

CURRICULUM VITAE ET STUDIORUM

MAIDE BUCOLO

General Information

Date of Birth: 01.12.1972, Catania, Italy
Affiliation: Department of Electric Electronic and Informatics Engineering (DIEEI)-University of Catania
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Current Position

(From 1 November 2014 up to now) Associate Professor ING-INF/04 “Automatica”, University of Catania.

(From 1 November 2018 up to now) Coordinator of the Master Course in Automation Engineering and Control of Complex Systems at the University of Catania.

Educational Background

(24 July 1997) MSc in Computer Engineering, University of Catania.

(November 1997-October 2000) Ph.D. course in ‘Electronic and Control Engineering’, at the Dipartimento di Ingegneria Elettrica Elettronica e dei Sistemi (DIEES), University of Catania. Title defended on 29 January 2001.- Ph.D. Thesis - ‘Array of Fuzzy logic Based Dynamical Systems: The Role of Spatial Diversity’.

(January 1998) Professional Engineering Qualification.

Previous Positions and Professional Experiences

(1 February 2006-31 October 2014) Assistant Professor ING-INF/04 “Automatica”, University of Catania.

(October 2003 - January 2006) Post-Doctoral position working on ‘Nonlinear models for biosystems monitoring and control’ University of Catania, Dipartimento di Ingegneria Elettrica Elettronica e dei Sistemi.

(June- September 2008) Expert in Technology Innovation of ‘Istituto per la Promozione Industriale’ (IPI), auditing on the technology innovation demand of 17 Small and Medium Enterprises in Sicily, supported by Regional Project RESINT (Rete Siciliana Innovazione Tecnologica).

(November 2000 - September 2003) Contract Researcher, University of Catania, working on

- “DICTAM Project” supported by Europe Union;
- “Application of Advanced Techniques for Financial Data Analysis to Support Medium and Long Term Plan Activities” in collaboration and supported by ST-Microelectronics.

Patents

Patent n. 10201900010269 - "An electronic device, corresponding apparatus, method and computer program product".

Research Grants

(2017) Funding in the framework of call "CHANCE" supported by the University of Catania in relation to the project "Micro-Optofluidics: devices identification and strategic control applications".

(2011-2013) Two years grant awarded to develop the research project entitled "Integration of Strategies for an Innovative Control of Microfluidics Systems and Applicative Validity" supported by MIUR, National Research Framework (Bando PRIN 2009). Role: *Principal Investigator and National Coordinator*.

(2011-2012) Two years grant awarded to develop the research project entitled "Graph-Theory Approach for the Identification of Large-Scale Dynamical Networks in Neuro-Cognitive Processes" supported by Ateneo Italo-Tedesco, Programma Vigoni (Bando 2010). Role: *Principal Investigator*.

(2010) Funding to have access to the "Integrated Nano-Microelectronics Clean Room" (ICTS) to develop the project "Microfluidic Control System based Micro-Bubble Logic and Optical Actuation", in the program "GICSERV" supported by Consejo Superior De Investigaciones Cientificas, Spagna. Hosting Institution: Centro Nacional de Microelectronica (CNM), Universidad Autonoma de Barcelona, Spain. Role: *Principal Investigator*.

(2009) Funding to have access to the "Integrated Nano-Microelectronics Clean Room" (ICTS) to develop the project "A Polymeric Device for Distributed Detection and Control in Microfluidics", in the program "GICSERV" supported by Consejo Superior De Investigaciones Cientificas, Spagna. Hosting Institution: Centro Nacional de Microelectronica (CNM), Universidad Autonoma de Barcelona, Spain. Role: *Principal Investigator*.

(2008) Research Project "Polymeric electro-optic device for the control of microfluidic processes" in the funding scheme 'Progetti di Ricerca di Ateneo (PRA). Role: *Principal Investigator*.

(2008) One year grant awarded to develop the research project entitled "A platform for the support to diagnostic based by bio-potential" supported by Presidenza Segreteria Generale-Regione Sicilia. Role: *Principal Investigator*.

