Marco Brambilla

Date of birth	August 29, 1976
Citizenship	Italian
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Position	Ricercatore a T.I. confermato (Assistant Professor), Politecnico di Milano, DEIB
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Main Achievements

Research focus: model driven software development methods, languages and tools. Special emphasis on modeling Web-based systems (UIs, Web services, BPM, search, crowdsourcing).

Publication record: (see list at: http://dbgroup.como.polimi.it/brambilla/pubs)

- more than **200 research papers**, including 12 journal articles (5 ACM transactions).

- 4 international research books: on WebML (Morgan Kauffman USA 2002, 600+ citations), on MDSE(Morgan Claypool USA 2012, adopted by 50+ universities), on WebIR (Springer 2013), and on IFML (Morgan Kauffman USA 2014).

- published in: ACM TOIT (2 papers), TOSEM , TWEB (2 papers). **WWW conf.(4 papers)**, ICWE, ...

- **overall 2570 citations and H-index = 23** (source: Google Scholar). More than **125 different co-authors**.

- 2 conference best paper award, 2 workshop best paper awards; GSE-IBM Award of Excellence; 3rd prize AI challenge 2014.

Patents:

- Co-author of two patents on multi-domain search (USA + IT) and crowd-sourcing (USA).

International visibility:

- one of the most recognized experts in the **Web Engineering** and **Model-Driven Development** disciplines.

- leader of the standardization activity on **IFML (Interaction Flow Modeling Language**, evolution of WebML) at the OMG. IFML now adopted as a standard after 3 years of work.

- more than 20 invited seminars and speeches in academia, events and industry worldwide.

- intensive dissemination through a blog on MDE (www.modeldrivenstar.org) and active presence on twitter (2100+ followers) and in online communities related to IT topics (BPM, MDE, UML, ...).

- the toolsuite WebRatio now used by more than 17,000 students and researchers throughout the world.

Abroad experiences:

- visiting researcher at **Cisco Systems** (San José, CA, USA) in 2001.

- visiting scholar at **UCSD** (University of California, San Diego, CA, USA) in 2004.
- visiting professorship at **Université Paris Dauphine - CNRS** in 2014.

Spinoff activities:
- shareholder of the **spin-offs WebRatio** (`www.webratio.com`) and **Fluxedo** (`www.fluxedo.com`)
- Winner of **2013 Polihub Switch2Product** challenge and Como Cam. Comm. award **Idea2Impresa 2013**.
- Board member (pro-bono) of the **startup Sweetag**, starting December 2013.

Community service:
- Associate Editor of the SIGMOD Record since 2012. Organizer of 2 summer schools.
- Program Chair of ICWE 2012 in Berlin. Track chair and steering committee liaison for ICWE 2014.
- Program Chair of 7 workshops; organizers of various journal special issues, including VLDB-Journal.
- PC member or reviewer of tens of conferences, journals and workshops (see detailed list in the full CV).
- Evaluator and reviewer of research projects at EU, national (IT, NE, CH), and local level, and of PhDs.

Funding and Project Management:
- technical director and deputy scientific director for Politecnico or WebRatio research units in 5 large-scale research projects (EU STREP, IP, SME). Managed more than 50 students and 20 personnel.
- participated as research associate to 5 other EU projects
- personally attracted funds for Politecnico from EU , local govt. and industry (total of around 550K EU).
- Currently: **coordinator and scientific director of the FP7 SME Program project AutoMobile**, on model-driven mobile application development, funded for **1MLN EU** (500K EU to Politecnico).

University service:
- Co-advisor of 3 Ph.D. students. Main advisor of 1 Ph.D. student.
- Advisor of more than 60 B.Sc. and M.Sc. students. Professor of more than 10 different courses.
- Member of Como campus committees for M.Sc. students selection, activities in high schools, study plan,..

Overview

SHORT BIO

I got my M.Sc. in Computer Science & Engineering at Politecnico di Milano in 2001 (100/100 cum laude) and my Ph.D. in Information Engineering (outstanding work, mark A) in October 2005, with a thesis on modeling of service- and workflow- based web applications (advisor prof. Piero Fraternali). Since the starting of my career, my scientific profile has been focused on **model driven software development methods, languages and tools**.

I have been visiting researcher at **Cisco Systems** (San José, CA, USA) in 2001. The purpose of my stay was to validate the WebML methodology and language in a large scale industrial.

I have been visiting researcher at **UCSD** (University of California, San Diego, CA, USA) in 2004, where I worked with prof. Vianu, Deutsch, Papakonstantinou. There, I had the opportunity of exploring the world of venture capitals and research exploitation in the US.

