Luciano Baresi is a full professor at Politecnico di Milano. He received both his Master degree in Electronic Engineering and PhD in computer science from the same Politecnico. He was also visiting professor at University of Oregon (USA) and visiting researcher at University of Paderborn (Germany). Luciano was the chair of the bachelor degree program in Engineering Computing Systems (Cremona campus). After merging the degree program in Cremona with the equivalent one in Milan, he is now the deputy chair for the Cremona campus. He is also a member of the board of professors of the doctoral program in information technology at Politecnico.

Luciano is a regular member of the program committees of important conferences related to software engineering, service-oriented computing, self-adaptive systems, and web-based and mobile applications. He was the program chair of ICECCS’02 (International Conference on Engineering Complex Computer Systems), FASE’06 (ETAPS Conference on Fundamental Approaches on Software Engineering), ICWE’07 (International Conference on Web Engineering), ICSOC’09 (International Conference on Service-Oriented Computing), SEAMS’12 (Symposium on Software Engineering for Adaptive and Self-Managing Systems), and ESEC/FSE’13 (Joint European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering).


Luciano co-authored some 130 papers. Some of his papers appeared on prestigious journals and magazines like ACM Transactions on Software Engineering and Methodology, IEEE Transactions on Software Engineering, IEEE Computer, IEEE Software, and IEEE Internet Computing. He is also the co-author of a book in Italian. Currently, his work has been cited some 5000 times and his h-index is 37 (Google Scholar).

Luciano was the recipient of two CNR short-term mobility grants (1998 and 1999), an IBM Shared University Research award (2006), and an IBM Faculty award (2007).

Luciano acted as member of evaluation boards for the Netherlands Organisation for Scientific Research (The Netherlands), Mitacs (Canada), Vienna Science and Technology Fund (Austria), National Council for Scientific Research (Romania), Fundação para a Ciência e a Tecnologia (Portugal), and TrentoRISE (Italy). He also served as project reviewer for the European Commission.

Luciano’s research interests touch different aspects of software engineering. While he started with formal approaches for modeling and specification languages, he then moved to UML and the design of web-based applications. He is now interested in distributed systems, service-based applications, and in the different aspects of mobile, ubiquitous, and self-adaptive software systems. This research has been funded by diverse national and international projects. Among them, Luciano has coordinated the participation of Politecnico di Milano in the following EU-funded projects: MOMOCS, SLA@SOI, MADES, and Indenica.
RESEARCH STATEMENT

My research interests have always been in the wide contest of software engineering. My PhD was about the formalization of existing modeling and design notations. I used high-level Petri nets to ascribe these notations with a formal semantics, and thus enable the verification and validation of designed models. I started working on Structured Analysis, a widely used notation at that time, and continued with domain-specific notations (e.g., for the “precise” design of clinical medical processes). Finally, I touched UML at the end of the PhD period. The most prominent results of these activities are the two TOSEM articles, and the paper presented at ICSE (all these papers are coauthored with my PhD advisor Mauro Pezzè). Recently, this work returned to life with Alfredo Motta: we concentrated massively on the different UML diagrams and used temporal logics for defining the formal semantics.

Since, I used graph transformation systems as means for translating defined models into their formal representation (Petri nets), I also worked on the formal analysis of graph transformation systems, both as a verification tool for software architecture (ESEC and SoSyM papers coauthored with Reiko Heckel) and as modeling means per se (ICGT with Paola Spoletini and IET with Vahid Rafe). As side effect of the work on graph transformation systems, I also co-authored a couple of tutorial papers on their use in software engineering together with Reiko Heckel (ICGT). The work on software architecture was carried out while I was a visiting researcher at University of Paderborn (Germany). The formal analysis of software architecture is also the goal of the work on analyzing publish and subscribe systems done together with Luca Mottola and Carlo Ghezzi (ICSE and TSE).

After the period in Paderborn, I started targeting the design of “complex” web applications. At that time, web applications were mostly sites, simply composed of static and dynamic web pages. Together with Paolo Paolini and Franca Garzotto, we studied the problems related to designing the “new” web applications, that is, distributed systems equipped with web interfaces, or web sites augmented with backend systems. Given the interest for multi-channel interfaces, we adopted a model-based approach to reason on these applications at abstract level, and produce then the elements for the different target architectures automatically (FASE). In parallel, I also worked on analyzing and measuring the complexity of these applications to provide guidelines to the developer (Metrics and TOSEM with Sandro Morasca).