(2008) One year grant awarded to develop the research project entitled "Smart Home Healthcare systems for the elderly" supported by British Council and MIUR in the programme "British-Italian partnership programme for young researcher" (British 2008). Role: *Principal Investigator*.

(2007) Funding to have access in the "Integrated Nano-Microelectronics Clean Room" (ICTS) to develop micro-optic device in relation to the project "Monitoring and Control Systems for Microcirculatory Networks", in the program "GICSERV" supported by Consejo Superior De Investigaciones Cientificas, Spain. Hosting Institution: Centro Nacional de Microelectronica (CNM), Universidad Autonoma de Barcelona, Spain. Role: *Principal Investigator*.

(2007) One year grant awarded to develop the research project entitled "Monitoring and control systems in microcirculation-Part II" supported by the University of Catania. Role: *Principal Investigator*.

(2007) Grant awarded to support a period at the University of Portsmouth studying on the research project entitled "Economic network and game theory" supported by the University of Catania. Role: *Principal Investigator*.

(2007) Grant awarded by the University of Catania to support for four month a MS Degree Student working at the University of Exeter, UK, to develop the research project entitled "Computational methodologies for Evoked Potentials spatio-temporal analysis in Neuro-engineering". Role: *Principal Investigator*.

(2006) One-year grant awarded to develop the research project entitled "Monitoring and control systems in microcirculation-Part-I" supported by the University of Catania. Role: *Principal Investigator*.

(2001- 2002) Two years grant awarded to develop the research project entitled "Innovative Analysis Technique in Neuro-Engineering" supported by the University of Catania. Role: *Principal Investigator*.

International Awards and Invited Speakers

(11-13 September 2019) **Best presentation award** at the Conference Automatica.it 2019 for the paper "Jump resonance in discrete-time systems: theory and applications", Ancona, Italy.

(02-08 June 2019) **Invited lecturer** at Department of Systems and Control Engineering of University of Malta lecture title "Analysis of Bio-signals – Methods and Case Studies" in the framework of the ERASMUS Programme.

(19 November 2018) **Invited speaker** at the Meeting on Lab-On-Chip & Bio-Data Analytics" with a lecture entitled "L'Ingegneria in microfluidica nello sviluppo di dispositivi biomedicali", CNR-ISASI, Pozzuoli, Italy

(13 June 2018) **Invited speaker** at the 26th Nonlinear Dynamics of Electronic Systems conference (NDES 2018) with a lecture entitled "Microfluidics Networks", Catania, Italy

(03 May 2017) **Invited lecturer** at Institute of Signal, Sensors and Systems of the Heriot-Watt University lecture title "Control Engineering in two-phase microfluidics for bio-chemical applications" in the framework of the ERASMUS MUNDUS Programme, Edinburgh, UK

(04 July 2016) **Invited speaker** at the Workshop on Complexity in Engineering 2016 (COMPENG 2016) with a lecture entitled "Complexity in Bio-Microfluidics Engineering", Catania, Italy

(15 April 2016) **Invited speaker** at the meeting of the Accademia Gioenia at the University of Catania with a lecture entitled "Sistemi Bio-Microfluidici", Catania, Italy

(23 April 2009) **Invited lecturer** at the Microfluidics Laboratory for Scientific and Technological Applications (MISCHA) of the Dip. di Scienze Chimiche at the University of Padova, lecture title "Advanced real-time monitoring in bio-microfluidics".

(24-26 June 2002) **Awards as best poster** at the IV International Workshop on Bio-Signal Interpretation 2002 with the paper entitled 'A Nonlinear Circuit Architecture for Magnetoencephalographic Signals Analysis', Como, Italy

(25-28 October 2001) **Invited speaker** at the 23rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society' (EMBC 2001), Istanbul, Turkey

(26-30 March 2001) **Grant awarded** to attend the European School on Intelligent Data Analysis (IDA 2001), Palermo, Italy.

