

Curriculum vitae

Name: Maria Evelina

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Affiliation: Department of Industrial and Information Engineering, University of Pavia, Italy

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Personal information

Date of birth: 19th September 1979

Place of Birth: Pavia (Italy)

Citizenship: Italian

Sex: Female

Languages spoken: Italian native language, English good level (oral and written), French: discrete level (oral), sufficient level (written)

Education

University: Laurea degree (BSc+MSc in 2003) in Computer Science with honors, University of Pavia, Italy. Final thesis: Experiments on electrical and magnetic stimulation of the peripheral nervous system.

Ph.D.: Degree in Electronics, Computer Science and Electrical Engineering in 2007. Final thesis: Inverse problems in bioelectromagnetism: experimental and theoretical aspects.

Professional Experience

Researcher:

- March 2007 – December 2007: Biomag project performed in the frame of "INGENIO Project" granted by Regione Lombardia, Italy
- July 2007 – July 2008: post-doc grant on "The magnetic stimulation of the peripheral nervous system: experiments and field models", University of Pavia (Italy)
- July 2008 – July 2009: post-doc grant on "Optimisation of energy-harvesting devices and circuits for electronic and electrical applications", University of Pavia (Italy)
- August 2009 – December 2009: post-doc grant on "Forward and inverse problems in electricity and magnetism", University of Pavia (Italy)
- November 2010 – April 2011: post-doc grant on "Optimisation of a submerged electric arc furnace for the production of ferro alloys", University of Padua (Italy)
- May 2011 – December 2011: post-doc grant on "Modelling and optimisation of an electric submerged arc furnace for the production of ferro alloys and development of a new system of furnace control", University of Pavia (Italy) in cooperation with Italgghisa SpA (Brescia, Italy)
- February 2012 – August 2012: post-doc grant on "Finite element simulation of electric and magnetic fields generated by a coil system for electromagnetic stimulation of biological cells", University of Pavia (Italy)
- June 2012 – December 2012: post-doc grant on "Implementation of a prototype for the electrochemical separation of metals in the dust produced by electric furnaces for the production of ferro-alloys" University of Pavia (Italy) in cooperation with Italgghisa SpA (Brescia, Italy)

- March 2013 - October 2014: post-doc grant on "Effects of electromagnetic fields on human health: in vitro models"
- December 2014 - now: assistant professor (A type) at the University of Pavia, Department of Electrical, Computer and Biomedical Engineering.

Teaching experience:

- 2000-2003 teaching assistant: Circuit Theory course for BSc students, University of Pavia;
- 2003-2009 teaching assistant: Circuit Theory course and Principles of Electrical Engineering course for BSc students and Electromagnetic Modelling course for MSc students, University of Pavia.
- 2009-2012 adjunct professor: Circuit and Field Theory course for BSc students, University of Pavia, branch of Mantua;
- 2010-2013 adjunct professor: Laboratory of Industrial Electrotechnics course for MSc students, University of Pavia.
- 2014-now assistant professor: Laboratory of Industrial Electrotechnics course for MSc students, University of Pavia.

Other experiences in lecturing:

- on 14th May 2010: PhD Intensive Course titled "Analysis and synthesis of electromagnetic fields: numerical methods and computer codes", University of Padua,
- in the frame of the TEMPUS-158599 project "Creation of the Third Cycle of Studies-Doctoral Studies in Metrology" she was invited for a lecture on "Automated optimal design in electromagnetics: educational aspects in PhD curricula at the University of Pavia", on 19th March 2012 in Zagreb (Croatia).
- in the frame of the Erasmus+ program, she held two short courses at the West Pomeranian University of Technology in Szczecin (Poland) for Bachelor and PhD students titled "Optimization methods for solving inverse problems: applications in circuit theory" and "Automated optimal design in industrial electromagnetics", in the period 1-4 March 2016.
- in the frame of the Erasmus+ program, she held two short courses at the West Pomeranian University of Technology in Szczecin (Poland) for Bachelor and Master students titled "Optimization methods for solving inverse problems: applications in circuit theory" and "Multiobjective optimization in industrial electromagnetics", in the period 12-15 March 2017

Other professional experiences:

- Member of the Editorial Board of the Journal Przegląd Elektrotechniczny since 2016.
- Member of the Editorial Board of the "International Conference on Heating by Electromagnetic Sources" HES2016, Padova (Italy), 24-27 May 2016.
- Keynote speaker at the 6th International Symposium on Applied Electromagnetics SAEM 2016, 26-29 June 2016, Wrocław (Poland), for the oral session entitled "Bioelectromagnetics and Electromagnetic Hazards".
- Referee of International Journals as IEEE Transactions on Magnetics, IEEE Sensors, The international journal for computation and mathematics in electrical and electronic engineering (COMPEL), International Journal of Applied Electromagnetics and Mechanics (IJAEM).
- Secretary of the Organization Committee of the XXIV National Meeting of Researchers in Electrical Engineering.

