

Emanuele Della Valle

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Degree: PhD in Computer Science, September 2015 at Vrije Universiteit Amsterdam,
Laurea in Ingegneria Informatica, June 2000 at Politecnico di Milano.

Position: Assistant Professor (Ricercatore di Ruolo confermato) at Department of
Electronics, Information and Bioengineering of Politecnico di Milano

Languages: Italian (mother tongue), English

Highlights

Short Bio

Emanuele Della Valle holds a PhD in Computer Science from the Vrije Universiteit Amsterdam and a Master degree in Computer Science and Engineering from Politecnico di Milano. He is assistant professor at the [Department of Electronics, Information and Bioengineering](#) of the [Politecnico di Milano](#).

In more than 15 years of research, his research interests covered Big Data, Stream Processing, Semantic technologies, Data Science, Web Information Retrieval, and Service Oriented Architectures. He started the [stream reasoning](#) research field in 2007. Stream Reasoning is positioned in the intersection between Stream Processing and Artificial Intelligence. In the Big Data era, it is a method to tame simultaneously the velocity (analysing data streams to enable real-time decisions) and variety (integrating heterogeneous data) dimensions of Big Data. In this field, he proposed semantic and syntactic extensions to the Semantic Web stack (i.e., RDF streams, Continuous SPARQL, continuous reasoning and RDF Stream and Event Processing Language). Some of those extensions are currently on the path towards standardization at a W3C in the [RDF Stream Processing community group](#). In the last five years, the two main conferences on Semantic Web (ISWC and ESWC) dedicated a track to data stream to create a forum for Stream Reasoning research. Starting from 2011, he organized more than 17 tutorials and workshops on Stream Reasoning. The open source Stream Reasoner engine developed at Politecnico di Milano (namely, C-SPARQL Engine) was downloaded more than 10,000 times and it is currently maintained by Politecnico di Milano, the University of Zurich and the Insight Center of the National University of Ireland. His work on Stream Reasoning was applied in analysing Social Media, Mobile Telecom and IoT data streams in collaboration with Telecom Italia, IBM, Siemens, Oracle, Indra, and Statoil. In 2015, he started up a company (Fluxedo) to commercialize the open source results of Stream Reasoning research.

He is member of the editorial board of Journal of Web Semantics, and International Journal of Semantic Web and Information System. He co-authored [17 journal articles \(in TOIT, JWS, SWJ, Sigmod Records, IJSWIS, IEEE IS, IEEE IC, IEEE MM, TGIS, CMBP\)](#), [29 conference papers in major conferences \(ISWC, ESWC, WWW, ICWE, EKAW, DEBS\)](#), a book on [Web Information Retrieval](#) (2013), the [first book in Italian about Semantic Web](#) (2008), and more than 40 other manuscripts including minor conferences, book chapters, workshop papers and posters. [His h-index is 25 \(22 since 2012\)](#).

He was Principal Investigator of two EIT Digital activities on Digital Cities between 2013 and 2015. He was Principal Investigator of the FP7 Service Finder project. He was coordinating the Stream Reasoning and Urban Computing activities of the FP7 LarKC project. He was involved in other 8 EU projects in H2020, FP7, FP6 and FP5.

From 2001 to 2008, he worked in [CEFRIEL](#). Between 2001 and 2004, he worked in strategic consultancy IT projects of CEFRIEL in eBusiness, eGovernment and eHealth. In 2003, he started the [Semantic Web Practice](#) of CEFRIEL that he coordinated until 2008. In the same time period, he was Aggregated Professor of Advance Information Systems at Politecnico di Milano (2007-2009) and Aggregated Professor of Knowledge Engineering at [Università dell'Insubria](#) (2006-2010).

Main Research Contributions

Stream Reasoning: taming velocity and variety of Big Data simultaneously

More and more applications require real-time processing of data streams in oil&gas operations, in weather monitoring, in customer relationship management, in Smart Cities and in Social Media Analytics. For instance, in the last two domains, is public transportation where the people are? Who is driving the discussion about the top 10 emerging topics across all the social networks?

A system able to answer those queries must:

1. handle *massive datasets*,
2. process *data streams* on the fly,
3. cope with *heterogeneous, incomplete* and *noisy* data,
4. provide *reactive answers*,
5. support *fine-grained information access*, and
6. integrate *complex domain models*.

Indeed, systems capable of tame the velocity dimension of Big Data exist. They can provide reactive fine-grained information access even in the presence of noisy data streams. Similarly, recent research on Data Integration and Semantic technologies – in particular on scalable Ontology Based Data Access (OBDA) – can tame the variety dimension of Big Data. OBDA can offer fine-grained information access to heterogeneous and incomplete datasets by reasoning on complex domain models so to rewrite ontological queries in SQL. However, none of those solutions can tame velocity and variety simultaneously.

