Stefano Schivo

Curriculum Vitae

Personal information

Surname / First name	**Schivo Stefano**
Address	Oelerweg 293 7555GZ Hengelo (OV) The Netherlands
Email	s.schivo@gmail.com
Nationality	Italian
Date of birth	February 24, 1982

Current position

Assistant Professor 1 Jan 2017 -	Department of Formal Methods and Tools, Faculty of Electrical Engineering, Mathematics and Computer Science, CTIT (Centre for Telematics and Information Technology), University of Twente, The Netherlands.

Past positions

1 Mar 2016 - 31 Dec 2016	Post-doctoral Researcher at FMT, University of Twente, The Netherlands.
1 Jul 2015 - 29 Feb 2016	Post-doctoral Researcher at DBE group, MIRA Institute for Biomedical Technology and Technical Medicine, and FMT group, University of Twente, The Netherlands.
1 Nov 2014 - 30 Jun 2015	Post-doctoral Researcher at BioMech, University of Liège, Belgium.
1 Nov 2010 - 31 Oct 2014	Post-doctoral Researcher at FMT, University of Twente, The Netherlands.
1 Nov 2009 - 28 Feb 2010	Research grant at DISI, University of Trento, Italy.
1 Nov 2006 - 31 Oct 2009	Ph.D. Student in computer science at ICT Doctorate School (XII cycle), University of Trento, Italy.

Education

Studies

2010
Ph.D. Dissertation

Department of Information Engineering and Computer Science, University of Trento, Italy.
Dissertation title: “Statistical model checking of Web Services”,
supervisor: prof. Paola Quaglia

2006
Master Degree

Computer Science (specialization in Bioinformatics), University of Trento, Italy.
Grade: 110/110 cum laude.
Thesis title: “Estensione di Beta Binders con compartimenti annidabili” (An extension of Beta Binders with nested compartments),
supervisor: prof. Corrado Priami

2004
Bachelor Degree

Computer Science, University of Trento, Italy.
Grade: 110/110 cum laude.
Thesis title: “Deployment e invocazione dinamica di web services” (Deployment and dynamic invocation of Web Services),
supervisor: prof. Marco Aiello

Grants

2009-2010

Research grant at DISI, University of Trento, Italy. Research topic: “Statistical model checking of Web Services”.

2006-2009

Ph.D. research grant in computer science at ICT Doctorate School (XXII cycle), University of Trento, Italy.

Spoken languages

Mother tongue

Italian

Self-assessment
European level(*)

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
English				
C1 Proficient user	C2 Proficient user	C1 Proficient user	C1 Proficient user	C2 Proficient user
Dutch				
B1 Independent user	B2 Independent user	B1 Independent user	B1 Independent user	B2 Independent user
French				
A2 Basic user	B1 Independent user	A2 Basic user	A2 Basic user	A2 Basic user

(*) *Common European Framework of Reference (CEF) level*

Academic and work experiences

Research activities

2016-

Since 2016 my research work has extended to the field of security and safety integration. The projects I am involved in focus on the (cyber-) security of critical systems, and its relation to safety procedures. Security countermeasures are often intended to make a system less accessible, but for safety reasons some parts of a system (e.g. escape routes) must remain accessible at all times. We study the ways in which security and safety can collide with each other, with the aim of making a framework that can account for both at the same time. This will allow to have a better picture of the system, helping policymakers with their choices.

2010-2016

Since November 2010 I have been collaborating with research groups at the University of Twente and other universities to bring the power of formal methods into the biological community. This is much needed, because the large amount of data which a biologist has to face on a daily basis cannot be understood by the human brain alone. In particular, when studying the signalling networks that drive a cell's response to its environment, biologists need to understand something that can be described as a complex distributed system. Such kind of systems have been studied for a relatively long period of time in computer science, and our work has been aimed at adapting well-established methods to the field of biology. In order to do this, we have devised a software that allows the domain experts to formalize their knowledge without the need to learn new mathematical tools. ANIMO (Analysis of Networks with Interactive MOdelling) is the result of a close collaboration with biologists and experts in human-machine interaction, and makes a complex formal model easily accessible to non computer scientists. ANIMO is available at `http://fmt.cs.utwente.nl/tools/animo`.
Recently, a web-based version of ANIMO has been developed, to allow the biologits to immediatele access the tool without the need of installation: `http://fmt.cs.utwente.nl/tools/webANIMO`.
Between November 2014 and June 2015 I have worked in collaboration with the University of Liège and KU Leuven on the Prometheus project (`http://www.mtm.kuleuven.be/prometheus`), applying the knowledge and tools developed in Twente to the field of skeletal Tissue Engineering.
Other ongoing collaborations involve the modelling of personalised treatments and test schedules in the context of cancer treatment.