(27 June -11 July 1999) **Grant awarded** to attend the 4th International Summer School/Conference 'Let's Face Chaos through Nonlinear Dynamics', Centre for Applied Mathematics and Theoretical Physics (CAMPT) University of Maribor, Slovenia.

Research and Teaching Activity Abroad

(01-06 May 2017) **Visiting Professor** at Institute of Signal, Sensors and Systems of the Heriot-Watt University (Edinburgh, UK) lecture title "*Control Engineering in two-phase microfluidics for bio-chemical applications*" in the framework of the ERASMUS MUNDUS Programme.

(21 September-18 October 2015) **Visiting Professor** at the Dept. of Cognitive and Clinical Neuroscience, Central Institute of Mental Health, Medical Faculty Mannheim, Heidelberg University (DE). The scientific director was the Prof. Dr. Herta Flor, and the course title "*Methods for the identification of complex dynamics in brain signals*" (20 hours).

(November 2013) **Visiting researcher**, at the Microhemodynamics Lab. of the Dept. of Bioengineering at the University of California San Diego (UCSD, USA) for the development of the research project "Microfluidic systems for the blood viscosity detection".

(May 2013) **Visiting researcher** at the Dept. of Psychology, National University of Ireland, Maynooth (IR) for the development of the research project "Brain Connectivity Analysis in ERP Data". Lecture title "*Development of platforms for brain signal analysis*".

(March 2011 e July 2012) **Visiting researcher** at the Dept. of Cognitive and Clinical Neuroscience, Central Institute of Mental Health, University of Heidelberg (DE) for the development of the research project "Graph-Theory Approach for the Identification of Large Scale Dynamical Networks in Neuro-Cognitive Processes", supported by the Vigoni 2010. Lecture title "*Data driven methods for brain connectivity analysis*".

(April 2008) **Visiting researcher** at the Dept. of Computer Science and Mathematics, Faculty of Engineering, University of Exeter (UK) for the development of the research project “Development of methodologies and tools for the investigation of spatio-temporal dynamics in Evoked Potential data” supported by the University of Catania. Lecture title “*Engineering inside the complex phenomena from bio-microfluidics to bio-signals*”.

(April 2008, September 2008) **Visiting researcher** at the Dept. of Electronic and Computer Engineering, University of Portsmouth (UK), for the development of the research project ‘Smart Home Healthcare systems for the elderly’, supported by the British 2008.

(September 2004) **Visiting Researcher** at the University California San Diego supported by the program “Ricerca diffusa – Progetto Giovani Ricercatori” of the University of Catania, working at:

- the Institute of Nonlinear Science in the research project on the ‘Innovative Analysis Technique in Neuro-Engineering’;
- the Microhemodynamics Lab of Dept. of Bioengineering in the research project on ‘Microfluidic systems for the red blood cells tracking’.

(March-July 2000) **Research Scholar** at Institute of Nonlinear Science, the University of California San Diego, within the ‘Agreement of Cooperation between the University of Catania, Italy and the University of California-San Diego’, conducting research in ‘Information Processing in Neural Networks’.

Didactic Activity at the University of Catania

(From 2013 up to now) School of Engineering of the University of Catania teaching “Biomedical Systems and Control” MSc in Automation Engineering and Control of Complex Systems (medium English).

(From 2016 up to now) School of Engineering of the University of Catania teaching “System Theory” (BSc).

(From 2006 up to 2012) School of Engineering of the University of Catania teaching “Fundamentals of Bio-Engineering” (MSc, medium English).

(AY 2011/2012) School of Engineering of the University of Catania teaching “System Theory” (BSc).

(2006-2011) School of Engineering of the University of Catania teaching “Fundamental of Automatic Control” (BSc).

(2008-2012) Contract Professor at Faculty of Medicine and Surgery of the University of Catania, teaching “Bio-Engineering” (MSc).

(2007-2010) Contract Professor at the Specialization School in Pharmacology, Faculty of Medicine and Surgery of the University of Catania, teaching the course of “Medical Informatics”.