I have worked within several **European research projects**, as well as with several companies for research exploitation and technology transfer (including Acer, UniCredit, local govt. agencies, and many SMEs).

I'm **shareholder of the spin-offs WebRatio** (`www.webratio.com`) and **Fluxedo** (`www.fluxedo.com`). I'm interacting with several US companies for consultancy, standardization, and R&D activities. I'm in the board of the startup Sweetag, hosted at the ComoNext technology park in Lomazzo (Como, Italy).

I have worked on various mainstream research topics in my research group and I also had the opportunity of opening new research lines of my own. Within these research lines, I have dealt with several major companies, including Cisco, Microsoft-FAST, Yahoo! Research (Ricardo Baeza Yates), Google Research (Alon Halevy, Andrei Broder, Ed Chi), XEROX (Gregorio Convertino), HP Research (Claudio Bartolini, Fabio Casati) for joint research activities. All those opportunities shaped my attitude towards pushing for strong relations between theoretical research and industrial application.

I'm involved in intensive publication, dissemination and research exploitation activities, as demonstrated by: more than 200 research papers (12 on journals, 4 authored research books, 4 curated research books, several teaching books); a blog (`www.modeldrivenstar.org`) for general public on MDE, and active presence in online communities related to various research and industrial IT application (e.g., on BPM, MDE, Social Enterprise, Databases, and so on); participation and management of several research projects at international level; and involvement with WebRatio, OMG, and industrial innovation projects. Since 2012 I'm associate editor of the SIGMOD Record.

MAIN RESEARCH CONTRIBUTIONS

1. Web Modeling Language (WebML) and Interaction Flow Modeling Language (IFML)

I'm one of the co-inventors of WebML (Web Modeling Language), which is currently recognized as the international de facto standard for the conceptual modeling of Web application and is going to become an official OMG standard under the name of IFML (I'm currently leading the standardization activity). This work lead to several scientific publications and also to a monograph published by Morgan Kauffmann in 2002, the cornerstone of the Web Engineering discipline, with currently 617 citations. The contribution to the field is also demonstrated by the widespread adoption of the associated tool WebRatio, now used by more than 17,000 students and researchers throughout the world for learning and research purposes. WebML has been the basis for the standard IFML, recently adopted by OMG. I have been the main promoter and coordinator of the IFML standardization activity for the last 3 years.

2. Model-driven Engineering

My subsequent investigations continued within the field of MDE (Model Driven Engineering), and consisted in the study of new software modeling approaches. My most recently publication is the book Model Driven Software Engineering in Practice (Morgan & Claypool, USA, 2012, co-authored with two well-known European researchers in the MDE field: Jordi Cabot from EMN, France, and Manuel Wimmer from TUW, Austria) that aims to become the reference book for MDD / MDE (currently **adopted by more than 50 universities** worldwide). I have published several papers and demonstrated and validated various prototype tools in this field.

3. Exploratory, multidomain and crowdsourced search

My recent research focus has shifted towards information management and advanced Web search, spanning multi-domain and exploratory search too (work done within Pharos, Cubrik and SeCo projects). These activities already produced some results and relevant publications on: exploratory search paradigms (WWW Conf. 2010, VLDB Journal), crowdsourcing systems for information seeking (WWW 2012) and their evolution towards reactive systems (WWW 2013). I am co-author of two patents on these topics.

PUBLICATIONS AND VISIBILITY

Publications. Google Scholar is recording a production of more than 200 papers , starting from 2001, with 2570 citations and H-index=23. is available at: http://dbgroup.como.polimi.it/brambilla/pubs. I have co-authored papers with more than 125 different co-authors.

Patents. I am co-author of one registered patent (IT and US) on multi-domain search and of another US Patent on crowdsourcing systems for information retrieval.

My researches make me a recognized **prominent contributor to the fields of Web Engineering and Model-driven Engineering (MDE)**, as demonstrated also by my publication record, including three monograph books (the top one counting more than 600 citations) and many papers in high-impact venues like: Modeling of web services (published in ACM TOIT, 112 citations); Modeling of business processes and associated web applications (ACM TOSEM, 165 citations); Modeling of semantic web applications (ACM TOIT, 40 citations; ISWC 2006, 56 citations); Modeling of exception handling in web applications (WWW 2005, 60 citations). I've given more than 20 invited talks at universities, research institutions, and international events all over the world.