2006-2010	My Ph.D. studies were centered around the European project SENSORIA (Software Engineering for Service-Oriented Overlay Computers, see `http://www.sensoria-ist.eu`). The part of the project in which I was involved concerned the development of stochastic techniques for analyzing quantitative aspects of Web Services. Among such techniques there are stochastic process calculi, which are being developed for the evaluation of performance-critical distributed systems. The calculus on which I have been working is termed SCOWS, a stochastic extension of COWS (Calculus for Orchestration of Web Services). The objective of my research project as a Ph.D. student has been the creation of a software framework with which to model and evaluate the performance of distributed systems. In particular, the tool (called SCOWS_amc) allows the user to reason both from the qualitative and quantitative points of view on the models under development. I used some statistical methods in order to get performance measures of distributed systems which would otherwise give rise to exponentially growing state spaces. The tool supports a statistical model checking approach and is currently at a promising state of development, enabling us to effectively compute performance measures for non-trivial distributed system models.

Teaching

Fall 2015	Exercise classes (werkcolleges) for the course “Cyber-physical systems”, Bachelor Degree in Computer Science, Faculty of Electrical Engineering, Mathematics and Computer Science, University of Twente.
Fall 2011-2014	Exercise classes (werkcolleges) for the course “Algoritmen, Datastructuren en Complexiteit”, Bachelor Degree in Computer Science, Faculty of Electrical Engineering, Mathematics and Computer Science, University of Twente.
Fall 2012, 2013	Exercise classes (werkcolleges) for the course “QEES (Quantitative Evaluation of Embedded Systems)”, Master Degree in Computer Science, Faculty of Electrical Engineering, Mathematics and Computer Science, University of Twente.
Fall 2011	Exercise classes (werkcolleges) for the course “Performance Analysis”, Master Degree in Computer Science, Faculty of Electrical Engineering, Mathematics and Computer Science, University of Twente.
2009-2010	Tutor at Cepu - Grandi Scuole, Trento.
Spring 2010	Teaching assistant for the course “Fondamenti di Informatica”, Bachelor Degree in Engineering, Faculty of Engineering, University of Trento.
Fall 2007, 2008, 2009	Teaching assistant for the course “Linguaggi Formali e Compilatori”, Bachelor Degree in Computer Science, Faculty of Science, University of Trento.

Publications

Peer-reviewed

2017 Enno Ruijters, Stefano Schivo, Mariëlle Stoelinga, Arend Rensink. **Uniform analysis of fault trees through model transformations.** *Proceedings of the 63rd Annual Reliabliity and Maintainability Symposium (RAMS 2017)*, 23-26 Jan 2017, Orlando, FL, USA. IEEE Reliability Society.

2016 Stefano Schivo, Jetse Scholma, Paul E. van der Vet, Marcel Karperien, Janine N. Post, Jaco van de Pol, Rom Langerak. **Modelling with ANIMO: between fuzzy logic and differential equations**, *BMC Systems Biology*, Volume 10, 2016. doi:10.1186/s12918-016-0286-z.

Jetse Scholma, Gwenny M. Fuhler, Jos Joore, Marc Hulsman, Stefano Schivo, Alan F. List, Marcel J. T. Reinders, Maikel P. Peppelenbosch, Janine N. Post. **Improved intra-array and interarray normalization of peptide microarray phosphorylation for phosphorylome and kinome profiling by rational selection of relevant spots.** *Scientific Reports*, 2016;6:26695. doi:10.1038/srep26695.

2014 Stefano Schivo, Jetse Scholma, Marcel Karperien, Janine N. Post, Jaco van de Pol, Rom Langerak. **Setting parameters for biological models with ANIMO.** *1st International Workshop on Synthesis of Continuous Parameters, SynCoP 2014*.

Jetse Scholma, Stefano Schivo, Ricardo A. Urquidi Camacho, Jaco van de Pol, Marcel Karperien, Janine N. Post. **Biological networks 101: Computational modeling for molecular biologists**, *Gene*, Volume 533, Issue 1, 1 January 2014, Pages 379-384.

2013 Stefano Schivo, Jetse Scholma, Brend Wanders, Ricardo A. Urquidi Camacho, Paul E. van der Vet, Marcel Karperien, Rom Langerak, Jaco van de Pol, Janine N. Post. **Modelling biological pathway dynamics with Timed Automata.** *IEEE Journal of Biomedical and Health Informatics*, 18 (3). pp. 832-839. ISSN 2168-2194.