The natural evolution of the interest in web applications has been the domain of service-oriented systems. I worked on the definition of suitable solutions for addressing the dynamism and flexibility intrinsically embedded in these systems (Computer with Ghezzi and Di Nitto). I also worked with Sam Guinea on how to monitor and adapt service compositions —in the form of BPEL processes— to let them become dynamic entities (2 ICSOCs, InternetComputing, TSE, and Software also with Danilo Ardagna). Now the work is taking a more cloud-oriented approach and addresses the problem of reasoning on monitoring and adaptation not only at application level (Software-as-a-Service), but also at platform (Platform-as-a-Service) and infrastructure level (Infrastructure-as-a-Service). The work on service-based systems also addressed the problem of enabling the discovery of services through properly distributed service registries (ICSOC with Matteo Miraz), and the precise definition of the requirements these applications are supposed to meet. More specifically (RE with Liliana Pasquale), we defined a fuzzy-based solution to embed a bit of uncertainty in the specification of requirements, and we proposed the use of adaption goals to specify how the system-to-be should adapt concretely. We also used the results on monitoring and adaptation to define service-based dynamic software product lines (Computer with Liliana Pasquale).

Finally, I have also been working on the runtime evolution of component/service-based applications. We developed a fully decentralized solution to “understand” when a component can be changed without impacting on the execution of the system (ESEC with Xiaoxing Ma).

To conclude, besides the work done, and witnessed by my publications (those referred to here, and the others), my current research activities are organized around four main threads. The first three research lines can be seen as continuation of the work already done/in progress: (a) formal verification of UML models, (b) monitoring and adaptation of cloud-based systems, and (c) dynamic software product lines. Together with new PhD students, I am also trying to understand how to define innovative (d) service-based solutions for the Internet of Things.
TEACHING STATEMENT

I really love teaching. I am always exited when I have the opportunity to communicate with young students, or advanced professionals, and help them learn new things. This applies to both initial courses on programming concepts and advanced classes on innovative topics. In the former case, I can help shape the future professionals in front of me and I can help them understand the beauty of an algorithm and the concepts needed to make it run. In the latter case, the roles are less strict and I work together with the students to discover new things. Even if the roles are different, I feel like a student who is supposed to learn new concepts, become familiar with new technologies, and explain them to the others. This is good since I am always eager to learn more and, especially in our field, there are always new things to become familiar with. I really like the feeling I can establish with students and what I can learn from them.

I am convinced that teaching is as important as research. The day-to-day work with PhD students and post-docs on shaping their ideas and research is excellent, but teaching plays a very relevant role in my work. My deep involvement in teaching activities at Politecnico resulted in quite heavy teaching duties over the years. I have jumped from fundamental courses to more application-oriented ones, and I even thought an introductory course on algorithm design and complexity analysis once. Even if I have carried out most of my teaching duties at Politecnico, I also taught at University of Oregon at Eugene (USA), as visiting professor, and at Tongji University at Shanghai (China), within the Sino-Italian campus initiative.

At Politecnico, I have always taught the introductory courses we offer at undergraduate level. I have been teaching Fundamentals of Computer Science for three years and I really love when students start understand how to create their own algorithms. I know they “hate” me when they have to turn their algorithms into programs, but then I can see their enthusiasm when they can run the result of their work.

I have also created a couple of new courses at Politecnico. Years ago, I created the course on Service Technologies we still offer to our graduate students. We thought that our students had to know everything about service-oriented computing, Web services, and REST services. Originally, it was a success, but after some years I think we should offer a more complete perspective and consider service technologies within the wider domain of middleware infrastructures for highly distributed systems.

Two years ago I proposed a new course on the Design and Implementation of Mobile Applications. The idea was to give our Master students a Software Engineering perspective on the conception and realization of these new applications. I decided to cover all the key concepts and technologies, and the students are very interested and involved in creating their own applications. It is nice to see how they conceive their new apps and how they apply the basics on software design and development in this new context.

