

Curriculum Vitae

Felicita Di Giandomenico

October 2014

Contact

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Academic Degree

Laurea in Computer Science from the University of Pisa, 1986.

Current Position

February 1989-present: Researcher at the Institute ISTI of the Italian National Research Council (CNR), located in Pisa, in the area of Computer Science and Information Technology. Since January 2002, Senior Researcher.

Responsibilities and Professional Appointments

- December 2002-present: Head of the Dependable Computing Lab at ISTI until 29/02/12; head of the Software Engineering and Dependable Computing Lab since 1/03/12.
- December 2004-present: Responsible of the CNR Research Unit “Component-based Architectures for Complex Dependable Systems” under the Department “Information and Communication Technologies-ICT” of CNR.
- Scientific responsible for the ISTI-CNR partner in several EU and National projects. Currently, she is the ISTI-CNR Principal Investigator for
 - Third party of ResilTech Srl, EU Smart Control of Energy Distribution Grids over Heterogeneous Communication Networks - SmartC2Net (1/12/12 – 30/11/2015)
 - PRIN 2010-2011 TENACE: Protecting National Critical Infrastructures From Cyber Threats

Experience in evaluation, review, or audit panels for EU programmes

She has served several times as an expert for the EU Commission (2003, 2005, 2007, 2012, 2013, 2014) in the evaluation of project proposals (STREP and IP) for the following strategic objectives:

- Embedded systems
- Security&Dependability
- Cyber Physical Systems

She has also assisted the Commission as reviewer for the monitoring of the implementation of indirect actions (2009, 2010, 2011, 2013).

Academic and training activities

- She has been teaching courses on dependability related topics for more than 10 years, both at the University of Pisa, University of Florence and Scuola Superiore Sant’Anna (Pisa). Most recent courses include:
 - **A.A. 2006-2007, A.A. 2007-2008, A.A. 2008-2009:** “Modellistica e Simulazione”, Corso di Laurea in Informatica (Laurea Triennale) della Facoltà di Scienze Matematiche, Fisiche e Naturali dell’Università di Firenze (co-teacher)
 - **A.A. 2010-2011, A.A. 2012-2013, A.A. 2013-2014:** “Sistemi Critici e Real Time”, Corso di Laurea in Informatica (Laurea Magistrale) della Facoltà di Scienze Matematiche, Fisiche e Naturali dell’Università di Firenze (co-teacher)
 - **A.A. 2011-2012, A.A. 2012-2013, A.A. 2013-2014** “Dependable Computing Systems”, Scuola Superiore S. Anna, Pisa (co-teacher)
 - **A.A. 2013-2014** “Dependability”, IMT Lucca (short course)
- She has been co-advisor of many Master Theses of students, at both the University of Pisa and University of Florence, and of the PhD students Paolo Lollini (“Quantitative Analysis through Modeling of Large Scale Telecommunication Systems”, University of Florence, April 2006) and Nicola Nostro (“Approaches to adaptive dependability and security assessment in dynamic and evolving systems”, expected on April 2015).
- She has been invited member of the jury of the PhD defence of Dr. Ana Elena Rugina (LAAS, France, Nov. 2007) and of Dr. Kossi Blewoussi Tiassou (LAAS, France, Feb. 2013).
- She has been supervisor of several fellowships (granted by CNR and ERCIM) and Research Associate programs in the context of National and International projects.

- She is a member of the Scientific Board of the PhD program in Computer Science and Application, University of Florence (since 2007).

Conference PC Chairmanship

- 27th IEEE International Symposium on Reliable Distributed System, Naples, Italy, October 6-8, 2008 (co-Chair with Joni da Silva Fraga)
- 39th Annual IEEE/IFIP International Conference on Dependable Systems and Networks, PDS Track, June 29-July 2, 2009, Estoril, Lisbon, Portugal
- 33rd International Conference on Computer Safety, Reliability and Security, SAFECOMP 2014, September 2014 (co-Chair with Andrea Bondavalli)