Working side by side with experienced investigators (Wolfgang Nejdl, Fabio Casati, Georg Gottlob, Alon Halevy and many others) let me grow both as a scientist and a research team leader.

FUNDING AND PROJECT MANAGEMENT

I have been technical director and deputy scientific director for the Politecnico or WebRatio research units in 5 large-scale research projects. Within these project, I've managed budgets for a total amount of more than 4.2 MLN EU. I have managed more than 50 students and 20 personnel (including post-docs, temporary contracts, and others). I also participated as research associate to 5 other EU projects and I have personally attracted funds for Politecnico from EU Agencies, local government and industries for consultancy, technology transfer, teaching and research activities. I am currently scientific director of the FP7 SME Program project called AutoMobile, on model-driven mobile application development, funded for 1MLN EU contribution.

RESEARCH COMMUNITY SERVICE

I have been Program Chair of ICWE 2012 (International Conference of Web Engineering) in Berlin; I am track chair and steering committee liason for ICWE 2014. I am associate editor of SIGMOD Record, and I recently

edited a special issue of the VLDB Journal on Crowdsourcing and Structured Web Data, as well as a few other special issues. I have been program chair of 7 workshops, and PC member of several conferences and workshops in the fields of: databases, web, semantic web, modeling, and software engineering. I am reviewer of several top journals.

STUDENTS SUPERVISION

I have been co-advisor of 3 Ph.D. students, and I am currently advisor of 1 Ph.D. student. I have been advisor of more than 60 B.Sc. and M.Sc. students (partial list at: http://dbgroup.como.polimi.it/brambilla/completedtheses).

PRIZES AND AWARDS

- Best paper: M. Brambilla, N. D'Elia. Exception Handling within Workflow-based Web Applications, 4th International Conference on Web Engineering, ICWE 2004, Munich, Germany.

- Best paper: M. Brambilla, et al. Flexible Specification of Semantic Services using Web Engineering Methods and Tools. In Int. Workshop on Semantic Web Enabled Software Engineering (SWESE 2006), ISWC 2006, Athens, GA, USA, November 2006, pp. 1-14.

- Best paper: M. Brambilla, P. Fraternali, M. Tisi. A Metamodel Transformation Framework for the Migration of WebML Models to MDA. 4th Int. Workshop on Model-Driven Web Engineering (MDWE 2008). N. Koch, G.-J. Houben, A. Vallecillo (Eds.). CEUR-WS, volume 389, pages 91-105.

- IBM Faculty Award and Best solution at the Semantic Web Service Challenge: Swe-et approach on Web Modeling-based Approach to Automating Web Services Mediation, Choreography and Discovery, 2006-7.

- GSE and IBM Great Prize for Research Excellence Award 2013 for a M.Sc. thesis (student Ekaterina Shabunina) on correlation of social content sentiment mining and stock market fluctuations.

- **3rd prize at the AI Mashup Challenge 2014 at ESWC** for the proposed solution: M. Brambilla, D. Dell'Aglio, E. Della Valle, A. Mauri, R. Volonterio. ECSTASYS: Augmented Participation to Live Events through Social Network Content Enrichment.

- **Best paper 2014:** A. Bozzon, M. Brambilla, S. Ceri, A. Mauri, and R. Volonterio. Pattern-based specification of crowdsourcing applications. In Intl. Conference on Web Engineering (ICWE), pages 218-235. Springer LNCS vol. 8541, 2014.

SELECTED PUBLICATIONS

Research Monographs

- S. Ceri, P. Fraternali, A. Bongio, M. Brambilla, S. Comai, M. Matera: *Designing Data-Intensive Web Applications*, Morgan-Kaufmann Publishers, San Francisco, 2001, ISBN 1-55860-843-5, M-K Series in Data Management Systems edited by Jim Gray, foreword by Adam Bosworth, 590 pages.

- M. Brambilla, J. Cabot, M. Wimmer: *Model Driven Software Engineering in Practice*. Morgan & Claypool, USA, September 2012, foreword by Richard Soley (OMG), 184 pages. ISBN 978-1608458820.

- S. Ceri, A. Bozzon, M. Brambilla, E. Della Valle, P. Fraternali, S. Quarteroni: *Web Information Retrieval*. Data-centric systems and applications, Springer 2013, ISBN 978-3-642-39313-6, 300 pages.

- M. Brambilla, P. Fraternali: *Interaction Flow Modeling Language: Model-Driven UI Engineering of Web and Mobile Apps with IFML*, Morgan-Kaufmann Publishers, San Francisco, 2014, ISBN 978-0128001080, M-K Series OMG Press, foreword by Richard Soley, 422 pages.