In 2008, much before the term Big Data was coined, in [j3] Emanuele Della Valle, Stefano Ceri, Frank van Harmelen and Dieter Fensel identified this challenge and formulate the Stream Reasoning research question:

is it possible to make sense in real time of multiple, heterogeneous, gigantic and inevitably noisy and incomplete data streams in order to support the decision process of extremely large numbers of concurrent users?

In ten years of research in Stream Reasoning [j19,c75], Emanuele Della Valle conducted investigations and wrote papers that envision, elaborate, evaluate and discuss many aspects of this research question. His papers document that *a)* the Semantic Web stack can be extended so to incorporate streaming data as a first class citizen [j6,j8,j12,j16,c21,c26,c33,c50,c61,c70,c74], *b)* the Stream Reasoning task is feasible [j11,j14], *c)* the very nature of streaming data offers opportunities to optimise reasoning tasks where data are ordered by recency and can be forgotten after a while [c39,c65,c69], *d)* a combination of deductive and inductive stream reasoning techniques can cope with incomplete and noisy data [j9], and *e)* there are application domains where Stream Reasoning offers an adequate solution [j11,j15,j17,c53,c55,c67,c68].

Moreover, from the lessons learnt in these years stems his most recent research question:

can orders (beyond the specific order in time) be harnessed to optimise the reasoning tasks?

Answering this question is central to his current investigations [j13,c47,c65,c69,c72].

Urban Big Data Science

Nowadays torrents of data is capturing the digital reflexes of our cities and it is tracking their changes with a minimum delay. This makes urban data a perfect environment to perform applied research in Big Data and Data Science [c67].

Indeed, it is becoming possible to feel the pulse of our cities by fusing in real-time all those torrents of data using Big Data technologies, in particular semantic technologies [c62] and stream processing methods. Moreover, scalable advance data analytics techniques can be used to make sense of such a pulse and deliver innovative services such as:

- telling stories about City Scale Events [j17] (e.g., EXPO 2015 or Milan Design and Fashion weeks) fusing Mobile Telecom and Social Media Data (joint work with Telecom Italia)
- traffic predictions based not only on the traffic sensors, but also on the weather conditions and the events happening in the city [j10] (joint work with SIEMENS); and
- personalized and location-based recommendations using continuous analysis of social media streams [j11,j14,j15,c52] (joint work with Saltlux¹, SIEMENS and TU Delft).

With those studies, he won the AI mashup challenge 2011, the Semantic Web challenge 2011 and the AI mashup challenge 2013. With his research program on City Data Fusion, he won the IBM Faculty award 2013.

The story telling solution [j17], which was displayed for the entire duration of EXPO Milano 2015 in EXPO Gate and on 11 view walls in the EXPO Area, won the best paper award of IEEE Multi-Media.

Semantic Web Services

In the early 2000s, one of the most challenging promises of the Web Services was to enable the construction of flexible business applications, spanning over several enterprises and capable of dynamic composition for presenting to their clients the “best” business options. In his attempts to realize those promises, he participated to the investigations on Semantic Web Services, i.e., the attempt to augment Web Services with semantic annotations and to operate reasoners on top of such descriptions for performing business choices, thus matching user’s goals to system’s resources. He worked on this topic under the supervision of prof. Stefano Ceri. His major contributions are Glue, a mediator based Web Service Discovery Engine [o2], and SWE-ET [j1,c4], a model-driven approach to Design and Development of Semantic Web Service Applications. With this framework he won the IBM faculty award 2006.

Impact

According to Google scholar² his h-index is 25 (22, since 2011), his i10-index is 54 (40, since 2011), and he collected 2644 (1844, since 2012) citations. His agenda-setting paper on Stream Reasoning is cited 198 times, his most recent vision paper on the next steps to take in Stream Reasoning is the 5th most viewed paper on SWJ with 25,156 views³. More than 1000 paper can be found on Google

¹ Saltlux (<http://saltlux.com/>) is a Korean company listed among the 10 most innovative Semantic Web start-ups world wide.

³ <http://bit.ly/scholar>
<http://www.semantic-web-journal.net/reviewed?order=totalcount&sort=desc>

Scholar containing “Stream Reasoning”⁴. Many of his slides on slideshare⁵ have been viewed thousands of times, in particular, his tutorial on Realizing a Semantic Web application was viewed almost 9,570 times in the last 8 years.

