

# NICOLA PAOLETTI

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## Research Experience

- 2016-present **Postdoctoral Associate**, Department of Computer Science, Stony Brook University (USA)
- Automated design of robust controllers for fully closed-loop artificial pancreas
  - Analysis of robustness and vulnerabilities of implantable defibrillators algorithms
  - Machine learning methods for model checking
- 2014-2016 **Research Assistant**, Department of Computer Science, University of Oxford (UK)
- Quantitative verification and synthesis for cardiac pacemakers
  - Parameter synthesis methods for stochastic systems
- Oct-Dec 2013 **Research Internship**, Microsoft Research, Cambridge (UK)
- Synthesis of large-scale gene networks using Satisfiability Modulo Theories

## Education

- Mar 24, 2014 **Ph.D. in Information Sciences and Complex Systems**, University of Camerino (IT)  
Thesis: "Formal Computational Modelling of Bone Physiology and Disease Processes"
- Formal modeling and analysis of bone remodeling and bone metabolic diseases
  - Bioaccumulation and bioremediation in ecological networks
  - Formal modeling and verification of self-adaptive systems
- Oct 14, 2010 **Laurea Specialistica in Computer Science**. University of Camerino (IT)  
Marks: 110/110 cum laude
- Jul 17, 2008 **Laurea Triennale in Informatica**. University of Camerino (IT)  
Marks: 110/110 cum laude

## Awards

- 2016 **MCED Award, 2nd prize**, from Ecological Society of Germany, Austria and Switzerland for innovative contributions to ecological modelling.  
Awarded to co-author M. Taffi, see [http://www.mced-ecology.org/?page\\_id=1121](http://www.mced-ecology.org/?page_id=1121)
- 2015 **Valuable Artefacts Prize** from Department of Computer Science, University of Oxford  
"HeartVerify: model-based quantitative verification of implantable cardiac pacemakers"  
([www.cs.ox.ac.uk/news/1052-full.html](http://www.cs.ox.ac.uk/news/1052-full.html))
- 2015 **Best Young Researcher Paper Award** from International Society for Ecological Modelling  
Awarded to co-author M. Taffi
- 2014 **Commentary** in "Frontiers in Genetics" journal (see doi:10.3389/fgene.2015.00020)

- 2014 **Best Paper Award** at IEEE ICHI 2014 Conference
- 2013 **Best Young Researcher Award** from School of Advanced Studies, University of Camerino
- 2006,7,8,9 (4x) **Annual Merit Scholarships** from University of Camerino

In addition I was (co-)recipient of **five best poster awards** between 2011 and 2017 at Oxford Computer Science Conference 2017, 2nd and 3rd Scientific Day of Camerino University, NETTAB 2012 Workshop, and 2nd European Future Technologies Conference and Exhibition (EU FET flagship conference).

## Teaching

### Graduate courses

- Feb, Sep 2016 (2x) **Teaching assistant** in Object-Oriented Design  
Software Engineering Programme, Department of Computer Science, University of Oxford
- 2015 **Class Tutor** in Object-Oriented Programming  
Department of Computer Science, University of Oxford
- 2011 **Teaching Assistant** in Distributed Calculus and Coordination  
Department of Computer Science, University of Camerino

### Undergraduate courses

- 2013 **Teaching Assistant** in Programming  
Department of Computer Science, University of Camerino
- 2011,2,3 (3x) **Teaching Assistant** in Computer Architecture  
Department of Computer Science, University of Camerino
- 2012,3 (2x) **Contract Lecturer** in Computer Science  
Department of Mathematics, University of Camerino

## Student Supervision

- 2017-present **Co-supervised two high-school research students** on projects about security of defibrillator algorithms  
Co-supervision with Prof Scott A Smolka, Stony Brook University
- 2014-2015 **Co-supervised three 3-month internships** on modeling and analysis of cardiac pacemakers  
Co-supervision with Prof Marta Z Kwiatkowska, University of Oxford
- 2009 **Co-supervised BSc thesis** on a web-based operating system for bioinformatics  
Co-supervision with Prof Emanuela Merelli, University of Camerino

