

### Personal informations

Gender:	Male
Citizenship:	Italian
Civil status:	Single
Children:	none

### Contact informations

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### Professional Career

1. **Postdoctoral Research Scientist** (from March 2011), Department of Computer Science, University of Stony Brook, USA and Visiting Academic (from Oct. 2010) at Courant Institute, New York University (NYU), Project: *Computational Modeling and Analysis of Complex Systems (CMACS)*, Supervisors: Prof. James Glimm, Prof. Radu Grosu, Prof. Scott A. Smolka
2. **Postdoctoral Research Associate** (from Feb. 2010), Department of Applied Math and Statistics, University of Stony Brook, USA, Project: *Computational Modeling and Analysis of Complex Systems (CMACS)*, Supervisors: Prof. James Glimm, Prof. Radu Grosu, Prof. Scott A. Smolka
3. **Postdoctoral Research Associate** (from Apr. 2009 to Jan. 2010), University of Camerino (MC), Italy, Project: *BEAT: Behavior modeling, Efficient Analysis Techniques and regulation strategies for excitable cells using hybrid automata*, Supervisor: Prof. Flavio Corradini
4. **Research Assistant** during my PhD in Complex Systems and Information Science (from Jan. 2006 to Jan. 2009), University of Camerino (MC), Italy, Project: *LITBIO: Laboratory for Interdisciplinary Technologies in Bioinformatics*, Supervisor: Prof. Flavio Corradini
5. **Research Collaborator** (from Oct 2005 to Dic 2005), Dipartimento di Matematica e Informatica, University of Camerino (MC), Italy, Project: *Oncology Over Internet (O2I)*, Supervisor: Prof. Emanuela Merelli
6. **Fellowship as Junior Researcher** (Giu 2003/Feb 2004) during my MD in Bioinformatics, Dipartimento di Matematica e Informatica, University of Camerino (MC), Italy, Project: *Oncology Over Internet (O2I)*, Supervisor: Prof. Emanuela Merelli
7. **Technician** (from Nov 2002/Feb 2003) in the Proteum-Zentrum of Rostock University Rostock - Germany

### Education

1. PhD in Information Science and Complex Systems (January 2009), University of Camerino  
Thesis: *A Formal Framework for Modeling, Simulating and Analyzing Networks of Excitable Cells*  
Advisor: Prof. Flavio Corradini, Co-Advisors: Prof. Scott A. Smolka, Prof. Radu Grosu

2. Master Degree in Bioinformatics (14/04/2005),  
University of Camerino, Italy - Marks: 110/110 with honors.  
Thesis: *Sistema multiagente per la predizione, basata su ortologia, dell'interazione tra proteine*.  
Advisor: Prof. Emanuela Merelli  
Co-Advisor: Prof. Mauro Angeletti
3. Bachelor Degree in Computer Science (18/09/2002),  
University of Camerino, Italy - Marks: 110/110 with honors.  
Thesis: *AIXO: Un wrapper generalizzato XML*.  
Advisor: Prof. Emanuela Merelli  
Co-Advisor: Dott. Leonardo Mariani
4. High School Degree (Jul 1999),  
Liceo Scientifico di Falconara M.ma - Marks: 94/100

### Languages

English and Italian

### Research interests

Formal methods for in-silico biology, hybrid systems, spatial properties analysis, chaos and fractals, image analysis, pattern matching, machine learning, computational models in systems biology, bioinformatics, simulation, probabilistic models, model repair, model checking, workflow management systems, agent-based technology.

### Programming languages and skills

I have 10 years of experience in programming in C, C++ (skills with OpenMP, and OpenGL library), Java, PHP, Matlab. I'm an expert of GPU programming in particular using CUDA technology. Skills in developing database in MySQL, Ontologies, Web Services and Workflows. Knowledge of the bioinformatics tools (Blast, Fasta, ClustalW, Treecon, Ensembl, DAS, GenomeBrowser, BioJava, Taverna).

### Developed tools (some of them in collaboration with others)

1. HermesV2 (Middleware agent-based, component-based written in Java),  
<http://sourceforge.net/projects/hermes-project>
2. DBLP plugin for PhpBibliography - web based bibliography system,  
<http://phpbibliography.sourceforge.net/>
3. BioWMS - a web-based Workflow Management System for bioinformatics -  
<http://litbio.cs.unicam.it/index.php>
4. Resourceome - semantic knowledge management system based on multilevel ontology model, supporting both procedural and declarative knowledge.  
<http://resourceome.cs.unicam.it/>
5. CellExcite - an efficient simulation environment for excitable cells
6. Emerald - a tool for detecting emergent behavior in networks of cardiac myocytes
7. ExpressionView - a tool for visualization of quantitative trait loci and gene-expression data in Ensembl.