(AY 2007/2008) Contract Professor at the Master in “Technology and Molecular Imaging in Biomedicine” of the University of Catania, teaching the course of “Biomedical Engineering”.

(2000 -2006) Contract Professor at the School of Engineering of the University of Catania teaching **8 courses** in the scientific field of “Automatics”.

(From 2006 up to now) Supervisor of more than 100 BSc and MSc final projects.

(From 2002 up to now) Supervisor of 8 PhD theses in the course ‘Electronic and Control Engineering’

Affiliations

(From 2018) Member of the IEEE Technical Committee on Cellular Nanoscale Networks and Array Computing (CNNAC)

(From 2016) Member of the Accademia Gioenia at the Università degli studi di Catania

(From 2016) Member of the Consortium “Istituto Nazionale di Biostrutture e Biosistemi (INBB)”

(From 2009) Senior Member IEEE.

(2004-2005) Counsellor of the IEEE Student Branch, University of Catania.

(From 2007) Member of Italian Society in System and Control (SIDRA).

Editorial Activity

Scientific Journals

- **Associate Editor** of Chaos, Solitons and Fractals, Elsevier (2020-2021)
- **Associate Editor** of IEEE Trans. on Biomedical Circuits and Systems (2020-2021)
- **Associate Editor** of Control Engineering Practice, Elsevier (2020-2021)
- **IEEE Guest Editor** of the Special Issue on ‘Microfluidics Engineering for Point-of-Care Diagnostics’, IEEE Trans. on Biomedical Circuits and Systems, December 2017

Book Series

- **Editorial Board Member** of the Springer Briefs Subseries on Nonlinear Circuits (Springer) (permanent)

Journal Reviewer Activity

- **Reviewers IEEE press**- Transactions on Instrumentation & Measurement - Transactions on Engineering Management - Transactions on Biomedical Engineering - Transactions on Neural Systems & Rehabilitation Engineering, Industrial Electronic Society, Control Systems Letters, Transaction of Biomedical Circuits and Systems
- **Reviewer Elsevier press** - Fuzzy Sets and Systems - Experimental Thermal and Fluid Science- Computers in Biology and Medicine- Brain and Cognition- Physics Letters A, International Journal of Heat and Mass Transfer
- **Reviewer ACS Publishing** - Analytical Chemistry
- **Reviewer IOP Publishing** - Journal of Micromechanics and Microengineering
- **Reviewer Springer** - Biological Cybernetics, Neural Computing and Applications

Project Reviewer Activity

(2016) MIUR – Projects in the framework “FARE”

(2013) MIUR – Projects in the framework “Futuro in Ricerca”

Participation at National and International Schools

(14-18 November 2013) The 17th EEGLAB Workshop, University of California San Diego (USA)

(16-21 July 2007) Int. Summer School on “Nonlinear Dynamics in Movement and Cognitive Sciences”, Marsiglia (FR)

(26-30 March 2001) European School on Intelligent Data Analysis (IDA 2001), Palermo (IT)

(27 June-11 July 1999) The 4th Int. Summer School/Conference ‘Let’s Face Chaos through Nonlinear Dynamics’, Centre for Applied Mathematics and Theoretical Physics (CAMPT) University of Maribor (SI). Poster title: ‘*Identification of nonlinear dynamics by using neuro-fuzzy technique*’

(13-18 July 1998) Scuola Nazionale CIRA (Centro Interuniversitario per le Ricerche in Automatica), Bertinoro (IT)

Speaker at National and International Conferences

(21-22 November 2019) 15th European Workshop on Advanced Control and Diagnosis (ACD 2019), Bologna (IT)

(24-25 October 2019) International Symposium on Thermal Effects in Gas flows In Microscale (ISTEGIM 2019), (DE)

(27-30 May 2019) 15th Int. Conference on Fluid Control, Measurements, and Visualization (FLUCOME 2019), Naples (IT)

(28-30 August 2018) 16th Int. Workshop on Cellular Nanoscale Networks and their Appl. (CNNA2018), Budapest (HU)