Workshop/Fast Abstract tracks PC Chairmanship

- The International Conference on Dependable Systems and Networks DSN-2004, Fast Abstracts Track
- DSN 2007 Workshop on Architecting Dependable Systems (co-Chair with Rogério de Lemos and Cristina Gacek), Edinburgh, Scotland – UK, 27 June 2007
- The Ninth International Workshop on Assurance in Distributed Systems and Networks - ADSN 2010 (Vice Program Chair for Europe and Africa)
- The Tenth International Workshop on Assurance in Distributed Systems and Networks - ADSN 2011 (Vice Program Chair for Europe and Africa)
- European Workshop on Dependable Computing, EWDC 2011, Workshop Chair, Pisa, May 2011
- RACI First International Workshop on Reliability Assessment of Critical Infrastructure, Brazil, April 2011 (Workshop co-Chair)
- International Workshop on Software Engineering and Resilient Systems, SERENE, 2012 (General Chair)

Conference PC Memberships

She regularly serves as member of the program committee of the most representative conferences and workshops in the area of dependable computing, distributed systems, fault tolerant systems, autonomous and interoperable systems, dependability and performance modeling, etc.. (including IEEE FTCS, IEEE DSN, IEEE SRDS, SAFECOMP, EDCC, HASE, ISAS, IEEE ICDCS, ACM SAC (DADS track))

Reviewer duties

She regularly serves as reviewer for many conferences and journals in the field of dependable computing, including.

IEEE Transactions on Dependable and Secure Computing, IEEE Transactions on Computers, IEEE Transactions on Software Engineering, IEEE Transactions on Reliability, ACM Computing Surveys, Performance Evaluation

Professional Associations

Felicita Di Giandomenico is affiliate member of the IEEE Computer Society.

Member of the Steering Committee of

- IEEE International Conference on Dependable Systems and Networks - DSN (2008-2011)
- European Dependable Computing Conference – EDCC since 2009

Member of

- IFIP WG10.4 on Dependable Computing and Fault Tolerance since 2009
- ERCIM working group SERENE on Software Engineering and Resilient Systems
- ERCIM working group DES on Dependability in Embedded Systems

Current Research Interests

Architectures for dependable and resilient systems; Software fault tolerance; Methods and techniques for quantitative analysis of dependability and QoS indicators; Interdependencies modeling and analysis in critical infrastructures.

List of Publications (extracted, from 2000)

Edited Book

- Architecting Dependable Systems V, Lemos, R.d.; Di Giandomenico, F.; Gacek, C.; Muccini, H.; Vieira, M. (Eds.), Lecture Notes in Computer Science, Volume 5135/2008, ISBN: 978-3-540-85570-5, 2008