Fund Rising

He raised funds for more than a decade: around 800 thousands euros with the EIT Digital activities on City Data Fusion for Event Management, 3sixty, the High Impact Initiative on Future Cloud, CrowdInsight and BeCamGreen; 3 million euros with the EU projects SEEMP, TripCom, SUPER, and LarKC; and around 300 thousands euros with the National funded project NeP4B.

Research Community Service

He is in the editorial board of the Journal of Web Semantics, and the International Journal On Semantic Web and Information Systems. He was the editor of the Special Issue on “Taming the Velocity and Variety dimension of Big Data” of the International Journal On Semantic Web and Information Systems. He was chair of the “Mobile Web, Sensors and Semantic Streams” track of ESWC 2017 and of the Reasoning track of ESWC 2011. He was Tutorial chair of ESWC 2012. He organized the Evaluation of Ontology-based Tools and the Semantic Web Service Challenge 2008, the Stream Reasoning workshop 2009, the New Form of Reasoning 2010 workshop, and the Ordering and Reasoning workshops in 2011, 2013, 2014 and 2015 and the Stream Reasoning workshop 2016. He co-organized the Telecom Italia Big Data Challenge 2013 and he is part of the organization of the Telecom Italia Big Data Challenge 2015.

Supervision

He is the current supervisor of 3 Ph.D. students: Marco Balduini, Shima Zahmatkes and Riccardo Tommasini. He is co-supervising the Ph.D studies of Sivam Pasupathipillai at Trento University. He supervised the Ph.D of Daniele Dell’Aglia. He co-supervised the Ph.D. of Davide Barbieri. He coordinates the work of one research assistant: Christian Marazzi. He supervised 28 master thesis and he co-supervised other 9 master thesis, when he was working for CEFRIEL.

Selected Publications

Selected Books

- [b2] Stefano Ceri, Alessandro Bozzon, Marco Brambilla, Emanuele Della Valle, Piero Fraternali: Web Information Retrieval. Data-centric systems and applications, Springer 2013, ISBN 978-3-642-39313-6, pp. I-XIV, 1-284
- [b1] Emanuele Della Valle, Irene Celino, Dario Cerizza: Semantic Web: dai fondamenti alla realizzazione di un'applicazione, Pearson Education 2009, ISBN 978-8871925783, pp. 1-273

Selected Journal Articles

- [j19] Daniele Dell'Aglia, Emanuele Della Valle, Frank van Harmelen and Abraham Bernstein: Ten years of Stream Reasoning. Now what?. J. Data Science TO APPEAR in 2017

⁴ [https://scholar.google.it/scholar?hl=en&q="stream+reasoning"](https://scholar.google.it/scholar?hl=en&q=)

