

Giuseppe Valetto

Nationality: Italian

Permanent Address: 45 E 89th St. #32A

City: New York, NY – 10128 - USA

Telephone: +1 212 9960392 (home)

Telephone: +1 917 3048788 (mobile)

e-mail: valetto@cs.columbia.edu

Education

Ph.D. in Computer Science, May 2004. Graduate School of Arts and Sciences, School of Engineering and Applied Science, Columbia University, New York, N.Y – U.S.A.

Ph.D. Thesis: “*Orchestrating the Dynamic Adaptation of Distributed Software with Process Technology*” (defended on October 31, 2003 – published April 2004).

My Ph.D. research deals in general with the fields of autonomic computing, dynamic software adaptation and coordination of widely distributed software systems. More specifically, I addressed, in the context of an infrastructure for superimposing autonomic features and behaviour onto large-scale distributed (legacy) systems that are not intrinsically autonomic, the merits of workflow technology as a paradigm for software coordination and as a means for orchestrating and enforcing the end-to-end adaptation of those systems. Experimental findings in a range of application domains indicate that workflow-based adaptation keeps the development of autonomic behaviours simple, is beneficial in taming management complexities and improving runtime quality levels, and is effective also in demanding software coordination contexts, such as (soft) real-time.

Master of Science in Computer Science, October 1994. Graduate School of Arts and Sciences, School of Engineering and Applied Science, Columbia University, New York, N.Y. – U.S.A.

MS research thesis: Columbia University, New York “*Expanding the Repertoire of Process-based Tool Integration*”

My MS research deals with abstractions and mechanisms for the integration within process-based software development environments of tools for CSCW and collaborative development.

Graduate Coursework: concentrations in

- Software Engineering: Software Process, Collaborative Technologies, and Workflow Management.
- Artificial Intelligence: Natural Language Processing and Knowledge Representation.

Laurea in Electronic Engineering, October 1992. Facoltà di Ingegneria Elettronica, Politecnico di Torino, Turin, Italy.

Undergraduate Research Thesis: “*Algorithms for the Modelling and Rendering of Synthetic Images*”.

Work Experience

2005 – present: Postdoc at the IBM TJ Watson Research Center (Hawthorne, NY – USA); I am currently working on socio-technical analysis of software development.

- **2000 – 2005:** Researcher at Telecom Italia Lab (TILAB, Turin - Italy) – the R&D headquarters of Telecom Italia. My experience at TILAB includes work on: Service-Oriented Architectures and semantics-based service composition; autonomic computing; peer-to-peer computing; pervasive computing and communication.

Some of my work at TILAB has resulted in two international patent applications on:

- Autonomic computing
- Multimedia content sharing

1996 – 1999: Researcher in the Software Engineering area at CEFRIEL (Milan, Italy), a research and graduate education facility of the *Politecnico di Milano*. At CEFRIEL, I carried out research on:

- Workflow management systems; methods and tools for requirement management and engineering; semantic and Web-based information systems; distributed architectures and middleware; process-based software development tools and environments; architectures and applications for distributed collaborative work.

1994 - 1995: Research Engineer at Xerox Research Centre Europe (XRCE), Meylan [Grenoble] France, working on technologies for computer-aided multilingual comprehension.

Teaching Experience

At Columbia University:

- Instructor for "Advanced Software Engineering" – Spring 2006
- Instructor for "Programming Languages (Java)" - Fall 2002
- Teaching Assistant for "Advanced Software Engineering" - Fall 2002
- Project tutor for a Master student affiliated to the Programming Systems Lab - Fall 2002
- Teaching Assistant for "Computer Graphics" - Spring 1993

At CEFRIEL - Politecnico di Milano:

- Instructor for several courses in the Master in Information Technology - years 1996 to 1999. Offerings included: introductory Software Engineering, OO Database Systems, OO design principles and techniques, Programming Languages (C, C++, Java).
- Research tutor for nine Master students, leading to their Master theses - years 1996 to 1999.

Selection of publications

[1] *Adaptive Synchronization of Semantically Compressed Instructional Videos for Collaborative Distance Learning*, Dan Phung, Giuseppe Valetto, Gail Kaiser, Tiechieng Liu, and John Kender, **Invited Paper**, to appear in the International Journal of Distance Education Technologies, 5(2):56-73, Idea Group, April 2007.

