria, Paris, 2009.
- *The Role of the Access Point in Wi-Fi Networks with Selfish Nodes - A game theoretical approach*, Invited seminar, Inria, Paris, 2009.
- *The Role of the Access Point in Wi-Fi Networks with Selfish Nodes- A game theoretical approach*, Invited seminar, Politecnico di Torino, Torino, 2009.
- *Distributed Consensus in network of Dynamic agents*, Invited Seminar, NTNU, Trondheim, No, 10 gennaio 2007.
- *Distributed Consensus in network of Dynamic agents*, Invited seminar, MIT, Cambridge, MA, 5 ottobre 2006.
- *Distributed Consensus in network of Dynamic agents*, Invited seminar, Iowa State University, 22 settembre 2006.
- *Distributed Consensus in network of Dynamic agents*, Invited seminar, University of California art BERKELEY, 20 marzo 2006.

- *Cooperative Control*, Invited Seminar, University of California at Santa Barbara, 10 febbraio 2006
- *Distributed Consensus Protocols for Coordinating Buyers*, Invited Seminar *Workshop ACTRA*, Villa Mondragone, giugno 2004.
- Special seminar on *Some Methodologies for nonlinear systems identification*, LIDS, MIT, Cambridge (MA), October 2002.
- “Worst case identification of approximated Hammerstein models”, Invited talk at *Uncertain Dynamical Systems Workshop of the IFAC Technical Committee on Robust Control*, Cascais (P), July 19, 2002.
- Invited Talk *New methodology for complex systems identification: LPV, NARMAX and HAMMERSTEIN WIENER Models*, Dip. di Ingegneria, Università di Ferrara, November 2001.
- Invited talk *Gain-scheduling control oriented Identification*, DAI, Politecnico di Torino, Torino, November 1999.
- Invited talk *Complex systems identification*, DIAI, Università di Palermo, Palermo, September 1999.
- *Digital control* Course (30 hours) at Electronic Systems Society, Novara, 1998.
- Invited talk *Chaotic temporal series analysis: introduction and reconstructing problems*, DAI, Politecnico di Torino, Torino, November 1996.
- Invited talk *Analysis of observed chaotic data*, CCEC, University of California, Santa Barbara, September 1996.
- Invited talk *H_∞ identification and quality model evaluation*, DSI, Università di Firenze, Firenze, February 1995.

Student Supervisor

Master of Science Students

She supervised many master students (more than 20) on predictive control, robust identification, nonlinear system identification, gain scheduling control at: Università di Firenze, Politecnico di Torino, Facoltà di Torino e di Vercelli, Università di Palermo.

Ph. D. Students

She co-supervised the following students M. Taragna, M. Canale (Politecnico di Torino), D. Bauso (Università di Palermo), P. Falugi (Università di Firenze).

Publications

Scientific impact of the journal papers

According to Publish or Perish, the h-index is 13 and g-index is 23.

