Curriculum vitae

Cinzia Bernardeschi
Department of Information Engineering
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Education:
PhD in Information Engineering (23.10.1995), University of Pisa
Master's Degree (Laurea) in Computer Science (11.12.1987), University of Pisa

Professional Position:
Associate professor (1/2002 - Present) - University of Pisa, Information Engineering Department. Courses: Foundations of computer science, Information systems, Dependable Systems.
Assistant professor (5/1996 - 1/2002) - University of Pisa, Information Engineering Department. Course: Foundations of computer science.
Software developer (2/1988 – 4/1991) - Tecsiel (Tecnologie e Strumenti per Sistemi Informativi Elettronici) of Pisa.

Cinzia Bernardeschi carried out her institutional teaching obligations and appointments at the University of Pisa.

She is Member of Academic Board of the PhD Program in Information Engineering of the Engineering Ph.D. School "Leonardo da Vinci" of the University of Pisa.

Research activity
Her main research interests are in the area of software engineering, dependable systems and application of formal methods for specification and verification of safety-critical systems. She collaborated with companies operating in the field of transportation on modelling railway signalling systems and on safety requirements verification of control procedures using model checking methods; she has worked on verification of software for embedded systems, with a special emphasis on issues of user information confidentiality using abstract interpretation method and she has worked on the verification of sensor network protocols using theorem proving approaches. She collaborated with experts in the field of nuclear engineering on reliability issues in instrumentation and control. She participated in projects on verification of robustness of programmable logic devices to radiation faults in aerospace applications. Recent work concentrates on the development of methods and tools supporting the integration of formal methods with co-simulation for cyber-physical systems design and verification, and the development of virtual interactive prototypes of medical cyber-physical systems.

She collaborates with ISTI of the National Research Council (CNR) on design, analysis and verification of dependable systems.

She collaborates with the University Minho, Portugal, on formal specification and verification of safety properties of medical systems.

She collaborates with the Department of Diagnostic and Interventional Radiology of the University of Pisa on verification of safety properties of contrast media injectors used in CT.

She is member of the ERCIM Working Group on Formal Methods for Industrial Critical Systems (FMICS).

She is member of the "Laboratorio Nazionale di Cyber Security", Consorzio Interuniversitario Nazionale per l'Informatica (CINI). She contributed to the writing of "Il Futuro della Cybersecurity in Italia: Ambiti Progettuali Strategici", 2018.

She is member of the IEEE SMC (Systems, Man, and Cybernetics Society) Technical Committee on Homeland Security.

Research projects
- "EPI: European Processor Initiativew. Funded by the EU under call H2020, 2018-2020 (Participant).
- "SAPIENT: Satcom and terrestrial architectures improving performance, security and safety in ATM. Funded by the EU under call H2020-SESAR-2015-1. ", 2016-2017 (Participant).
- "SAFURE: Safety And Security by Design for Interconnected Mixed-Critical Cyber-Physical Systems", EU – H2020, 2015-2016 (Participant).
- "OLTRE: On-Line Testing and Healing Permanent Radiation Effects in Reconfigurable Systems" (2014-2015), funded by the European Space Agency (Università di Pisa, Politecnico di Torino e Università di Bielefeld, Germania), (Project leader for the University of Pisa).
- "SMARTY – SMArt Transport for sustainable citY", funded by Regione Toscana - Bando Unico R&D -2012 2016 (Participant).
- "Abstract Domain Decomposition" (2007 – 2009), funded by the University of Pisa. The project focuses on Static analysis of programs using abstract interpretation techniques and domain decomposition (Participant).
- "ReSIST: Resilience for Survivability on IST" (2006-2009). FP6 Network of Excellence addressing the theme "Towards a global dependability and security framework", funded by the European Union (Project leader for the Formal verification group of the University of Pisa)
- "SENSORNET: Wireless Sensor Networks for Environmental Monitoring" (2005 – 2007) Research project funded by Fondazione Cassa di Risparmio di Pisa, performed with the Scuola Superiore di Studi Universitari e Perfezionamento Sant'Anna of Pisa (Participant).
- "AIDA - Abstract Interpretation: development of analysis tools and relations with type systems" (2005 - 2007). Research project funded by MIUR (Participant).
- "A tool for checking data confidentiality in multi-applicative Java Cards" (2003 – 2004). Research project funded by Fondazione Cassa di Risparmio di Pisa, in collaboration with a major Italian Industry in the field of Smart Cards (Participant).
- "MOSAICO" (1997-1999). Research project funded by MURST. The project addresses methodologies and tools for the design of high performance systems for distributed applications (Participant).

- "GUARDS: A Generic Upgradable Architecture for Real-time Dependable Systems" (1996-1999) - ESPRIT Project 20716. The project addresses the development of architectures, methods, techniques, and tools to support the design, implementation and validation of critical real-time systems. (Coordinator for the PDCC-University of Pisa research group).
- Scientific cooperation program Italia-Francia GALILEO (1995-1996): project in the filed of "tele-education" (Participant).
- "Analisi e Trasformazione di programmi" (1994-1995), Progetto Coordinato C.N.R. (Participant).
- "LotoSphere" (1989-1992) ESPRIT Project 2304. The project addresses the design and development of methods and tools based on the formal description technique LOTOS for the verification of concurrent systems (Participant).

