

# Curriculum Vitae et Studiorum di Emanuela Merelli

## Address

*Computer Science Building*  
University of Camerino  
via Madonna delle Carceri  
I-62032 Camerino  
phone: +39 0737 402567  
mobile: +39 338 3990412  
fax: +39 0737 402561  
e-mail: emanuela.merelli@unicam.it  
home-page: <http://www.cs.unicam.it/merelli>

## Profession

*Associate Professor of Computer Science*  
Chair of Computer Science Division  
School of Science and Technology  
Coordinator of PhD in Computer Science  
School of Advanced Studies  
University of Camerino

## Professional Career and Education

**November 2006** *Associate Professor* in Computer Science at University of Camerino, Italy.

**October 2001** *Assistant Professor* in Computer Science at University of Camerino, Italy.

**February 2000** *PhD* in “Artificial intelligent systems”, University of Ancona, Italy.

**January 1989 - October 2001** *Teaching Assistant*, Mathematics and Computer Science, University of Chieti and since 1990 University of Camerino, Italy.

**October 1985** *Master Degree in Computer Science* at University of Pisa, Italy.

## Scholar and Fellowships

**December 2004 – May 2005** *Fulbright Scholar* at Computer Science Department of the University of Oregon, Eugene, USA.

**September 1998 – December 1998** *Visiting Researcher* at School of Information System of the University of East Anglia in Norwich (UK).

**April 1987 – October 1987** *Fellowship at National Research Institute (CNR), Pisa*

**December 1985 – December 1986** *Visiting Scientist Fellowship* at European Networking Center, IBM, Heidelberg, Germany.

**August 1984 – September 1985** *Honorary Scholar*, Ing. C. Olivetti S.p.A., Ivrea, Italy, to develop the Master Thesis.

## Teaching Activities

- *Distributed Computing and Coordination*, for the Master Degree in Computer Science and for the Double Degree in Computer Science with Reykjavik University, Iceland and the Double Degree in Business iNformation Systems with the School of Business della University of Applied Science Notrthewestern Switzerland ad Olten.

- *Algorithms and Data Structures* for the Bachelor Degree in Computer Science.
- Former teaching activities: Database and Information Systems

## Coordination Activities

- *UNICAM - School of Advanced Studies*. Since April 2010, she is the coordinator of the PhD program in Information Science and Complex Systems.
- *UNICAM - School of Science and Technology*. Since December 2009, she is the coordinator of the Computer Science Division that is a new unit that integrates teaching and research.
- *UNICAM - School of Science and Technology*. Since November 2006, she is the coordinator of the Computer Science Bachelor and Computer Science Master Degrees.
- *UNICAM - BioMedical Image Processing University Master, 2001*. She contributed to the design of the Master in “Tecnologie Informatiche per l’Analisi ed Elaborazione di Immagini Biomediche”. She is a member of Directive Committee.
- *UNICAM - Bioinformatics Master Degree, 2001*. She contributed to the design of Bioinformatics Master Degree.
- *UNICAM - International Student Exchange Program 1992 - present* She collaborated for the internationalization of the Computer Science Studies, supporting the *Double Degree Master Program* with Reykjavik University, FHNW (CH) and Catamarca University(Argentine), and the *Erasmus Project* for Camerino Computer Science School to/from Germany, United Kingdom, Denmark, Finland and Island. She participated to several ERASMUS meetings for the set up of ECTS (European Credit Transfer System).
- *ISO/WG6, October 1987, Pisa* She organized, as UNIPREA member, the *Editing Meeting* for OSI/Presentation layer ISO/WG6, standardization.

## Scientific Interest

- *Formal methods* for modelling, verifying and simulation of biological systems (cell cycle, excitable cells, cardiac tissue, bone re-modelling) and biomedical applications.
- *Self-adaptive systems, agent-based* modelling and simulation of complex (distributed and concurrent) systems.
- *Computational models* for systems biology, especially those suitable for multiscale modelling.

## Grants in Research Projects

During the scientific activity Emanuela Merelli actively participated in several research projects: She is the coordinator of UNICAM Researcher Unit for the following projects:

**VPH-NoE** *Virtual Physiological Human- Network of Excellence*  
FP6 - 2009 . Scientific representative of Unicam as General Member.

**LITBIO** *FIRB Research Project funded by MIUR (Ministero dell'Istruzione, Università' e Ricerca)* Interdisciplinary Laboratory of Bioinformatics Technologies (LITBIO).

2005-2009. FIRB-MIUR - EU 3.235.000,00

**O2I** *Strategic Project MIUR - Oncology over Internet* Methodologies, models, Techniques and tools, per information extraction and retrieval. Strategic Project-MIUR - 2002-2005 - EU 409.033,86

**SICOM** *Research Project funded by CIPE- Regione Marche* Sistemi COoperativi e Multiagente (SICOM).

2003-2004. CIPE-Regione Marche - EU 400.000,00

**FarMAS** *Research Project funded by AEA Company, Maiolati Spontini (Jesi)* mobile agent-based system for industrial application as testing of assembled domestic appliance products.

