

Simone Silvetti

Curriculum Vitae



Personal Information

First name Simone
Last name Silvetti
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Place and date of birth Rome (Italy), 5 June 1986
Nationality Italian
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Work Experiences

- 06/2014-present **ESTECO S.p.A.**
Padriciano 99, Trieste, Italy - www.esteco.com
Researcher and developer at Numerical Methods Group
Activities Research, development and maintenance of new algorithms for optimization and machine learning techniques
- 06/2013 - 06/2014 **AREA Science Park.**
Padriciano 99, Trieste, Italy - www.areasciencepark.it
Researcher at Numerical Methods Group of **ESTECO S.p.A.** - www.esteco.com
Researches funded by Area Science Park of Trieste
Research Activities My research was focused on Support Vector Classification and Response Surface Methods

Education

- 11/2014 - 03/2018 **PhD in Computer Science.**
University of Udine, via Palladio 8, 33100, Udine, Italy
Funded by Esteco Spa with the program of *Apprenticeship of higher education and research*.
Interests: computational modelling and simulation of complex systems, formal methods and machine learning
- 01/2013 **M.A in Mathematics (“Laurea Specialistica”).**
University of Rome “La Sapienza”, Piazzale Aldo Moro 5, 00185, Rome, Italy
Final paper on Mathematical Physics
Final mark of 110/110
- 01/2009 **B.Sc in Mathematics (“Laurea Triennale”).**
University of Rome “La Sapienza”, Piazzale Aldo Moro 5, 00185, Rome, Italy
Final Paper on Real Analysis
Final mark of 110/110 cum laude

PhD Activities

Brief description	My research has been focused on the joint application of quantitative formal methods and machine learning techniques to verification and analysis of complex systems. The idea is to use a logic formalism called Temporal Logic to extract insight from time series produced by a device, such as Cyber-Physical Systems. This information is further processed by means of Machine Learning techniques and data mining to solve Parameter Synthesis and Falsification problems (i.e. discovering the failure setting of a system) and to design complex frameworks. I have also worked on multi-objective optimization (Genetic Algorithms and Bayesian optimization) and classification algorithms (Support Vector Machines).
Keywords	Machine Learning, Model Checking, Multi-Objective optimization, Runtime Verification, Bayesian Statistics
Publications	<p>[1] L. Bortolussi, A. Policriti, and S. Silveti. "Logic-Based Multi-objective Design of Chemical Reaction Networks". International Workshop on Hybrid Systems Biology, LNCS 9957, Springer, 2016</p> <p>[2] S. Silveti, A. Policriti, and L. Bortolussi. "An Active Learning Approach to the Falsification of Black Box Cyber-Physical Systems". Integrated Formal Methods - 13th International Conference, LNCS 10510, Springer, 2017</p> <p>[3] S. Silveti, L. Nenzi, L. Bortolussi and E. Bartocci. "A Robust Genetic Algorithm for Learning Temporal Specifications from Data ". arXiv:1711.06202, 2017</p> <p>[4] L. Bortolussi and S. Silveti "Bayesian Statistical Parameter Synthesis for Linear Temporal Properties of Stochastic Models". Accepted for publication at <i>International Conference on Tools and Algorithms for the Construction and Analysis of Systems</i>, 2018</p>
Visiting period	Vienna University of Technology (TU) , 05/2017 - 08/2017. Faculty of Informatics, Cyber-Physical Systems Group of Asst.-Prof. Dr. Ezio Bartocci This period was partially funded by ARVI COST Action IC1402

Conferences and Summer Schools Attended

- 04/2018 **TACAS 2018**, *International Conference on Tools and Algorithms for the Construction and Analysis of Systems, Thessaloniki, Greece.*
- 10/2017 **IFM 2017**, *International Conference on integrated Formal Methods, Turin, Italy.*
- 10/2016 **HSB 2016**, *Workshop on Hybrid System Biology, Grenoble, France.*
- 09/2016 **RV 2016**, *Summer School on Runtime Verification, Madrid, Spain.*
- 08/2016 **VTSA 2016**, *Summer School on Verification Technology Systems & Applications, Liège, Belgium.*
- 05/2015 **VIPS 2015**, *11th VIPS Advanced School on Computer Vision Pattern Recognition and image processing "Advanced Machine Learning: Partially Supervised Learning", Verona, Italy.*
- 05/2014 **OP 2014**, *SIAM Conference on Optimization, San Diego, USA.*
- 04/2014 **MLSS 2014 & AISTATS 2014**, *Machine Learning Summer School & International Conference on Artificial Intelligence and Statistics, Reykjavik, Iceland.*

Conference and Workshop Talks

- 10/2017 "An Active Learning Approach to the Falsification of Black Box Cyber-Physical Systems". Integrated Formal Methods - 13th International Conference, Turin, Italy, 2017
- 10/2016 "Logic-Based Multi-objective Design of Chemical Reaction Networks." International Workshop on Hybrid Systems Biology, Grenoble, France, 2016
- 10/2016 "Validation of Automotive Control Applications using Formal Methods and metamodeling techniques" International CAE Conference, Parma, Italy, 2016

Technical Skills

I am using Java at a professional level for about 5 years. I am also using Matlab and Python for fast prototyping and data analysis. I am comfortable with the Agile Methodology (Scrum) and Test Driven Development which are currently adopted by my actual employer.

Advanced Programming Java, Python

Scientific Matlab/Simulink, Mathematica
Engineering modeFRONTIER
OS Linux, Windows and Apple OS X
Other L^AT_EX, Git versioning

Communication Skills

I have good communication skills which have been refined thanks to working experience and PhD activities. In the first case me and my team are in charge of dissemination (both internal to the company than directly to the product distributors) and production of Technical Report related to the algorithm we maintain and develop. As a PhD student, I practiced with oral academic presentation and writing of scientific papers.

Personal Aspects

I like working in a team and collaborating with other people in order to reach common objectives. I am very keen on solving new kind of problems in order to improve my skills. I like to work in an environment which allows me to think differently from my usual way.

Languages

Italian **Mother tongue**
English **Upper-Intermediate (B2/C1)**
German **Beginner (A1)**

Interests

Sports I play tennis and go rock climbing. I like open air activities such as walking and running
Hobby I like taking photos.