Over the years, I have also regularly offered consulting activities to many different companies in Italy in the form of advanced courses on specific topics. I started years ago with UML and object-oriented programming, and I am now offering introductory courses on Cloud Computing and related technologies.

The audience varies in the different cases from a few people to a couple of hundreds, but I always try to set the right atmosphere and interact with the different students as much as I can. Clearly, the number of students deeply impacts the teaching method, but the interaction with my clients and their involvement is key for the success of the course. The right blending among explanations, exercises, and lab activities (with the help of teaching assistants) is very important for reaching the original goals of the course.

Given the rules at Politecnico, I am used to organize undergraduate courses in a more conventional way, with students that must pass the exam by solving simple exercises and answering questions. I am more creative and open to experiments when I teach to graduate students. In this latter case, I think it is much more important that students try to do things, and learn from practice, instead of asking them to study some (dry) concepts to solve simple exercises. Projects, where students must develop new concepts and deliver products, are often the right means to let them learn and create their body of knowledge. Unfortunately, we cannot offer our students real life cases, and the typical sizes and problems that come with them, but I have always been interested in crafting projects where students can at least deal with some of the real problems.
KEY DATA

• Laurea degree in Electronic engineering - Computer Science from Politecnico di Milano (april 1992)
• PhD degree in Computer Science (Dottorato di ricerca in Informatica e Automatica) from Politecnico di Milano (september 1997)
• Assistant professor at Politecnico di Milano (march 2001–december 2003)
• Associate professor at Politecnico di Milano (from december 2003-march 2015)
• Full professor at Politecnico di Milano (from march 2015-)
• Visiting researcher at University of Oregon – Eugene, USA (july-september 1998 and july-september 1999)
• Visiting professor at University of Oregon – Eugene, USA (january-march 2001)
• Visiting research at University of Paderborn, Germany (january-february and october-november 2003)
• Visiting professor at Tongji University, Shanghai, China (september-october 2008), in the context of PoliTong and of the Sino-Italian campus.

RESEARCH PROJECTS

RESPONSIBLE FOR THE ACTIVITIES AT POLITECNICO

• EU projects
  • MOMOCS (Model-driven Modernization of Complex Software Systems) - 2006-2008 (www.momocs.org)
  • SLA@SOI (Empowering the Service Economy with SLA-aware Infrastructures) - 2008-2010 (sla-at-soi.eu)
  • MADEs (Model-based methods and tools for Avionics and surveillance embedded Systems) - 2010-2012 (services.txt.it/mades-project)
  • INDENICA (Engineering Virtual Domain-Specific Service Platforms) - 2010-2013 (www.indenica.eu)
• National projects
  • SITAD (Sistema Integrato di Telemedicina e Assistenza Domiciliare) - 2012-2014 (responsible for the activities at DEIB) - bando Regione Lombardia e Ministero dell’Istruzione 2011
  • PSC (Piattaforma dei servizi nel settore della giustizia civile) - 2014-2015 (responsible for the activities at DEIB) - Smart City Giustizia

ALSO INVOLVED IN

• INFORMA (Integrated Formal Approaches for Embedded Real-Time Systems) - 1997-1999
• UWA (Ubiquitous Web Applications) 2001-2003
• SeCSE (Service-centric System Engineering) - 2005-2008 (www.secse-project.eu)
• Cascadas (Component-ware for Autonomic Situation-aware Communications, and Dynamically Adaptable Services) - 2006-2008 (www.cascadas-project.org)
• S-Cube (Software Services and Systems Network, NoE) - 2008-2012 (www.s-cube-network.eu)
• SMSCom (Self-Managing Situated Computing) - 2008-2013 (www.erc-smscom.org)

PHD STUDENTS

ADVISOR

• Sam Guinea (Politecnico di Milano, 2005-2007, officially advised by Carlo Ghezzi)
• Matteo Miraz (Politecnico di Milano, 2007-2010)
Liliana Pasquale (Politecnico di Milano, 2008-2010)
Alfredo Moaa (Politecnico di Milano, 2010-2012)
Paulo Nardi (USP - São Carlos, Brazil, 2010-2013) - co-advisor (advisor prof. Marcio Delamaro)
Mohammad Mehdi Pourhashem (Politecnico di Milano, 2012-)
Adnan Shahzada (Politecnico di Milano, 2012-)
Naser Derakhshan (Politecnico di Milano, 2013-)
Giovanni Quattrocchi (Politecnico di Milano, 2014-)
Giovanni Meroni (Politecnico di Milano, 2014-)
Anita imani (Politecnico di Milano, 2014-)
Narges Shasmandi (Politecnico di Milano, 2014-)