[2] *Effecting Runtime Reconfiguration in Managed Execution Environments*, Rean Griffith, Giuseppe Valetto, and Gail Kaiser, **Book Chapter** in "Autonomic Computing: Concepts, Infrastructure, and Applications", (Manish Parishar and Salim Hariri eds.) CRC Press, ISBN: 0849393671, November 2006.

[3] *On-the-fly Construction of Web Services Compositions from Natural Language Requests*, Alessio Bosca, Fulvio Corno, Giuseppe Valetto, and Roberta Maglione, **Invited Paper**, Journal of Software 1(1):40-50, Academy Publisher, 2006.

[4] *Retrofitting Autonomic Capabilities onto Legacy Systems*, Gail Kaiser, Janak Parekh, Philip Gross, and Giuseppe Valetto, **Invited Paper**, in special issue of the Journal of Cluster Computing, vol. 9(2):141-159, Springer, April 2006.

[5] *Specifying Web Service Compositions on the Basis of Natural Language Requests*, Alessio Bosca, Giuseppe Valetto, Roberta Maglione, and Fulvio Corno, in Lecture Notes in Computer Science, Vol. 3826 (Proceedings of the 3rd International Conference on Service-Oriented Computing - ICSOC 2005), Springer, ISBN: 3-540-30817-2, December 2005, Amsterdam, The Netherlands.

[6] *Towards Service Awareness and Autonomic Features in a SIP-enabled Network*, Giuseppe Valetto, Laurent Walter Goix, and Guillaume Delaire, in Lecture Notes in Computer Science, Vol. 3854 (Proceedings of the 2nd IFIP International Workshop on Autonomic Communication – WAC 2005), Springer, ISBN: 3-540-32992-7, October 2005, Athens, Greece.

[7] *Adaptive Internet Interactive Team Video*, Dan Phung, Giuseppe Valetto, and Gail Kaiser, **Best Student Paper Award**, in Lecture Notes in Computer Science Vol. 3583 (Advances in Web-based Learning: Proceedings of the 4th International Conference on Web-based Learning) Springer, ISBN: 3-540-27895-8, August 2005, Honk Kong, China.

[8] *A Uniform Programming Abstraction for Effecting Autonomic Adaptations onto Software Systems*, Giuseppe Valetto, Dan Phung, and Gail Kaiser, in Proceedings of the 2nd IEEE International Conference on Autonomic Computing (ICAC 2005), June 2005, Seattle, WA, USA.

[9] *Grand Challenges of Network and Services Composition*, Giuseppe Valetto and Fabrice Saffre, **Panel Report**, in Lecture Notes in Computer Science, Vol. 3457 (Proceedings of the 1st International IFIP Workshop on Autonomic Communication - WAC 2004) Springer, ISBN: 3-540-27417-0, October 18-19, 2004, Berlin, Germany.

[10] *Kinesthetics eXtreme: An External Infrastructure for Monitoring Distributed Legacy Systems* - Gail Kaiser, Janak Parekh, Philip Gross and Giuseppe Valetto, the Fifth Annual International Workshop on Active Middleware Services (AMS 2003), 25 June 2003, Seattle, WA, USA.

[11] *Using Process Technology to Control and Coordinate Software Adaptation* – Giuseppe Valetto and Gail Kaiser, in Proceedings of the 25th International Conference on Software Engineering (ICSE 2003), May 2003, Portland, OR, USA.

