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Curriculum Vitae

Roberto Tempo

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Present Position

Since 1991: Director of Research of Systems and Computer Engineering, National Research Council, CNR-IEIIT, Torino, Italy

Previous Positions and Short Term Appointments

August 2010: Visiting Professor, Department of Information Physics and Computing, The University of Tokyo, Japan

August-November 2009: Visiting Research Professor, Coordinate Science Laboratory, University of Illinois at Urbana-Champaign

November 2004: Visiting Professor, Department of Information Physics and Computing, The University of Tokyo, Japan

February 2004: Visiting Professor, Department of Systems Science, Kyoto University, Japan

January-June 2002: Visiting Research Professor, Coordinate Science Laboratory, University of Illinois at Urbana-Champaign

1995: NATO-CNR Senior Fellow, Department of Electrical and Computer Engineering, University of Wisconsin, Madison

June-July 1988: Visiting Researcher, German Aerospace Center (DLR) Oberpfaffenhofen, Wessling, Germany

1984-1991: Researcher, National Research Council of Italy, CENS-CNR, Politecnico di Torino

1985-1986: NATO-CNR Advanced Fellow, Department of Computer Science, Columbia University, New York

Personal Data

Born on April 10, 1956 in Cuornè (TO), Italy; Italian nationality

Education

1981-1983: Dipartimento di Automatica e Informatica, Politecnico di Torino, Dr. of Research in Systems and Control

1975-1980: Facoltà di Ingegneria, Politecnico di Torino, Laurea Degree in Electrical Engineering

Languages

Italian (native), English (fluent), French (basic)

Research Areas

Principal areas of present interest

RANDOMIZED ALGORITHMS AND PROBABILISTIC METHODS: Low complexity algorithms for analysis and design of control systems subject to random uncertainty

LAS VEGAS DECENTRALIZED ALGORITHMS: PageRank computation in Google and multi-agent systems

CONTROL OF UNMANNED AERIAL VEHICLES (UAVS): Design of embedded real-time systems for autonomous flight control

RANDOMIZED ALGORITHMS CONTROL TOOLBOX (RACT): Software tools for probabilistic analysis and synthesis of control systems affected by uncertainty

MODELING AND ESTIMATION OF COMPLEX DYNAMIC SYSTEMS: Parametric and nonparametric identification in the presence of noisy data

Other areas of past or secondary interest

ANALYSIS AND CONTROL OF UNCERTAIN COMPLEX SYSTEMS: Robust stability and performance of dynamic systems affected by structured uncertainty

CONTINUOUS ALGORITHMS AND COMPLEXITY: Worst-case and average complexity analysis, optimal algorithms for systems and control

AUTOMOTIVE APPLICATIONS: Idle speed robust control of internal combustion engines

DECISION METHODS FOR CLASSIFICATION: Sequential Bayesian pattern recognition and stopping rules

FORECASTING: Methods and algorithms for time series analysis

Awards and Recognitions

Corresponding Member of the Academy of Sciences, Institute of Bologna, Italy, Class Physical Sciences, Section Technical Sciences, 2011

Fellow of the International Federation of Automatic Control (IFAC) for “Contributions to the Analysis and Control of Uncertain Systems, for Pioneering the Probabilistic Approach to Robustness,” 2007

Distinguished Member Award for “Significant Technical Contributions and Long Term Service” to the Control Systems Society of the Institute of Electrical and Electronic Engineering (IEEE), 2005

Fellow of the IEEE for “Contributions to Robust Identification and Control of Uncertain Systems,” 2000

Outstanding Paper Prize Award of the IFAC for the three year period 1990-1992 for the paper titled “The Robust Root Locus,” by B. R. Barmish and R. Tempo which appeared in *Automatica*, Vol. 26, pp. 283-292, 1990

