

DONATELLI Susanna

Susanna Donatelli holds a Laurea in Informatica from the University of Torino (1984), a Master in Electrical and Computer Engineering from the University of Massachusetts at Amherst, USA (1987), and a PhD in Computer Science from the University of Torino.

Susanna Donatelli has been a researcher at the Computer Science Department of the University of Torino from 1990 to 1997, associate professor from 1998 to 2002 and full professor from 2002 onwards. She has co-authored more than a hundred papers in international journals, international conferences with peer review and contributions in books, as well as the book "Modelling with Generalized Stochastic Petri Nets", published by John Wiley. Her main research interest is performance evaluation, with special attention to modelling formalisms, solution techniques, measure definition and to the so-called state space explosion problem, common to most formalisms for performance evaluation. Prof. Donatelli's main contributions to the field are in the area of stochastic Petri net models. Her recent work has focused on stochastic and qualitative verification (model checking) and on the use of symbolic data structures, such as decision diagrams, for different problems, ranging from model checking of Petri nets to the mapping of DNA sequences on a reference genome.

Bibliometric indicators and publications: According to Google Scholar her papers have had more than 4000 citations, with an h-index of 27 and an i-10 index of 59. According to Scopus she has had a total of 91 co-authors and her work has had 684 total citations, with an h-index of 13 (Scopus is clearly missing at least all citations, more than a thousand, of the book on Generalized Stochastic Petri Nets edited by John Wiley that prof. Donatelli has co-authored).

Services, awards and other honors: Prof. Donatelli was associate editor of IEEE Transactions on Software Engineering (IEEE-TSE) from 2004 to 2009, and she is currently associate editor of LNCS Transactions on Petri Nets and Other Models of Concurrency (ToPNoC). She has been a member of the steering committee of QEST (www.qest.org), a major conference on quantitative aspects of systems, and she is currently a member of the steering committee of ICATPN, the International Conference on Application and Theory of Petri Nets (<http://www.informatik.uni-hamburg.de/TGI/PetriNets/steering-committee/>) She has been co-chairperson of the 19th and 27th editions of the International Conference on Application and Theory of Petri Nets (ICATPN 1999 at Williamsburg, USA and ICATPN 2006 at Turku, Finland), of the 5th International Conference on Quantitative Evaluation of Systems (QEST 2008) held in St.Malo, France, in 2008, as well as of the 41st Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2011) held in 2011 in Hong Kong.

She has served in the program committee of, among others, ICATPN, DSN, TACAS, PNPM, QEST, ICPE, SIGMETRICS, WOSP, BPM, EDCC, CoopIS, NSMC, and Formal Methods.

She has been an invited speaker to 21st edition of the International Conference on Application and Theory of Petri Nets (ICATPN 2001 in Newcastle Upon Tyne, UK).

Prof. Donatelli has edited, with Gerardo Rubino (from INRIA France) and Prakash Panangaden (from McGill University, Montreal, Canada), a special issue of the journal Performance Evaluation (by North Holland) on "Quantitative system evaluation", Volume 67, Issue 9, Pages 757-896 (September 2010), and two special issues of the Transactions on Petri Nets and Other Models of Concurrency (ToPNoC), for the LNCS series of Springer (volume IV e V in 2010 and 2011), in collaboration, respectively, with prof. Maciej Koutny of the University of Newcastle (UK) and with prof. Jetty Kleijn of Leiden University (NL). She has also edited the proceedings of the four conferences she has chaired, published under Springer LNCS (ICATPN 1999 and ICATPN 2006), and IEEE-CS Press (QEST 2008 and DSN 2011).

She was awarded the best paper award at QEST 2007 for the paper "CSLTA: an Expressive Logic for Continuous-Time Markov Chains", co-authored by Jeremy Sproston and Serge Haddad, which appeared in the Proceedings of the 4th International Conference on Quantitative Evaluation of Systems (QEST'07), IEEE Computer Society Press.

She has lectured in various summer schools in the areas of Petri nets and dependability

International collaborations: Dr. Donatelli has, and has had, a number of international collaborations in the field of performance modelling and stochastic Petri nets including the College of William and Mary (Williamsburg - USA), Iowa State University, University of Paris Dauphine (France), the LSV laboratory of the Ecole Normale Supérieure de Cachan (France), the University of Dortmund (Germany), the University of Edinburgh (UK) and the University of Zaragoza (Spain). Some of these collaborations are relevant for this project, as witnessed by publications [6], [8], [13], [17], and [18].

