

PERSONAL INFORMATION

Chiara Mocenni



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📅 Date of birth 28 March 1966 | 🇮🇹 Nationality Italian

PROFESSIONAL CAREER

2015 – **Associate Professor**
Department of Information Engineering and Mathematics (DIISM)
University of Siena
Via Roma, 56, 53100, Siena (Italy)
Scientific Sector: ING-INF/04 Automatica

2013 – 2016 **Special Visiting Researcher**
Institute of Pure and Applied Mathematics (IMPA)
Rio de Janeiro (Brasil)

2002 – 2015 **Assistant Professor**
DIISM, University of Siena

1998 – 2002 **Research Associate**
DIISM, University of Siena

EDUCATION

1979 – 1985 **High School Diploma**
Liceo Classico “E. S. Piccolomini”, Siena, Italy

1985 – 1992 **Degree in Mathematics**
Department of Mathematics, University of Siena, Italy

1991 **Summer School of Mathematics**
Matematica Interuniversitaria, Perugia
Differential Geometry (Prof. W. Boothby), Functional Analysis (Prof. E. Lanconelli)

1994 **Fellowship MPS-SAPED**
Department of Mathematics, University of Siena
Research Topic: Analysis of Nonlinear Time Series

1995 – 1998 **Ph.D in Physical-Chemistry**
Department of Biosystems Sciences, University of Siena, Italy
Curriculum: Environmental systems

INSTITUTIONAL ACTIVITIES

- 2022 – **Rector Delegate of the University of Siena**
Third Mission (Public Engagement)
- 2019 – 2022 **Member of Committees of the University of Siena**
Sustainability
International Relations
- 2015 – **President of the Committee for Education**
Master Course in Engineering Management, DIISM, University of Siena
- 2004 – 2012 **Member of the Board of Directors**
Centre for the Study of Complex Systems, University of Siena
- 2004 – 2012 **Coordinator of the Scientific Activities**
Center for the Study of Complex Systems, University of Siena
- 2003 – 2008 **Member of the Department Council**
DIISM, University of Siena

TEACHING ACTIVITY

- 2023 **Dynamic Systems on Networks**
Ph.D. on Information Engineering and Science, DIISM, University of Siena (20 hours)
- 2023 **Modelli Matematici di Sistemi Non Lineari e Complessi**
Scuola di Psicoterapia Integrativa Interdisciplinare (5 hours)
- 2023 **Complex Systems Modeling**
Ph.D. on Autonomous Systems, National Program, Polytechnic of Bari (5 hours)
- 2013 – **Game Theory**
Masters in Engineering Management, Artificial Intelligence and Automation Engineering, Applied Mathematics, DIISM, University of Siena (6 CFU)
- 2009 – **Complex Systems**
Masters in Engineering Management, Artificial Intelligence and Automation Engineering, Applied Mathematics, DIISM, University of Siena (6 CFU)
- 2003 – 2014 **Decision Analysis and Decision Support Systems**
Bachelor in Management Engineering and Master in Automation Engineering, DIISM, University of Siena (6 CFU)
- 2003-2009 **Modelling and Simulation**
Masters in Management Engineering and Computer and Automation Engineering, DIISM, University of Siena (5 CFU)
- 2003-2010 **Modelling and Management of Environmental Systems**

Masters in Management Engineering, Computer and Automation Engineering, Electronic and Telecommunication Engineering, DIISM, University of Siena (6 CFU)

RESEARCH PROJECTS

2021 – 2022 **Borghi Digitali**

Development of Digital Villages in Tuscany, financed by Tuscany Region

2019 – 2020 **Prodest**

Digitalization Processes in the Tourist Sector, financed by Tuscany Region

2018 – 2020 **ImpresaR&S4.0**

Combining Industry 4.0 with Research & Development for reaching Enterprise 4.0, financed by Tuscany Region

2016 – 2018 **Panacee**

Prediction and Analysis of Cerebral Activity in transitions towards epilepsy and sleep, financed by Tuscany Region

2014 – 2016 **Science Without Borders**

Evolutionary Games on Networks for Modeling Complex Biological and Socio-Economic Phenomena

Research Institution: Institute of Pure and Applied Mathematics of Rio de Janeiro, Brasil

International Cooperation Program Italy-Brasil, financed by the Ministry of Science, Technology and Innovation and by the National Council for Scientific and Technological Development of Brasil

2008 – 2011 **AWARE**

How to achieve sustainable water ecosystems management connecting research, people and policy makers in Europe, financed by European Programs

2004 – 2006 **MECOSIND**

Master on Industrial Ecology, In collaboration with the Universities of Catalogna, Girona, Barcellona, Firenze, Pescara, Pisa, Università Tecnica di Igualada, Peloponneso, financed by European Programs

2003 – 2007 **DITTY**

Development of an Information Technology Tool for the Management of European Southern Lagoons, financed by European Programs

EDITORIAL ACTIVITY

Associate Editor of *Frontiers in Psychology*

Editorial Board Member of *Chaos and Complexity Letters*, *Journal of Dynamics and Games*, *Entropy*

Reviewer of *IEEE Transactions on Automatic Control*, *IEEE Transactions on Circuits and Systems*, *Ecological Modeling*, *International Journal of Bifurcation and Chaos*, *Computational Biology and Chemistry*, *Entropy*, *Physica A*, *Mathematical Reviews*, *IEEE Transactions on Cybernetics*.

