

## PERSONAL INFORMATION

Name **Andrea Vandin**  
Nationality Italian  
Date of birth 12/07/84  
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Home page <http://www.imtlucca.it/andrea.vandin>  
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### Summary

September 2017 – Onwards Starting from September 2017 I will become a tenure-track Assistant Professor at [DTU Compute](#), Denmark.  
July 2015 – September 2017 Since July 2015 I am an Assistant Professor within the Research Unit [SysMA](#) of [IMT School for Advanced Studies Lucca](#) Italy, as well as a member of the European project [QUANTICOL](#).  
March 2013 – July 2015 Before that, I was a Senior Research Assistant at the [University of Southampton](#), UK, as well as a member of the European project [ASCENS](#). In May 2013 I got a scholarship grant from [LMU Munich](#), Germany.  
March 2010 – March 2013 I received my PhD in Computer Science and Engineering, as well as the Doctoral European certification from [IMT School for Advanced Studies Lucca](#), Italy in 2013. From January to June 2012 I was a Teaching Assistant at [Leicester University](#), UK.  
September 2003 – March 2010 From December 2009 to March 2010 I worked as designer of software systems at [ION Trading](#), a company leader in software for e-trading. In 2009 and 2006 I obtained, respectively, the Master and Bachelor degrees with honors in Computer Science from [University of Pisa](#), Italy. I spent a term of my Bachelor at [Queen Mary University of London](#), UK.

### Research interests

I am interested in the development of language-based techniques for the formal qualitative and quantitative system analysis, including state space reduction and approximation. Currently, I am investigating analysis techniques for languages provided with formal semantics based on ordinary differential equations (ODEs) or continuous time Markov chains (CTMC). These include chemical reaction networks, stochastic process algebras and Petri nets. Also, a number of communication protocols and distributed systems have been recently described in terms of ODEs.

I am interested in applying my research in practice, and hence I provided tool support for most of my contributions. The most notable example is [ERODE](#).

Furthermore, I am investigating statistical analysis techniques. I developed the distributed Statistical Model Checker [MultiVeStA](#), which allows to enrich discrete-event simulators with automatic statistical analysis capabilities. The tool has been used independently by research teams from LMU Munich, Germany, University of Cagliari, Italy, and IIT Hyderabad, India.

H-index Google Scholar: 12, Scopus: 8  
Citations Google Scholar: 409, Scopus: 228  
ORCID [orcid.org/0000-0002-2606-7241](https://orcid.org/0000-0002-2606-7241)

## SELECTED

### PUBLICATIONS

DBLP: <http://dblp.uni-trier.de/db/indices/a-tree/v/Vandin:Andrea.html>  
Google Scholar: <http://scholar.google.it/citations?user=bD0SFxoAAAAJ&hl=en>  
Scopus: <https://www.scopus.com/authid/detail.uri?authorId=36662971300>

Five most significant recent publications

**Maximal aggregation of polynomial dynamical systems**, Luca Cardelli, Mirco Tribastone, Max Tschaikowski, Andrea Vandin, Proceedings of the National Academy of Sciences ([PNAS](#)).

**BProVe: a Formal Verification Framework for Business Process Models**, Fabrizio Fornari, Andrea Polini, Barbara Re, Francesco Tiezzi, Andrea Vandin, 32<sup>nd</sup> Conference on IEEE/ACM International Conference on Automated Software Engineering ([ASE'17](#));

**Comparing Chemical Reaction Networks: A Categorical and Algorithmic Perspective**, Luca Cardelli, Mirco Tribastone, Max Tschaikowski, Andrea Vandin, 35<sup>th</sup> Symposium on Logic in Computer Science ([LICS'16](#)), ACM;

**Symbolic computation of Differential Equivalences**, Luca Cardelli, Mirco Tribastone, Max Tschaikowski, Andrea Vandin, 43<sup>rd</sup> Symposium on Principles of Programming Languages ([POPL'16](#)), ACM;

**Efficient Syntax-driven Lumping of Differential Equations**, Luca Cardelli, Mirco Tribastone, Max Tschaikowski, Andrea Vandin, 22<sup>nd</sup> Conference on Tools and Algorithms for the Construction and Analysis of Systems ([TACAS'16](#)), Springer LNCS;

Further most significant recent publications

**Forward and Backward Bisimulations for Chemical Reaction Networks**, Luca Cardelli, Mirco Tribastone, Max Tschaikowski, Andrea Vandin, 26<sup>th</sup> Conference on Concurrency Theory ([CONCUR'15](#)), LIPIcs;