## Invited Talks and Visits

- Sep 2017 **Invited talk at the 1st Meeting of Italian American Scientist of Long Island (IASLI), Stony Brook University (USA)**  
Talk: "Designing a robust artificial pancreas using patient data: a computational study"
- Jun 2017 **Invited talk at I(CO)<sub>2</sub>S group, Newcastle University (UK)**  
Talk: "Syntax-guided optimal synthesis for chemical reaction networks"
- Jun 2017 **Invited talk at MathWorks Research Summit, Newton MA (USA)**  
Talk: "Model-Based Quantitative Verification of Implantable Cardiac Pacemakers"
- Dec 2015 **Visit at the Faculty of Informatics, Vienna University of Technology (AT)**  
Talk: "Quantitative verification and synthesis for pacemaker optimisation and personalisation"
- Jun 2015 **Participation to MathWorks Research Summit (invite-only), Newton MA (USA)**
- Mar 2015 **METABLE 2015 Training School, University of Cambridge (UK)**  
Talk: "Formal approaches to the synthesis of biological networks"
- Jan 2015 **Visit at the Faculty of Informatics, Masaryk University (CZ)**  
Talk: "Synthesising robust and optimal parameters for cardiac pacemakers"
- Jul 2014 **Molecular Walkers Workshop, University of Oxford (UK)**  
Talk: "Analyzing and Synthesizing Genomic Logic Functions"
- Aug-Sep 2013 **Visiting period at the School of Computer Science, Reykjavik University (IS)**
- Jun 2013 **Biological Computation Group, Microsoft Research, Cambridge (UK)**  
Talk: "Computational modelling of bone remodelling"
- Mar 2013 **TOPDRIM EU Project Meeting, CIRM, Marseille (FR)**  
Talk: "S[B] systems: a model for multi-level self-adaptive complex systems"
- Aug-Oct 2011 **Visiting period funded by HPC-EUROPA2 fellowship at the Edinburgh Parallel Computing Center, University of Edinburgh and Computer Laboratory, University of Cambridge (UK)**
- Feb-Mar 2011 **Visiting period at the School of Computer Science, Reykjavik University (IS)**  
Talk: "Formal aspects in spatial and hierarchical modelling: a survey"

In addition, I delivered several talks at international conferences and workshops, and a number of seminars for the Verification Seminars series, organised at the Computer Science department of Oxford University.

## Research Funding

- 2012 Contributed to the writing of the proposal for the **FP7 ICT FET Proactive TOPDRIM** project
- 2011 **HPC-EUROPA2 fellowship** on parallel agent-based simulation for bone remodeling  
Approximate value: £1800. Duration: 3 months.

I also contributed to writing three projects proposals (not granted): EPSRC IAA, EC FP7 FET and MIUR FIRB.

## Collaborations

- since 2017 **Prof Ezio Bartocci** (Vienna University of Technology), **Prof Paolo Zuliani** and **Dr Fedor Shmarov** (Newcastle University, UK)  
SMT-based synthesis of robust controllers for the artificial pancreas. Co-authored 1 publication.
- since 2016 **Prof Luca Cardelli** (Microsoft Research Cambridge, UK), **Prof Martin Fränzle** (Carl von Ossietzky Universität Oldenburg, DE), **Dr Luca Laurenti** and **Dr Max Whitby** (University of Oxford)  
Methods for the automated, syntax-guided synthesis of stochastic chemical reaction networks. Co-authored 1 publication.
- since 2016 **Prof Radu Calinescu** and **Dr Simos Gerasimou** (University of York)  
Methods for design automation and multi-objective optimization of stochastic systems. Co-authored 2 publications.
- since 2015 **Prof Ivan Martinovic** and **Dr Simon Eberz** (University of Oxford)  
Cyber-security of electrocardiogram-based biometrics. Co-authored 1 publication.
- 2015-2016 **Dr Tim Betts** (John Radcliffe Hospital, Oxford)  
Clinical validation of the heart and pacemaker models developed at University of Oxford
- 2013-2016 **Dr Hillel Kugler** (Bar-Ilan University, IL), **Dr Youssef Hamadi** (École Polytechnique, FR), **Dr Christoph Wintersteiger** and **Dr Boyan Yordanov** (Microsoft Research Cambridge, UK)  
Collaboration aimed to study the synthesis of large-scale Boolean gene regulatory networks, with focus on the sea urchin embryonic development. Co-authored 1 publication.
- 2012-2015 **Prof Pietro Liò** (University of Cambridge), **Dr Mauro Marini** (CNR-ISMAR, IT), **Dr Marianna Taffi** and **Dr Sandra Pucciarelli** (University of Camerino)  
Computational models of bioaccumulation and bioremediation in the Adriatic aquatic food network. Co-authored 2 publications.
- 2011-2014 **Prof Pietro Liò** (University of Cambridge), **Prof Marco Viceconti** (Sheffield University) and **Prof Ezio Bartocci** (Vienna University of Technology)  
Collaborative work examining agent-based, stochastic and hybrid models of bone remodeling. Co-authored 7 publications.

