

PERSONAL INFORMATION

Morettini Micaela



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Sex Female | Date of birth 29/08/1983 | Nationality Italian

WORK EXPERIENCE

January 2014 - present

**Adjunct professor**

Università Politecnica delle Marche, Ancona (Italy)

Medical Informatics/ Models and Control of Biological Systems

October 2016 - present

**Postdoctoral researcher**

Università Politecnica delle Marche, Ancona (Italy)

Mathematical models of glucose-insulin system; cardiovascular and metabolic risk.

June 2013 – May 2016

**Postdoctoral researcher**

University of Rome “Foro Italico”, Rome (Italy)

FP7 EU-funded project “Multiscale Immune System Simulator for the Onset of Type 2 Diabetes integrating genetic, metabolic and nutritional data MISSION-T2D”.

September 2012 – October 2017

**Co-founder of the academic spin-off company B.M.E.D. Srl Bio-Medical Engineering Development**

Università Politecnica delle Marche, Ancona (Italy)

Vicepresident/President. Biomedical software development.

April 2008 – October 2008

**Biomedical engineer**

Electrolux Home Products Italy SPA, Forlì Plant (FC), Italy

Health and Safety Division. Assessment of risk due to work-related biomechanical overload.

EDUCATION AND TRAINING

2009 – 2011

**PhD in “Electromagnetics and Bioengineering” – Thesis Title:**

**“Mathematical model of standard oral glucose tolerance test for the characterization of insulin potentiation in health”**

Università Politecnica delle Marche, Ancona (Italy)

2005 – 2008

**M.Sc., cum laude – Thesis Title: “Blood glucose prediction in type 1 diabetic patients through neural networks”**

Alma Mater Studiorum University of Bologna, Cesena (Italy)

Biomedical Engineering

2002 – 2005

**Bachelor’s degree, cum laude – Thesis Title: “Predictive estimation of glycemia in type 1 diabetic patients through mathematical model”**

Alma Mater Studiorum University of Bologna, Cesena (Italy)

Biomedical Engineering

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
French	A1	A1	A1	A1	A1

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user  
Common European Framework of Reference for Languages

Computer skills Microsoft Office™ tools, Matlab® (MathWork™, USA), Simulink® (MathWork™, USA), SAAM II Simulation, Analysis, and Modeling Software II (University of Washington, USA), Origin® (OriginLab, USA), MySQL.