⁵ <http://www.slideshare.net/emanueledellavalle/presentations?order=popular>

- [j17] Marco Balduini, Emanuele Della Valle, Matteo Azzi, Roberto Larcher, Fabrizio Antonelli, Paolo Ciuccarelli: CitySensing: Fusing City Data for Visual Storytelling. *IEEE MultiMedia* 22(3): 44-53 (2015)
- [j16] Daniele Dell'Aglio, Emanuele Della Valle, Jean-Paul Calbimonte, Óscar Corcho: RSP-QL Semantics: a Unifying Query Model to Explain Heterogeneity of RDF Stream Processing Systems. *Int. J. Semantic Web Inf. Syst.* 10(4): 17-44 (2014)
- [j15] Marco Balduini, Alessandro Bozzon, Emanuele Della Valle, Yi Huang, Geert-Jan Houben: Recommending Venues Using Continuous Predictive Social Media Analytics. *IEEE Internet Computing* 18(5): 28-35 (2014)
- [j14] Marco Balduini, Irene Celino, Daniele Dell'Aglio, Emanuele Della Valle, Yi Huang, Tony Kyung-il Lee, Seon-Ho Kim, Volker Tresp: Reality mining on micropost streams - Deductive and inductive reasoning for personalized and location-based recommendations. *Semantic Web* 5(5): 341-356 (2014)
- [j13] Emanuele Della Valle, Stefan Schlobach, Markus Krötzsch, Alessandro Bozzon, Stefano Ceri, Ian Horrocks: Order matters! Harnessing a world of orderings for reasoning over massive data. *Semantic Web* 4(2): 219-231 (2013)
- [j12] Stefano Ceri, Themis Palpanas, Emanuele Della Valle, Dino Pedreschi, Johann-Christoph Freytag, Roberto Trasarti: Towards mega-modeling: a walk through data analysis experiences. *SIGMOD Record* 42(3): 19-27 (2013)
- [j11] Marco Balduini, Irene Celino, Daniele Dell'Aglio, Emanuele Della Valle, Yi Huang, Tony Kyung-il Lee, Seon-Ho Kim, Volker Tresp: BOTTARI: An augmented reality mobile application to deliver personalized and location-based recommendations by continuous analysis of social media streams. *J. Web Sem.* 16: 33-41 (2012)
- [j10] Emanuele Della Valle, Irene Celino, Daniele Dell'Aglio, Ralph Grothmann, Florian Steinke, Volker Tresp: Semantic Traffic-Aware Routing Using the LarKC Platform. *IEEE Internet Computing* 15(6): 15-23 (2011)
- [j9] Davide Francesco Barbieri, Daniele Braga, Stefano Ceri, Emanuele Della Valle, Yi Huang, Volker Tresp, Achim Rettinger, Hendrik Wermser: Deductive and Inductive Stream Reasoning for Semantic Social Media Analytics. *IEEE Intelligent Systems* 25(6): 32-41 (2010)
- [j8] Davide Francesco Barbieri, Daniele Braga, Stefano Ceri, Emanuele Della Valle, Michael Grossniklaus: C-SPARQL: a Continuous Query Language for RDF Data Streams. *Int. J. Semantic Computing* 4(1): 3-25 (2010)
- [j6] Davide Francesco Barbieri, Daniele Braga, Stefano Ceri, Emanuele Della Valle, Michael Grossniklaus: Querying RDF streams with C-SPARQL. *SIGMOD Record* 39(1): 20-26 (2010)
- [j3] Emanuele Della Valle, Stefano Ceri, Frank van Harmelen, Dieter Fensel: It's a Streaming World! Reasoning upon Rapidly Changing Information. *IEEE Intelligent Systems* 24(6): 83-89 (2009)
- [j1] Marco Brambilla, Stefano Ceri, Federico Michele Facca, Irene Celino, Dario Cerizza, Emanuele Della Valle: Model-driven design and development of semantic Web service applications. *ACM Trans. Internet Techn.* 8(1) (2007)

Selected Conference Papers

- [c76] Marco Brambilla, Stefano Ceri, Emanuele Della Valle, Riccardo Volonterio, Felix Xavier Acero Salazar: Extracting Emerging Knowledge from Social Media. WWW 2017: 795-804
- [c75] Emanuele Della Valle, Daniele Dell'Aglio, Alessandro Margara: Taming velocity and variety simultaneously in big data with stream reasoning: tutorial. DEBS 2016: 394-401
- [c74] Daniele Dell'Aglio, Minh Dao-Tran, Jean-Paul Calbimonte, Danh Le Phuoc, Emanuele Della Valle: A Query Model to Capture Event Pattern Matching in RDF Stream Processing Query Languages. EKAW 2016: 145-162
- [c73] Riccardo Tommasini, Emanuele Della Valle, Marco Balduini, Daniele Dell'Aglio: Heaven: A Framework for Systematic Comparative Research Approach for RSP Engines. ESWC 2016: 250-265
- [c72] Shima Zahmatkesh, Emanuele Della Valle, Daniele Dell'Aglio: When a FILTER Makes the Difference in Continuously Answering SPARQL Queries on Streaming and Quasi-Static Linked Data. ICWE 2016: 299-316
- [c70] Andrea Mauri, Jean-Paul Calbimonte, Daniele Dell'Aglio, Marco Balduini, Marco Brambilla, Emanuele Della Valle, Karl Aberer: TripleWave: Spreading RDF Streams on the Web. International Semantic Web Conference (2) 2016: 140-149
- [c69] Shen Gao, Daniele Dell'Aglio, Soheila Dehghanzadeh, Abraham Bernstein, Emanuele Della Valle, Alessandra Mileo: Planning Ahead: Stream-Driven Linked-Data Access Under Update-Budget Constraints. International Semantic Web Conference (1) 2016: 252-270
- [c67] Emanuele Della Valle, Marco Balduini: Listening to and Visualising the Pulse of Our Cities Using Social Media and Call Data Records. BIS (Workshops) 2015: 3-14
- [c65] Soheila Dehghanzadeh, Daniele Dell'Aglio, Shen Gao, Emanuele Della Valle, Alessandra Mileo, Abraham Bernstein: Approximate Continuous Query Answering over Streams and Dynamic Linked Data Sets. ICWE 2015: 307-325
- [c62] Marco Balduini, Emanuele Della Valle: FraPPE: A Vocabulary to Represent Heterogeneous Spatio-temporal Data to Support Visual Analytics. International Semantic Web Conference (2) 2015: 321-328
- [c55] Thomas Scharrenbach, Jacopo Urbani, Alessandro Margara, Emanuele Della Valle, Abraham Bernstein: Seven Commandments for Benchmarking Semantic Flow Processing Systems. ESWC 2013: 305-319
- [c52] Marco Balduini, Emanuele Della Valle, Daniele Dell'Aglio, Mikalai Tsytsarau, Themis Palpanas, Cristian Confalonieri: Social Listening of City Scale Events Using the Streaming Linked Data Framework. International Semantic Web Conference (2) 2013: 1-16
- [c50] Daniele Dell'Aglio, Jean-Paul Calbimonte, Marco Balduini, Óscar Corcho, Emanuele Della Valle: On Correctness in RDF Stream Processor Benchmarking. International Semantic Web Conference (2) 2013: 326-342
- [c48] Irene Celino, Simone Contessa, Marta Corubolo, Daniele Dell'Aglio, Emanuele Della Valle, Stefano Fumeo, Thorsten Krüger: Linking Smart Cities Datasets with Human Computation - The Case of UrbanMatch. International Semantic Web Conference (2) 2012: 34-49
- [c47] Sara Magliacane, Alessandro Bozzon, Emanuele Della Valle: Efficient Execution of Top-K