## Outreach and Public Engagement

- Jan - Apr 2017 **Attended two-day workshop and 15-hour course on science communication for the public and media**, Alda Center for Communicating Science, Stony Brook University
- Learned communication and story-telling techniques, and how to target different audiences
  - Prepared and gave a mock interview on my research by reporter from PBS's Scientific American Frontiers
- 2014 **Graduate Open Day**, Department of Computer Science, University of Oxford
- Organized a demonstration of my research work
  - Advised potential students on Ph.D. opportunities
- 2012 **Curiosando nella scienza: pillole di ricerca**, University of Camerino
- Seminar series to promote the work of young scientists.
- Delivered a seminar on Computational Systems Biology
  - Helped in the organization and promulgation of the event

# Professional Activities

## Conference Organisation

- Program co-chair of **VEMDP 2018**, the 3rd International Workshop on Verification of Engineered Molecular Devices and Programs
- Program co-chair of **CMSB 2016**, the 14th International Conference on Computational Methods in Systems Biology

## Member of Programme Committee

- **CMSB 2018, 2017, 2016** (Int. Conf. on Computational Methods in Systems Biology)
- Repeatability evaluation committee of **HSCC 2017** (ACM Int. Conf. on Hybrid Systems: Computation and Control)
- **DataMod 2017, 2016** (Int. Symposium "From Data to Models and Back")
- **SASB 2017, 2016** (Int. Workshop on Static Analysis and Systems Biology)
- **MASAMB 2016** (Annual Workshop on Mathematical and Statistical Aspects of Molecular Biology)
- Artifact evaluation committee of **CAV 2016** (Int. Conf. on Computer Aided Verification)
- **HSB 2016, 2015** (Int. Workshop on Hybrid System and Biology)
- **MedicalCPS 2016** (Workshop on Medical Cyber Physical Systems)
- **QAPL 2016** (Int. Workshop on Quantitative Aspects of Programming Languages)

## Peer-Review Experience

Below are the venues for which I have been, or currently am, reviewer or sub-reviewer (conferences and workshops where I have been PC member are not listed).

- Journals
- **Theoretical Computer Science** (Elsevier)
  - **Journal of Intelligent Information Systems** (Springer)
  - **ACM Transactions on Cyber-Physical Systems**
  - **Formal Methods in System Design** (Springer)
  - **Information and Computation** (Elsevier)
  - **Science of Computer Programming** (Elsevier)
  - **ACM Transactions on Modeling and Computer Simulation**
  - **Non-linear Analysis: Hybrid Systems** (Elsevier)
  - **PLoS One**
  - **PloS Computational Biology**
  - **BMC Bioinformatics**
  - **ACM Transactions on Software Engineering**

- Conferences
- **SPIN 2017** (Int. SPIN Symposium on Model Checking of Software)
  - **TACAS 2017** (Int. Conf. on Tools and Algorithms for the Construction and Analysis of Systems)
  - **HSCC 2017, 2016, 2015** (Int. Conf. on Hybrid Systems: Computation and Control)
  - **FASE 2016** (Int. Conf. on Fundamental Approaches to Software Engineering)
  - **CMSB 2015** (Int. Conf. on Computational Methods in Systems Biology)
  - **DNA21** (Int. Conf. on DNA Computing and Molecular Programming)
  - **CAV 2015, 2014** (Int. Conf. on Computer Aided Verification)
  - **RV 2014** (Int. Conf. on Runtime Verification)
  - **ICTCS 2012** (Italian Conf. on Theoretical Computer Science)

- Workshops
- **MedicalCPS 2014** (Workshop on Medical Cyber Physical Systems)
  - **HSB 2012** (Int. Workshop on Hybrid Systems and Biology)
  - **CS2BIO 2012** (Int. Workshop on Interactions between Computer Science and Biology)

