



Laura Nenzi

Curriculum Vitae

PERSONAL DETAILS

<i>Birth</i>	December 10, 1984
<i>Address</i>	Cannaregio 1863/H, Venezia, Italy
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RESEARCH INTERESTS

My research interests are focussed on formal methods applied to design and analysis of complex systems, and in particular of collective adaptive systems and cyber-physical systems. Currently, I am working in the development of an original formal framework to validate and optimise the behaviour of complex systems, keeping track of their spatio-temporal dynamical properties. In particular, I am developing spatio-temporal logics to express formal requirements on the performance of the system, and scalable model checking algorithms to validate them; furthermore, I am working to provide a formal setting for parameter estimation and system design problem for these kind of systems and properties.

EMPLOYMENT

Research Collaborator <i>IMT, Lucca, Italy</i>	September 2016-
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Research Project Fellowship Holder <i>IMT, Lucca, Italy</i>	March-July/2016
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EDUCATION

PhD in Computer Science (XVIII Cycle) <i>IMT, Lucca, Italy</i>	2013-2016
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Master of Science degree in Mathematics <i>University of Trieste, Italy</i> Final grade: 110/110 Thesis: Characterization of motif behaviors by quantitative temporal logic. Supervisor: Prof. Luca Bortolussi.	2010-2012
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Bachelor of Science degree in Mathematics <i>University of Padova, Italy</i>	2006-2010
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Thesis: Modelli biomeccanici per la formazione di pattern (Biomechanical models for pattern formation).

Supervisors: Prof. Francesco Fassò, Prof. Marco Favretti.

Bachelor of Science degree in Biotechnology 2003-2006
University of Padova, Italy

Final grade: 105/110

Thesis: Cellule staminali adulte nell'ingegneria tissutale: la ricostruzione epiteliale (Adult stem cells in the tissue engineering: epithelium reconstruction).

Supervisor: Prof. Lucia Celotti.

High School 1998-2003
Liceo Scientifico G.B.Benedetti, Venezia, Italy

Final grade: 98/100

GRANTS AND FUNDING

Erasmus Mobility for Traineeship 2014/2015
IMT Lucca-Saarland University

From October 2014 until May 2015, I was a visiting researcher at the Saarland University, in the MoSi (Modelling and Simulation) group.

International Mobility Scholarship 08-10/2012
University of Trieste-University of Edinburgh

I worked on my thesis as a visitor student at the School of Informatics of the University of Edinburgh under the supervision of Luca Bortolussi and Jane Hillstone.

Erasmus Mobility Scholarship 2008-2009
University of Padova-University of Warwick

I passed 9 months at the University of Warwick where I took several exams for my Bachelor in Mathematics.

SKILLS

Languages Italian (mother tongue)

English (fluent)

Software MATLAB, JAVA, C, PYTHON, MATHEMATICA, EXCEL, WINDOWS, L^AT_EX

PUBLICATIONS

E. Bartocci, L. Bortolussi, L. Nenzi, D. Milios, G. Sanguinetti, **Studying Emergent Behaviours in Morphogenesis using Signal Spatio-Temporal Logic**, in Proc. of *HSB 2015: the 4nd Intern. Workshop on Hybrid Systems and Biology*, Madrid, Spain, 2015.

L. Nenzi, L. Bortolussi, V. Ciancia, M. Loreti, M. Massink, **Qualitative and Quantitative Monitoring of Spatio-Temporal Properties**, in Proc. of *Runtime Verification 2015: The 15th International Conference on Runtime Verification*, Vienna, Austria, 2015.

L. Bortolussi, L. Nenzi, **Specifying and monitoring properties of stochastic spatio-temporal systems in signal temporal logic**, in Proc. of *VALUETOOLS 2014: the 8th International Conference on Performance Evaluation Methodologies and Tools*, Bratislava, Slovakia, pp. 66-73, 2014.

E. Bartocci, L. Bortolussi, L. Nenzi, G. Sanguinetti, **System Design of Stochastic Models using Robustness of Temporal Properties**, in *Theoretical Computer Science*, vol. 587, pp. 3-25, 2015.

E. Bartocci, L. Bortolussi, L. Nenzi, G. Sanguinetti, **On the robustness of temporal properties for stochastic models**, in Proc. of *HSB 2013: the 2nd Intern. Workshop on Hybrid Systems and Biology*, Taormina, Italy, vol. 125(1), pp. 3-19, 2013.