SPARQL Queries. International Semantic Web Conference (1) 2012: 344-360

- [c39] Davide Francesco Barbieri, Daniele Braga, Stefano Ceri, Emanuele Della Valle, Michael Grossniklaus: Incremental Reasoning on Streams and Rich Background Knowledge. ESWC (1) 2010: 1-15
- [c33] Davide Francesco Barbieri, Emanuele Della Valle: A Proposal for Publishing Data Streams as Linked Data - A Position Paper. LDOW 2010
- [c26] Davide Francesco Barbieri, Daniele Braga, Stefano Ceri, Emanuele Della Valle, Michael Grossniklaus: C-SPARQL: SPARQL for continuous querying. WWW 2009: 1061-1062
- [c21] Emanuele Della Valle, Stefano Ceri, Davide Francesco Barbieri, Daniele Braga, Alessandro Campi: A First Step Towards Stream Reasoning. FIS 2008: 72-81
- [c19] Dieter Fensel, Frank van Harmelen, Bo Andersson, Paul Brennan, Hamish Cunningham, Emanuele Della Valle, Florian Fischer, Zhisheng Huang, Atanas Kiryakov, Tony Kyung-il Lee, Lael Schooler, Volker Tresp, Stefan Wesner, Michael Witbrock, Ning Zhong: Towards LarKC: A Platform for Web-Scale Reasoning. ICSC 2008: 524-529
- [c15] Emanuele Della Valle, Dario Cerizza, Irene Celino, Jacky Estublier, Germán Vega, Mick Kerrigan, Jaime Ramírez, Boris Villazón-Terrazas, Pascal Guarrera, Gang Zhao, Gabriella Monteleone: SEEMP: An Semantic Interoperability Infrastructure for e-Government Services in the Employment Sector. ESWC 2007: 220-234
- [c4] Marco Brambilla, Irene Celino, Stefano Ceri, Dario Cerizza, Emanuele Della Valle, Federico Michele Facca: A Software Engineering Approach to Design and Development of Semantic Web Service Applications. International Semantic Web Conference 2006: 172-186
- [c3] Irene Celino, Emanuele Della Valle, Dario Cerizza, Andrea Turati: Squiggle: a Semantic Search Engine for Indexing and Retrieval of Multimedia Content. SEMPS 2006
- [o2] Emanuele Della Valle and Dario Cerizza. The mediators centric approach to automatic Web Service discovery of Glue. In Martin Hepp, Axel Polleres, Frank van Harmelen, and Michael R. Genesereth, editors, *MEDIATE2005*, volume 168 of *CEURWorkshop Proceedings*, pages 35–50. CEUR-WS.org, 2005
- [o1] Emanuele Della Valle, Dario Cerizza, Veli Bicer, Y. Kabak, Goche Laleci, Holger Lausen The need for semantic web service in the eHealth. W3C workshop on Frameworks for Semantics in Web Services, 2005

Patent

S. Ceri, D. Braga, M. Brambilla, A. Campi, E. Della Valle, P. Fraternali, D. Martinenghi, M. Tagliasacchi. Method for extracting, merging and ranking search engine results. Patented in Italy and USA.