## Membership to Professional Associations

- **Postdoc Advisory committee** of Stony Brook University
- **ACM** - Association for Computing Machinery
- **EATCS** - European Association for Theoretical Computer Science
- **ACiE** - Association for Computability in Europe
- **IEEE TCSIM** - Technical Committee on Simulation
- **IEEE EMBC** - Engineering in Medicine and Biology Society
- **ISEM** - International Society for Ecological Modelling

## Additional Work Experience

- since 2010    **Member of Next Generation Bioinformatics (NGB)**, University of Camerino spin-off
- 2008-2010    **Research Intern**, University of Camerino  
Development of a web-based Workflow Management System for bioinformatics services.
- Jan-Apr 2008    **Research Intern**, Dipartimento di Scienze Aziendali, University of Bologna (IT)  
Development of software for the harmonisation and matching of company names and data mining for trademarks and patents.
- Feb - Dec 2008    **Tutor for disabled students**, University of Camerino

# Publications (contributions I personally presented at conferences and workshops are marked with •)

## Edited Books and Volumes

- [1] E. Bartocci, P. Liò and N. Paoletti. Computational Methods in Systems Biology - 14th International Conference, CMSB 2016, Cambridge, UK, September 21-23, 2016, Proceedings. *Lecture Notes in Computer Science* 9859, Springer 2016, ISBN 978-3-319-45176-3.

## Journal Papers

- [1] E. Bartocci, P. Liò, E. Merelli and N. Paoletti. Multiple verification in complex biological systems: the bone remodelling case study. *Transactions on Computational Systems Biology*, XIV, LNCS 7625, pp. 53-76, 2012.
- [2] N. Paoletti, P. Liò, E. Merelli and M. Viceconti. Multi-level Computational Modeling and Quantitative Analysis of Bone Remodeling. *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 9(5), pp. 1366-1378, 2012.
- [3] P. Liò, N. Paoletti, M.A. Moni, K. Atwell, E. Merelli and M. Viceconti. Modelling osteomyelitis. *BMC Bioinformatics*, 13(Suppl 14):S12, 2012.
- [4] M. Taffi, N. Paoletti, C. Angione, S. Pucciarelli, M. Marini and P. Liò. Bioremediation in marine ecosystems: a computational study combining ecological modelling and flux balance analysis. *Frontiers in Genetics*, 5(319), 2014. **★MCED Best paper award (see [http://www.mced-ecology.org/?page\\_id=1121](http://www.mced-ecology.org/?page_id=1121))★** **★Featured in commentary article at doi:10.3389/fgene.2015.00020★**
- [5] M. Taffi, N. Paoletti, P. Liò, S. Pucciarelli, and M. Marini. Bioaccumulation modelling and sensitivity analysis for discovering key players in contaminated food webs: the case study of PCBs in the Adriatic Sea. *Ecological Modelling*, 306, pp. 205-215, 2015. **★ISEM Best Young Researcher Paper★**
- [6] E. Merelli, N. Paoletti and L. Tesei. Adaptability Checking in Complex Systems. *Science of Computer Programming*, 115-116, pp. 23-46, 2016.
- [7] M. Ceska, F. Dannenberg, N. Paoletti, M. Kwiatkowska and L. Brim. Precise Parameter Synthesis for Stochastic Biochemical Systems. *Acta Informatica*, 54, pp. 589-623, 2017
- [8] N. Paoletti, A. Patanè and M. Kwiatkowska. Closed-loop quantitative verification of rate-adaptive pacemakers. *ACM Transactions on Cyber-Physical Systems*, accepted, 2017.