Awards
2010 Best paper award COMPUTATION TOOLS 2010
2011 Best paper award COMPUTATION TOOLS 2011
2014 Co-Supervisor of the PhD Thesis winner of the European semi-finals of the TTTC's E. J. McCluskey Doctoral Thesis Award
2016 Certificate of Reviewing award, Integration, the VLSI journal

Journal Reviewing and Editorial Service
Member of the Editorial Board of the International Journal of Critical Computer-Based Systems.

Reviewer for international journals, among which: Journal of Virology and Hacking Techniques; IEEE Transactions on Industrial Informatics, The Computer Journal, IEEE Transactions on Emerging Topics in Computing, Computer Standards & Interfaces, Pervasive and Mobile Computing, Integration, the VLSI Journal

Organization of conferences
Workshop on FORmal methods for Security Engineering (ForSE2019, ForSE2018) - Member of PC;
Workshop on Formal Co-Simulation of Cyber-Physical Systems (CoSim-CPS 2018@SEFM2018, CoSim-CPS 2017@SEFM2017) - PC co-chair;
Workshop on Medical Cyber-Physical Systems (MCPS@CPSWeek2018) - Member of PC;
Formal Integrated Development Environment 2018 (F-IDE-18, F-IDE19) - Member of PC;
Resilience of Cyber-Physical Systems: From Risk Modelling to Threat Counteraction (RCPS-2018) - Member of PC;
"L'innovazione al servizio della sicurezza dei pazienti" (Festival dell'Innovazione in Sanità Pubblica, Pisa, 2017) - PC co-chair;
Workshop "Challenge Problems for Resilience-Explicit Computing in Grids" (2008) - PC co-chair;
Workshops on Enabling Technologies: Infrastructure for Collaborative Enterprises, Track on Validating Software for Critical Systems (IEEE WETICE 2015, WETICE 2014) - Member of PC;
Formal Methods in Industrial Safety Critical Systems (FMICS 2014) - Member of PC.

Supervision of PhD students and Erasmus Training Programme
- Luca Cassano, PhD program in Information Engineering of the Engineering PhD School "Leonardo da Vinci" of the University of Pisa, (2010-2012).
- Luca Frosini, PhD program in Information Engineering of the Engineering PhD School "Leonardo da Vinci" of the University of Pisa, (2016-2018)
- Maurizio Palmieri, PhD Program in Smart Computing, Universities of Florence, Pisa, and Siena (2017- present).
- Since 2012, she collaborates with the Queen Mary University of London and the University of Bielefeld, Germany, within the ERASMUS Training Programme. In that program, she has been supervisor of five students of the Laurea Magistrale in Computer Engineering.

Other activities
- She is an associate faculty member of the Doctoral Committee of the PhD Program in Smart Computing, a joint program by the Universities of Florence, Pisa, and Siena.
- She has been in the PhD Examining committee of the "Dottorato in Informatica, Sistemi e Telecomunicazioni", University of Florence (2016).
- She has been in the PhD Examining committee of Dario Cozzi, University of Bielefeld, Cognitive Interaction Technology, (2016).
- In 2015, she was reviewer of project proposals within the "Progetti di Ricerca d'Ateneo" programme of the University of Pisa, Italy.
- She has been consultant for Scuola Superiore Sant'Anna, within the EU H2020 Project SAFURE, "Safety and Security by Design for Interconnected MixedCritical Cyber-Physical Systems," about security architecture and modelling in automotive systems (August 2015 – June 2016).

She was lecturer of

- "Software tools for testing usability" within the UBORA design school 2018 - Euro-African Open Biomedical Engineering e-Platform for Innovation through Education-Pisa, 3-7 September 2018.
- "Reliability of Hardware and Software Components "(2009) within the European project "Support to VATESI in Assessment Safety of Ignalina NPP".
- "Common Cause Failure Redundancy and Independence Principle" (2009) within the European project "Support to VATESI in Assessment Safety of Ignalina NPP".
- "Techniques for Fault-Tolerance in Distributed Systems" within the Ph.D program in Computer Science and Engineering at the Institute for Advanced Studies Lucca (IMT), a.a.2005-06 and a.a. 2007-2008.

She also held short courses and seminars:
- "Integrated simulation of Implantable Cardiac Pacemaker Software and Heart Models", Cognitive Interaction Technology (CITEC) at Bielefeld University, Bielefeld, 2015.
- "Safety issues in medical devices", at the Department of Diagnostic and Interventional Radiology, Università di Pisa, 2017.
- "Requisiti essenziali per la safety dei dispositivi elettromedicali", Festival dell'Innovazione in Sanità Pubblica, Pisa, 2017.
- "E-health device prototyping" Innovation pitch, at the Research to Business event organized by Regione Toscana, Pisa, 2017.
- "Secure Information Flow in programs", at the IDS Ingegneria Dei Sistemi, Pisa, 2018.