(28 February– 02 March 2018) 5thEuropean Conference on Micro-Fluidics 2018 (μFLU18), Strasburg, France (FR)

(21-24 June 2016) 24th Mediterranean Conference on Control and Automation (MED'16), Athene (GR)

(7-9 September 2015) Convegno Nazionale SIDRA (Società Italiana Docenti e Ricercatori in Autom.), Bari (IT)

(26-29 August 2015) IEEE Int. Conf. on Engineering in Medicine and Biology Society' (EMBC 2015), Milano (IT)

(10-12 December 2014) 4th European Conference on Microfluidics (Microfluidics 2014), Limerick (IR)

(6-8 November 2013) 6th International IEEE Conference on Neural Engineering (NER13), San Diego (USA)

(25-27 July 2012) EMBL Conference on Microfluidics, Heidelberg (DE)

(04-07 July 2012) 7th International Workshop on Bio-signal Interpretation (BSI2012), Como (IT)

(26-29 June 2012) 3rd Annual Meeting of Bioengineering (GNB 12), Roma (IT)

(24-27 August 2011) 7th IEEE Conference on Automation Science and Engineering (CASE 2011), Trieste (IT)

(13-15 September 2010) Convegno Nazionale SIDRA (Società Italiana Docenti e Ricercatori in Autom.), L'Aquila (IT)

(31 May -4 June 2010) 4th International Brain-Computer Interface Meeting, Monterey, California (USA)

(30-31 May 2010) 7th workshop BCI2000, Monterey, California (USA)

(18-20 February 2010) IEEE Workshop on Health Care Management (WHCM 2010), Venezia (IT)

(29-31 May 2009) 7th International Symposium on Non-invasive Functional Source Imaging of the Brain and Heart & 7th International Conference on Bio-electromagnetism, Roma (IT)

(11-13 September 2008) Convegno Nazionale SIDRA (Società Italiana Docenti e Ricercatori in Automatica), Vicenza (IT)

(28 July -1 August 2008) 18th International Symposium on Mathematical Theory of Networks and Systems (MTNS2008), Virginia Tech, Blacksburg, Virginia (USA)

(10-12 September 2007) Convegno Nazionale SIDRA (Società Italiana Docenti e Ricercatori in Automatica), Genova (IT)

(23-26 August 2007) 29th IEEE International Conference on the Engineering in Medicine and Biology Society (EMBC 2007), Cité Internationale, Lyon (FR)

(18-20 September 2006) Convegno Nazionale CIRA (Centro Interuniv. per le Ricerche in Automatica), Milano (IT)

(1-4 July 2005) 16th IFAC World Congress, Prague (CZ)

(1-27 September 2004) 26rd IEEE International Conference on Engineering in Medicine and Biology Society' (EMBC 2004), San Francisco, California (USA)

(10-12 September 2003) Convegno Nazionale CIRA (Centro Interuniv. per le Ricerche in Automatica), Modena (IT)

(24-26 June 2002) IV International Workshop on Biosignal Interpretation 2002, Como (IT)

(6-8 September 2001) XVII Riunione Nazionale dei Ricercatori di Elettrotecnica (ET 2001), Catania (IT)

(22-26 June 2001) Experimental Chaos Conference 2001, Potsdam (DE)

(21-22 June 2000) Symposium on System Identification (SYSID 2000), Santa Barbara, California (USA)

(5-8 September 1999) 6th International Conference on Electronics, Circuits and Systems (ICECS'99), Pafos (Cyprus)

Committee in National and International Conferences

(1-4 September 2020) General Chair of IEEE International Workshop on Cellular Nanoscale Networks and their Applications CNNA 2020

(11-13 June 2018) 26th Nonlinear Dynamics of Electronic Systems conference (NDES 2018)

(04-06 September 2017) European Conf. on Circuit Theory and Design (ECCTD 2017)

(26-28 September 2012) 7th SICC Int. School "Topics in nonlinear dynamics: complex networks in action", Catania