International Journals

- [J25] D. Bauso, L. Giarré, R. Pesenti, **Robust control of uncertain multi-inventory systems via Linear Matrix Inequality**, *International Journal of Control*, August, 83(8), 1723-1740, 2010.
- [J24] L. Giarré, G. Neglia, I. Tinnirello. **Medium Access in WiFi Networks: Strategies of Selfish Nodes**. *IEEE Signal Processing Magazine (SPM)*, 26(5),124-127, 2009.
- [J23] P. Falugi, L. Giarré, **Set Membership Identification of nonlinear positive models for biological systems**. *Systems and Control Letters*, 58(7),529-539, 2009, <http://dx.doi.org/10.1016/j.sysconle.2009.03.005>.
- [J22] D. Bauso, L. Giarré, R. Pesenti, **Consensus for networks with unknown but bounded disturbances**. *SIAM JOURNAL ON CONTROL AND OPTIMIZATION*, 48(3); 1756-1770,2009, ISSN: 0363-0129, doi: 10.1137/060678786.
- [J21] D. Bauso, L. Giarré, R. Pesenti. **Distributed Consensus in Noncooperative Inventory Games**. *EUROPEAN JOURNAL OF OPERATIONAL RESEARCH*; 192(3), 866-878, 2009; doi:10.1016/j.ejor.2007.10.012, online since 2007.
- [J20] D. Bauso, L. Giarré, R. Pesenti. **Consensus in Noncooperative Dynamic Games: a Multi-Retailer Inventory Application**. *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*, 53(4), 998-1003, 2008, ISSN: 0018-9286, doi: 10.1109/TAC.2008.919546.
- [J19] D. Bauso, L. Giarré, R. Pesenti. **Nonlinear protocols for optimal distributed consensus in networks of dynamic agents**. *Systems and Control Letters*, 915-928, 55(11),2006.
- [J18] L. Giarré, D. Bauso, P. Falugi and B. Bamieh. **LPV Model Identification for Gain Scheduling Control: an application to stall and surge control**. *Control Engineering Practice*,14 (4): 351-361, 2006.
- [J17] P. Falugi, L. Giarré and G. Zappa, **Approximation of the Feasible Parameter Set in worst-case identification of Hammerstein models**. *Automatica*, 41(6),1017-1024, 2005.
- [J16] M. Basso, L Giarré , S. Groppi, G.Zappa. **NARX Models of an Industrial Power Plant Gas Turbine** *IEEE Trans on Control Technology*, 13(4), 599-605, 2005.
- [J15] A. Garulli, L. Giarré and G. Zappa. **Identification of approximated Hammerstein models in a worst-case setting**. *IEEE Trans. on Automatic Control*, 47(12), 2046-2050, 2002.
- [J14] B. Bamieh and L. Giarré. **Identification of Linear Parameter Varying Models**. *International Journal of Robust and Nonlinear Control*, 12(9),841-853, 2002.
- [J13] M. Basso, L. Giarré, M. Dahleh and I. Mezić. **Complex Dynamics in a Harmonically Excited Lennard-Jones Oscillator: Microcantilever-Sample Interaction in Scanning Probe Microscopes**. *ASME Journal of Dynamic Systems, Measurement and Control*, 122(1),240-245, 2000.
- [J12] L. Giarré and M. Milanese. **SM identification of approximating models for H_∞ robust control**. *International Journal of Robust and Nonlinear Control*, 9(6), 319–332, 1999.
- [J11] L. Giarré, B. Kacewicz, and M. Milanese. **Model quality evaluation in set membership identification**. *Automatica*. 33(6), 1133-1139, 1997.
- [J10] L. Giarré and M. Milanese. **Model quality evaluation in H_2 identification**. *IEEE Transaction on Automatic Control*. 42(5), 691-698, 1997.
- [J9] L. Giarré. **Nominal optimal controller with enhanced performance via adaptive-Q feedback**. *International Journal of Adaptive Control and Signal Processing*, 10(6), 635-648,1996.
- [J8] L. Giarré, M. Milanese, and M. Taragna. **H_∞ identification and model quality evaluation**. *IEEE Transaction on Automatic Control*. 42(2), 188-199, 1997.
- [J7] L. Giarré and M. Milanese. **H_∞ identification and model structure selection**. *International Journal of Robust and Nonlinear Control*, 6(4), 367-377, 1996.

- [J6] L. Chisci, L. Giarré, and E. Mosca. **Indirect and implicit adaptive predictive control of a benchmark plant.** *Automatica*, 30(4), 577-584,1994.
- [J5] L. Chisci, L. Giarré, and E. Mosca. **Sidestepping the positive real condition in RELS via multiple RLS identifiers.** *Automatica*, 29(4), 1145-1148, 1993.
- [J4] L. Giarré and E. Mosca. **Implicit predictive adaptive controller with stochastic gradient identifiers.** *IEEE Transaction on Automatic Control*, 38(7), 1135-1139, 1993.
- [J3] E. Mosca and L. Giarré. **A polynomial approach to MIMO LQ servo and disturbance rejection problems.** *Automatica*, 28(1), 209-213, 1992.
- [J2] E. Mosca, L. Giarré, and A. Casavola. **On the polynomial equations for the MIMO stochastic regulator.** *IEEE Transactions on Automatic Control*, 35(3), 320-322, 1990.
- [J1] E. Mosca, A. Casavola, and L. Giarré. **Minimax LQ stochastic tracking and servo problems.** *IEEE Transactions on Automatic Control*, 35(1), 95-97, 1990.