EXTERNAL REVIEWER

Anna Rita Laurenzi, Univeristà dell'Aquila (Italy), 2004
Fabio De Rosa, Università di Roma la Sapienza (Italy), 2006
Khaled Mahbub, City University London (UK), 2006
Cristina Marin, Universite Grenoble 1 (France), 2008
Dhaminda Buddhika Abeywickrama, Monash University (Australia), 2010
Jocelyn Simmonds, University of Toronto (Canada), 2010
Fabiano Dalpiaz, Università di Trento (Italy), 2011
Vikas Agarwal, Indian Institute of Technology, Kanpur (India), 2011
Garth Heward, Swinburne University of Technology (Australia), 2012
Asli Zengin, Università di Trento (Italy), 2012
Heorhi Raik, Università di Trento (Italy), 2012
Walter Rudametkin Ivey, Universite Grenoble 1 (France), 2013
Adina Sirbu, Università di Trento (Italy), 2013
Basil Becker, University of Potsdam (Germany), 2014
Gil Didac, Linnaeus University (Sweden), 2014
Christian Inzinger, Technical University Vienna (Austria), 2014
Abel Silva Lizzano, Politecnico di Milano, PhD program in Spatial Planning and Urban Development, 2014

PROFESSIONAL ACTIVITIES

AT POLITECNICO

Chair of the bachelor degree program in Engineering Computing Systems - Cremona campus (2009-2011)
Deputy chair of the bachelor degree program in Engineering Computing Systems for the Cremona campus (2011-)
Member of the board of professors of the doctoral program in information technology at Politecnico (2011-)
Co-coordinator of S-Cube, research lab on Social Smart Spaces in cooperation with Telecom Italia (2013-)

GENERAL CHAIR

Working IEEE/IFIP Conference on Software Architecture (WICSA), 2016

PC CHAIR
- International Conference on Engineering of Complex Computer Systems (ICECCS), 2002 (with M. Hinchey, M. Chen e S. Liu)
- Fundamental Approaches to Software Engineering (FASE), 2006 (with R. Heckel)
- International Conference on Web Engineering (ICWE), 2007 (with G.-J. Houben)
- International Conference on Service-oriented Computing (ICSOC), 2009 (with J. Suzuki e C.H. Chi)
- Joint meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE), 2013 (with Mira Mezini)

WORKSHOP CHAIR

- Joint meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE), 2005
- International Conference on Software Engineering (ICSE), 2009 (with V. Braberman)
- International Requirements Engineering Conference (RE), 2011 (with D. Amyot)

PUBLICITY CHAIR

- International Software Metrics Symposium (Metrics), 2005

POSTER CHAIR

- International Conference on Software Engineering (ICSE), 2013

LOCAL ARRANGEMENT CHAIR

- Joint meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE), 2015 (with Angelo Gargantini)

PROGRAM COMMITTEES

I am and I have been member of many program committees over the last years. Maybe, the most important ones are: International Conference on Service-Oriented Computing, World Wide Web Conference, Fundamental Approaches on Software Engineering, International Conference on Web Engineering, International Conference on Graph Transformation Systems, International Conference on Advanced Information Systems Engineering, European Conference on Web Services, Conference on Service-Oriented Computing and Applications, International Software Metrics Symposium (Metrics), and International Conference on Software Engineering.