**ERODE: A Tool for the Evaluation and Reduction of Ordinary Differential Equations**, Luca Cardelli, Mirco Tribastone, Max Tschaikowski, Andrea Vandin, 23<sup>rd</sup> Conference on Tools and Algorithms for the Construction and Analysis of Systems ([TACAS'17](#)), Springer LNCS;

**Differential Bisimulation for a Markovian Process Algebra**, Giulio Iacobelli, Mirco Tribastone, Andrea Vandin, 40<sup>th</sup> International Symposium on Mathematical Foundations of Computer Science ([MFCS'15](#)), Springer LNCS;

**Statistical Analysis of Probabilistic Models of Software Product Lines with Quantitative Constraints**, Maurice ter Beek, Axel Legay, Alberto Luch Lafuente, Andrea Vandin, 19<sup>th</sup> International Software Product Line Conference (**SPLC'15**), ACM;

**Modeling and analyzing adaptive self-assembling strategies with Maude**, Roberto Bruni, Andrea Corradini, Fabio Gadducci, Alberto Luch Lafuente, Andrea Vandin, Science of Computer Programming (**SCP**), volume 99, 2015, Elsevier;

## PROFESSIONAL SERVICE

1. 2015-Now, IMT Lucca: Member of the PhD selection committee (we receive about 1000 applications per year)
2. 2015 IMT Lucca: Member of the selection committee for a position of Research collaborator
3. 2016 IMT Lucca: Member of the selection committee for a position of Research collaborator
1. [AEC](#) Member of the 44<sup>th</sup> Annual Symposium on Principles of Programming Languages ([POPL'18](#))
2. Invited speaker of the 15<sup>th</sup> International Workshop on Quantitative Aspects of Programming Languages ([QAPL'17](#))
3. PC member of the 9<sup>th</sup> International Workshop on Practical Applications of Stochastic Modelling ([PASM'17](#))
4. PC member of the 15<sup>th</sup> conference on Computational Methods for Systems Biology ([CMSB'17](#))
5. PC member of the 21<sup>st</sup> International Systems and Software Product Line Conference ([SPLC'17](#))
6. [AEC](#) Member of the 44<sup>th</sup> Annual Symposium on Principles of Programming Languages ([POPL'17](#))
7. PC member of the 8<sup>th</sup> International Workshop on Practical Applications of Stochastic Modelling ([PASM'16](#))
8. PC member of the 2<sup>nd</sup> PDP Session on Formal Approaches to Parallel and Distributed Systems ([4PAD'15](#))
9. PC member of the 5<sup>th</sup> International Workshop on Modeling and Simulation of P2P and Autonomic Systems ([MOSPAS'14](#))
10. PC member of the 1<sup>st</sup> PDP Session on Formal Approaches to Parallel and Distributed Systems ([4PAD'14](#))
11. Local organizer of the 2<sup>nd</sup> Awareness Summer School ([AWASS'13](#))
12. Reviewer for many international conferences and journals, including:
  - 2017: TCS, Journal of Systems and Software, Acta Informatica, POPL (Artifact Evaluation), CSR, QEST, SEFM, Kim Larsen Fest, CMSB, SPLC, ICTCS
  - 2016: CONCUR, DataMod, ICSR, IJCAI, ISOLA, LATA, PASM, SEFM
  - 2015: IJSPM, ICFEM, MFCS, RV, SCPE, SPLC, Nielson Fest
  - 2014: 4PAD, COORDINATION, Wirsing Fest, FORTE, JLAMP, LATA, MOSPAS, QEST, SBMF, SimuTools, WRLA
  - 2013: 4PAD, AWASS, CONCUR, IFM, SCP, TGC, VALUETOOLS
  - 2012: CONCUR, GRAPHITE, GT-VMT, ICE, K, WADT, WRLA
  - 2011: ASE, GT-VMT, SPIN, WADT

## PROJECTS

1. Member of the European FP7-ICT STREP Project [QUANTICOL](#) (A Quantitative Approach to Management and Design of Collective and Adaptive Behaviours), 2013-NOW;
2. Member of the project [FiliaraSicura](#) (Securing the supply chain of domestic critical infrastructures from cyber attacks), 2017-NOW;

## PAST PROJECTS

3. Member of the European FP7-ICT Integrated Project [ASCENS](#) (Autonomic Service-Component Ensembles), 2010-2014.
4. Member of the Italian PRIN Project [CINA](#) (Compositionality, Interaction, Negotiation and Autonomicity), 2013;