## Peer-Reviewed Conference Papers

- [1] • N. Paoletti, P. Liò, E. Merelli and M. Viceconti. Osteoporosis: a multiscale modeling viewpoint. *CMSB 2011, the 9th International Conference on Computational Methods in Systems Biology*, ACM, pp. 183-193, 2011.
- [2] L. Tesei, E. Merelli and N. Paoletti. Multiple Levels in Self-adaptive Complex Systems: A State-Based Approach. *ECCS 2012, European Conference on Complex Systems, Springer Proceedings in Complexity*, pp. 1033-1050, 2014.
- [3] • N. Paoletti, B. Yordanov, Y. Hamadi, C.M. Wintersteiger and H. Kugler. Analyzing and Synthesizing Genomic Logic Functions. *CAV 2014, the 26th International Conference on Computer Aided Verification*, LNCS 8559, pp. 343-357, 2014.
- [4] • M. Kwiatkowska, H. Lea-Banks, A. Mereacre and N. Paoletti. Formal Modelling and Validation of Rate-Adaptive Pacemakers. *ICHI 2014, IEEE International Conference on Healthcare Informatics*, pp. 23-32, 2014. **★Best paper award★**
- [5] • M. Ceska, F. Dannenberg, M. Kwiatkowska and N. Paoletti. Precise Parameter Synthesis for Stochastic Biochemical Systems. *CMSB 2014, the 12th International Conference on Computational Methods in Systems Biology*, LNBI 8859, pp. 86-98, 2014.
- [6] • C. Barker, M. Kwiatkowska, A. Mereacre, N. Paoletti and A. Patanè. Hardware-in-the-loop simulation and energy optimization of cardiac pacemakers. *EMBC 2015, the 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, pp. 7188-7191, 2015.
- [7] M. Ceska, P. Pilar, N. Paoletti, L. Brim and M. Kwiatkowska. PRISM-PSY: Precise GPU Accelerated Parameter Synthesis for Stochastic Systems. *TACAS 2016, the 22nd International Conference on Tools and Algorithms for the Construction and Analysis of Systems*, LNCS 9636, pp. 367-384, 2016.
- [8] • B. Barbot, M. Kwiatkowska, A. Mereacre and N. Paoletti. Building Power Consumption Models from Executable Timed I/O Automata Specifications. *HSCC 2016, the 19th ACM International Conference on Hybrid Systems: Computation and Control*, ACM, pp. 195-204, 2016.
- [9] R. Calinescu, M. Ceska, S. Gerasimou, M. Kwiatkowska and N. Paoletti. Designing Robust Software Systems through Parametric Markov Chain Synthesis. *ICSA 2017, IEEE International Conference on Software Architecture*, pp. 131-140, 2017.
- [10] L. Cardelli, M. Ceska, M. Fränzle, M. Kwiatkowska, L. Laurenti, N. Paoletti and M. Whitby. Syntax-Guided Optimal Synthesis for Chemical Reaction Networks. *CAV 2017, International Conference on Computer Aided Verification*, pp. 375-395, 2017.
- [11] S. Eberz, N. Paoletti, M. Roeschlin, M. Kwiatkowska, I. Martinovic and A. Patanè. Broken hearted: How to attack ECG biometrics. *NDSS 2017, Network and Distributed System Security Symposium*, 2017.
- [12] R. Calinescu, M. Ceska, S. Gerasimou, M. Kwiatkowska and N. Paoletti. RODES: A Robust-Design Synthesis Tool for Probabilistic Systems. *QEST 2017, International Conference on Quantitative Evaluation of Systems*, pp. 304-308, 2017.
- [13] • N. Paoletti, K.S. Liu, S.A. Smolka and S. Lin. Data-Driven Robust Control for Type 1 Diabetes Under Meal and Exercise Uncertainties. *CMSB 2017, International Conference on Computational Methods in Systems Biology*, pp. 214-232, 2017.

- [14] F. Shmarov, N. Paoletti, E. Bartocci, S. Lin, S.A. Smolka and P. Zuliani. SMT-based Synthesis of Safe and Robust PID Controllers for Stochastic Hybrid Systems. *HVC 2017, Haifa Verification Conference*, pp. 131–146, 2017.
- [15] M. Ceska, N. Paoletti, M. Ceska. Precise Parameter Synthesis for Stochastic Petri Nets with Interval Rate Parameters. *International Conference on Computer Aided Systems Theory (EUROCAST 2017)*, to appear, 2017.
- [16] U. Mehmood, N. Paoletti, D. Phan, R. Grosu, S. Lin, S.D. Stoller, A. Tiwari, J. Yang and S.A. Smolka. Declarative vs Rule-based Control for Flocking Dynamics. *ACM Symposium on Applied Computing (SAC 2018)*, to appear, 2018.