### Schools and Courses

1. 7th INTERNATIONAL SCHOOL ON FORMAL METHODS FOR THE DESIGN OF COMPUTER, COMMUNICATION AND SOFTWARE SYSTEMS: PERFORMANCE EVALUATION (SFM-07:PE) Bertinoro Univ. Residential Center - Italy, 28 May - 2 June 2007
2. Biomed Grid Summer School 2007 Villa Monastero, Via Polvani 2, Varenna, Italy 14-19/05/2007
3. First International Summer School on Emerging Trends in Concurrency TiC'06 University of Bologna Residential Center Bertinoro, Italy 24-29/07/2006
4. PhD course on probabilistic model checking University of Florence, Italy 7-9/06/2006
5. XV International School for Computer Science Researcher "Algorithmics for Data Mining and Pattern Discovery" Lipari (ME), Italia. 13-26/07/2003

### Grant and Awards

1. PostDoc grant 2010-2013  
CMACS: Computational Modeling and Analysis of Complex Systems
2. PostDoc grant 2009 - 2011  
BEAT: Behavior modeling, Efficient Analysis Techniques and regulation strategies for excitable cells using hybrid automata
3. ASSINT scholarship 2008
4. ASSICOS scholarship 2007
5. ASSICOS scholarship 2006
6. PhD scholarship 2007
7. Fellowship in the Oncology Over Internet (O2I) project 2003-2004
8. UNICAM Merit scholarship 2003 (for the best students of the University)
9. UNICAM Merit scholarship 2001 (for the best students of the University)

### Scientific Societies

1. Member of Bionformatics ITalian Society (BITS)
2. Member of SysBioHealth Society (SBH)

### Conference and Workshop organization

1. Co-Chair of the 1st International Workshop on Hybrid Modeling in Systems Biology (HMSB 2011), Atlanta, GA, USA
2. Member of the program committee of the 14th International Conference on Hybrid Systems: Computation and Control 2011, Chicago, USA
3. Member of the program committee of the 2nd International Workshop From Biology to Concurrency and back 2008, Reykjavik, Iceland

### Leaderships in the Student Union

1. Representative of PhD students in the School of Advanced Studies of Camerino University 2006/2008
2. Representative of BS and MSD Students in the council of the Faculty of Technology and Science of Camerino University 2002/2005

### Teaching

1. Professor on Contract in Lab. of Algorithms and Data Structures, Bachelor Degree of Computer Science, AA 2009/2010, University of Camerino
2. Professor on Contract in Project of Distributed Calculus and Coordination, Master Degree of Computer Science, AA 2009/2010, University of Camerino
3. Professor on Contract in Lab. of Algorithms and Data Structures, Bachelor Degree of Computer Science, AA 2008/2009, University of Camerino
4. Professor on Contract in Lab. of Algorithms and Data Structures, Bachelor Degree of Computer Science, AA 2007/2008, University of Camerino
5. Professor on Contract in Lab. of Algorithms and Data Structures, Bachelor Degree of Computer Science, AA 2006/2007, University of Camerino
6. Professor on Contract in Introduction to Computer Science, Bachelor Degree of Biotechnology (Course in English), AA 2005/2006, University of Camerino

### Invited Talks

1. 2011, June 29, IMT Institute for Advanced Studies, Lucca, Italy, Title: *Model Repair for Probabilistic Systems*, Seminar for PhD Students
2. 2011, June 24, University of Camerino, Italy, Title: *From Cardiac Cells to Genetics Regulatory Networks*, Seminar for Students and Doctoral Candidates
3. 2011, June 22, University of Camerino, Italy, Title: *Model Repair for Probabilistic Systems*, Seminar for Students and Doctoral Candidates
4. 2011, April 28, University of Maryland, USA, Title: *Towards Real-Time Simulation of 3D Cardiac Models Using GPUs*, CMACS PI Review Meeting at University of Maryland
5. 2011, Jan 13-21, Lehman College, USA, Title: *Implementing Cardiac Cell's Model using CUDA parallel programming*, 2011 NSF-CMACS Workshop on Atrial Fibrillation
6. 2010, Dec 15, Aristotle University Thessaloniki, Greece, Title: *Model Checking complex systems: detecting atrial fibrillation*
7. 2010, Oct 28, New York University, USA, Title: *Multi-Affine Cardiac Cell Models*, CMACS PI Review Meeting at NYU
8. 2009, Apr 3, Sophia Antipolis, France, Title: *Learning and Detecting Emergent Behaviour in Network of Cardiac Cells*, BioICT: The Heart in the Computer supported by ERCIM: European Research Consortium for Informatics and Mathematics
9. 2009, Apr 1, University of Udine, Italy, Title: *Learning and Detecting Emergent Behaviour in Network of Cardiac Cells*