International Journal

- Burns, D. Prasad, A. Bondavalli, F. Di Giandomenico, K. Ramamritham, J. Stankovic, L. Strigini, “The Meaning and Role of Value in Scheduling Flexible Real-Time Systems”, Journal of Systems Architecture, Elsevier Science, vol. 46, 2000, pp. 305-325.
- Bondavalli, S. Chiaradonna, F. Di Giandomenico, F. Grandoni, “Threshold-Based Mechanisms to Discriminate Transient from Intermittent Faults”, IEEE Transactions on Computers, Oxford University Press, Vol. 49, N. 3, March 2000, pp. 230-245.
- F. Grandoni, S. Chiaradonna, F. Di Giandomenico, and A. Bondavalli “Evaluation of Fault-Tolerant Multiprocessor Systems for High Assurance Applications”, in The Computer Journal, Oxford University Press, Special Issue on High Assurance Systems, Vol. 44, Issue 6: 2001, pp. 544-556.
- Bondavalli, S. Chiaradonna, F. Di Giandomenico, and J. Xu "An Adaptive Approach to Achieving Hardware and Software Fault Tolerance in a Distributed Computing Environment", in Journal of Systems Architecture, Elsevier Science, Vol. 47 (9) (2002) pp. 763-781.
- S. Porcarelli, F. Di Giandomenico, A. Bondavalli, M. Barbera, I. Mura “Service Level Availability Estimation of GPRS”, in IEEE Transactions on Mobile Computing, Vol. 2(3), 2003, pp. 233-247.
- Bondavalli, S. Chiaradonna, F. Di Giandomenico, I. Mura, " Dependability Modeling & Evaluation of Multiple-Phased Systems using DEEM in IEEE Transactions on Reliability, Vol. 53, N. 4, pp. 509-522, December 2004.
- P. Lollini, F. Di Giandomenico, A. Bondavalli, “A Modeling Methodology for Hierarchical control Systems and its Application”, in the Journal of the Brazilian Computer Society, special Issue on Dependable Computing, Vol. 10, N. 3, pp. 57-69, April 2005.
- G. Karetos, S. A. Kyriazakos, E. Groustiotis, F. Di Giandomenico, I. Mura “Hierarchical Radio Resource Management Framework for Integrating WLANs in Cellular Networking Environments”, in IEEE Wireless Communications, December 2005, pp. 11-17.
- P. Lollini, A. Bondavalli, F. Di Giandomenico, “A Decomposition-Based Modeling Framework for Complex Systems”, in IEEE Transactions on Reliability, Vol. 58, N. 1, March 2009, pp. 20-33.
- S. Chiaradonna, F. Di Giandomenico, P. Lollini, "Assessing the Impact of Interdependencies in Electric Power Systems", in Int. J. System of Systems Engineering, Vol. 1, N. 3, 2009, pp. 367-386.
- S. Chiaradonna, F. Di Giandomenico, P. Lollini, “Definition, Implementation and Application of a Model-Based Framework for Analyzing Interdependencies in Electric Power Systems”, International Journal on Critical Infrastructure Protection, N. 4 (2011), pp. 24-40.
- M. Beccuti, S. Chiaradonna, F. Di Giandomenico, S. Donatelli, G. Dondossola, and G. Franceschinis. Quantification of dependencies between electrical and information infrastructures. International Journal of Critical Infrastructure (IJCIP), Volume 5, Issue 1, March 2012, Pages 14–27.
- Antonia Bertolino, Antonello Calabrò, Felicita Di Giandomenico, Nicola Nostro, “An Approach to Adaptive Dependability Assessment in Dynamic and Evolving Connected Systems, in International Journal of Adaptive, Resilient and Autonomic Systems (IJARAS), 2013.
- Silvano Chiaradonna, Felicita Di Giandomenico and Nicola Nostro, “Stochastic assessment of power systems in presence of heterogeneity”, Int. J. Critical Computer-Based Systems, Vol. 4, No. 4, 2013.
- F. Di Giandomenico, M. L. Itria, P. Masci and N. Nostro "Automated synthesis of dependable mediators for heterogeneous interoperable systems", Reliability Engineering and System Safety, 132 (2014), p.p. 220-232.

Book Chapters

- Bondavalli, S. Chiaradonna, F. Di Giandomenico, F. Grandoni, D. Powell, C. Rabejac, “Error Diagnosis and Fault Treatment”, in *A Generic Fault-Tolerant Architecture for Real-Time Dependable Systems*, David Powell (Ed.), Kluwer Academic Publisher, 2001, pp. 71-86.
- J. Arlat, A. Bondavalli, F. Di Giandomenico, M. T. Jarboui, E. Jenn, K. Kanoun, I. Mura, D. Powell, “Dependability Evaluation”, in *A Generic Fault-Tolerant Architecture for Real-Time Dependable Systems*, David Powell (Ed.), Kluwer Academic Publisher, 2001, pp. 157-192.
- Bondavalli, A. Coccoli and F. Di Giandomenico, “QoS analysis of group communication protocols in wireless environment” in “*Concurrency in Dependable Computing*”, Paul Ezhilchelvan and Alexander Romanovsky (eds.), Kluwer Academic Publishers, 2002.
- Bondavalli, S. Chiaradonna, F. Di Giandomenico, “Model-Based Evaluation as a Support to the Design of Dependable Systems”, in *Dependable Computing Systems: Paradigms, Performance Issues, and Applications*, Diab and Zomaya (Eds), John Wiley & Sons, Inc., 2005.
- S. Chiaradonna, F. Di Giandomenico, P. Lollini, “Evaluation of Critical Infrastructures: Challenges and Viable Approaches”, in *Architecting Dependable Systems V*, LNCS 5135-0052, pp. 52-77, 2008.
- Bertolino, A. Calabrò, F. Di Giandomenico, N. Nostro, “Dependability and Performance Assessment of Dynamic Connected Systems”, in *Formal Methods for Eternal Networked Software Systems (SFM’11)*, Springer-Verlag Berlin Heidelberg, LNCS, volume 6659, 2011
- Alberto Avritzer, Felicita Di Giandomenico, Anne Remke, Martin Riedl, Assessing Dependability and Resilience in Critical Infrastructures: Challenges and Opportunities, in *Resilience Assessment and Evaluation of Computing Systems*, Wolter, K.; Avritzer, A.; Vieira, M.; van Moorsel, A. (Eds.), Springer, 2012
- Silvano Chiaradonna, Felicita Di Giandomenico, Paolo Lollini, Case Study on Critical Infrastructures: Assessment of Electric Power Systems, in *Resilience Assessment and Evaluation of Computing Systems*, Wolter, K.; Avritzer, A.; Vieira, M.; van Moorsel, A. (Eds.), Springer, 2012
- Soila P. Kavulya, Kaustubh Joshi, Felicita Di Giandomenico and Priya Narasimhan, Failure Diagnosis of Complex Systems, in *Resilience Assessment and Evaluation of Computing Systems*, Wolter, K.; Avritzer, A.; Vieira, M.; van Moorsel, A. (Eds.), Springer, 2012
- Antonia Bertolino, Guglielmo De Angelis, Felicita Di Giandomenico, Eda Marchetti, Antonino Sabetta, and Paola Spoletini, Verification and analysis of autonomic systems for networked enterprises, in *Methodologies and Technologies for Networked Enterprises*, Anastasi, G.; Bellini, E.; Di Nitto, E.; Ghezzi, C.; Tanca, L.; Zimeo, E. (Eds.), LNCS 7200, 2012
- M. Beccuti, S. Chiaradonna, F. Di Giandomenico, S. Donatelli, G. Dondossola, G. Franceschinis, “Model-Based Evaluation of the Impact of Attacks to the Telecommunication Service of the Electrical Grid” in “*Critical Information Infrastructure Protection and Resilience in the ICT Sector*”, edited by Paul Theron and Sandro Bologna, IGI-Global, 2013