## TEACHING

1. Lecturer of the PhD course "Advanced Topics of Computer Science", IMT Lucca, Italy
  - Research-based teaching
2. Lecturer of the PhD course "Qualitative and Quantitative Formal Methods for Computer Science", IMT Lucca, Italy
  - Introduction to quantitative modelling and analysis of distributed systems
3. Lecturer at the 16<sup>th</sup> International School on Formal Methods for the Design of Computer, Communication and Software Systems (SFM2016) [[lecture notes](#)], 2016
  - Research-based teaching
4. Lecturer of the MSc course "Formal Modeling of Software Intensive Systems", University of Camerino, Italy, 2015
  - Development of interpreters for programming languages
5. Lecturer and mentor at the 1st Awareness Summer School (AWASS2012), 2012
  - Research-based teaching
6. Teaching assistant of the MSc course "Distributed Systems and Applications", University of Leicester, UK, 2012
  - Implementation of distributed systems using Java technology

## TOOLS

1. ERODE: Evaluation and Reduction of Ordinary Differential Equations; <http://sysma.imtlucca.it/tools/erode>
2. MultiVeStA: Distributed Statistical Model Checking for Discrete Event Simulators; <http://sysma.imtlucca.it/tools/multivesta>
3. QFlan: Analysis of Probabilistic Software Product Lines with Quantitative Constrains; <http://sysma.imtlucca.it/tools/qflan>

## PROTOTYPAL TOOLS

4. CAGE: Category-driven Algorithm for the Generation of Emulations; <http://sysma.imtlucca.it/tools/erode/cage>
5. MISSCEL: Maude Interpreter and Simulator for SCEL; <http://sysma.imtlucca.it/tools/misscel>
6. MESSI: Maude Ensemble Strategies Simulator and Inquirer. Design and performance evaluation of self-assembly strategies with Maude; <http://sysma.imtlucca.it/tools/ensembles>
7. C-reducer: Automatic c-reduction of object-based modules for the Maude system; <http://sysma.imtlucca.it/tools/c-reducer>
8. MAIA: Maude tool for Adaptable Interface Automata. <http://sysma.imtlucca.it/tools/maia>

## COMPLETE LIST OF PUBLICATIONS

DBLP: <http://dblp.uni-trier.de/db/indices/a-tree/v/Vandin:Andrea.html>  
Google Scholar: <http://scholar.google.it/citations?user=bD0SFxoAAAAJ&hl=en>  
Scopus: <https://www.scopus.com/authid/detail.uri?authorId=36662971300>

### Journal papers

1. **Maximal aggregation of polynomial dynamical systems**, Luca Cardelli, Mirco Tribastone, Max Tschaikowski, Andrea Vandin, Proceedings of the National Academy of Sciences (**PNAS**).
2. **Modeling and analyzing adaptive self-assembling strategies with Maude**, Roberto Bruni, Andrea Corradini, Fabio Gadducci, Alberto Lluch Lafuente, Andrea Vandin, Science of Computer Programming, volume 99, 2015, IOS Press;
3. **Counterpart semantics for a second-order mu-calculus**, Fabio Gadducci, Alberto Lluch Lafuente, Andrea Vandin, Fundamenta Informaticae, volume 118, 2012, Elsevier;