## Peer-Reviewed Workshop Papers

- [1] • P. Liò, E. Merelli, N. Paoletti and M. Viceconti. A combined process algebraic and stochastic approach to bone remodeling. *CS2Bio 2011, the 3rd International Workshop on Interactions between Computer Science and Biology*, ENTCS 277, pp. 41-52, 2011.
- [2] • P. Liò, E. Merelli and N. Paoletti. Multiple verification in computational modeling of bone pathologies. *CompMod 2011, the 3rd International Workshop on Computational Models for Cell Processes*, EPTCS 67, pp. 82-96, 2011.
- [3] • E. Merelli, N. Paoletti and L. Tesei. A multi-level model for self-adaptive systems. *FOCLASA 2012, the 11th International Workshop on Foundations of Coordination Languages and Self Adaptation*, EPTCS 91, pp. 112–126, 2012.
- [4] • P. Liò, E. Merelli and N. Paoletti. Disease processes as hybrid dynamical systems. *HSB 2012, the 1st International Workshop on Hybrid Systems and Biology*, EPTCS 92, pp. 152-166, 2012.
- [5] P. Penna, N. Paoletti, G. Scarcella, L. Tesei, M. Marini and E. Merelli. DISPAS: an Agent-based Tool for the Management of Fishing Effort. *MoKMaSD 2013, the 2nd International Symposium on Modelling and Knowledge Management for Sustainable Development*, LNCS 8368, pp. 362-367, 2013.
- [6] • M. Kwiatkowska, A. Mereacre, N. Paoletti and Andrea Patanè. Synthesising robust and optimal parameters for cardiac pacemakers using symbolic and evolutionary computation techniques. *HSB 2015, the 4th International Workshop on Hybrid Systems and Biology*, LNCS/LNBI 9271, pp. 1-22, 2015.
- [7] M.A. Islam, H-K Lim, Nicola Paoletti, et al. CyberCardia project: Modeling, verification and validation of implantable cardiac devices. *BIBM 2016, IEEE International Conference on Bioinformatics and Biomedicine*, pp. 445-1452, 2016.

## Invited Papers

- [1] M. Kwiatkowska, A. Mereacre and N. Paoletti. On Quantitative Software Quality Assurance Methodologies for Cardiac Pacemakers. *ISOla 2014, the 6th International Symposium On Leveraging Applications of Formal Methods, Verification and Validation*, LNCS 8803, pp. 365-384, 2014.
- [2] B. Barbot, M. Kwiatkowska, A. Mereacre and N. Paoletti. Estimation and Verification of Hybrid Heart Models for Personalised Medical and Wearable Devices. *CMSB 2015, the 13th Conference on Computational Methods in Systems Biology*, LNBI 9308, pp. 3-7, 2015.

## Abstracts and Posters at Conferences and Workshops

- [1] • E. Merelli, N. Paoletti and P. Liò. Methodological Bridges for Complex Systems. *FET 2011, the 2nd European Future Technologies Conference and Exhibition. Procedia Computer Science*, 7, pp. 180-182, 2011. **\*3rd best poster award\***
- [2] • N. Paoletti, E. Merelli and P. Liò. Formal Analysis of Bone Clinical Pathologies. *NETTAB 2011 Workshop on Clinical Bioinformatics*, 2011.
- [3] G. Thoma, N. Paoletti and N. Cannata. Analysis of innovation activities of business companies with text mining algorithms: an application to patent and trademark data. *1st Scientific day of School of Science and Technology, University of Camerino*, 2011.
- [4] M. Taffi, P. Liò, E. Merelli, N. Paoletti, L. Tesei and M. Marini. How the investigation of the link between marine food web and bioremediation would lead to an improved human health risk assessment. *NETTAB 2012 Workshop on Integrated Bio-Search*, 2012. **\*2nd best poster award\***
- [5] • E. Merelli, N. Paoletti and L. Tesei. A shape-based approach to biomodels: an example for the bone remodelling workbench. *NETTAB 2012 Workshop on Integrated Bio-Search*, 2012.
- [6] • N. Paoletti, E. Merelli, P. Liò and E. Bartocci. Multiple verification in complex biological systems: the bone remodelling case study. *2nd Scientific day of School of Science and Technology, University of Camerino*, 2012. **\*Best poster award\***
- [7] M. Taffi, P. Penna, L. Tesei, E. Merelli, N. Paoletti and M. Marini. Ecological modelling and analysis of contaminants in the marine environment. *2nd Scientific day of School of Science and Technology, University of Camerino*, 2012.
- [8] P. Penna, M. Marini, L. Tesei, L. Bolognini, E. Merelli, N. Paoletti, M. Taffi and G. Scarcella. Spatial multi-scale agent-based fish behavioural model. *2nd Scientific day of School of Science and Technology, University of Camerino*, 2012.
- [9] M. Taffi, P. Liò, E. Merelli, N. Paoletti and M. Marini. Computational bioaccumulation modelling of POPs in the Adriatic ecosystem: a network analysis approach. *3rd Scientific day of School of Science and Technology, University of Camerino*, 2013.
- [10] P. Penna, M. Marini, L. Tesei, L. Bolognini, E. Merelli, N. Paoletti, M. Taffi and G. Scarcella. Having fun with FishPAS: agent-based simulator for assessing the impact of different fishing scenarios. *3rd Scientific day of School of Science and Technology, University of Camerino*, 2013.
- [11] • N. Paoletti, E. Bartocci, P. Liò and E. Merelli. Computing the optimal cocktail: formal methods and hybrid control for scheduling multiple treatments. *3rd Scientific day of School of Science and Technology, University of Camerino*, 2013. **\*Best poster award\***