Selected Invited Lectures and Courses

Plenary and keynote lectures

- IEEE - LARC & CCAC 2011 (XI IEEE Latin-American Robotics Competition & IX IEEE Latin-American Robotics Symposium & IEEE Colombian Conference on Automatic Control), Bogotá, Colombia, October 2011 (Plenary Lecture)
- Chinese Control and Decision Conference (CCDC), Mianyang, China, May 2011 (Plenary Lecture)
- 5th International ICST Conference on Performance Evaluation Methodologies and Tools (ValueTools 2011), Paris, France, May 2011 (Plenary Lecture)
- SICE (The Society of Instrument and Control Engineers of Japan) Annual Conference, Taipei, Taiwan, August 2010 (Plenary Lecture and Panelist)
- The 29th Chinese Control Conference, Beijing, China, July 2010 (Plenary Lecture)
- College of Information Technology, United Arab Emirates University, Al-Ain, UAE, November 2009 (Distinguished Lecturer Series)
- European Control Conference, Kos, Greece, July 2007 (Semi-plenary Lecture)
- Wright-Patterson Air Force Base, Dayton, September 2006 (Window on Science Lecture)
- Mathematical Theory of Networks and Systems, Kyoto, Japan, July 2006 (Semi-plenary Lecture)
- New Approaches and Problems in System and Control Theory, Istanbul, Turkey, September 2005 (Tutorial Lecture)
- Robust Control Workshop, Delft, The Netherlands, June 2005 (Plenary Lecture)
- Robust Control Workshop, Newcastle, Australia, December 2000 (Plenary Lecture)
- Benelux Meeting on Systems and Control, Mierlo, The Netherlands, February 2000 (Plenary Lecture)
- Mathematical Theory of Networks and Systems, Padova, Italy, July 1998 (Special Topic Semi-plenary Lecture)
- Centennial Hurwitz on Stability Theory, Ascona, Switzerland, May 1995 (The Italian Lecture)
- IFAC World Congress, “Discussion on Robustness Problems in Control Systems,”

(Panelist), Tallin, Estonia, August 1990

Other invited lectures

- ICT Seminar Series 2011, Politecnico di Milano, Italy, March 2011
- IEEE Multi-Conference on Systems and Control, Yokohama, Japan, September 2010
- International Workshop on Control Systems Science and Engineering, Chengdu, China, August, 2010
- Advances in Control Theory and Applications (CASYS Workshop), Bertinoro, Italy, May 2006
- Learning, Control and Hybrid Systems, Bangalore, India, January 1998
- Open Problems in Mathematical Systems Theory and Control, Liege, Belgium, June 1997
- New Trends in Control, Tokyo, December 1996
- Robust Control Workshop, Jerusalem, Napa Valley, USA, June 1996; Cairns, Australia, July 1993; Kappel am Albis, Switzerland, September 1991; Jerusalem, March 1989
- Calculus of Variations, Optimal and Robust Control, Groningen, The Netherlands, August 1995
- Modeling of Uncertainty in Control Systems, Santa Barbara, June 1992
- Robustness of Dynamic Systems with Parameter Uncertainties, Ascona, Switzerland, April 1992
- Algorithms and Complexity for Continuous Problems, Dagstuhl, Germany, October 1992; Madrid, September 1991; Dagstuhl, Germany, April 1991
- Control of Uncertain Systems, Bremen, Germany, June 1989

Invited lectures at special conference events

- One-Day Symposium on Advances and Challenges in Linear Control Systems, Roma, Italy, March 2012
- Symposium in honor of Shinji Hara, Tokyo, Japan, January 2012
- Symposium on Systems and Control: A Tribute to Three Masters, Milano, Italy, September 2010
- Symposium in honor of Yutaka Yamamoto, Kyoto, Japan, March 2010
- Workshop in honor of B. Ross Barmish, St. Louis, June 2009
- Uncertainty and Complexity: From Heart to Heaven, Torino, Italy, May 2009
- SagarFest, Hyderabad, India, January 2008
- BasarFest, Urbana-Champaign, September 2006
- Peter Dorato Festschrift, Albuquerque, June 2005
- Perspectives in Control, Boston, October 1998
- Recent Advances in Control, Toronto, Canada, June 1998