- (30 August-10 September 2010) EMUNI Summer School entitled "Science and technology: knowledge and cultural aggregation", Catania
- (18-20 February 2010) IEEE Workshop on Health Care Management (WHCM 2010), Venice.
- (17-19 September 2009) Convegno Nazionale SIDRA (Società Italiana Docenti e Ricercatori in Automatica), Siracusa.
- (1-4 September 2009) 4th International Scientific conference on Physics and Control (PHYSCON2009), Catania.
- (3-6 June 2008) 10th Experimental Chaos Conference 2008, Catania.
- (17-19 September 2003) 6th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR 2003), Catania.
- (23-25 May 2000) 6th IEEE International Workshop on Cellular Neural Networks and Their Applications (CNNA 2000), Siracusa.
- (18-20 May 2000) 8th Annual Workshop on Nonlinear Dynamics of Electronic Systems (NDES'2000), Catania.

Research Activity

The research activity carried out, mainly related with the areas described below, is summarized in 2 Books, 5 chapters in International Books, 47 papers in International Journals and 81 papers presented at International Conferences. The different activities are developed at the *Control Engineering in Bio-Science Lab* at the University of Catania (<http://www.dees.unict.it/mbucolo/>), working in collaboration with different international research partners and enterprises.

Modeling and Control of Two-Phase Microfluidic Processes and Applications, in collaboration with:

- (Since 2000) Prof. Marcos Intaglietta, Micro-hemodynamics Lab - UCSD, USA
- (Since 2007) Dr Andreu Llobera, Instituto de Microelectrónica de Barcelona (CNM), Spain
- (Since 2017) Prof. Maiwenn Kersaudy-Kerhoas, Heriot-Watt University, United Kingdom

Strategies for the Analysis and Identification of Brain Dynamics, in collaboration with:

- (Since 2000) Dr David Shannahoff-Khalsa, BioCircuits Institute (former Inst. of Nonlinear Science), UCSD, USA
- (Since 2007) Prof. Richard Everson, Dep. of Computer Science and Mathematics, University of Exeter, UK
- (Since 2009) Prof Richard Roche, Dep. of Psychology, National University of Ireland, Maynooth, Ireland
- (Since 2010) Prof. Herta Flor, Dep. of Cognitive and Clinical Neuroscience, University of Heidelberg

Portable Device for Real-Time Diagnosis and Control of Heart Dynamics, in collaboration with:

- (Since 2008) Prof. Branislav Vuksanovic, Dep. of Electronic and Computer Engineering - University of Portsmouth, UK

Decision Supporting System for Production Planning Control, in collaboration with:

- (Since 2001) ST-Microelectronics- Catania site, Italy

Scientific Publications

- Book(B)

1. **Bucolo M.**, Buscarino, A., Famoso, C., Fortuna, L., Gagliano, S., " *500 Years After Leonardo Da Vinci Machines: Towards Innovation and Control*", World Scientific 2020.
2. G. Tomarchio, **M. Bucolo** - Ingegneria dei Sistemi Complessi: Mercati e Semiconduttori, Aracne Editrice (2009).

- Chapter on international Books (CB)