ADDITIONAL INFORMATION

## Publications in Refereed Journals

- A. Sbrollini, A. Strazza, S. Candelaresi, I. Marcantoni, **M. Morettini**, S. Fioretti, F. Di Nardo, L. Burattini. Surface electromyography low-frequency content: assessment in isometric conditions after electrocardiogram cancellation by the segmented-beat modulation method. Accepted for publication in *Informatics in Medicine Unlocked*.
- **M. Morettini**, F. Di Nardo, L. Burattini, S. Fioretti, C. Göbl, A. Kautzky Willer, G. Pacini, A. Tura. Assessment of glucose effectiveness from short IVGTT in individuals with different degrees of glucose tolerance. *Acta Diabetologica* 2018; 55(10):1011-1018.
- M.C. Palumbo, **M. Morettini**, P. Tieri, F. Diele, M. Sacchetti, F. Castiglione. Personalizing physical exercise in a computational model of fuel homeostasis. *PLoS Computational Biology* 2018; 14(4):e1006073.
- A. Sbrollini, A. Agostinelli, I. Marcantoni, **M. Morettini**, F. Di Nardo, S. Fioretti, L. Burattini. eCTG: an automatic procedure to extract digital cardiocographic signals from digital images. *Computer Methods and Programs in Biomedicine* 2018; 156:133-139.
- A. Agostinelli, **M. Morettini**, A. Sbrollini, E. Maranesi, L. Migliorelli, F. Di Nardo, S. Fioretti, L. Burattini. CaRiSMA 1.0: Cardiac Risk Self-Monitoring Assessment. *Open Sports Sciences Journal* 2017;10(1):179-190.
- **M. Morettini**, M.C. Palumbo, M. Sacchetti, F. Castiglione, C. Mazzà. A system model of the effects of exercise on plasma Interleukin-6 dynamics in healthy individuals: role of skeletal muscle and adipose tissue. *PLoS ONE* 2017; 12(7): e0181224.
- **M. Morettini**, E. Faelli, L. Perasso, S. Fioretti, L. Burattini, P. Ruggeri, F. Di Nardo. IVGTT-based simple assessment of glucose tolerance in the Zucker Fatty Rat: validation against minimal models. *PLoS ONE* 2017; 12(3): e0173200.
- **M. Morettini**, F. Storm, M. Sacchetti, A. Cappozzo, C. Mazzà. Effects of walking on low-grade inflammation and their implications for Type 2 Diabetes. *Preventive Medicine Reports* 2015; 2:538-547.
- F. Di Nardo, C.E. Cogo, E. Faelli, **M. Morettini**, L. Burattini, P. Ruggeri. C-peptide-based assessment of insulin secretion in the Zucker fatty rat: a modelistic study. *PLoS ONE* 2015; 10(5):e0125252.
- F. Castiglione, P. Tieri, A. De Graaf, C. Franceschi, P. Liò, B. Van Ommen, C. Mazzà, A. Tüchel, M. Bernaschi, C. Samson, T. Colombo, G. C.Castellani, M. Capri, P. Garagnani, S. Salvioli, V.A. Nguyen, I. Bobeldijk-Pastorova, S. Krishnan, A. Cappozzo, M. Sacchetti, **M. Morettini**, M. Ernst. The onset of type 2 diabetes: proposal for a multi-scale model. *JMIR Research Protocols* 2013; 2(2):e44.
- F. Di Nardo, M. Mengoni, **M. Morettini**. MATLAB-implemented estimation procedure for model-based assessment of hepatic insulin degradation from standard intravenous glucose tolerance test data. *Computer Methods and Programs in Biomedicine* 2013; 110:215-225.
- R. Burattini, **M. Morettini**. Identification of an integrated mathematical model of standard oral glucose tolerance test for characterization of insulin potentiation in health. *Computer Methods and Programs in Biomedicine* 2012; 107:248-261.
- R. Burattini, **M. Morettini**, F. Di Nardo, M. Boemi. Insulin action in hypertension: assessment from minimal model interpretation of intravenous glucose tolerance test data. *Medical and Biological Engineering and Computing* 2011; 49:831-841.

## Abstracts in Refereed Journals

- **M. Morettini**, F. Di Nardo, L. Burattini, S. Fioretti, A. Tura, G. Pacini. Contribution of non-insulin mediated processes to glucose disappearance assessed by a simple method in individuals spanning from normal tolerance to diabetes. *Diabetes* 2017; 66(Supplement 1):A399-A478.
- V. Canonico, D. Fruttini, **M. Morettini**, M. Massi Benedetti, E. Sarti, P.G. Fabietti. Blood glucose prediction in type 1 diabetics through mathematical model. *International Journal of Artificial Organs* 2005; 28:938.