Selected research seminars

- Swiss Federal Institute of Technology, Zürich, Switzerland, March 2012
- Tokyo Institute of Technology, Japan, January 2012
- University of California, Los Angeles, November 2011
- University of California, Riverside, November 2011
- University of California, Santa Barbara, November 2011
- École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, April 2011
- Rutgers University, New Brunswick, November 2010
- The University of Michigan, Ann Arbor, November 2010
- University of California, Santa Barbara, November 2010
- Tokyo Institute of Technology, Japan, August 2010
- Northeastern University, Shenyang, China, August 2010
- Kobe University, Japan, March 2010
- Georgia Institute of Technology, Atlanta, February 2010
- Coordinated Science Laboratory, University of Illinois at Urbana-Champaign, October 2009 (Research Visitor Program Lecture Series)
- Technical University Eindhoven, The Netherlands, February 2009
- Boston University, November 2008
- Northeastern University, Boston, November 2008
- Delft University of Technology, The Netherlands, November 2007
- University of Notre Dame, Notre Dame, October 2006
- GERAD (École Polytechnique and McGill University), Montreal, Canada, April 2006
- Russian Academy of Sciences and Moscow State University, Russia, March 2006
- LAG-ENSIEG, CNRS, Grenoble, France, February 2006
- LAAS, CNRS, Toulouse, France, November 2005
- The University of Tokyo, Japan, November 2004
- Delft University of Technology, The Netherlands, March 2004
- Kyoto University, Japan, February 2004
- Kobe University, Japan, February 2004
- Polytechnic University of Brooklyn, New York, April 2002
- University of New Mexico, Albuquerque, March 2002
- Rice University, Houston, February 2002
- University of Illinois at Urbana-Champaign, January 2002
- University of Massachusetts, Amherst, November 1998
- University of Iowa, Iowa City, December 1997
- Kyoto University, Japan, December 1996
- University of Wisconsin, Madison, November 1995; April 1986
- ETH, Zürich, Switzerland, May 1992
- University of Warsaw, Poland, May 1992
- St. Petersburg State University, Russia, February 1991

- German Aerospace Center (DLR) Oberpfaffenhofen, Wessling, Germany, June 1988
- Boston University, Boston, December 1987
- Columbia University, New York, October 1986
- Massachusetts Institute of Technology, Cambridge, April 1986
- Harvard University, Cambridge, April 1986
- IBM Research Center, Yorktown Heights, January 1986

Special topic courses

- “Probabilistic Methods for Design of Complex Systems,” Graduate School, Université Catholique de Louvain, Louvain la Neuve, Belgium, March 2011
- “Randomized Algorithms for System Design: Theory and Applications,” Special Topics in Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, August-November 2009
- Wintercourse DISC (Dutch Institute of Systems and Control) on “Probabilistic and Randomization Methods for Control of Uncertain Systems,” Delft University of Technology and Technical University of Eindhoven, The Netherlands, 2009
- NATO Lecture Series on “Advanced Autonomous Formation Control and UAV Applications,” University of Strathclyde, UK, University of Pamplona, Spain and Case Western Reserve University, Cleveland, 2008
- Czech Academy of Sciences, Prague, Czech Republic, September 2007
- Universidad de Sevilla, Spain, March 2005
- NATO Lecture Series on “Robust Integrated Control System Design Methods,” Università di Bologna, Forlì, Italy, Escola Superior de Tecnologia de Setúbal, Portugal and University of Southern California, Los Angeles, 2003
- Politecnico di Milano, Italy, October-November 2002
- University of Illinois at Urbana-Champaign, January-April 2002

Conference Related Activities

General Co-Chair, *IEEE Conference on Decision and Control*, Firenze, Italy, 2013

Member of Program Committee, joint *IEEE Conference on Decision and Control* and *European Control Conference*, Orlando, 2011