E. Bartocci, L. Bortolussi, L. Nenzi, **A temporal logic approach to modular design of synthetic biological circuits**, in Proceedings of *CMSB 2013: the 11th International Conference on Computational Methods in Systems Biology*, Austria, Springer-Verlag, Lecture Notes in Computer Science, vol. 8130, pp. 164-178, 2013 .

COMMUNITY SERVICE

Reviewer Activity

- Subreviewer for FoCAS 2014
- Subreviewer for RV 2015
- Subreviewer for HSCC 2016, CONCUR 2016 QEST 2016, ICTS 2016
- Reviewer for Formal Methods in System Design

CONFERENCES AND SCHOOLS ATTENDED

RV 2015 <i>Vienna, Austria</i> 15th International Conference on Runtime Verification	22-25/09/2015
HSB 2015 <i>Madrid, Spain</i> 4th International Workshop on Hybrid Systems and Biology	04-05/09/2015
Dagstuhl Seminar 14521 <i>Dagstuhl, Germany</i> Collective Adaptive Systems: Qualitative and Quantitative Modelling and Analysis	14-19/12/2014
VALUETOOLS 2014 <i>Bratislava, Slovakia</i> 8th International Conference on Performance Evaluation Methodologies and Tools	08-10/12/2014
QEST 2014 <i>Florence, Italy</i> 11th International Conference on Quantitative Evaluation of SysTems	08-10/09/2014
MOVEP 2014 <i>Nantes, France</i>	07-13/07/2014

11th Summer School on Modelling and Verification of Parallel Processes

- HSB 2013** 02/09/2013
Taormina, Italy
Second International Workshop on Hybrid Systems and Biology
- PhD Summer School** 10-14/09/2012
Udine, Italy
Biology, Computation and Information
- MLQA Workshop** 09/08/2012
School of Informatics, Edinburgh
Compositional Modelling and Analysis of Quantitative Systems

CONFERENCE AND WORKSHOP TALKS

- 24/09/2015:** “*Qualitative and Quantitative Monitoring of Spatio-Temporal Properties*”, 15th International Conference on Runtime Verification, Vienna, Austria.
- 05/09/2015:** “*Studying Emergent Behaviours in Morphogenesis using Signal Spatio-Temporal Logic*”, 4th International Workshop on Hybrid Systems and Biology, Madrid, Spain.
- 09/12/2014:** “*Specifying and Monitoring Properties of Stochastic Spatio-Temporal Systems in Signal Temporal Logic*”, 8th International Conference on Performance Evaluation Methodologies and Tools, Bratislava, Slovakia.
- 02/09/2013:** “*On the Robustness of Temporal Properties for Stochastic Models*”, 2nd International Workshop on Hybrid Systems and Biology, Taormina, Italy

INVITED SEMINAR TALKS

- 12/01/2016:** “*Reinforcement Learning in Quantitative Formal Methods*”, University of Trieste, Trieste, Italy.
- 24/05/2015:** “*Qualitative and Quantitative Monitoring of Spatio-Temporal Properties*”, Saarland University, Saarbrücken, Germany.
- 28/05/2013:** “*A temporal logic approach to modular design of synthetic biological circuits*”, ISTI, Pisa, Italy.

OTHER TALKS

- 15/12/2015:** “*Qualitative and Quantitative Monitoring of Spatio-Temporal Properties*”, QUANTICOL plenary meeting, Lucca, Italy.
- 05/02/2015:** “*Specifying and Monitoring Properties of Stochastic Spatio-Temporal Systems in SCTL*”, QUANTICOL plenary meeting, Grenoble, France.
- 14/11/2014:** “*Specifying and Monitoring Properties of Stochastic Spatio-Temporal Systems in Signal Temporal Logic*”, Lucca, Italy.
- 11/07/2014:** “*Verification of stochastic and spatial behaviours of complex systems*”, 11th Summer School on Modelling and Verification of Parallel Processes, Nantes, France.

- 24/06/2014:** “*SSTL: The Signal Spatio-Temporal Logic,*”, QUANTICOL scientific meeting, Lucca, Italy.
- 06/02/2014:** “*Spatio-Temporal logics for CAS*”, Thesis Proposal, Lucca, Italy.
- 30/10/2013:** “*Modelling bike sharing in StoKlaim*”, QUANTICOL Space Workshop, Informatics Forum, Edinburgh.
- 21/02/2013:** “*Signal Temporal Logic: a good logic for quantitative analysis*”, QUANTICOL pre kick-off meeting, Lucca, Italy.
- 27/10/2012:** “*A logic-based approach to determine the connection between modules and their behavioral properties*”, Informatics Forum, Edinburgh.