1. **M. Bucolo**, A. Buscarino, C. Famoso, L. Fortuna, M. Frasca, "Multi-jump resonance with Chua's circuit" in Nonlinear Dynamics and Control Proceedings of the First International Nonlinear Dynamics Conference (NODYCON 2019), Volume II Editors: Lacarbonara, W., Balachandran, B., Ma, J., Tenreiro Machado, J.A., Stepan, G. (Eds.)
2. F. Sapuppo, M. Intaglietta, **M. Bucolo**, 'Advanced technologies for real-time monitoring and control in biomicrofluidics', as a chapter of the book *CMOS Bio-microsystems: where electronics meet biology* (2011), Editor Kris Iniewski - Wiley (ISBN: 978-1-118-01649-7).
3. F. Sapuppo, F. Schembri, **M. Bucolo**, 'Experimental investigation on parameters for the control of droplet dynamics', as a chapter of the book *From physics to control through an emergent view* (2010), Nonlinear Science Series B Vol. 15 pp. 151:156, Editors: L. Fortuna, A. Fradkov and M. Frasca - World Scientific (ISBN-13: 978-981-4313-14-8).
4. **M. Bucolo**, R. Caponetto, L. Fortuna, M. Frasca, 'The CNN paradigm for complexity', as a chapter of the book *Advanced topics on cellular self-organization nets and chaotic nonlinear dynamics to model and control complex systems* (2008), Nonlinear Science Series A Vol. 63 pp. 1:37, Editors: R. Caponetto, L. Fortuna, M. Frasca - World Scientific (ISBN-13: 978-981-281-404-3).
5. **M. Bucolo**, L. Fortuna, M. La Rosa, 'Complex Fuzzy Systems and Their Collective Behavior', as a chapter of the book *Integration of fuzzy logic and chaos theory* (2006), Series: Studies in Fuzziness and Soft-Computing Vol. 187 pp. 415:437, Editors: Z. Li, W. Halang, G. Chen - Springer-Verlag (ISBN: 3-540-26899-5).
6. **M. Bucolo**, M. C. Cutuli, L. Fortuna, A. Rizzo, 'Spatial diversity in reaction diffusion fuzzy cellular networks', as a chapter of the book *Lectures on Soft Computing and Fuzzy Logic* (2000), Series: Advances in Soft Computing pp. 43:55, Editors: A. Di Nola, G. Gerla - Springer-Verlag (ISBN: 3-7908-1396-6).

- Publications on International Journal (IJ)

1. **Bucolo M.**, Buscarino A., Fortuna L., Frasca M., Nunnari G., 'Hankel singular values and LQG characteristic values of discrete-time linear systems in cascade with inner systems', *IEEE Transactions on Automatic Control*, in press
2. **-M Bucolo**, A Buscarino, L Fortuna, M Frasca, 'Multiple hysteresis jump resonance in a class of forced nonlinear circuits and systems', *International Journal of Bifurcation and Chaos*, in press
3. **-Bucolo M.**, Buscarino A., Fortuna L., Gagliano S., "Stochastic Resonance in Electromechanical Vibrating Systems", *J. Phys. Soc. Jpn.* 89, 115001 (2020)
4. Al-Hussein A., Rahma F., Fortuna L., **Bucolo M.**, Frasca M., Buscarino A., 'A New Time-Delay Model for Chaotic Glucose-Insulin Regulatory System', *International Journal of Bifurcation and Chaos* (2020) 30 (12), 2050178
5. **Bucolo M.**, Buscarino, A., Fortuna, L., Gagliano, S., 'Bifurcation scenarios for pilot induced oscillations', *Aerospace Science and Technology* (2020), 106, 106194
6. **Bucolo M.**, Buscarino, A., Fortuna, L., Gagliano, S., 'Force feedback assistance in remote ultrasound scan procedures', *Energies* (2020), 13(13), 3376
7. Cairone F., Davi S., Stella G., Guarino F., Recca, Cicala G., **Bucolo M.**, 3D-Printed micro-optofluidic device for chemical fluids and cells detection, *Biomedical Microdevices* (2020), 22:37, doi 10.1007/s10544-020-00487-3