### Conference papers

4. **BProVe: a Formal Verification Framework for Business Process Models**, Fabrizio Fornari, Andrea Polini, Barbara Re, Francesco Tiezzi, Andrea Vandin, 32<sup>nd</sup> Conference on IEEE/ACM International Conference on Automated Software Engineering (**ASE'17**);
5. **Transient and Steady-State Statistical Analysis for Discrete Event Simulators**, Stephen Gilmore, Daniel Reijbergen, Andrea Vandin, 13<sup>th</sup> International Conference on Integrated Formal Methods (**IFM'17**), Springer LNCS;
6. **EGAC: A Genetic Algorithm to Compare Chemical Reaction Networks**, Stefano Tognazzi, Mirco Tribastone, Max Tschaikowski, Andrea Vandin, The Genetic and Evolutionary Computation Conference (**GECCO'17**), ACM;
7. **ERODE: A Tool for the Evaluation and Reduction of Ordinary Differential Equations**, Luca Cardelli, Mirco Tribastone, Max Tschaikowski, Andrea Vandin, 23<sup>rd</sup> Conference on Tools and Algorithms for the Construction and Analysis of Systems (**TACAS'17**), Springer LNCS;
8. **Comparing Chemical Reaction Networks: A Categorical and Algorithmic Perspective**, Luca Cardelli, Mirco Tribastone, Max Tschaikowski, Andrea Vandin, 35<sup>th</sup> Symposium on Logic in Computer Science (**LICS'16**), ACM;
9. **Symbolic computation of Differential Equivalences**, Luca Cardelli, Mirco Tribastone, Max Tschaikowski, Andrea Vandin, 43<sup>rd</sup> Symposium on Principles of Programming Languages (**POPL'16**), ACM;
10. **Efficient Syntax-driven Lumping of Differential Equations**, Luca Cardelli, Mirco Tribastone, Max Tschaikowski, Andrea Vandin, 22<sup>nd</sup> Conference on Tools and Algorithms for Construction and Analysis of Systems (**TACAS'16**), Springer LNCS;
11. **Forward and Backward Bisimulations for Chemical Reaction Networks**, Luca Cardelli, Mirco Tribastone, Max Tschaikowski, Andrea Vandin, 26<sup>th</sup> Conference on Concurrency Theory (**CONCUR'15**), LIPIcs;
12. **Differential Bisimulation for a Markovian Process Algebra**, Giulio Iacobelli, Mirco Tribastone, Andrea Vandin, 40<sup>th</sup> International Symposium on Mathematical Foundations of Computer Science (**MFCS'15**), Springer LNCS;
13. **Statistical Analysis of Probabilistic Models of Software Product Lines with Quantitative Constraints**, Maurice ter Beek, Axel Legay, Alberto Lluch Lafuente, Andrea Vandin, 19<sup>th</sup> International Software Product Line Conference (**SPLC'15**), ACM;
14. **An Analysis Pathway for the Quantitative Evaluation of Public Transport Systems**, Stephen Gilmore, Mirco Tribastone, Andrea Vandin, 11<sup>th</sup> International Conference on Integrated Formal Methods (**IFM'14**), Springer LNCS;
15. **Distributed Statistical Analysis of Complex Systems Modeled Through a Chemical Metaphor**, Danilo Pianini, Stefano Sebastio, Andrea Vandin, 2014 International Conference on High Performance Computing & Simulation (**HPCS'14**) IEEE;
16. **MultiVeStA: Statistical Model Checking for Discrete Event Simulators**, Stefano Sebastio, Andrea Vandin, 7<sup>th</sup> International Conference on Performance Evaluation Methodologies and Tools (**VALUETOOLS'13**), ACM;
17. **State Space c-Reductions of Concurrent Systems in Rewriting Logic**, Alberto Lluch Lafuente, José Meseguer, Andrea Vandin, 14<sup>th</sup> International Conference on Formal Engineering Methods (**ICFEM'12**), Springer LNCS;
18. **Exploiting over- and under-approximations for infinite-state counterpart models**, Fabio Gadducci, Alberto Lluch Lafuente, Andrea Vandin, 6<sup>th</sup> International Conference on Graph Transformation (**ICGT'12**), Springer LNCS;
19. **A Conceptual Framework for Adaptation**, Roberto Bruni, Andrea Corradini, Fabio Gadducci, Alberto Lluch Lafuente, Andrea Vandin, 15<sup>th</sup> International Conference on Fundamental Approaches to Software Engineering (**FASE'12**), Springer LNCS;