International Conferences and Workshops (extracted, from 2005)

- P. Lollini, A. Bondavalli, F. Di Giandomenico, “Evaluation of the Impact of Congestion on Service Availability in GPRS Infrastructures”, in *Proc. Second International Service Availability Symposium (ISAS 2005)*, Berlin, April 2005, LNCS 3694, Springer-Verlag, pp. 180-195.
- P. Lollini, A. Bondavalli, F. Di Giandomenico, “QoS Analysis of a UMTS Cell with Different Service Classes”, in *Proc. Of the 4th IASTED International Conference Communication Systems and Networks*, September 12-14, 2005, Benidom, Spain, pp. 55-60.
- L. Falai, A. Bondavalli, F. Di Giandomenico, “NekoStat Extension for Neko: Quantitative Evaluation of Distributed Algorithms”, in *Proc. 2nd International Conference on Quantitative Evaluation of Systems*, Torino, Italy, 19-22 September, 2005, pp. 241-242.
- L. Falai, A. Bondavalli, F. Di Giandomenico, “Quantitative Evaluation of Distributed Algorithms using the Neko Framework: the NekoStat Extension”, in *Proc. 2nd Latin-American Symposium on Dependable Computing*, Salvador, Brazil, October 2005.
- L. Gönczy, S. Chiaradonna, F. Di Giandomenico, A. Pataricza, A. Bondavalli, T. Bartha “Dependability Evaluation of Web Service-based Processes”, in *Proc. 3rd European Performance Engineering Workshop*, Budapest, A. Horváth and M. Telek (Eds.): EPEW 2006, LNCS 4054, pp. 166 – 180, 2006.