2012 Stefano Schivo, Jetse Scholma, Brend Wanders, Ricardo A. Urquidi Camacho, Paul E. van der Vet, Marcel Karperien, Rom Langerak, Jaco van de Pol, Janine N. Post. **Modelling biological pathway dynamics with Timed Automata.** *IEEE 12th International Conference on Bioinformatics and Bioengineering, BIBE 2012*, Pages 447-453.

2010 Stefano Schivo. **Statistical Model Checking of Web Services.** *Ph.D. Thesis, Int. Doctorate School in Information and Communication Technologies, University of Trento.*

Paola Quaglia and Stefano Schivo. **Approximate Model Checking of Stochastic COWS.** *5th International Symposium on Trustworthly Global Computing, TGC 2010*, Pages 335-347.

Igor Cappello, Allan Clark, Stephen Gilmore, Diego Latella, Michele Loreti, Paola Quaglia and Stefano Schivo. **Quantitative Analysis of Services.** *Part V of the SENSORIA Book, Springer.*

Conference abstracts, posters and presentations

2016 Stefano Schivo, Jetse Scholma, Xiaobin Huang, Leilei Zhong, Jaco van de Pol, Marcel Karperien, Rom Langerak, Janine N. Post. **An ECHO in biology II: Insights in chondrocyte cell fate.** *Abstracts from the 2016 OARSI World Congress on Osteoarthritis.*

2015 Koen Degeling, Erik Koffijberg, Stefano Schivo, Rom Langerak, Maarten IJzerman. **Comparison of Timed Automata with Discrete Event Simulation for Modeling Personalized Treatment Decisions: the Case of Metastatic Castration Resistant Prostate Cancer.** *ISPOR 18th Annual European Congress*.

Stefano Schivo, Koen Degeling, Erik Koffijberg, Maarten IJzerman, Rom Langerak. **Timed Automata Modeling of The Personalized Treatment Decisions In Metastatic Castration Resistant Prostate Cancer.** *ISPOR 18th Annual European Congress*.

2014 Stefano Schivo, Jetse Scholma, Marcel Karperien, Rom Langerak, Jaco van de Pol, Janine N. Post. **ANIMO: a tool for modeling biological pathway dynamics.** *Tissue Engineering & Regenerative Medicine International Society (TERMIS), European Chapter Meeting*, 10-13 Jun 2014, Genova, Italy. Pages 54-55. Wiley. ISSN 1932-7005

Jetse Scholma, Stefano Schivo, Johan Kerkhofs, Rom Langerak, Marcel Karperien, Jaco van de Pol, Liesbet Geris, Janine N. Post. **ECHO: the executable chondrocyte.** *Tissue Engineering & Regenerative Medicine International Society (TERMIS), European Chapter Meeting*, 10-13 June 2014, Genova, Italy. Pages 54-54.

Jetse Scholma, Stefano Schivo, Marcel Karperien, Rom Langerak, Jaco van de Pol, Janine N. Post. **An ECHO in biology: Validating the Executable CHondrocyte.** *2014 World Congress on Osteoarthritis*, 24-27 Apr 2014, Paris, France. Pages S157-S157. Osteoarthritis and Cartilage 22. Elsevier. ISSN 1063-4584

2013 Jetse Scholma, Johan Kerkhofs, Stefano Schivo, Rom Langerak, Paul E. van der Vet, Marcel Karperien, Jaco van de Pol, Lies Geris, Janine N. Post. **Mathematical modeling of signaling pathways in osteoarthritis.** *2013 Osteoarthritis Research Society International (OARSI) World Congress*, 18-21 Apr 2013, Philadelphia, USA. Pages S123-S123. Elsevier. ISSN 1063-4584.

Technical reports

2008 Stefano Schivo. **Polyadic Stochastic COWS.** *Technical Report DISI-08-35, University of Trento.*

Stefano Schivo. **Review on stochastic comparison relations.** *Technical Report DISI-08-34, University of Trento.*

2006 Marco Bassetti, Massimiliano Bernabè, Manuel Borile, Cesare Desilvestro, Tarcisio Fedrizzi, Alessandra Giordani, Roberto Larcher, Alida Palmisano, Angelo Salteri, Stefano Schivo, Nicola Segata, Linda Tambosi, Roberto Valentini, Periklis Andritsos, Paolo Fontana, Andrea Malossini, Enrico Blanzieri. **Validation of CFS classification with different data sources.** *Technical Report DIT-06-004, University of Trento.*