20. **Counterpart semantics for a second-order mu-calculus**, Fabio Gadducci, Alberto Lluch Lafuente, Andrea Vandin, 5<sup>th</sup> International Conference on Graph Transformation ([ICGT'10](#)), Springer LNCS.
- Book contributions
21. **Quantitative Abstractions for Collective Adaptive Systems**, Andrea Vandin, Mirco Tribastone, SFM, Springer, 2016;
22. **The SCEL Language: Design, Implementation, Verification**, Rocco De Nicola, Diego Latella, Alberto Lluch Lafuente, Michele Loreti, Andrea Margheri, Mieke Massink, Andrea Morichetta, Rosario Pugliese, Francesco Tiezzi, Andrea Vandin, Software Engineering for Collective Autonomic Systems - The ASCENS Approach, Springer, 2015;
23. **Reconciling White-Box and Black-Box Perspectives on Behavioral Self-adaptation**, Roberto Bruni, Andrea Corradini, Fabio Gadducci, Matthias Holz, Alberto Lluch Lafuente, Andrea Vandin, Software Engineering for Collective Autonomic Systems - The ASCENS Approach, Springer, 2015;
24. **Tools for Ensemble Design and Runtime**, Dhaminda B. Abeywickrama, Jacques Combaz, Vojtech Horky, Jaroslav Keznikl, Jan Kofron, Alberto Lluch Lafuente, Michele Loreti, Andrea Margheri, Philip Mayer, Valentina Monreale, Ugo Montanari, Carlo Pinciroli, Petr Tuma, Andrea Vandin, Emil Vassev, Software Engineering for Collective Autonomic Systems - The ASCENS Approach, Springer, 2015;
25. **A White Box Perspective on Behavioural Adaptation**, Roberto Bruni, Andrea Corradini, Fabio Gadducci, Alberto Lluch Lafuente, Andrea Vandin, Software, Services, and Systems, Springer, 2015.
- Workshop papers
26. **Language-based abstractions for dynamical systems**, Andrea Vandin, 15<sup>th</sup> International Workshop on Quantitative Aspects of Programming Languages ([QAPL'17](#)), EPTCS;
27. **Syntactic Markovian Bisimulation for Chemical Reaction Networks**, Luca Cardelli, Mirco Tribastone, Max Tschaikowski, Andrea Vandin, proceedings of Kim Larsen Festschrift ([KimFest'17](#)) Springer LNCS;
28. **Statistical Model Checking for Product Lines**, Maurice ter Beek, Axel Legay, Alberto Lluch Lafuente, Andrea Vandin, proceedings of the 7<sup>th</sup> International Symposium On Leveraging Applications of Formal Methods, Verification and Validation ([ISOLA'16](#)) Springer LNCS;
29. **A Tool-chain for Statistical Spatio-Temporal Model Checking of Bike Sharing Systems**, Vincenzo Ciancia, Diego Latella, Mieke Massink, Rytis Paskauskas, Andrea Vandin, proceedings of the 7<sup>th</sup> International Symposium On Leveraging Applications of Formal Methods, Verification and Validation ([ISOLA'16](#)) Springer LNCS;
30. **Quantitative Analysis of Probabilistic Models of Software Product Lines with Statistical Model Checking**, Maurice ter Beek, Axel Legay, Alberto Lluch Lafuente, Andrea Vandin, proceedings of the 6<sup>th</sup> Workshop on Formal Methods and Analysis in SPL Engineering ([FMSPL'15](#)) EPTCS;
31. **Reasoning (on) Service Components Ensembles in Rewriting Logic**, Lenz Belzner, Rocco De Nicola, Andrea Vandin, Martin Wirsing, proceedings of the 1<sup>st</sup> Symposium of Specification Algebra and Software ([SAS'14](#)), Springer LNCS;
32. **Adaptable Transition Systems**, Roberto Bruni, Andrea Corradini, Fabio Gadducci, Alberto Lluch Lafuente, Andrea Vandin, post-proceedings of the 21<sup>st</sup> Workshop on Algebraic Development Techniques ([WADT'12](#)), Springer LNCS;
33. **Modeling and analyzing adaptive self-assembling strategies with Maude**, Roberto Bruni, Andrea Corradini, Fabio Gadducci, Alberto Lluch Lafuente, Andrea Vandin, 9<sup>th</sup> International Workshop on Rewriting Logic and its Applications ([WRLA'12](#)), Springer LNCS;
34. **Towards a Maude Tool for Model Checking Temporal Graph Properties**, Alberto Lluch Lafuente, Andrea Vandin, 10<sup>th</sup> International Workshop on Graph Transformation and Visual Modeling Techniques ([GT-VMT'11](#)), EASST ECEASST.
- Extended abstracts
35. **Specification and Verification of Modal Properties for structured systems**, Andrea Vandin, Doctoral Symposium of ICGT'12 ([ICGT'12-DS](#)), Springer LNCS;
36. **A Lewisian Approach to the Verification of Adaptive Systems**, Fabio Gadducci, Alberto Lluch Lafuente, Andrea Vandin, Another world is possible ([Conference on David Lewis](#)), Rivista Italiana di Filosofia Analitica Junior, volume 2, number 2, ISSN 2037-4445, 2011;
37. **On a Counterpart Semantics for predicate modal mu-Calculus**, Fabio Gadducci, Alberto Lluch Lafuente, Andrea Vandin, 12<sup>th</sup> Italian Conference on Theoretical Computer Science ([ICTCS'10](#)).