Program Co-Chair, *Italian Control Conference*, Pisa, Italy, 2011

International Program Committee Advisor, *IFAC World Congress*, Milano, Italy, 2011

Co-General Vice-Chair, *5th International Conference VALUETOOLS*, Paris, 2011

Member of Program Committee, *IFAC Symposium on Robust Control*, Aalborg, Denmark, 2012, Haifa, Israel, 2009, Toulouse, France, 2006; Milano, Italy, 2003

Organizer and Chair of the *IEEE Control Systems Society Outreach Workshop*, University of California, Irvine, 2010

Member of Program Committee, *European Control Conference*, Budapest, Hungary, 2009, Cambridge, UK, 2003, Porto, Portugal, 2001 and Bruxelles, Belgium, 1997

Member of Program Committee, *IFAC Symposium on Robust Control*, Haifa, Israel, 2009, Toulouse, France, 2006; Milano, Italy, 2003

Member of Program Committee, *IEEE Conference on Decision and Control*, Cancun, Mexico, 2008, San Diego, 2006; Paradise Island, The Bahamas, 2004; Orlando, 2001; Tampa, 1998; San Diego, 1997

Honorary Advisory Committee, *European Control Conference*, Kos, Greece, 2007

Member of Program Committee, *IFAC Symposium on System Identification*, Newcastle, Australia, 2006; Rotterdam, The Netherlands, 2003; Santa Barbara, 2000

Member of Program Committee, *Mathematical Theory of Networks and Systems*, Kyoto, Japan, 2006; Leuven, Belgium, 2004

Program Chair, first joint *IEEE Conference on Decision and Control* and *European Control Conference*, Seville, Spain, 2005

Member of Program Committee, *Fifth International Conference on Control and Automation*, Budapest, Hungary, 2005

Member of Program Committee, *IFAC Symposium on Systems, Structure and Control*, Oaxaca, Mexico, 2004

Member of Advisory Committee, *Mediterranean Conference on Control and Automation*, Kuşadası, Turkey, 2004

Organizer of the mini-course “Randomized Algorithms for Control,” *Mathematical Theory of Networks and Systems*, Leuven, Belgium, 2004

Organizer and Chair of the Panel Discussion “Whitherto Robust Control,” *4th IFAC Symposium on Robust Control Design*, Milano, Italy, 2003

Member of Advisory Committee, *IEEE Conference on Control Applications*, Istanbul, Turkey, 2003

Member of Program Committee, *5th International Symposium on Quantitative Feedback Theory and Robust Frequency Domain Methods*, Pamplona, Spain, 2001

Speaker at the mini-course “Randomized Algorithms for Control,” *European Control Conference*, Porto, Portugal, 2001

Co-Organizer and speaker at the workshop “The Interplay of Probability and Robustness for Control of Uncertain Systems,” *IEEE Conference on Decision and Control*, Sydney, Australia, 2000

Member of Program Committee, *IEE Conference Control 2000*, Cambridge, UK, 2000

Program Vice-Chair, *IEEE Conference on Decision and Control*, Phoenix, 1999

Program Chair, *International Workshop on Control of Uncertain Systems*, Hong Kong, 1999

Co-Organizer and speaker at the workshop “Probabilistic Robustness Analysis,” *IEEE Conference on Decision and Control*, San Diego, 1997

Co-Organizer and speaker at the workshop “Robustness of Systems with Real Parametric Uncertainty,” *IEEE Conference on Decision and Control*, San Antonio, 1993

Member of Program Committee, *American Control Conference*, Chicago, 1992

Co-Organizer and speaker at the international workshop *Robustness in Identification and Control*, Torino, Italy, 1988

Scientific and Professional Activities

Scientific responsible of the CNR Unit for the Network of Excellence HYCON2 and member of its Governing Board, 2012-2013

Member of the IFAC Fellow Selection Committee, 2011-2014

IEEE CSS moderator for the sections “Systems and Control” and “Optimization and Control” of arXiv, 2011-2012