Selected Nominations, Awards and Prices

- 6-2017 his paper on *Incremental Reasoning on Streams and Rich Background Knowledge* was **nominated** for the **Best Paper 7 years** award of ESWC 2017
- 10-2016 his paper on *CitySensing: Fusing City Data for Visual Storytelling* wins the **best paper** award for IEEE MM 2016

- 10-2015 he is awarded the *ASP fellowship* as **best tutor**
- 6-2014 *Augmented Participation to Live Events through Social Network Content Enrichment* wins the **AI mashup Challenge 2014**
- 9-2013 He is recipient of the **IBM Faculty Award 2013** for the research program on *City Data Fusion: a Big-Data infrastructure to feel the pulse of the city in real-time*
- 5-2013 *TwindexFuorisalone: Social Listening of Milano Design Week* wins the **AI mashup Challenge 2013**
- 9-2011 *Bottari*, an App to deliver personalized and location-based recommendations by continuous analysis of social media, wins the **Semantic Web Challenge 2011**
- 6-2011 *Traffic LarKC*, a traffic-ware routing, wins the **AI mashup Challenge 2011**
- 6-2008 *Squiggle* Business Plan wins the second prize of *StartCup Milano Lombardia 2008* and it is accepted among the finalist of Premio Nazionale Innovazione
- 9- 2006 He is recipient of the **IBM Faculty Award 2006** together with prof. Stefano Ceri for their joint research on Model Driven Semantic Web Application Development (SWE-ET)

Other Research Activities

Web Information Retrieval

The diffusion of the World Wide Web boosted at the turn of the century research on information retrieval. Big players such as Google and Yahoo! were the primary contributors of a technology for fast access to Web information [c28]. Searching capabilities are now integrated in most information systems, ranging from business management software and customer relationship systems to social networks and mobile phone applications. His major interest within this field is in Web Data Publishing and Semantic Search. His major contribution to the field are Squiggle [c9,c5,c3]: a framework for deploying domain specific Semantic Search engines and the experimental usage of Triple Space (a platform for distributed publishing of RDF) for sharing Patient Summaries [j4,c6,c8,c17]. He also contributed the Search Computing project lead by prof. Stefano Ceri [j7,c29,c35,c36,c37,c38]. In 2013, he was co-author a book on Web Information Retrieval [b3].

Semantic Portals

Information Portals in the early 2000s' gathered lot of attention among many organizations interested in a single point of access to their information and services. But developing portals from scratch was sometimes too expensive, so many vendors proposed frameworks to make it affordable. Notwithstanding the frameworks the market offered appeared stuck in a simplicity vs. flexibility trade off imposed by the Web technologies they were built with. In his investigation [c1,c2,c30,c32,c42,c43], he aimed at demonstrating that a technology change was required and that Semantic Web technology can play a key role in developing a new, Semantic, generation of simpler and, at the same time, more flexible frameworks for Information Portal.

Crowdsourcing and Human Computation

In the beginning of the 2010s', crowdsourcing and human computation became a major topics in computer Science. He investigated the application of those topics to Semantic technologies design, coordinating the development and evaluating two Games with a Purpose (GWAP): UrbanMatch that addresses the record linkage problem [c48] and Urbanopoly that collects and validates urban linked data [c46]. The results lead to the development of an open source framework for image-centric GWAPs (namely Get The Picture) that was positively deployed by organization independent from Politecnico di Milano.

Education Activities

Chairing

[2016/2018] Scientific Director of the “Master in Analytics & Business Intelligence (3rd edition)” of Politecnico di Milano

Teaching PhD Courses

[2016/2017] *A Multidisciplinary view on Big Data* - Politecnico di Milano, PhD School (joint work with prof. Danilo Ardagna (DEIB), prof. Michela Arnaboldi (DIG), prof. Paolo Ciuccarelli (DESIGN), and prof. Simone Vantini (MAT))

[2015/2016] *Integration And Computational Analysis Of Genomic And Proteomic Information* - Politecnico di Milano, PhD School (joint with prof. Marco Masseroli and prof. Matteo Matteucci)

[2014/2015] *A Multidisciplinary view on Big Data* - Politecnico di Milano, PhD School (joint work with prof. Danilo Ardagna, prof. Cinzia Cappiello, prof. Paolo Ciuccarelli, prof. Paolo Cremonesi, prof. Elisabetta Di Nitto, and prof. Letizia Tanca)

[2012/2015] *Stream and Complex Event Processing* - Politecnico di Milano, PhD School (joint work with prof. Gianpaolo Cugola)

[2013/2014] *Integration And Computational Analysis Of Genomic And Proteomic Information* - Politecnico di Milano, PhD School (joint work with prof. Marco Masseroli and prof. Matteo Matteucci)