## TALKS

- Invited talks
1. **Language-based abstractions for massively concurrent systems**, DTU Compute Denmark, June 2017
  2. **Language-based abstractions for dynamical systems**, 15<sup>th</sup> International Workshop on Quantitative Aspects of Programming Languages ([QAPL'17](#)), Uppsala University, Sweden, April 2017
  3. **Language-based abstractions for dynamical systems**, DTU Compute Denmark, February 2017
  4. **ERODE: Evaluation and Reduction of Ordinary Differential Equations**, Microsoft Research Cambridge, UK, August 2016
  5. **Quantitative Abstractions for Collective Adaptive Systems**, 16<sup>th</sup> International School on Formal Methods for the Design of Computer, Communication and Software Systems (SFM2016), Bertinoro, Italy, June 2016
  6. **Forward and Backward Bisimulations for Chemical Reaction Networks**, University of Camerino, Italy, December 2015
  7. **Ordinary Lumpability for Stochastic Process Algebras with Discrete and Continuous Semantics**, University of Edinburgh, UK, May 2014
  8. **Specification and Analysis of Systems with Dynamic Structure**, ETH Zurich, CH, September 2012

9. **Self-Assembly Strategies**, mentoring at AWASS2012 Summer School, Edinburgh Napier University, UK, June 2012
  10. **Towards the Analysis of Systems with Dynamic Structure**, PhD Seminar, University of Leicester, UK, December 2011
- Conference talks
11. **ERODE: Evaluation and Reduction of Ordinary differential Equations**, 23<sup>rd</sup> Conference on Tools and Algorithms for the Construction and Analysis of Systems ([TACAS'17](#)), Uppsala University, Sweden, April 2017
  12. **Quantitative Abstractions for Continuous Models of Biological Systems**, 7<sup>th</sup> International Workshop on Static Analysis and Systems Biology ([SASB'16](#)), University of Edinburgh, UK, September 2016
  13. **Efficient Syntax-driven Lumping of Differential Equations**, 22<sup>nd</sup> Conference on Tools and Algorithms for the Construction and Analysis of Systems ([TACAS'16](#)), Eindhoven, Netherlands, April 2016
  14. **Forward and Backward Bisimulations for Chemical Reaction Networks**, 26<sup>th</sup> Conference on Concurrency Theory ([CONCUR'15](#)), Madrid, Spain, September 2015
  15. **Differential Bisimulation for a Markovian Process Algebra**, 40<sup>th</sup> International Symposium on Mathematical Foundations of Computer Science ([MFCS'15](#)), Milan, Italy, August 2015
  16. **An Analysis Pathway for the Quantitative Evaluation of Public Transport Systems**, 11<sup>th</sup> International Conference on Integrated Formal Methods ([IFM'14](#)), Bertinoro, Italy, September 2014
  17. **Distributed Statistical Analysis of Complex Systems Modeled Through a Chemical Metaphor**, 2014 International Conference on High Performance Computing & Simulation ([HPCS'14](#)), Bologna, Italy, July 2014
  18. **DOL: Ordinary Lumpability for Markovian and Fluid Process Algebras**, 12<sup>th</sup> International Workshop on Quantitative Aspects of Programming Languages and Systems ([QAPL'14](#)), University of Grenoble, France, April 2014;
  19. **MultiVeStA: Statistical Model Checking for Discrete Event Simulators**, 7<sup>th</sup> International Conference on Performance Evaluation Methodologies and Tools ([ValueTools'13](#)), Turin, Italy, December 2013;
  20. **State Space C-Reductions of Concurrent Systems in Rewriting Logic**, 14<sup>th</sup> International Conference on Formal Engineering Methods ([ICFEM'12](#)), Kyoto, Japan, November 2012;
  21. **Specification and Analysis of Systems with Dynamic Structure**, Doctoral Symposium of the 6<sup>th</sup> International Conference on Graph Transformation ([ICGT'12](#)), Bremen, Germany, September 2012;
  22. **Exploiting Over- and Under-Approximations for Infinite-State Counterpart Models**, 6<sup>th</sup> International Conference on Graph Transformation ([ICGT'12](#)), Bremen, Germany, September 2012;
  23. **Modelling and Analyzing Adaptive Self-Assembling Strategies in Maude**, 9<sup>th</sup> International Workshop on Rewriting Logic and its Applications ([WRLA'12](#)), Tallin, Estonia, March 2012;
  24. **A Lewisian Approach to the Verification of Adaptive Systems**, Another World is Possible ([Conference on David Lewis](#)), Urbino, Italy, June 2011;
  25. **Towards a Maude Tool for Model Checking Temporal Graph Properties**, 10<sup>th</sup> International Workshop on Graph Transformation and Visual Modeling Techniques ([GT-VMT'11](#)), Saarbrücken, Germany, April 2011;
  26. **Counterpart Semantics for a Second-Order mu-calculus**, 5<sup>th</sup> International Conference on Graph Transformation ([ICGT'10](#)), University of Twente, Netherlands, October 2010;
  27. **Counterpart Semantics for a Second-Order mu-calculus**, 12<sup>th</sup> Italian Conference on Theoretical Computer Science ([ICTCS'10](#)), Camerino, Italy, September 2010.
- Projects-related talks
28. **Model Reduction of Dynamical Systems**, QUANTICOL Industrial Engagement Event, Lucca, Italy, May 2017
  29. **The QUANTICOL Software Tool Suite for Modelling Smart Cities**, 3<sup>rd</sup> review of the EU project QUANTICOL, Lucca, Italy, May 2017
  30. **QFLan: Probabilistic Feature-oriented language with quantitative constraints**, meeting of the EU project QUANTICOL, CNR, Pisa, Italy, February 2017
  31. **Bisimulations for Chemical Reaction Networks**, 2<sup>nd</sup> review of the EU project QUANTICOL, Bruxelles, Belgium, September 2015
  32. **DeAR-CRN: Design Analysis and Reduction of Chemical Reaction Networks**, meeting of the EU project QUANTICOL, MJK Grenoble University, France, February 2015
  33. **Differential Ordinary Lumpability in Markovian Process Algebra**, meeting of the EU project QUANTICOL, CNR Pisa, Italy, February 2014
  34. **Reasoning on Reasoning Robots**, joint meeting of the EU projects QUANTICOL and ASCENS, EPFL, Lausanne, Switzerland, July 2013
  35. **Modelling and Analyzing Adaptive Self-Assembling Strategies in Maude**, 6<sup>th</sup> meeting of the EU project ASCENS, University of Florence, Italy, March 2012
  36. **Status of the integration of Maude in the SDE**, 6<sup>th</sup> meeting of the EU project ASCENS, University of Florence, Italy, March 2012
  37. **On Graph-Based Verification of Evolving Structures**, 5<sup>th</sup> meeting of the EU project ASCENS, Verimag - CTL, Grenoble, France, July 2011