Projects involvement: She has been involved in several national and international projects, four of which are EU projects relevant for this proposal. In these projects she was either research unit responsible or work package leader: the EEC-IST project 28620 TIRAN (Tailorable fault toleRANce frameworks for embedded applications), the EEC-IST project 25434 DepAuDE (DEPendability for distributed embedded AUTomation systems in Dynamic Environments), and, more recently, the FP6-2004-IST-4-027513 CRUTIAL (CRITICAL Utility InfrastructurAL Resilience) project and the Artemis Joint Undertaking project HoliDeS (Holistic Human Factors and System Design of Adaptive Cooperative Human-Machine Systems), under grant agreement no.332933 (October 2014 to September 2016). All projects have received highly positive intermediate and final reviews.

The involvement in the projects is documented also in publications [1], [2], [3], [4].

She has been one of the driving forces in the development and evolution of the GreatSPN tool (<http://www.di.unito.it/~greatspn/index.html>), a tool for the modeling and analysis of systems based on (stochastic) Petri nets, which has been downloaded by hundreds of universities and research centers. In particular she has actively participated in the definition of the stochastic and functional model checking facilities, the compositional aspects, and the extension to include non Markovian aspects in the GreatSPN models, as documented by publications [13-18].

Publications

1. Amparore Elvio, Beccuti Marco, Collina Simona, De Simone Flavia, Donatelli Susanna, Tango Fabio (2014). Cognitive systems in intelligent vehicles: A new frontier for autonomous driving. In: ICINCO 2014 - Proceedings of the 11th International Conference on Informatics in Control, Automation and Robotics. vol. 2, p. 817-822, Setúbal: Scitepress, ISBN: 9789897580406, aut, 2014 –
2. M. Beccuti, S. Chiaradonna, F. Di Giandomenico, S. Donatelli, G. Dondossola, G. Franceschinis (2012). Quantification of Dependencies between Electrical and Information Infrastructures. INTERNATIONAL JOURNAL OF CRITICAL INFRASTRUCTURE PROTECTION, vol. 5 (1), p. 14-27, ISSN: 1874-5482, doi: 10.1016/j.ijcip.2012.01.003 –
3. M. Beccuti, S. Chiaradonna, F. Di Giandomenico, S. Donatelli, G. Dondossola, G. Franceschinis (2013). Model-Based Evaluation of the Impact of Attacks to the Telecommunication Service of the Electrical Grid. In: Sandro Bologna and Paul Theron. (a cura di): Sandro Bologna and Paul Theron, A model based approach for the evaluation of cyber attacks to the electrical grid.. p. 220-241, Hershey, Pennsylvania : IGI Global, doi: 10.4018/978-1-4666-2964-6.ch011 –
4. M. Beccuti, G. Franceschinis, S. Donatelli, S. Chiaradonna, F. Di Giandomenico, P. Lollini, G. Dondossola, F. Garrone (2009). Quantification of Dependencies in Electrical and Information Infrastructures: the CRUTIAL approach. In: Proceedings of the 4th International Conference on Critical Infrastructures (CRIS). p. 1-8, Washington: IEEE Computer Society Press, ISBN: 9783642035517, Linköping, Sweden, Aprile 28-30, doi: 10.1109/CRIS.2009.5071482 –
5. E. G. Amparore, S. Donatelli (2015). Stochastic Path Properties Of Distributed Systems: The CSLTA Approach. In: Quantitative Assessments of Distributed Systems. p. 1-21, NEW YORK: John Wiley and Sons, Ltd., ISBN: 9781118595213 –
6. S. DONATELLI, S. HADDAD, J. SPROSTON (2009). Model Checking Timed and Stochastic Properties with CSLTA. IEEE TRANSACTIONS ON SOFTWARE ENGINEERING, vol. 35(2), p. 224-240, ISSN: 0098-5589, doi: 10.1109/TSE.2008.108 –
7. J. SPROSTON, S. DONATELLI (2006). Backward Bisimulation in Markov Chain Model Checking. IEEE TRANSACTIONS ON SOFTWARE ENGINEERING, vol. 32(8), p. 531-546, ISSN: 0098-5589, doi: 10.1109/TSE.2006.74 –
8. E. G. Amparore, B. Barbot, M. Beccuti, S. Donatelli, G. Franceschinis (2013). Simulation-based Verification of Hybrid Automata Stochastic Logic Formulas for Stochastic Symmetric Nets. In: Proceedings of the 2013 ACM SIGSIM Conference on Principles of Advanced Discrete Simulation. p. 253-264, New York, NY, USA: ACM, Canada, 2013, doi: 10.1145/2486092.2486124
9. E. G. Amparore, P. Ballarini, M. Beccuti, S. Donatelli, G. Franceschinis (2013). Expressing and computing passage time measures of GSPN models with HASL. In: International Conference on