10. 2009, Mar 28, York, England, Title: *Learning and Detecting Emergent Behaviour in Network of Cardiac Cells*, Kick-Off meeting of the ERCIM working group on Models and Logics for Quantitative Analysis in conjunction with ETAPS 2009

### Journal Papers

1. E. Bartocci, F. Corradini, M. R. Di Berardini, E. Merelli, L. Tesei, *Shape Calculus. A Spatial Mobile Calculus for 3D Shapes*, In Scientific Annals of Computer Science, Volume 20: pages 1-31 (2010)
2. E. Bartocci, D. Cacciagrano, M. R. Di Berardini, E. Merelli, L. Tesei, *Timed Operational Semantics and Well-Formedness of Shape Calculus*, In Scientific Annals of Computer Science, Volume 20: pages 33-52 (2010)
3. E. Bartocci, F. Corradini, E. Merelli, L. Tesei, *Detecting synchronisation of biological oscillators by model checking*, In Theoretical Computer Science, 411(20): 1999-2018 (2010)
4. R. Grosu, S. A. Smolka, F. Corradini, E. Entcheva, A. Wasilewska and E. Bartocci, *Learning and Detecting Emergent Behavior in Networks of Cardiac Myocytes*, In "Research Highlights" of Communication of ACM, (selected as the paper with the highest score of the HSCC conference) 2009 52(3): 97-105.
5. E. Bartocci, F. Corradini, M. R. Di Berardini, E. Entcheva, S. A. Smolka, R. Grosu *Modeling and Simulation a Cardiac Tissue using Hybrid I/O Automata*, In Theoretical Computer Science, 410(33-34): 3149-3165 (2009)
6. E. Bartocci, F. Corradini, E. Entcheva, R. Grosu, S. A. Smolka *CellExcite: an efficient simulation environment for excitable cells*, BMC Bioinformatics 2008 9(Suppl 2):S3
7. E. Bartocci, F. Corradini, E. Merelli, L. Scortichini *BioWMS: a web based Workflow Management System for Bioinformatics*, BMC Bioinformatics 2007 8(Suppl 1):S2
8. P. Romano, E. Bartocci, E. Merelli, G. Bertolini, F. De Paoli, D. Marra, G. Mauri, E. Merelli, L. Milanese *Biowep: a workflow enactment portal for bioinformatics applications*, BMC Bioinformatics 2007 8(Suppl 1):S19
9. E. Bartocci, D. Cacciagrano, N. Cannata, F. Corradini, E. Merelli, L. Milanese, P. Romano *An Agent-based Multilayer Architecture for Bioinformatics Grids*, IEEE Transactions on Nanobioscience 2007 6(2):142-148
10. G. Fischer, S. M. Ibrahim, G. A. Brockmann, J. Pahnke, E. Bartocci, Hans-Jürgen Thiesen, P. Serrano-Fernández, S. Möller *Expressionview: visualization of quantitative trait loci and gene-expression data in Ensembl*, Genome Biology 2003 4(2):R77

### Journal Papers submitted

1. E. Bartocci, R. Singh, F. von Stein, A. Amedome, Alan-Joseph Caceres, J. Castillo, E. Closser, G. Deards, A. Goltsev, R. Sta. Ines, C. Isbilir, J. Marc, D. Moore, D. Pardi, S. Sadhu, S. Sanchez, P. Sharma, A. Singh, J. Rogers, A. Wolinetz, T. Grosso-Applewhite, K. Zhao, A. Filipski, R. Gilmour Jr, R. Grosu, J. Glimm, S. A. Smolka, E. Cherry, E. Clarke, N. Griffith, and F. Fenton, *Teaching cardiac electrophysiology modeling to undergraduate students; using Java Applets and GPU programs to study arrhythmias and spiral wave dynamics*, Journal of Advances in Physiology Education
2. E. Bartocci, D. Cacciagrano, M. R. Di Berardini, E. Merelli, L. Vito, *UBILab: a web-based tool for ubiquitous in-silico experiments*, in Journal of Integrative Bioinformatics

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**Invited Papers**

1. E. Bartocci, F. Corradini, E. Merelli, R. Grosu, O. Riganelli, S. A. Smolka *StonyCam: a Formal Framework for Modeling, Analyzing and Regulating Cardiac Myocytes*, Concurrency, Graphs and Models 2008, Lecture Notes in Computer Science vol. 5065, pp. 493-502, Springer-Verlag