## EDUCATION

Dates March 2010 – March 2013

Organization	IMT School for Advanced Studies Lucca, Italy, PhD program on Computer Science and Engineering.
Program coordinator	Prof. Rocco De Nicola. (Formerly Prof. Ugo Montanari).
Supervisors	Prof. Alberto Lluch Lafuente, Prof. Fabio Gadducci.
<b>Thesis</b>	<b>Specification and Verification of Modal Properties for Structured Systems</b> Visual specification formalisms (e.g. graph transformation systems) should come with suitable property specification languages and effective verification tools. We propose a framework based on a novel approach to the semantics of quantified mu-calculi for the verification of quantified temporal properties of systems with dynamically evolving structure. Our proposal allows to easily integrate fixed points and quantifiers, and avoids common limitations of previous approaches: it allows for name reuse and merging, and discards constraints on the class of admissible models. We also propose a general formalization of similarity-based model approximations, and an approximated verification technique exploiting them. Finally, we present a prototypal model checker assessing the feasibility of our approach.
Attended courses	Methods and tools for algebraic verification, formal methods for concurrent systems, stochastic process algebras, formal methods for validation and verification, model checking, probabilistic model checking, software engineering for SOA, XML data manipulation, web algorithmics, advanced networking architectures, evolutionary network architectures.
Dates	January 2007 – October 2009
Organization	University of Pisa, Italy, MSc in Computer Science.
Principal subjects	Formal semantics of programming languages, languages and computability, advanced programming, construction of interfaces, techniques for validation and verification, data mining, design of data warehouses, artificial intelligence, parallel and distributed architectures.
Marks	Magna cum laude ( <i>with an average mark of 29 out of 30</i> )
Dates	October 2003 - December 2006
Organization	University of Pisa, Italy, BSc in Computer Science.
Principal subjects	Programming techniques and methodologies, software engineering, concurrent and distributed programming, operations research, design of databases, computer architectures, operating systems.
Marks	Magna cum laude ( <i>with an average mark of 29 out of 30</i> )
Dates	September 1997 - June 2002
Organization	Institute for Technical and Industrial Studies G. Capellini of La Spezia, Italy.
Principal subjects	Programming techniques and methodologies, operating systems, C, C++, Java, HTML.
Qualification	Diploma of expert in Computer Science, with marks of 88 out of 100