Book Editor

- [E1] L. Giarré and B. Bamieh. *Multidisciplinary Research in Control: the Mohammed Dahleh Symposium*, LNCIS N. 239, Springer-Verlag, 2003.

Book chapters

- [B1] D.Bauso, L. Giarré and R. Pesenti. Dealing with uncertainty in consensus protocols, *Modeling, Estimation and Control of Networked Complex Systems*, CHIUSO, A., FORTUNA, L., FRASCA, M., RIZZO, A., SCHENATO, L., ZAMPIERI, S.. vol. XVI, HEIDELBERG: SPRINGER, ISBN/ISSN: 978-3-642-03198, 2009.
- [B2] D.Bauso, R. Pesenti, L. Giarré. Cooperative Inventory Control, *Current Trends in Nonlinear Systems and Control*, BirkHauser, Edited by L. Menini, L. Zaccarian and C.T.Abdallah, Boston, 2005.
- [B3] P. Falugi, L. Giarré, L. Chisci, G. Zappa. LPV predictive control of the stall and surge for jet engine, *Periodic Control Systems-2001*, Elsevier, 2001. Edited by S. Bittanti.
- [B4] S. Salapaka, L. Giarré and M. Dahleh. On state-space reconstruction of the dynamics of microcantilever interactions *Mathematical Theory of Networks and Systems*, pagg. 863-867, Il Poligrafico, Padova, 1998, Edited by A. Beghi, L. Finesso, G. Picci.
- [B5] E. Mosca, L. Chisci, and L. Giarré. *Sidestepping the Certainty equivalence in 2DOF Adaptive Control via Multiple Implicit Identifiers*, pagg. 41-64. Plenum Press - London, 1993. Edited by M. Karny and K. Warwick.

Submitted Journal Papers

- [I2] D. Bauso, L. Giarré, R. Pesenti, Quantized Dissensus in Switching Networks with death and duplication of nodes, Submitted to *IEEE Transaction on Automatic Control*, 2009.
- [I3] I. Tinnirello, L. Giarré, G. Neglia. MAC design for WiFi infrastructure networks: a game theoretic approach. Submitted to *IEEE Transaction on Wireless Communication*, 2010.
- [I4] D. Materassi, M. Salapaka, G. Innocenti, L. Giarré. Reduced Complexity Models in the Identification of Dynamical Networks Submitted to *Automatica*, 2010.