- [12] *A Case Study in Software Adaptation* – Giuseppe Valetto and Gail Kaiser, in Proceedings of the 1st Workshop on Self-Healing Systems (WOSS '02), November 2002, Charleston, SC, USA.
- [13] *An Approach to Autonomizing Legacy Systems* – Gail Kaiser, Philip Gross, Gaurav Kc, Janak Parekh and Giuseppe Valetto, Workshop on Self-Healing, Adaptive and Self-Managed Systems, June 2002, New York, NY, USA.
- [14] *A Mobile Agent Approach to Process-based Dynamic Adaptation of Complex Software Systems* – Giuseppe Valetto, Gail Kaiser, and Gaurav Kc, in Lecture Notes in Computer Science Vol. 2077 (Proceedings of the 8th European Workshop on Software Process Technology - EWSPT-8), Springer, ISBN: 3-540-42264-1, June 2001, Witten, Germany.
- [15] *Requirements-based Estimation of Change Costs* - Luigi Lavazza and Giuseppe Valetto, Journal of Empirical Software Engineering, vol. 5(3):229-243, Springer, November 2000.
- [16] *Ravages of Time: Synchronized Multimedia for Internet-Wide Process-Centered Software Engineering Environments*, Gail Kaiser and Giuseppe Valetto, 3rd ICSE Workshop on Software Engineering over the Internet (at ICSE 2000), June 2000, Limerick, Ireland.
- [17] *Enhancing Requirements and Change Management through Process Modelling and Measurement*, Luigi Lavazza and Giuseppe Valetto, in Proceedings of the 4th IEEE International Conference on Requirements Engineering (ICRE 2000), June 2000, Schaumburg, IL, USA.
- [18] *Requirements-based Estimation of Change Costs*, Luigi Lavazza and Giuseppe Valetto, EASE 2000, in Proceedings of the 4th International Conference on Empirical Assessment & Evaluation in Software Engineering, April 17th - 19th 2000, Keele University, Staffordshire, UK.
- [19] *Exploiting MOOs to Provide Multiple Views for Software Process Support.* – Fabrizio Becattini, Elisabetta Di Nitto, Alfonso Fuggetta, Giuseppe Valetto, in Proceedings of the International Process Technology Workshop (IPTW99), September 1-3 1999, Grenoble (France).
- [20] *Exploiting the Web to Manage Software Development Artifacts: the Labyrinth Project* – Fabiano Cattaneo, Alfonso Fuggetta, Luigi Lavazza and Giuseppe Valetto, 2nd ICSE Workshop on Software Engineering over the Internet (at ICSE 99), Los Angeles, CA., May 1999
- [21] *Enveloping Sophisticated Tools into Process-Centered Environments* - Giuseppe Valetto and Gail E. Kaiser, **Invited Paper**, Journal of Automated Software Engineering, 3(3/4):309-345, Kluwer Academic Publishers, 1996.
- [22] *Formal Description of Multi-Word Lexemes with the Finite-State Formalism IDAREX*, Elisabeth Breidt, Frederique Segond, and Giuseppe Valetto, in Proceedings of the International Conference on Computational Linguistics (COLING 96), Copenhagen, Denmark, August 5-9, 1996.
- [23] *Enveloping Persistent Tools for a Process-Centered Environment* - Giuseppe Valetto and Gail E. Kaiser, in Lecture Notes in Computer Science Vol. 913 (Proceedings of the 4th European Workshop on Software Process Technology - EWSPT'95), Springer, Noordwijkerhout, The Netherlands, 3-5 April 1995.
- [24] *Integrating Groupware and Process Technologies in the Oz Environment* - Israel Z. Ben-Shaul, George T. Heineman, Steve S. Popovich, Peter D. Skopp, Andrew Z. Tong and Giuseppe Valetto, Proceedings of the 9th International Software Process Workshop, Airlie VA, USA, October 1994.

Funding and Collaborations:

I have always been active in carrying out collaborative research activities, in particular funded by the European Commission or other International bodies. The following are some of the most significant projects, which I have collaborated to set-up and execute over the years:

- COMPASS European project LRE 62-080 (1994-1996) on intelligent bilingual dictionaries
- SACHER European project ESPRIT 23156 (1997-1999) on requirements engineering and change management
- OLIVES EURESCOM project P-1108 (2001-2002) on autonomic computing and online validation (Project Leader)
- SeCSE European IST Integrated Project 511680 (2004-2008) on service oriented computing and architectures (Site Leader for Telecom Italia) Budget: 15.22 Million Euros.

- SENSORIA European FET 16004 (Foundational and Emerging Technologies) Integrated Project (2005-2009) on software engineering for service-oriented application in global and overlay computing infrastructures. Budget: 8.158 Million Euros.
- CASCADAS European FET 027807 (Foundational and Emerging Technologies) Integrated Project (2006-2008) on Autonomic Communication Systems: in this particular project, I served as the project leader in the set-up and bidding phases, successfully driving the project towards its acceptance and funding Budget: 6.92 Million Euros.

Research Interests

Autonomic computing, service-oriented architectures, semantic systems specifications, coordination of Internet-scale distributed systems, requirements engineering, software process, software development environments, governance of software development, distributed architectures and middleware, decentralized workflow.

Other

- Member – IEEE Computer Society
- Languages: Italian (native), English (fluent), French: good written and oral comprehension skills; basic conversation skills.
- Hobbies: Basketball, soccer, tennis, music, reading, role-playing games.