2002-2005 - EU 50.000,00

## Invited Talk

2009 Aprile 16, SAN FRANCISCO, USA. "Model Checking Biological Oscillators" at HSCB'09 on "Hybrid Systems Approaches to Computational Biology"

2007 September 18, REYKJAVIK, IS. "Agent-based Modelling and Simulation in Systems Biology" at School of Computer Science, Reykjavik University

2007 October 25, PISA. "Agent-based Modelling and Simulation in Systems Biology" at Mini-Workshop on "Computational Approach to Biology" Scuola di dottorato Galileo Galilei. (Joint with Nicola Cannata and Luca Tesei)

2007 November 8, STONY BROOK, USA. "Agent-based Modelling and Simulation in Systems Biology" at Dept. of Computer Science State University of New York

2007 December 10, MILANO. "Orion Framework for systems Biology applications" at BioinfoGRID (Bioinformatics Grid Application for Life Science) Symposium 2007.

2005 February 1, Stanford University. "Agent in Bioinformatics" at Center for Biomedical Computation

## International Conferences Organization

### Co-Chair of International Events

2010 September 15-17, Camerino  
ICTCS, 12th Italian Conference on Theoretical Computer Science

2010 March 28, Paphos, Cyprus  
FBTC'10, 3th Workshop on From Biology to Concurrency and Back

2008 September 13, Cagliari  
MAS&Bioinformatics

2008 July 12, Reykjavik, Iceland  
FBTC'08, 2nd Workshop on From Biology to Concurrency and Back

2007 September 8, Lisbon, Portugal  
FBTC'07, 1st Workshop on From Biology to Concurrency and Back

### **Member of Program Committee**

**2011** CS2Bio: 1st International Workshop on Interactions between Computer Science and Biology, 9th of June 2011 - Reykjavik, Iceland.

**2010** Virtual Physiological Human Conference, 30th of September-1st of October 2010, Brussels, Belgium.

**2010** CS2Bio: 1st International Workshop on Interactions between Computer Science and Biology, 10th of June 2010 - Amsterdam, Netherlands.

**2009** MecBIC: 3rd Workshop on Membrane Computing and Biologically Inspired Process Calculi, 5th September 2009, Bologna, Italy.

**2008** BSB: Brazilian Symposium on Bioinformatics, Aug 28-30 2008, Santo Andre, Brazil.

**2006** MAS\*BIOMED: Second International Workshop on Multi-Agent Systems for Medicine, Computational Biology, and Bioinformatics, May 2006, Hakodate, Japan.

**2006-2008** Network Tools and Applications in Biology (NETTAB), series of Bioinformatics Conferences:

- Distributed applications, Web Services, Tools and GRID Infrastructures for Bioinformatics, July 11-14, 2006, Is Morus Relais, Santa Margherita di Pula (CA).
- A Semantic Web for Bioinformatics: Goals, Tools, Systems, Applications, June 12-15, 2007, Pisa.
- Bioinformatics Methods for Biomedical Complex System Applications, May 19-21, 2008, Varenna, Como.

### **Peer Review Activity for Int. Journals:**

IEEE/ACM Transactions on Computational Biology and Bioinformatics, Bioinformatics, BMC Bioinformatics, Briefing in Bioinformatics, CAIE Computer and industrial engineering, IJCM Int.l journal of computational methods, JTB journal on theoretical biology, Robotics and Computer-Integrated Manufacturing, TCS Theoretical computer science, SIMPAT Simulation modelling practice and theory, etc.

## List of Selected Publication

Ezio Bartocci, Maria R. Di Berardini, Diletta Cacciagrano, Emanuela Merelli, Luca Tesei - Timed Operational Semantics and Well-Formedness of Shape Calculus. *Scientific Annals of Computer Science*, vol.20, pages 33-52, 2010.

Ezio Bartocci, Maria R. Di Berardini, Flavio Corradini, Emanuela Merelli, Luca Tesei - Shape Calculus. A Spatial Mobile Calculus for 3D Shapes. *Scientific Annals of Computer Science* vol. 20, pages 1-31, 2010.

B. Bartocci, D. Cacciagrano, F. Corradini, E. Merelli, and L. Vito. A Resourceome for the automation of in-silico biological experiments. Appearing in proceedings of *International Conference on Computational and Systems Biology and Microbiology (BioSysCom)*, Cancun, Mexico, March 7-13, 2010.

F. Buti, D. Cacciagrano, F. Corradini, E. Merelli, L. Tesei. BioShape: a spatial shape-based scale-independent simulation environment for biological systems. Appearing in proceedings of *International Conference on Computational Science (ICCS)*, Amsterdam, May 31-June 2, 2010.