EDITORIAL BOARDS

- Service Oriented Computing and Applications (Sprinter)
- Transactions on Autonomous and Adaptive Systems (ACM)
- Transactions on Software Engineering (IEEE)
- Transactions on Service Computing (IEEE)
DAGSTUHL SEMINARS (CO-ORGANIZER)

- Customizing Service Platforms,
  co-organizer with Heiko Ludwig, Andreas Rummler, and Klaus Schmid (April 2013)
- Feature Interactions: The Next Generation,
  co-organizer with Sven Apel, Pamela Zave, and Jo Atlee (July 2014)

REVIEWER (TECHNICAL PAPERS)


WORKSHOP ORGANIZER


REVIEWER (PROJECTS AND PROJECT PROPOSALS)

European Union, projects MUSIC (Self-adapting applications for Mobile Users In ubiquitous Computing environments), and GINSENG (Performance Control in Wireless Sensor Networks), Netherlands Organisation for Scientific Research (The Netherlands), Mitacs (Canada), Vienna Science and Technology Fund (Austria), National Council for Scientific Research (Romania), and Fundação para a Ciência e a Tecnologia (Portugal), TrentoRISE (Italy), and INRIA (France).

GRANTS AND AWARDS

- CNR grant, as part of the exchange program for short-term mobility, for the research periods at University of Oregon (Eugene – USA), july-september 1998 and july-september 1999.
- Qualification for the NATO-CNR Senior Fellowships – Senior Guest Fellowships, summer 1999.
• IBM Shared University Research (SUR) Award 2006 for the project called WS-Testing, which is about the test of service-based applications (together with professor Alessandro Orso, Georgia Institute of Technology, USA)
• IBM Faculty Award 2007 (together with professor Barbara Pernici) for the project called Sviluppo di un curriculum per la Service Engineering (Development of a curriculum on service engineering).

TUTORIALS

GRAPH TRANSFORMATION SYSTEMS

1. Luciano Baresi and Reiko Heikel (University of Leicester, UK). Foundations and Applications of Graph Transformation. 1st International Conference on Graph Transformation. October 2002, Barcellona (Spain)
2. Luciano Baresi and Reiko Heikel (University of Leicester, Inghilterra). Tutorial Introduction to Graph Transformation: A Software Engineering Perspective. 2nd International Conference on Graph Transformation. October 2004, Rome (Italy)

WEB QUALITY

3. Luciano Baresi and Sandro Morasca (Università dell'Insubria, Italy). An Introduction to Web Quality. 4th International Conference on Web Engineering. July 2004, Munich (Germany)

WEB SERVICES

8. Luciano Baresi, Elisabetta Di Nitto (Politecnico di Milano, Italy) e Massimiliano Di Penta (Università del Sannio, Italy). Monitoring of Service Oriented Systems and Recovery Actions. 5th International Conference on Service-Oriented Computing. September 2007, Vienna (Austria)

SELF-* SYSTEMS

PUBLICATIONS

INTERNATIONAL JOURNALS


BOOKS


EXERCISE BOOKS


EDITED PROCEEDINGS


**EDITED SPECIAL ISSUES**


**CONTRIBUTIONS TO INTERNATIONAL BOOKS**


NATIONAL JOURNALS


94. Alek Radjenovic, Nicholas Drivalos Matragkas, Richard F. Paige, Matteo Rossi, Alfredo Motta, Luciano Baresi, Dimitrios S. Kolovos: MADES: A Tool Chain for Automated Verification of UML Models of Embedded Sys-


PROJECT-RELATED PUBLICATIONS


**INVITED PRESENTATIONS**

NATIONAL CONFERENCES AND WORKSHOPS


TECHNICAL REPORTS


BOOKS - EDITOR OF THE ITALIAN VERSIONS

1. Eric Gamma, Richard Helm, Ralph Johnson, John Vlissides, Design Patterns: Elements of Reusable Object-Oriented Software. Pearson, 2002
DOCENZA CORSI AL POLITECNICO

- Cultura Tecnologica del progetto (Disegno industriale), Como, 2001-2002.
- Informatica 2, Milano, 2001-2004
- Informatica 2, Cremona, 2002-2008
- Progetto di Informatica B, Cremona, 2003-2010
- Progetto di Informatica C, Cremona, 2006-2007
- Tecnologie dei Servizi I, Milano, 2007-2010
- Informatica 3, Cremona, 2008-2009
- Architettura dei Calcolatori e Sistema Operativi, Cremona, 2009-2011
- Fondamenti di Informatica, Cremona, 2011-2015
- Prova Finale, Milano, 2010-2015
- Progetto Software, Cremona, 2011-2015