Selected Journal Articles

- I. Manolescu, M. Brambilla, S. Ceri, S. Comai, P. Fraternali: Model-driven design and deployment of service-enabled web applications. ACM Trans. Internet Technology (TOIT). 5(3), pp. 439-479 (2005).

- M. Brambilla, S. Ceri, P. Fraternali, I. Manolescu: Process modeling in Web applications. ACM Trans. Softw. Eng. Methodol (TOSEM). 15(4), pp. 360-409 (2006).

- M. Brambilla, I. Celino, S. Ceri, D. Cerizza, E. Della Valle, F. M. Facca: Model-Driven Design and Development of Semantic Web Service Applications, ACM Trans. on Internet Technology (TOIT). 8(1), pp.3:1 - 3:31 (2007).

- B. Bislimovska, A. Bozzon, M. Brambilla, P. Fraternali: Textual and Content-Based Search in Repositories of Web Application Models. ACM Trans. on the Web (TWEB), March 2013, 8(2), pp. 11:1-19:47.

- S. Quarteroni, M. Brambilla, S. Ceri: A bottom-up, knowledge-aware approach to integrating and querying web data services. ACM Trans. on the Web (TWEB), October 2013, 7(4), pp. 19:1-19:33.

- A. Bozzon, M. Brambilla, S. Ceri, D. Mazza: Exploratory search framework for Web data sources. VLDB Journal 22(5): 641-663 (2013).

- M. Brambilla, J. Cabot and S. Comai: Extending Conceptual Schemas with Business Process Information. Advances in Software Engineering, Vol. 2010, Hindawi Publishing, Article ID 525121, 22 pages.

- K. Belhajjame, M. Brambilla: Ontological Description and Similarity-Based Discovery of Business Process Models. Int.l Journal of Information System Modeling and Design (IJISMD), IGI, 2(2), 2011, pp. 47-66.

- Alessandro Bozzon, Marco Brambilla, Stefano Ceri, and Silvia Quarteroni: A Framework for Integrating, Exploring, and Searching Location-Based Web Data. IEEE Internet Computing, 15(6), 2011, pp. 24-31.

- M. Brambilla: From Requirements to Implementation of Ad-hoc Social Web Applications: an Empirical Pattern-Based Approach. IET Software, 6(2), 2012, pp.114-126.

Selected Contributions to Conferences

- A. Bozzon, M. Brambilla, S. Ceri: Reactive CrowdSourcing. Intl. conference on World Wide Web (WWW 2013). ACM, pp. 153-164.

- A. Bozzon, M. Brambilla, S. Ceri, M. Silvestri, G. Vesci: Choosing the Right Crowd: Expert Finding in Social Networks. 16th International Conference on Extending Database Technology (EDBT 2013).

- A. Bozzon, M. Brambilla, S. Ceri: Answering search queries with CrowdSearcher. Intl. conference on World Wide Web (WWW 2012). ACM, pp. 1009-1018.

- M. Brambilla, S. Ceppi, N. Gatti, E. Gerding: A revenue sharing mechanism for federated search and advertising. Intl. Conference on World Wide Web (WWW 2012). ACM, pp. 465-466.

- A. Bozzon, M. Brambilla, S. Ceri, P. Fraternali. Liquid query: multi-domain exploratory search on the web. Int.l Conference on World Wide Web (WWW 2010). ACM, pp. 161-170.

- M. Brambilla, S. Ceri, S. Comai, C. Tziviskou. Exception Handling in Workflow-Driven Web Applications. Int. Conference on World Wide Web (WWW 2005). ACM, pp. 170-179.

- A. Bozzon, M. Brambilla, P. Fraternali. Searching Repositories of Web Application Models. 10th Int. Conf. on Web Engineering (ICWE2010), Vienna, Austria. Springer LNCS, Vol. 6189, pp.1-15.

- M. Brambilla, I. Celino, S. Ceri, D. Cerizza, E. Della Valle, F. Facca. A Software Engineering Approach to Design and Development of Semantic Web Service Applications. International Semantic Web Conference (ISWC2006), Athens, USA, November 2006, Springer LNCS 4273, pp. 172-186.

- M. Brambilla, A. Deutsch, L. Sui, V. Vianu. The Role of Visual Tools in a Web Application Design and Verification Framework: A Visual Notation for LTL Formulae. 5th International Conference on Web Engineering (ICWE2005), Springer LNCS, vol.3579, pp. 557-568.