F. Buti, D. Cacciagrano, F. Corradini, E. Merelli, M. Pani, L. Tesei: Bone remodelling in BioShape. In *CS2BIO 2010: Interactions between Computer Science and Biology*, 1st International Workshop, 2010.

D. Cacciagrano, F. Corradini, E. Merelli. Bone Remodelling: a Complex Automata-based model running in Bioshape *ACRI 2010: The Ninth International Conference on Cellular Automata for Research and Industry*, Ascoli Piceno (Italy), September 21-24, 2010.

Ezio Bartocci, Flavio Corradini, Emanuela Merelli, Luca Tesei: Detecting synchronisation of biological oscillators by model checking. *Theor. Comput. Sci.* 411(20): 1999-2018 (2010). *Theor. Comput. Science* 411(20): 1999-2018 (2010)

E. Bartocci, F. Corradini, E. Merelli, L. Tesei. Model Checking Biological Oscillators. In the proceedings of the 2th From Biology To Concurrency International Workshop (FBTC'08), Reykjavik, Island, July, 2008. pp. 41-58. *Electronic Notes in Theoretical Computer Science* vol. 229 no. 1. 2009.

N. Cannata, F. Corradini, E. Merelli, F. Piersigilli, L. Vito Towards Bioinformatics Resourceomes. *Biomedical Data and Applications* 13-36, 2009

N. Cannata, F. Corradini, E. Merelli. Multiagent modelling and simulation of carbohydrate oxidation *International Journal of Modelling, Identification and Control (IJMIC)*, vol.1 n.3, ISSN: 1746-6172, 2008

E. Bartocci, F. Corradini, R. Grosu, E. Merelli, O. Riganelli, S. A. Smolka. StonyCam: A Formal Framework for Modeling, Analyzing and Regulating Cardiac Myocytes. *Concurrency, Graphs and Models*, LNCS Vol. 5065, 493-502, 2008

E. Merelli et al. Agents in Bioinformatics, Computational and Systems Biology. *Briefing in Bioinformatics*, Vol.8 Num. 1, 45-59, 2007

E. Merelli, M. Young. Validating MAS with mutation *International Journal of Multiagent and Grid Systems* Vol.3 Num. 2, ISSN 1574-1702, 2007

N. Cannata, F. Corradini, E. Merelli. A Resourceomic Grid for Bioinformatics. *International Journal of Grid Computing: Theory, Methods and Applications: Future Generation Computer Systems Journal*, Vol.23, n.3, ISSN: 0167-739X, 2007

E. Bartocci, F. Corradini, E. Merelli, Lorenzo Scortichini. BioWMS: a web-based Workflow Management System for Bioinformatics. *BMC Bioinformatics Int. Journal*, vol.8 suppl.1 ISSN: 1471-2105, 2007

Flavio Corradini, Emanuela Merelli: Hermes: Agent-Based Middleware for Mobile Computing. *SFM 2005 LNCS* Vol. 3465. 234-270.

N. Cannata, F. Corradini, E. Merelli, A. Omicini, A. Ricci. An agent-oriented conceptual framework for Systems Biology. *Transaction on Computational Systems Biology*, LNBI Vol. 3737, 105-122, Springer, ISBN: 3-540-30883-0, 2005

N. Cannata, E. Merelli, R.B. Altman. Time to organize the Bioinformatics Resourceome. *PloS Computational Biology*, Vol. 1, Num. 7, ISSN: 1553-734X, 2005

M. Luck and E. Merelli. Agents in Bioinformatics. *The Knowledge Engineering Review*, Vol. 20, Num. 2 117-125, Cambridge University Press, ISSN: 0269-8889, 2005

F. Corradini, L. Mariani, and E. Merelli. An agent-based approach to tool integration. *Software Tools for Technology Transfer*, Vol. 6 Num. 3, 231-244, Springer Journal, ISSN: 1433-2779, November 2004

R. De Leone, R. Capparuccia, E. Merelli. A successive overrelaxation back propagation algorithm for neural network training. *IEEE Transaction on Neural Networks*, volume 9, numero 3, pagine 381–389, ISSN: 045-9227, Maggio 1998.

E. Merelli, F. Pezzella. A tabu search method guided by a shifting bottleneck for a job shop scheduling. *European Journal of Operational Research*, volume 120, pagine 297-310, ISSN: 0377-2217, 2000

R. De Leone, R. Capparuccia, E. Merelli. A successive overrelaxation back propagation algorithm for neural network training. *IEEE Transaction on Neural Networks*, volume 9, numero 3, pagine 381–389, ISSN: 045-9227, Maggio 1998.

F. Caneschi, E. Merelli. An architecture for an asn.1 encoder/decoder. *Computer Networks, North Holland*, volume 14, pagine 297–303, ISSN: 1389-1286, 1987.

Camerino, 22th January 2011

Prof. Emanuela Merelli