Scientific Interests

Her scientific interests are inverse problems and optimization applied to electromagnetism, in particular to bioelectromagnetism.

Selected publications on International Journals

1. P. Di Barba, M. E. Mognaschi, P. Venini, S. Wiak, " Biogeography-inspired multiobjective optimisation for helping MEMS synthesis ", in press on Archives of Electrical Engineering, 2017.
2. P. Di Barba, B. Liu, M. E. Mognaschi, P. Venini, S. Wiak, " Multiphysics field analysis and evolutionary optimization: design of an electro-thermo-elastic microactuator", in press on International Journal of Applied Electromagnetics and Mechanics IJAEM, 2017.
3. P. Di Barba, L. Fassina, G. Magenes, M. E. Mognaschi, "Shape synthesis of a well-plate for electromagnetic stimulation of cells", in press on International Journal of Numerical Modelling: Electronic Networks, Devices and Fields, 2017.
4. P. Di Barba, M. E. Mognaschi , D.A. Lowther, F. Dughiero , M. Forzan, S. Lupi, E. Sieni, "A benchmark problem of induction heating analysis", International Journal of Applied Electromagnetics and Mechanics IJAEM, Vol. 53(S1), 2017, pp. 139-149.
5. M.E. Mognaschi, " Field models in low-frequency bioelectromagnetics", Przegląd Elektrotechniczny, Vol. 92, Issue 12, 2016, pp. 1-4.
6. M. Cornacchione, M. Pellegrini, L. Fassina, M. E. Mognaschi, S. Di Siena, R. Gimmelli, P. Ambrosino, M. Soldovieri, M. Tagliatalata, D. Gianfrilli, A. Isidori, A. Lenzi, F. Naro, Beta-adrenergic response is counteracted by extremely-low-frequency pulsed electromagnetic fields in beating cardiomyocytes, Journal of Molecular and Cellular Cardiology, Vol. 98, pp. 146-158, 2016.
7. Pasi, F., Fassina, L., Mognaschi, M.E., Lupo, G., Corbella, F., Nano, R., Capelli, E., "Pulsed electromagnetic field with Temozolomide can elicit an epigenetic pro-Apoptotic effect on Glioblastoma T98G Cells", Anticancer Research, 36 (11), pp. 5821-5826, 2016.
8. P. Di Barba, F. Dughiero, M.E. Mognaschi, A. Savini, S. Wiak, "Biogeography-Inspired Multiobjective Optimization and MEMS Design", IEEE Transactions on Magnetics, Vol. 52(3), 2016.
9. P. Di Barba, M. E. Mognaschi, M. Bonislawski, R. Palka, P. Paplicki, R. Piotuch, M. Wardach, "Hybrid Excited Synchronous Machine with Flux Control Possibility", International Journal of Applied Electromagnetics and Mechanics IJAEM, Vol. 52, No. 3-4, pp. 1615-1622, 2016.
10. P. Di Barba, M.E. Mognaschi, A. Savini, S. Wiak, "Island biogeography as a paradigm for MEMS optimal design", International Journal of Applied Electromagnetics and Mechanics IJAEM, Vol. 51(s1), 2016, pp. 97-105.
11. M. E. Mognaschi, P. Di Barba, G. Magenes, A. Lenzi, F. Naro, L. Fassina, "Field models and numerical dosimetry inside an extremely-low-frequency electromagnetic bioreactor: the theoretical link between the electromagnetically induced mechanical forces and the