application and theory of Petri nets and other models of concurrency. LECTURE NOTES IN COMPUTER SCIENCE, vol. 7929, p. 110-119, ISSN: 0302-9743, Milano, Italy., June 24-28.

10. Beccuti Marco, Amparore Elvio G., Donatelli Susanna, Scheftelowitsch Dimitri, Buchholz Peter, Franceschinis Giuliana (2015). Markov decision Petri nets with uncertainty. In: 12th European Performance Engineering Workshop, EPEW 2015. LECTURE NOTES IN COMPUTER SCIENCE, vol. 9272, p. 177-192, berlino: springer, ISSN: 1611-3349, esp, 2015, doi: 10.1007/978-3-319-23267-6_12 –
11. Elvio Gilberto Amparore, Susanna Donatelli (2011). Revisiting the matrixfree solution of Markov Regenerative processes. NUMERICAL LINEAR ALGEBRA WITH APPLICATIONS, vol. 18, p. 1067-1083, ISSN: 1070-5325, doi: 10.1002/nla.819
12. Elvio Gilberto Amparore, Susanna Donatelli (2012). A component-based solution for reducible Markov regenerative processes. PERFORMANCE EVALUATION, vol. 70, p. 400-422, ISSN: 0166-5316, doi: 10.1016/j.peva.2013.02.002 –
13. E. Amparore, P. Buchholz, S. Donatelli (2014). A Structured Solution Approach for Markov Regenerative Processes. In: Norman, Gethin, Sanders, William. Quantitative Evaluation of Systems. vol. 8657, p. 9-24, London: Springer International Publishing, Firenze, 2014, doi: 10.1007/978-3-319-10696-0_3 –
14. E. Amparore, M. Beccuti, S. Donatelli (2014). (Stochastic) Model Checking in GreatSPN. In: Ciardo, Gianfranco, Kindler, Ekkart. Application and Theory of Petri Nets and Concurrency. vol. 8489, p. 354-363, London: Springer International Publishing, Tunisi, Tunisia, 2014, doi: 10.1007/978-3-319-07734-5_19 –
15. Elvio Gilberto Amparore, Susanna Donatelli (2010). DSPN-Tool: A New DSPN and GSPN Solver for GreatSPN. In: (a cura di): Gianfranco Ciardo, Roberto Segala, Proceedings of QEST 2010, Seventh International Conference on the Quantitative Evaluation of Systems. p. 79-80, NEW YORK: IEEE Computer Society, ISBN: 9780769541884, Williamsburg, Virginia, USA, 15-18 September 2010, doi: 10.1109/QEST.2010.17 –
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17. J. Babar, M. Beccuti, S. Donatelli, A. Miner (2010). GreatSPN Enhanced with Decision Diagram Data Structures. In: International Conference on application and theory of Petri nets and other models of concurrency (ICATPN'10). LECTURE NOTES IN COMPUTER SCIENCE, vol. 5651, p. 61-70, ISSN: 0302-9743, Braga, Portugal, Giugno 21-25, doi: 10.1007/978-3-642-13675-7_19 –
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19. Carrara Matteo, Lum Josephine, Cordero Francesca, Beccuti Marco, Poidinger Michael, Donatelli Susanna, Calogero Raffaele, Zolezzi Francesca (2015). Alternative splicing detection workflow needs a careful combination of sample prep and bioinformatics analysis. BMC BIOINFORMATICS, vol. 16 Suppl 9, p. S2, ISSN: 1471-2105, doi: 10.1186/1471-2105-16-S9-S2 –
20. M. Beccuti, M. Carrara, F. Cordero, S. Donatelli, R.A. Calogero (2013). The structure of state of art gene fusion-finder algorithms. OA BIOINFORMATICS, vol. 1, p. 1-6, ISSN: 2054-1899 -