Chair of the IEEE CSS Fellow Nomination Committee, 2012

Member of the IEEE Fellow Committee, 2012

Co-Principal investigator for the bilateral project CNR-RAS (Russian Academy of Sciences) “Signal Estimation for Cognitive Wireless Networks,” 2011-2013

Past-President of the IEEE Control Systems Society, 2011; President of the IEEE Control Systems Society, 2010; President-Elect of the IEEE Control Systems Society, 2009

Local coordinator of the IEIIT unit of the Network of Excellence “Highly Complex and Networked Control Systems,” 2010-2011

Local coordinator of the IEIIT unit of the PRIN National Project on “Advanced Tools for Control of Nonlinear Uncertain Systems,” 2010-2011

Member of the Nominating Committee, IEEE Control Systems Society, 2012, 2009-2010 and 2004-2007; Chair of the Nominating Committee, IEEE Control Systems Society, 2011

IEEE Director of American Automatic Control Council, 2009

Co-Principal investigator for the bilateral project CNR-RAS (Russian Academy of Sciences) “New Monte Carlo like Methods in Control, and Applications within Information-Technology,” 2008-2010

Co-Principal investigator for the bilateral project CNR-AVCR (Academy of Sciences of the Czech Republic) “Robust Stability and Control of Complex Networks,” 2007-2009

Member of PhD Graduation Committee, Delft University of Technology, The Netherlands, November 2007

Co-Principal investigator for the bilateral project CNR-RAS (Russian Academy of Sciences) “Probabilistic and Deterministic Methods for Data Mining, Pattern Recognition and Image Reconstruction,” 2005-2007

Co-Guest Editor, Special Issue of *European Journal of Control*, Volume 11, Number 4-5, 2005

Principal investigator for the project “Applications of Robust Control Methods for Inkjet Printers,” IEIIT-CNR and Olivetti I-Jet, 2004-2005

Member of PhD Graduation Committee, University of Twente, The Netherlands, March 2004

Elected member of the Institute Council of IEIIT-CNR, 2003-present

Member of Scientific Council of CASY (Center for Research on Complex Automated Systems), Università di Bologna, 2003-present

Vice-President for Conference Activities of the IEEE Control Systems Society, 2002-2003

Elected member of the Board of Governors (BoG) of the IEEE Control Systems Society, 2001-2003

Member of the CNR Promotion Committee in “Systems and Computer Engineering,” 2001 and 1996-1997

Elected member of the Scientific Council of IRITI-CNR, 2000-2002

Appointed member of the Board of Governors (BoG) of the IEEE Control Systems Society, 2000

Member of the EUCA Council (European Union of Control Associations), 1998-2003

Vice-Chair of IFAC Technical Committee on “Robust Control,” 1996-2011

Co-Principal investigator for the bilateral project CNR-NSF “New Tools for Robust Stability and Control,” 1992

Member of IFIP Technical Committee on “Continuous Algorithms and Complexity,” 1992-present

Member of PhD Graduation Committee, University of Vigo, Spain, 1991

Principal investigator for the project “Applications of Robust Control to Automotive Problems,” Politecnico di Torino and FIAT, 1990-1994

Editorial Appointments

Senior Editor of the *IEEE Transactions on Automatic Control*, 2012-present

Editor at Large of the *Asian Journal of Control*, Wiley, 2011-present

Deputy Editor-in-Chief of the IFAC Journal *Automatica*, Elsevier, 2004-present

Editor for System and Control Theory of the IFAC Journal *Automatica*, Elsevier, 1996-present

Editor for Technical Notes and Correspondence of the *IEEE Transactions on Automatic Control*, 2005-2009

Associate Editor of the *IEEE Transactions on Automatic Control*, 1998-2001

Associate Editor of *Journal of Complexity*, Elsevier, 1996-present

Associate Editor of *Systems & Control Letters*, Elsevier, 1993-1998

Associate Editor of the IFAC Journal *Automatica*, Elsevier, 1992-1995