International Conferences

- [C1] E. Mosca and L. Giarré. A polynomial approach to mimo LQ servo and disturbance rejection problems. In *Proc. of IFAC Workshop on System Structure and Control: State Space and Polynomial Method*, pagg. 175–179, Praga, 1989.
- [C2] E. Mosca and L. Giarré. Minimax LQ-stochastic tracking and disturbance rejection problems. In *Proc. 28th IEEE Conf. Decision and Control*, pagg. 1473-1477, Tampa (USA), 1989.
- [C3] L. Giarré and E. Mosca. Direct predictive adaptive control with stochastic gradient identifiers. In *Proc. 30th IEEE Conf. Decision and Control*, pagg. 1788-1789, Brighton (UK), 1991.
- [C4] E. Mosca, L. Chisci, and L. Giarré. Direct predictive adaptive control of a benchmark example: MUSMAR. In *Proc. of 1st European Control Conference*, pagg. 2368-2373, Grenoble (F), 1991.
- [C5] E. Mosca, L. Chisci, and L. Giarré. Sidestepping the certainty equivalence in 2DOF adaptive control via multiple implicit identifiers. In *IFAC Workshop on Mutual Impact of Computing Power and Control Theory*, pagg. 25-36, Praga, pagg. 93-98, 1992.
- [C6] L. Chisci, L. Giarré, and E. Mosca. Improving RELS local convergence via long-range predictive identifiers. In *Proc. 31st IEEE Conf. Decision and Control*, pagg. 527-529, Tucson (USA), 1992.
- [C7] L. Chisci, L. Giarré, and E. Mosca. Implementation via 32-bit dsp of a self-tuning predictive controller. In *International Summer School 1992 Laboratory Experiments in Control Engineering Courses*, Praga, 1992.
- [C8] L. Giarré. Adaptive-Q tuning to enhance performance of a nominally controlled plant. In *Proc. of 2nd European Control Conference*, pagg. 2216-2221, Groningen (NL), 1993.
- [C9] L. Chisci, L. Giarré, and E. Mosca. Indirect and implicit adaptive predictive control of a benchmark plant. In *Proc. of IFAC World congress*, volume 3, pagg. 169-172, Sidney (AUS), 1993.
- [C10] L. Giarré. Implicit adaptive predictive control: a planar 2-link manipulator case study. In *4th Symposium on Automatic Control and Computer Science*, Iasi, Romania, pagg. 154-158, 1993.
- [C11] L. Giarré and M. Milanese. H_∞ identification with mixed parametric and nonparametric models. In *10th IFAC Symposium on System Identification*, pagg. 255–259, 1994.
- [C12] L. Giarré, M. Milanese, and M. Taragna. Robust control oriented H_∞ identification with mixed perturbation models. In *Proc. of IFAC Symposium on Robust Control*, pagg. 323–328, Rio de Janeiro, 1994.
- [C13] L. Giarré and M. Milanese. Model class optimality in set membership identification. In *Proc. 33rd IEEE Conf. Decision and Control*, pagg. 1741–1745, 1994.
- [C14] L. Giarré, B. Kacewicz, and M. Milanese. Model quality evaluation in set membership identification. In *ECC 95*, pagg. 937–942, Roma, 1995.
- [C15] L. Giarré, S.Malan, M. Milanese, and M. Taragna. Robust identification and control of flexible structures. In *International Workshop on Robust Control*, Napa Valley - California, 1996.
- [C16] L. Giarré and M. Milanese. Set membership identification of simplified models. In *Intelligent Automation and Control- Second World Automation Congress*, Vol. 4, pagg. 249-254, 1996.
- [C17] L. Giarré and M. Milanese. SM system identification with approximated models. In *IEEE CESA 96, Symposium on Modelling, Analysis and Simulation*, Vol. 2, pagg. 1162-1167, 1996.

- [C18] L. Giarré and M. Milanese. SM identification of approximating models for H_∞ robust control. In *35th Conference on Decision and Control*, pagg. 484–489, Kobe- Japan, 1996.
- [C19] A. Daniele, T. Nakata, L. Giarré, M. Salapaka, M. Dahleh. Robust Identification and control of scanning probe microscope. In *ROCOND '97*, pagg. 37-42, Budapest, Hungary, 1997.
- [C20] S. Salapaka, M. Dahleh and L. Giarré. Filtering of nonlinear Chaotic Time-series with noise. *36th IEEE Conf. on Decision and Control*, San Diego, pagg.1669-71 vol.2., 1997.
- [C21] L. Giarré, S. Malan and M. Milanese. α -optimality in H_∞ identification of low-order uncertainty models. *36th IEEE Conf. on Decision and Control*, San Diego, pagg.175-6 vol.1., 1997.
- [C22] L. Giarré . SM evaluation of frequency response variation rate for H_∞ identification. *ACC98*, Philadelphia, pagg.2359-60 vol.4, 1998.
- [C23] M. Basso, L. Giarré, M. Dahleh and I. Mezić. Numerical Analysis of Complex Dynamics in Atomic Force Microscopes *IEEE Conference on Control Applications*, Trieste, pagg.1026-30 vol.2., 1998.
- [C24] L. Giarré, A. Garulli and G. Zappa. Generalized projection algorithms for identification of mixed uncertainty models. *37th IEEE Conf. on Decision and Control*, pagg.4471-4472, Tampa, 1998.
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