**Peer Review Conference Papers**

1. S. Stoller, E. Bartocci, J. Seyster, R. Grosu, K. Havelund, S. Smolka and E. Zadok, Runtime Verification with State Estimation, In RV 2011: Proceedings of the 2nd International Conference on Runtime Verification, San Francisco, September, 2011, To Appear
2. E. Bartocci, E. M. Cherry, J. Glimm, R. Grosu, S. A. Smolka, F. H. Fenton, Toward Real-time Simulation of Cardiac Dynamics, In CMSB 2011: Proceedings of the 11th International Conference on Computational Methods in Systems Biology, September, 2011, To Appear
3. A. Murthy, E. Bartocci, F. Fenton, J. Glimm, R. Gray, S.A. Smolka, and R. Grosu, Curvature Analysis of Cardiac Excitation Wavefronts, In CMSB 2011: Proceedings of the 11th International Conference on Computational Methods in Systems Biology, 2011, To Appear
4. R. Grosu, G. Batt, F. Fenton, J. Glimm, C. Le Guernic, S.A. Smolka and E. Bartocci, *From Cardiac Cells to Genetic Regulatory Networks*, In CAV 2011: Proceedings of the 23rd International Conference on Computer Aided Verification, Cliff Lodge, Snowbird, Utah, USA, July 2011.
5. E. Bartocci, R. Grosu, P. Katsaros, C.R. Ramakrishnan, S. A. Smolka, *Model Repair for Probabilistic Systems*, In TACAS 2011: Proceedings of the 17th International Conference on Tools and Algorithms for the Construction and Analysis of Systems, Saarbrücken, Germany, March 26 - April 3, LNCS 6605, pp. 326-340, 2011.
6. E. Bartocci, D. Cacciagrano, F. Corradini, E. Merelli, L. Vito, *A Resourceome for the automation of in-silico biological experiments*, International Conference on Computational and Systems Biology and Microbiology (BioSysCom), Cancun, Mexico, March 7-13, 2010.
7. E. Bartocci, M. R. Di Berardini, F. Corradini, E. Merelli, L. Tesei, *A Shape Calculus for Biological Processes*, 11th Italian Conf. on Theor. Computer Science. pp. 30-33. 2009.
8. R. Grosu, E. Bartocci, F. Corradini, E. Entcheva, S. A. Smolka, A. Wasilewska, *Learning and Detecting Emergent Behavior in Networks of Cardiac Myocytes*, In the proceedings of the 11th International Conference on Hybrid Systems: Computation and Control (HSCC'08), St. Louis, USA, April, 2008, Lecture Notes in Computer Science vol. 4981, pp. 229-243, Springer-Verlag
9. E. Bartocci, E. Merelli, L. Mariani: *An XML View of the "World"*, ICEIS (1) 2003: 19-27, Angers - France.

**Peer Review Workshop Papers**

1. 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, Electronic Notes in Theoretical Computer Science (To appear), Elsevier
2. E. Bartocci, F. Corradini, M. R. Di Berardini, E. Entcheva, R. Grosu, S. A. Smolka, *Spatial Networks of Hybrid I/O Automata for Modeling Excitable Tissue*, In the proceedings of

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FBTC'07 From Biology to Concurrency and Back International Workshop co-sited with CONCUR conference, Electronic Notes in Theoretical Computer Science vol. 194(3), pp. 86-102, Elsevier

3. E. Bartocci, F. Corradini, E. Merelli, L. Vito, *Model driven design and implementation of activity-based applications in Hermes*, Workshop From Objects to Agents - WOA 2006 - Demo Session, September 26-27, 2006, Catania Italy
4. E. Bartocci, F. Corradini, E. Merelli, *Building a Multiagent System from a User Workflow Specification*, Workshop From Objects to Agents - WOA 2006 - Demo Session, September 26-27, 2006, Catania Italy
5. E. Bartocci, D. Cacciagrano, N. Cannata, F. Corradini, E. Merelli, L. Milanesi, P. Romano, *A GRID-based multilayer architecture for bioinformatics*, In the proceedings of NETTAB'06 Network Tools and Applications in Biology, 2006 - Santa Margherita di Pula, Cagliari, Italy
6. E. Bartocci, F. Corradini, E. Merelli, *Enacting proactive workflows engine in e-Science*, In Proceedings of the 1st International Workshop on Workflow Systems in e-Science (WSES 06) ICCS 2006, Part III, LNCS 3993 -1012, Springer-Verlag