## WORK EXPERIENCE

Dates	July 2015 – Now
Employer	IMT School for Advanced Studies Lucca, Italy, <a href="http://www.imtlucca.it/">http://www.imtlucca.it/</a>
Occupation held	Assistant Professor
Main activities	Research, teaching, and supervision of PhD students
Dates	November 2013 – July 2015
Employer	University of Southampton, UK, <a href="http://www.southampton.ac.uk/">http://www.southampton.ac.uk/</a>
Occupation held	Senior Research Assistant, funded by the European Strep Project 600708 QUANTICOL.
Main activities	Research and joint supervision of Master students
Dates	March 2013 – November 2013
Employer	IMT School for Advanced Studies Lucca, Italy, <a href="http://www.imtlucca.it/">http://www.imtlucca.it/</a>
Occupation held	Research Collaborator of the Research Unit SysMA (System Modelling and Analysis), funded by European FP7-ICT Integrated Project 257414 ASCENS (Autonomic Service-Component ENSEMBLES).
Main activities	Research.
Dates	May 2013
Employer	LMU Ludwig Maximilian University of Munich, Germany, <a href="http://www.en.uni-muenchen-de/">http://www.en.uni-muenchen-de/</a>
Occupation held	Short stay scholarship grant, funded by the European Project ASCENS
Main activities	Research
Dates	January 2012 - June 2012
Employer	University of Leicester, UK, <a href="http://www.le.ac.uk/">http://www.le.ac.uk/</a>
Occupation held	Teaching assistant, course on Distributed Systems and Applications.
Main activities	Managing of lab classes.
Dates	December 2009 - March 2010
Employer	ION Trading S.r.l., Pisa Italy, <a href="http://www.iontrading.com/">http://www.iontrading.com/</a>
Occupation held	Software engineer.
Main activities	I worked in the "GUI Infrastructure" group, developing applications for e-trading in .NET environment.
Dates	July 2006 - September 2006

Employer	Zucchetti SPA, Aulla (MS) Italy, <a href="http://www.zucchetti.it/">http://www.zucchetti.it/</a>
Occupation held	University (Bachelor) internship - Software developer.
Project	Analysis, feasibility study and implementation of new functionalities for the search engine of the product "Corporate Portal Zucchetti" <a href="http://www.zucchetti.it/portale/jsp/categoria.jsp?cat_id=42">http://www.zucchetti.it/portale/jsp/categoria.jsp?cat_id=42</a> . Addition of full-text search on documents in most formats using the library "Apache Lucene".
Dates	September 2005 - December 2005
Employer	BonGusto restaurant, London, UK.
Main activities	Waiter, managing of the hall and the bar.
Notes	I did this job to pay for my Bachelor term spent at Queen Mary University of London, UK.
Dates	Summer seasons 2000 - 2005
Employer	Restaurants: 1) La Cambusa, Monterosso (SP), Italy. 2) La Pettegola, Tellaro (SP), Italy. 3) Lombardo's, Sotogrande Spain.
Main activities	Waiter, managing of the hall and the bar.

## PERSONAL SKILLS

FIRST LANGUAGE	<b>Italian</b>
OTHER LANGUAGE	<b>English</b>
Reading, writing and verbal	<b>Excellent</b>

## TECHNICAL SKILLS AND COMPETENCES

Excellent ability to adapt to new technologies.

Excellent knowledge of Java, Eclipse, XTEXT, SMT-LIB 2.0, Maude, C#, C++, SQL, .NET, .NET Compact Framework, WinForms, WxWidgets, Lucene.

Basic knowledge of JavaScript (DOM manipulation and AJAX) and XHTML.

I have done many tools over the years in addition to the ones listed above, including:

- Three versions of an image processor: C#, Java, and one with parallel filters using Ateji PX (a Java extension to ease parallel programming). For this application I won the ATEJI Parallelism Award;
- A Maude explicit state model checker for a second-order mu-calculus;
- Several Maude models of (probabilistic and not) software systems;
- A Java discrete event simulator to analyze network protocols;
- An interpreter for an extension of HTML with tag about feeds (AJAX, DOM manipulation, JSON);
- A system for trip sharing;
- An on-line, distributed, multi-player version of Pacman.

## SOCIAL SKILLS

Ability to make decisions quickly and under stress. Ability to interact, collaborate and adapt to the others. Flexibility, ability to work in team and to organize the work with colleagues.

## DRIVING LICENSE

European driving license (B)