- biological mechanisms of the cell tensegrity”, Springerplus, Vol. 3, n. 473, 2014.
12. P. Di Barba, I. Dolezel, M.E. Mognaschi, A. Savini, P. Karban, "Non-linear multi-physics analysis and multi-objective optimization in electroheating applications" IEEE Transactions on Magnetics, Vol. 50 (2), 2014.
 13. P. Di Barba, I. Dolezel, P. Karban, P. Kus, F. Mach, M.E. Mognaschi, A. Savini, "Multiphysics field analysis and multiobjective design optimization: a benchmark problem", Inverse Problems in Science & Engineering IPSE, Vol. 22 (7), pp. 1214-1225, 2014.
 14. P. Di Barba, M. E. Mognaschi, R. Palka, P. Paplicki, S. Szkolny, "Design optimization of a permanent-magnet excited synchronous machine for electrical automobiles", International Journal of Applied Electromagnetics and Mechanics IJAEM, Vol. 39, No. 1-4, 2012, pp. 889-895.
 15. P. Di Barba, F. Dughiero, M. Dusi, M. Forzan, M. E. Mognaschi, M. Paioli, E. Sieni, "3D FE analysis and control of a submerged arc electric furnace", International Journal of Applied Electromagnetics and Mechanics IJAEM, Vol. 39, No. 1-4, 2011, pp. 555-561.
 16. P. Di Barba, M.E. Mognaschi, R.Palka, A. Savini, "Automated optimal design of a HTS coreless winding", International Journal of Applied Electromagnetics and Mechanics IJAEM, Vol. 37, No. 2-3, 2012, pp. 93-99.
 17. P. Di Barba, F. Freschi, M. E. Mognaschi, A. Pichiecchio, M. Repetto, A. Savini, A. Vultaggio, "Field model of electrical activity of the brain during the hand movement: a source identification problem", to be published on IEEE Transactions on Magnetics.
 18. P. Di Barba, M.E. Mognaschi, G. Nolte, R. Palka, A. Savini, "Source identification based on regularization and evolutionary computing in biomagnetic fields", The international journal for computation and mathematics in electrical and electronic engineering – Compel, Volume 29, No. 4, 2010, pp. 1022-1032.
 19. P. Di Barba, H. May, M.E. Mognaschi, R. Palka, A. Savini, "Multiobjective design optimization of an excitation arrangement used in superconducting magnetic bearings", International Journal of Applied Electromagnetics and Mechanics IJAEM, Vol. 30, No. 3-4, 2009, pp. 127-134.
 20. P. Di Barba, M.E. Mognaschi, "Sorting Pareto solutions: a principle of optimal design for electrical machines", The international journal for computation and mathematics in electrical and electronic engineering – Compel, Volume 28, No. 5, 2009, pp. 1227-1235 .
 21. P. Di Barba, M. E. Mognaschi, R. Palka, A. Savini, "Optimization of the MIT Field Exciter by a Multiobjective Design", IEEE Transactions on Magnetics, Vol. 45, Issue 3, Mar. 2009, pp. 1530-1533.
 22. P. Di Barba, M.E. Mognaschi, "Industrial Design with Multiple Criteria: Shape Optimization of a Permanent-Magnet Generator", IEEE Transactions on Magnetics, Vol. 45, Issue 3, Mar. 2009, pp. 1482-1485.
 23. P. Di Barba, M.E. Mognaschi, A. Savini, "Synthesizing a field source for magnetic stimulation of peripheral nerves", IEEE Transactions on Magnetics, Vol. 43, Issue 11, Nov. 2007, pp. 4023-4029.
 24. .S. Carcangiu, P. Di Barba, A. Fanni, M.E. Mognaschi, A. Montisci, "Comparison of multi-objective optimisation approaches for inverse magnetostatic problems", The international journal for computation and mathematics in electrical and electronic engineering – Compel, Volume 26, No. 2, 2007, pp. 293-305.

25. V. D'Ambrosio, P. Di Barba, F. Dughiero, M.E. Mognaschi, A. Savini, "Non-invasive thermometry for the thermal ablation of liver tumor: a computational methodology", *International Journal of Applied Electromagnetics and Mechanics IJAEM*, Vol. 25, No. 1-4, 2007, pp. 407-412
26. P. Di Barba, E. R. Mognaschi, M. E. Mognaschi, A. Savini, "Identifying material properties of a dielectric motor", *The international journal for computation and mathematics in electrical and electronic engineering – Compel*, Vol. 24, No. 3, 2005, pp. 796-804.
27. P. Di Barba, M. E. Mognaschi, "Recent experiences of multiobjective optimisation in electromagnetics: a comparison of methods", *The international journal for computation and mathematics in electrical and electronic engineering – Compel*, Vol. 24, No. 3, 2005, pp. 921-930.