8. Gagliano S., Stella G., **Bucolo M.**, 'Real-Time Detection of Slug Velocity in Microchannels', *Micromachines* 2020, 11(3), 241; doi:10.3390/mi11030241
9. **Bucolo, M.**, Buscarino, A., Famoso, C., Fortuna, L., Frasca, M., 'Control of imperfect dynamical systems', *Nonlinear Dynamics* (2019), Vol. 98(4), pp. 2989-2999
10. **Bucolo, M.**, Buscarino, A., Fortuna, L., Frasca, M., 'Forward action to make time-delay systems positive-real or negative-imaginary', *Systems and Control Letters* (2019), Vol. 131,104495
11. **Bucolo, M.**, Buscarino, A., Corradino C., Fortuna, L., Frasca, M., 'Turing patterns in the simplest MCNN', *Ieice Special Issue Nonlinear Theory and Its Applications* (2019), Vol. 10(4): 390-398: SI DOI: 10.1587/nolta.10.390
12. Gagliano S., Cairone F., Amenta A, **Bucolo M.**, 'A Real Time Feed Forward Control of Slug Flow in Microchannels', *Energies* 2019, 12, 2556; doi:10.3390/en12132556
13. F. Cairone, D. Mirabella, P.J. Cabrales, M. Intaglietta, **M. Bucolo**, 'Quantitative Analysis of Spatial Irregularities in RBCs Flows', *Chaos Solitons and Fractals* (2018), (DOI 10.1016/j.chaos.2018.07.012), Elsevier (ISSN 0960-0779)
14. F. Cairone, D. Ortiz, P.J. Cabrales, M. Intaglietta, **M. Bucolo**, 'Emergent behaviors in RBCs flows in micro-channels using digital particle image velocimetry', *Microvascular Research* (March 2018), Vol. 116: 77-86(DOI 10.1016/j.mvr.2017.09.003) - Elsevier (ISSN 0026-2862)
15. F. Cairone, P. Anandan, **M. Bucolo**, 'Nonlinear systems synchronization for modeling two-phase microfluidics flows', *Nonlinear Dynamics*(2017), Vol. 92:75–84 (DOI 10.1007/s11071-017-3819-0) - Springer (ISSN 0924-090X).
16. **M. Bucolo**, J. Guo, M. Intaglietta and W. Coltro, 'Guest Editorial, Special Issue on Microfluidics Engineering for Point-of-Care Diagnostics', *IEEE Trans. on Biomedical Circuits and Systems* (2017), Vol. 11(6), pp. 1488-1499, December 2017
17. F. Cairone, S. Gagliano, **M. Bucolo**, 'Experimental study on the slug flow in a serpentine microchannel', *International Journal Experimental Thermal and Fluid Science* (2016), Volume 76, pp 34–44 (DOI 10.1016/j.expthermflusci.2016.02.011) - Elsevier (ISSN 0894-1777).
18. F. Cairone, S. Gagliano, D. C. Carbone, G. Recca, **M. Bucolo**, '3D Printed Embedded PDMS Micro-Optofluidic Switch', *Microfluidics and Nanofluidics* (2016), Vol. 20:61 (DOI 10.1007/s10404-016-1727-0) - Springer (ISSN 1613-4982).
19. P. Anandan, S. Gagliano, **M. Bucolo**, 'Computational models in microfluidic bubble logic', *Microfluidics and Nanofluidics* (2015), Vol. 18, pp. 305–321 (DOI 10.1007/s10404-014-1434-7) - Springer (ISSN 1613-4982).
20. **M. Bucolo**, M. Rance, A. Muscarello, A. Spampinato, M. Ruttorf, H. Flor, 'Brain connectivity networks and fMRI brain-computer interface', *International Journal of Bioelectromagnetism* (2012), Vol. 14(4), pp. 154:161 (ISSN 1456-7865).
21. **M. Bucolo**, M. Rance, A. Muscarello, A. Spampinato, M. Ruttorf, H. Flor, 'Functional neuro-imaging and brain networks', *International Journal of Bioelectromagnetism* (2012), Vol. 14(2), pp. 100:107 (ISSN 1456-7865).
22. P. Belluomo, **M. Bucolo**, L. Fortuna, M. Frasca, 'Robot control through brain-computer interface for patterns generation', *Complex Systems* (2012), Vol. 20(3), pp. 243:251 – Complex Systems Publ Inc (ISSN 0891-2513).
23. F. Schembri, F. Sapuppo and **M. Bucolo**, 'Experimental classification of nonlinear dynamics in microfluidic bubbles' flow, *Nonlinear Dynamics* (2012), Vol. 67(4), pp. 2807:2819 - Springer (ISSN 0924-090X).
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