- Daidone, F. Di Giandomenico, A. Bondavalli, and S. Chiaradonna, “Hidden Markov models as a support for diagnosis: Formalization of the problem and synthesis of the solution”, in 25th IEEE Symposium on Reliable Distributed Systems (SRDS 2006), pages 245-256, Leeds, UK, October 2006.
- S. Chiaradonna, P. Lollini, and F. Di Giandomenico, “On a modeling framework for the analysis of interdependencies in electric power systems”, in IEEE/IFIP 37th Int. Conference on Dependable Systems and Networks (DSN 2007), Edinburgh, UK, June 2007.
- F. Romani, S. Chiaradonna, F. Di Giandomenico, L. Simoncini, “Simulation Models and Implementation of a Simulator for the Performability Analysis of Electric Power Systems Considering Interdependencies”, in Proc. IEEE HASE 2007, pp. 305-312, Dallas, 14-16 Nov. 2007.
- S. Chiaradonna, F. Di Giandomenico and P. Lollini, “Interdependencies Analysis in Electric Power Systems”, to appear in Proceedings 3rd International Workshop on Critical Information Infrastructures Security (CRITIS’08), October 13-15, 2008, Frascati (Rome), Italy
- M. Beccuti, G. Franceschinis, S. Donatelli, S. Chiaradonna, F. Di Giandomenico, P. Lollini, G. Dondossola, F. Garrone, “Quantification of Dependencies in Electrical and Informatio Infrastructures: the CRUTIAL Approach”, in Fourth International CRIS conference on Critical Infrastructures CRIS 09, Linköping, Sweden, 28-30 April 2009.
- P. Masci, S. Chiaradonna, F. Di Giandomenico “Dependability Analysis of Diffusion Protocols in Wireless Networks with Heterogeneous Node Capabilities”, in Proc. Eighth European Dependable Computing Conference, Valencia, Spain, April 28-30, 2010
- Felicita Di Giandomenico, Marta Kwiatkowska, Marco Martinucci, Paolo Masci, and Hongyang Qu, “Dependability Analysis and Verification for Connected Systems”, Proceedings of ISoLA 2010, Heraklion, Crete, Greece, October 18-21, 2010, Proceedings, Part II. [Lecture Notes in Computer Science](#) 6416 Springer 2010
- P. Masci, M. Martinucci, F. Di Giandomenico, “Towards Automated Dependability Analysis of Dynamically Connected Systems”, in Proceedings IEEE ISADS 2011, March 2011, pp. 139 – 146
- Antonia Bertolino, Antonello Calabrò, Felicita Di Giandomenico, Marco Martinucci, and Paolo Masci, “Automated Refinement of Dependability Analysis through Monitoring in Dynamically Connected Systems, in Proceedings IEEE ISADS 2011, March 2011, pp. 315-318
- S. Chiaradonna, F. Di Giandomenico, and N. Nostro. Modeling and analysis of the impact of failures in electric power systems organized in interconnected regions. To appear in the Proceedings of the 41th Annual IEEE/IFIP Int. Conference on Dependable Systems and Networks (DSN2011) – The Performance and Dependability Symposium (PDS), Hong Kong, June 2011.
- Paolo Masci, Nicola Nostro, Felicita Di Giandomenico. On enabling dependability assurance in heterogeneous networks through automated model-based analysis. In Proceedings Third International Workshop, SERENE 2011, Geneva, Switzerland, September 29-30, 2011, LNCS 6968, Springer, pp. 78-92.
- Silvano Chiaradonna, Felicita Di Giandomenico and Nicola Nostro, “Analysis of Electric Power Systems accounting for interdependencies in heterogeneous scenarios”, in Proceedings European Dependable Computing Conference - EDCC 2012, May 2012
- Silvano Chiaradonna, Felicita Di Giandomenico and Nicola Nostro, “Model-based assessment of multi-region Electric Power Systems showing heterogeneous characteristics”, in Proceedings of the 2012 international conference on Computer Safety, Reliability, and Security, LNCS Volume 7613, 2012, pp 328-339
- Felicita Di Giandomenico, Allesandro Fantechi, Massimiliano Itria, Stefania Gnesi, “Stochastic Model-based Analysis of Railway Operation to Support Traffic Planning ”, in Proceedings 5th International Workshop on Software Engineering for Resilient Systems (SERENE 2013), LNCS 8166, Springer, pp. 184-198
- Silvano Chiaradonna, Felicita Di Giandomenico and Nadir Murru, “On a Modeling Approach to Analyze Resilience of a Smart Grid Infrastructure”, to appear in Proceedings of EDCC 2014, May 2014
- N. Nostro, I. Matteucci, A. Ceccarelli, F. Di Giandomenico, F. Martinelli, A. Bondavalli, “On Security Countermeasures Ranking through Threat Analysis”, in SAFECOMP 2014 Workshops, LNCS 8696, pp. 243-254, 2014
- C. Di Sarno, N. Murru, F. Di Giandomenico, S. Chiaradonna, A. Garofalo and G. Cerullo, “Power Grid Outlier Treatment through Kalman Filter”, in IEEE Second International Workshop on Reliability and Security Data analysis, November 2014.