Teaching MSc and BSc Courses

[2016/2017] *Digital Project Management* – Politecnico di Milano, School of Industrial and Information Engineering, Master of Science in Information Engineering (former V Facoltà di Ingegneria, Laurea in Ingegneria Informatica)

[2015/2016] *Interoperability and Semantic Technologies* – Politecnico di Milano, School of Industrial and Information Engineering, Master of Science in Information Engineering (former V Facoltà di Ingegneria, Laurea in Ingegneria Informatica)

[2008/2015] *Planning and Managing Software Project* – Politecnico di Milano, School of Industrial and Information Engineering, Master of Science in Information Engineering (former V Facoltà di Ingegneria, Laurea in Ingegneria Informatica)

[2009/2012] *Integration and Computational Analysis of Genomic and Proteinomic Informations* - Politecnico di Milano, School of Industrial and Information Engineering (jointly with prof. Marco Masseroli)

[2006/2009] *Ingegneria della Conoscenza* - Università degli Studi dell'Insubria Varese, Laurea Specialistica in Scienze e Tecniche della Comunicazione, Facoltà di Scienze Matematiche, Fisiche e Naturali

[2004/2007] *Argomenti Avanzati di Sistemi Informativi A* – Politecnico di Milano, V Facoltà di Ingegneria, Laurea in Ingegneria Informatica

Teaching Assistant

- [2016/2017] 20 hours about *Interoperability, RDF, OWL, SPARQL, ontology-base data access*, and about *Big Data technologies, hadoop, HIVE, spark* in *Web Science* – Politecnico di Milano, School of Industrial and Information Engineering, Master of Science in Information Engineering – taught by prof. Marco Brambilla
- [2011/2016] 20 hours per year about *Interoperability, HL7, RIM, CDA, RDF, OWL, SPARQL, ontology-base data access* in *ICT for Health Care and Life Science* – School of Industrial and Information Engineering, Master of Science in Information Engineering and Master of Science in Biomedical Engineering – taught by prof. Marco Masseroli
- [2012/2016] 2 hours per year of *Web Data Publishing* in *Web Data Management Computing* – Politecnico di Milano, School of Industrial and Information Engineering, Master of Science in Information Engineering – taught by prof. Stefano Ceri
- [2008/2012] 4 hours per year about *Semantic Web and Information Retrieval* in *Search Computing* – Politecnico di Milano, School of Industrial and Information Engineering, Master of Science in Information Engineering – taught by prof. Stefano Ceri
- [2010/2011] 2 hours about *Semantic Web for Geographic Information System Practitioners* in contesto Web GIS – Politecnico di Milano, Facoltà di Ingegneria Civile Ambientale e Territoriale, Corso di Laurea Specialistica in Ingegneria per l’Ambiente e il Territorio – taught by prof. Maria Brovelli
- [2008/2009] 6 hours per year about *Semantic Web for Life Science Practitioners* in *Bioinformatica e Biologia Computazionale Per La Medicina Molecolare* – V Facoltà di Ingegneria, Laurea in Ingegneria Informatica – taught by prof. Marco Masseroli
- [2004/2005] 4 hours of *Semantic Web and Semantic Web Services* in *Argomenti Avanzati di Sistemi Informativi A* – Politecnico di Milano, Facoltà di Ingegneria dell’Informazione, Laurea di secondo livello in Ingegneria Informatica
- [2003/2005] 20 hours per year about *SQL and XML* in *Informatica per l’ambiente e il territorio* – Politecnico di Milano, Facoltà di Ingegneria Civile Ambientale e Territoriale, Corso di Laurea Specialistica in Ingegneria per l’Ambiente e il Territorio
- [2001/2003] 20 hours per year about *SQL and XML* in *Fondamenti di Informatica II*, Politecnico di Milano, Facoltà di Ingegneria Civile Ambientale e Territoriale, Corso di Laurea Specialistica in Ingegneria per l’Ambiente e il Territorio

Tutorials

- 2017-10-21 How to Build a Stream Reasoning Application (StreamApp) – full-day event jointly presented with Daniele Dell’Aglio (Department of Informatics, University of Zurich), Thu Le-Pham (INSIGHT Centre for Data Analytics, NUI Galway), Alessandra Mileo, (INSIGHT Centre for Data Analytics, Dublin City University), and Riccardo Tommasini (Dipartimento di Elettronica, Informatica e Bioingegneria, Politecnico di Milano)