BOARD MEMBERSHIP

Scientific Societies

2021–2024 Elected Member of the Council of the Complex System Society: <https://cssociety.org/>

2021–2025 Elected Member of the Council of the Italian Society of Chaos and Complexity: <https://www.sicc-it.org/en/>

International Conferences

- 2023 Member of the Technical Program Committee of the 12th International Conference on Complex Networks and their Applications, Menton Riviera (France, November 2023: <https://complexnetworks.org/>)
- 2023 Special Session Co-Chair of the International Symposium on Nonlinear Theory and its Applications, Catania, September 2023: <https://no1ta2023.org/>
- 2022 Member of the Program Committee of the Conference on Complex Systems, Palma de Mallorca (Spain), October 2022: <https://www.ccs2022.org/>

RESEARCH INTERESTS

Complex Systems, Dynamics on Networks, Evolutionary Games on Networks, Graph Coloring, Emergence of Cooperation, Mathematical Modeling and Identification of Biological and Social Systems, Nonlinear Dynamics and Bifurcations, Extreme Climate Events, SDGs, Mathematical Models of Psychological Behavior, Awareness.

SELECTED PUBLICATIONS INTERN. J., 2010-

1. Bizzarri, F., Giuliani, A., Mocenni, C., Decision Making in Networks: A Model of Awareness Raising. *INFORMATION*, 14(2), 72, 2023.
2. Bizzarri, F., Mocenni, C., Tiezzi, S., A Markov Decision Process with Awareness and Present Bias in Decision-Making. *MATHEMATICS*, 11(11), 2023.
3. Vitanza, E., Dimitri, G.M., Mocenni, C., A multi-modal machine learning approach to detect extreme rainfall events in Sicily. *SCIENTIFIC REPORTS*, 13(1), 2023.
4. Lo Grasso A., Fort A., Fahmideh Mahdizadeh F., Magnani A. & Mocenni C., Generalized logistic model of bacterial growth, *Mathematical and Computer Modelling of Dynamical Systems*, 29:1, 169-185, 2023.
5. Bizzarri, F., Giuliani, A., Mocenni, C., Awareness: An empirical model. *FRONTIERS IN PSYCHOLOGY*, 13, 2022.
6. Madeo, D., Mocenni, C., Identification and Control of Game-Based Epidemic Models. *GAMES*, 13(1), 2022.
7. Madeo, D., Mocenni, C., Palma, G., Rinaldi, S., A Game Theory Proof of Optimal Colorings Resilience to Strong Deviations. *MATHEMATICS*, 10(15), 2022.
8. Madeo D., Mocenni C., "An Evolutionary Game Model of Cooperation for Epidemics Control over Networked Societies", Conference on Complex Systems, Lyon, October 25-29, 2021.
9. Madeo D., Mannarini T. Salvatore S., Mocenni C., "Modeling pluralism and self-regulation explains the emergence of cooperation in networked societies", *Scientific Reports*, 2021.
10. Madeo D., Mocenni C., "Consensus towards Partially Cooperative Strategies in Self-Regulated Evolutionary Games on Networks", *Games*, 2021.
11. Madeo D., Mocenni C. "Evolutionary Game Theoretic Insights on the SIRS Model of the COVID-19 Pandemic", 6th IFAC Hybrid Conference on Analysis and Control of Chaotic Systems (CHAOS 2021), 2021.
12. Sparacino E., Bologni E. Madeo D. Mocenni C., "An integrated model for supporting aware decisions of companies in the circular and sustainable transition", *Ecomondo*, 2021.
13. Madeo D. and Mocenni C., "Self-regulation versus social influence for promoting cooperation on networks", *Scientific Reports*, vol. 10, 2020.
14. Madeo D., Mazumdar S., Mocenni C. and Zingone R., "Evolutionary game for task mapping in resource constrained heterogeneous environments", *Future Generation Computer Systems*, vol. 108, pp. 762-776, 2020.
15. Madeo D., Pozzebon A., Mocenni C. and Bertoni D., "A Low Cost Unmanned Surface Vehicle for Pervasive Water Quality Monitoring", *IEEE Transactions on Instrumentation and Measurement*, vol. 69, pp. 1433-1444, 2020.
16. Madeo D., Bevilacqua G., Biancalana V., Dancheva Y. and Mocenni C., "A Physical Model for the Characterization of Magnetic Hydrogels Subject to External Magnetic Fields", *Journal of Magnetism and Magnetic Materials*, vol. 493, pp. 165674, 2020.
17. Madeo D., Mocenni C., Moraes J.C. and Zubelli J., "The role of self-loops and link removal in evolutionary games on networks", *Mathematical Biosciences and Engineering*, vol. 16, pp. 5287, 2019.