## Conference Proceedings

- **M. Morettini**, L. Marchesini, L.A. Pettinari, A. Tigrini, I. Marcantoni, A. Sbröllini, L. Burattini (2018) TWA Simulator: a Graphical User Interface for T-wave alternans. Computing in Cardiology 2018, Maastricht (NL), September 2018.
- A. Sbröllini, K. Cicchetti, A. De Martinis, I. Marcantoni, **M. Morettini**, L. Burattini. Automatic identification of atrial fibrillation by spectral analysis of fibrillatory waves. Computing in Cardiology 2018, Maastricht (NL), September 2018.
- A. Nasim, E. Della Santa, D. Tanchi, A. Sbröllini, I. Marcantoni, **M. Morettini**, L. Burattini. GPU-based Segmented Beat Modulation Method for denoising athlete electrocardiograms during training. Computing in Cardiology 2018, Maastricht (NL), September 2018.
- A. Strazza, A. Sbröllini, V. di Battista, R. Ricci, L. Trillini, I. Marcantoni, **M. Morettini**, S. Fioretti, L. Burattini. PCG-Delineator: an efficient algorithm for automatic heart sounds detection in fetal phonocardiography. Computing in Cardiology 2018, Maastricht (NL), September 2018.
- I. Marcantoni, V. Cerquetti, V. Cotecchini, M. Lattanzi, A. Sbröllini, **M. Morettini**, L. Burattini. T-wave alternans in partial epileptic patients. Computing in Cardiology 2018, Maastricht (NL), September 2018.
- A. Sbröllini, A. Carnicelli, A. Massacci, L. Tomaiuolo, T. Zara, I. Marcantoni, L. Burattini, **M. Morettini**, S. Fioretti, L. Burattini. Automatic identification and classification of fetal heart-rate decelerations from cardiotocographic recordings. 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Honolulu, Hawaii, July 2018.
- B. Pambianco, A. Sbröllini, I. Marcantoni, **M. Morettini**, S. Fioretti, L. Burattini. Electrocardiogram derived respiratory signal through the Segmented-Beat Modulation Method. 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Honolulu, Hawaii, July 2018.
- I. Marcantoni, A. Sbröllini, L. Burattini, **M. Morettini**, S. Fioretti, L. Burattini. Automatic T-wave alternans identification in indirect and direct fetal electrocardiography. 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Honolulu, Hawaii, July 2018.
- L. Burattini, I. Ciotti, M. D'Ignazio, A. Miccoli, A. Agostinelli, A. Sbröllini, **M. Morettini**, F. Di Nardo, S. Fioretti. Overnight T-Wave alternans in sleep apnea patients. Computing in Cardiology 2017, Rennes (France), September 2017.
- I. Marcantoni, M. Vagni, A. Agostinelli, A. Sbröllini, **M. Morettini**, L. Burattini, F. Di Nardo, S. Fioretti, L. Burattini. T-Wave alternans identification in direct fetal electrocardiography. Computing in Cardiology 2017, Rennes (France), September 2017.
- A. Agostinelli, M. Di Cosmo, A. Sbröllini, L. Burattini, **M. Morettini**, F. Di Nardo, S. Fioretti, L. Burattini. Quantification of fetal ST-Segment deviations. Computing in Cardiology 2017, Rennes (France), September 2017.
- A. Sbröllini, M. Beghella Bartoli, A. Agostinelli, **M. Morettini**, F. Di Nardo, S. Fioretti, L. Burattini. Second heart sound onset to identify T-Wave offset. Computing in Cardiology 2017, Rennes (France), September 2017.
- A. Sbröllini, A. Strazza, M. Caragiuli, C. Mozzoni, S. Tomassini, A. Agostinelli, **M. Morettini**, S. Fioretti, F. Di Nardo, L. Burattini. Fetal phonocardiogram denoising by wavelet transformation: robustness to noise. Computing in Cardiology 2017, Rennes (France), September 2017.
- A. Sbröllini, S. Mercanti, A. Agostinelli, **M. Morettini**, F. Di Nardo, S. Fioretti, L. Burattini. ATHrIA: a new adaptive threshold identification algorithm for electrocardiographic P Waves. Computing in Cardiology 2017, Rennes (France), September 2017.
- **M. Morettini**, F. Di Nardo, S. Fioretti, G. Pacini, A. Tura, L. Burattini. No changes in glucose effectiveness in condition of reduced insulin action but preserved glucose tolerance as assessed by minimal model analysis. IFMBE Proceedings 2017; 65: 1057-1060.
- **M. Morettini**, E. Faelli, L. Perasso, S. Fioretti, L. Burattini, P. Ruggeri, F. Di Nardo. Simple assessment of insulin sensitivity in the Zucker Rat. IFMBE Proceedings 2017; 65: 655-658.
- A. Agostinelli, G. Belgiovine, M. C. Fiorentino, G. Turri, A. Sbröllini, L. Burattini, **M. Morettini**, F. Di Nardo, S. Fioretti, L. Burattini. Association between accelerations and decelerations of fetal heart rate. IFMBE Proceedings 2017; 65: 1125-1128.
- A. Sbröllini, A. Agostinelli, **M. Morettini**, F. Verdini, F. Di Nardo, S. Fioretti, L. Burattini. Separation of superimposed electrocardiographic and electromyographic signals. IFMBE Proceedings 2017; 65: 518-521.