- [12] M. Taffi, N. Paoletti, P. Liò, L. Tesei, E. Merelli and M. Marini. Sensitivity analysis for discovering key players in contaminated food webs. *ISEM 2013, the 19th biennial Conference of the International Society for Ecological Modelling*, 2013.
- [13] • M. Taffi, N. Paoletti, P. Liò, L. Tesei, E. Merelli and M. Marini. A Systems Biology and Ecology Framework for POPs Bioaccumulation in Marine Ecosystems. *CMSB 2013, the 11th International Conference on Computational Methods in Systems Biology*, LNCS/LNBI 8130, pp. 238-239, 2013.
- [14] F. Dannenberg, M. Ceska, N. Paoletti and M. Kwiatkowska. Guiding the development of DNA walker systems to guarantee reliability and performance. *VEMDP 2014, Workshop on Verification of Engineered Molecular Devices and Programs*, 2014.
- [15] M. Taffi, C. Angione, N. Paoletti, S. Pucciarelli, M. Marini and P. Liò. Bioengineering metabolic pathways of PCBs degrading bacteria for the optimisation of ecological functions. *EBC-VI 2015, the 6th European Bioremediation Conference*, 2015.
- [16] H. Kugler, N. Paoletti, B. Jordanov, Y. Hamadi and C.M. Wintersteiger. Synthesizing a gene regulatory network for sea urchin development. *11th Cold Spring Harbor conference on Systems Biology: Global Regulation of Gene Expression*, 2016.
- [17] • N. Paoletti, A. Patanè and M. Kwiatkowska. Closed-loop quantitative verification of rate-adaptive pacemakers. *MedicalCPS 2016, the 7th Workshop on Medical Cyber Physical Systems*, 2016.
- [18] M. Ceska, N. Paoletti, L. Brim and M. Kwiatkowska. Recent Advances in Precise Parameter Synthesis for Continuous-Time Markov Chains. *SynCoP 2016, the 3rd International Workshop on Synthesis of Complex Parameters*, 2016.
- [19] R. Calinescu, M. Ceska, S. Gerasimou, M. Kwiatkowska and N. Paoletti. Recent Advances in Designing Robust Probabilistic Systems. *DARS 2017, 2nd Workshop on Design and Analysis of Robust Systems*, 2017.
- [20] N. Paoletti, A. Patanè and M. Kwiatkowska. Closed-loop quantitative verification of rate-adaptive pacemakers. *OxCSC 2017, Oxford Computer Science Conference*, 2017. **★Best poster award★**
- [21] S. Eberz, N. Paoletti, M. Roeschlin, M. Kwiatkowska, I. Martinovic and A. Patanè. Broken Hearted: A Novel Cross-Device Presentation Attack Against ECG Biometrics. *OxCSC 2017, Oxford Computer Science Conference*, 2017.
- [22] • N. Paoletti, K.S. Liu, S.A. Smolka and S. Lin. Data-Driven Robust Control for Type 1 Diabetes Under Meal and Exercise Uncertainties. *CEWIT 2017, the 13th International Conference on Emerging Technologies for a Smarter World*, 2017.