18. Mocenni C., Montefrancesco G., Tiezzi S., "A Model of Spontaneous Remission From Addiction", *International Journal of Applied Behavioral Economics*, Vol. 8, n. 1, pp. 21-48, 2019.
19. Garuglieri S., Madeo D., Pozzebon A., Zingone R., Mocenni C. and Bertoni D., "An Integrated System for Real-Time Water Monitoring Based on Low Cost Unmanned Surface Vehicles", *IEEE Sensors Applications Symposium (SAS)*, Sophia Antipolis, France, March 11-13, 2019.
20. Madeo D., Talarico A., Pasqual-Leone A., Mocenni C. and Santarnecchi E., "An Evolutionary Game Theory Model of Spontaneous Brain Functioning", *Scientific Reports*, vol. 7, DOI: 10.1038/s41598-017-15865-w, 2017.
21. Iacobelli G., Madeo D. and Mocenni C., "Lumping evolutionary game dynamics on networks", *Journal of Theoretical Biology*, vol. 407, pp. 328-338, 2016.
22. Madeo D. and Mocenni C., "Game interactions and dynamics on networked populations", *IEEE Transactions on Automatic Control*, vol. 60, pp. 1801-1810, 2015.
23. Casini M., Mocenni C., Paoletti S., Pranzo M., "Decision support system development for integrated management of European coastal lagoons", *Environmental Modelling & Software*, Vol. 64, pp. 47-57, 2015.
24. Madeo D., Castellani E., Mocenni C. and Santarcangelo E.L., "Pain perception and EEG dynamics: Does hypnotizability account for the efficacy of the suggestions of analgesia?", *Physiology and Behavior*, vol. 145, pp. 57-64, 2015.
25. Madeo D., Comolli L.R. and Mocenni C., "Emergence of microbial networks as response to hostile environments", *Frontiers in Microbiology*, vol. 5, 2014.
26. Newton A. et al., "An overview of ecological status, vulnerability and future perspectives of European large shallow, semi-enclosed coastal systems, lagoons and transitional waters", *Estuarine, Coastal and Shelf Science*, Vol. 140, pp. 95-122, 2014.
27. C. Mocenni, E. Sparacino, J. P. Zubelli, "Effective rough boundary parametrization for reaction-diffusion systems", *Applicable Analysis and Discrete Mathematics*, Vol. 8, pp. 33-59, 2014.
28. Chiarucci R., Madeo D., Loffredo M.I., Castellani E., Santarcangelo E.L. and Mocenni C., "Cross-evidence for hypnotic susceptibility through nonlinear measures on EEGs of non-hypnotized subjects", *Scientific Report*, vol. 4, 2014.
29. Madeo D., Castellani E., Santarcangelo E.L. and Mocenni C., "Hypnotic Assessment Based on the Recurrence Quantification Analysis of EEG Recorded in the Ordinary State of Consciousness", *Brain and Cognition*, vol. 83, pp. 227-233, 2013.
30. Facchini A., Mocenni C., "Recurrence methods for the identification of morphogenetic patterns", *Plos ONE*, Vol. 8, N.9, pp. e73686, 2013.
31. Boianelli A., Bidossi A., Gualdi L., Mulas L., Mocenni C., Pozzi G., Vicino A., Oggioni M.R., "A Non-Linear Deterministic Model for Regulation of Diauxic Lag on Cellobiose by the Pneumococcal Multidomain Transcriptional Regulator CelR", *Plos ONE*, Vol. 7, N. 10, pp. e47393, 2012.
32. Mocenni C., Madeo D. and Sparacino E., "Linear Least Squares Parameter Estimation of Nonlinear Reaction Diffusion Equations", *Mathematics and Computers in Simulation*, vol. 81, pp. 2244-2257, 2011.
33. Mocenni C., Facchini A., and Vicino A., "Comparison of recurrence quantification methods for the analysis of temporal and spatial chaos", *Mathematical and Computer Modelling*, Vol. 53, pp. 1535-1545, 2011.
34. Facchini A. and Mocenni C., "Filling gaps in ecological time series by means of twin surrogates", *International Journal of Bifurcation and Chaos in Applied Sciences and Engineering*, Vol. 21, N. 4, pp. 1085-1097, 2011.
35. Mocenni C., Facchini A., and Vicino A., "Identifying the dynamics of complex spatio-temporal systems by spatial recurrence properties", *Proceedings of the National Academy of Sciences of the United States of America*, Vol. 107, pp. 8097-8102, 2010.