- A. Agostinelli, E. Braccili, E. Marchegiani, R. Rosati, A. Sbröllini, L. Burattini, **M. Morettini**, F. Di Nardo, S. Fioretti, L. Burattini. Statistical baseline assessment in cardiocography. 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Jeju Island, Korea, July 2017.
- A. Sbröllini, A. Agostinelli, L. Burattini, **M. Morettini**, F. Di Nardo, S. Fioretti, L. Burattini. CTG Analyzer: a Graphical User Interface for Cardiotocography. Conference of the IEEE Engineering in Medicine and Biology Society. Jeju Island, Korea, July 2017.
- D. Nepi, A. Sbröllini, A. Agostinelli, E. Maranesi, **M. Morettini**, F. Di Nardo, S. Fioretti, P. Pierleoni, L. Pernini, S. Valenti, L. Burattini. Validation of the heart-rate signal provided by the Zephyr bioharness 3.0. Computing in Cardiology 2016; 43:361-364.
- **M. Morettini**, F. Di Nardo, C. E. Cogo, E. Faelli, S. Fioretti, L. Burattini, P. Ruggeri. Estimation of second-phase insulin secretion in the Zucker fatty rat. 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Orlando, August 2016.
- E. Maranesi, **M. Morettini**, A. Agostinelli, C. Giuliani, F. Di Nardo, L. Burattini. Health monitoring in sport through wearable sensors: A novel approach based on heart-rate variability. Lecture Notes in Electrical Engineering 2016; 392: 235-246.
- **M. Morettini**, F. Di Nardo, C. E. Cogo, E. Faelli, S. Fioretti, L. Burattini, P. Ruggeri. The relative role of insulin action and secretion in experimental animal models of metabolic syndrome. IFMBE PROCEEDINGS 2016; 57:549-552.
- F. Di Nardo, **M. Morettini**, C. E. Cogo, E. Faelli, S. Fioretti, L. Burattini, P. Ruggeri. Estimation of first-phase insulin secretion in the Zucker Fatty Rat. IFMBE PROCEEDINGS 2016; 57:545-548.
- **M. Morettini**, M. Sacchetti, A. Cappozzo, C. Mazzà. A mathematical model of Interleukin-6 dynamics during exercise. IFMBE PROCEEDINGS 2014; 45:431-434.
- **M. Morettini**, G. Guercio, R. Burattini. Incretin-induced insulin potentiation characterized by an improved mathematical model of oral glucose tolerance test. IFMBE PROCEEDINGS 2012; 37: 231-234.

#### Projects

- Participant to the European Project “Multiscale Immune System Simulator for the Onset of Type 2 Diabetes integrating genetic, metabolic and nutritional data MISSION-T2D” funded by EU-FP 7– coordinator dott. F. Castiglione.
- Doctoral grant (2009–2011). Financed by the Università Politecnica delle Marche, Ancona (Italy).

#### Conferences/ Seminars

- Computing in Cardiology 2018, Maastricht (NL), September 23-26, 2018.
- Joint Conference of the European Medical and Biological Engineering Conference, EMBEC 2017 and Nordic-Baltic Conference on Biomedical Engineering and Medical Physics, NBC 2107; Tampere, Finland (June 11-15, 2017).
- 6<sup>th</sup> European Conference of the International Federation for Medical and Biological Engineering Dubrovnik, Croazia (September 7 -11, 2014).
- Workshop on Mobile Networks for Biometric Data Analysis (mBiDA), Ancona, Italia (October 30-31, 2014).
- XXXIII Annual School of the National Group of Bioengineering, Bressanone, Italy (September 22-25, 2014).
- 5<sup>th</sup> European Conference of the International Federation for Medical and Biological Engineering, Budapest, Hungary (September 14-18, 2011).
- XXIX Annual School of the National Group of Bioengineering “Synthetic Biology”, Bressanone, Italy (September 13-17, 2010).
- European Summer School of Biomathematics “Parameter estimation in physiological models”, Lipari, Italy (September 13-26, 2009).

#### Awards and Prizes

- More Than Pink 2018
- “START INNOVATION” 2014
- TALENTI PER LA CRESCITA” ed. 2013/2014
- IMPRONTA D'IMPRESA INNOVATIVA” 2012
- E-Capital Business Plan Competition 2011

#### Memberships

- GNB – Gruppo Nazionale di Bioingegneria

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23/01/2019