<http://streamreasoning.org/events/streamapp2017> UPCOMING

- 2016-10-17 *Tutorial on RDF Stream Processing* at ISWC 2016 - full-day event jointly presented with Muhammad Intizar Ali (Insight Centre for Data Analytics), Daniele Dell'Aglio (Politenico di Milano), and Jean-Paul Calbimonte (École Polytechnique Fédérale de Lausanne)
<http://streamreasoning.org/events/rsp2016>
- 2016-06-20 *Stream Reasoning: Managing Velocity and Variety in Big Data* - full-day event jointly presented with Daniele Dell'Aglio (Politenico di Milano) and Alessandro Margara (Politecnico di Milano) at the 10th ACM International Conference on Distributed and Event-Based Systems 2016.
<http://streamreasoning.org/events/srdebs2016>
- 2015-10-11 *Stream Reasoning for Linked Data* – full-day event jointly presented with Muhammad Intizar Ali (Insight Centre for Data Analytics), Jean-Paul Calbimonte (École Polytechnique Fédérale de Lausanne), Daniele Dell'Aglio (Politecnico di Milano) Alessandra Mileo (Insight Centre for Data Analytics) at International Semantic Web Conference 2015, Bethlehem, Pennsylvania, USA
<http://streamreasoning.org/events/sr4ld2015>
- 2015-10-11 *Semantics Approach to Big Data and Event Processing* – three days event jointly presented with prof. Amit Sheth (knoesis Lab – Wright State University), Pramod Anantharam (knoesis Lab – Wright State University), Riccardo Tommasini (Politecnico di Milano) and Pavan Kapanipathi (knoesis Lab – Wright State University), Dayton, Ohio, USA
<http://wiki.knoesis.org/index.php/BigDataTutorial>
- 2015-06-26 *Stream Reasoning Tutorial* – two day tutorial on Stream Reasoning for Poznań University of Economic Master Students, Poznań, Poland
<http://emanueledellavalle.org/Teaching/srt2015.html>
- 2014-10-19 *Stream Reasoning for Linked Data* – full-day event jointly presented with prof. Oscar Corcho, PhD Jean-Paul Calbimonte, Daniele Dell'Aglio and Marco Balduini at International Semantic Web Conference 2015, Riva del Garda, Italy
<http://streamreasoning.org/events/sr4ld2014>
- 2013-10-21 *Stream Reasoning For Linked Data* – full-day event jointly presented with prof. Oscar Corcho, prof. Jeff Z. Pan, PhD Jean-Paul Calbimonte, Daniele Dell'Aglio and Marco Balduini at International Semantic Web Conference 2013, Sydney, Australia
<http://streamreasoning.org/sr4ld2013>
- 2011-06-09 *Stream Reasoning For Linked Data* – half-day event jointly presented with prof. J.Z. Pan at Semantic Technology Conference (SemTech) 2011, San Francisco, CA, USA
- 2011-05-31 *Stream Reasoning For Linked Data* – full-day event jointly presented with prof. J.Z. Pan at Extended Semantic Web Conference (ESWC) 2011, Heraklion, Creta, Grecia
<http://streamreasoning.org/Past-Events/sr4ld2011>
- 2010-11-13 *4th Large Knowledge Collider Early Adopters Tutorial* – full-day event jointly presented with LarKC consortium at r Beijing University of Technology, Beijing, China

<http://www.larkc.eu/early-adopters/4th-early-adopters-tutor>

2010-07-05 *Realizing a Semantic Web Application* – half-day event at International Web Engineering Conference (ICWE) 2010, Vienna, Austria

<http://swa.cefriel.it/Teaching/RSWA2008>

2010-05-30 *3rd Large Knowledge Collider Early Adopters Tutorial* – full-day event jointly presented with LarKC consortium at Extended Semantic Web Conference (ESWC) 2010, Heraklion, Crete, Greece

<http://www.larkc.eu/early-adopters/3rd-early-adopters-tutorial/>

2009-10-25 *2nd Large Knowledge Collider Early Adopters Tutorial* – full-day event jointly presented with LarKC consortium at International Semantic Web Conference (ISWC) 2009, Washington, DC, USA

<http://www.larkc.eu/early-adopters/2nd-early-adopters-tutorial/>

2008-10-26 *Realizing a Semantic Web Application* – half-day event at ISWC 2008, Karlsruhe, Germany

http://videlectures.net/iswc08_dellaValle_rswa/

2008-05-07 *Semantic Web Application Development* – half-day event at Business Information Systems (BIS) 2008

2007-04-26 *Applied Semantics* - half-day event at Business Information Systems (BIS) 2007

2006-12-18 *An overview of Semantic Web Service* at Semantic Web Applications and Perspectives (SWAP) 2006, Pisa, Italy

2005-12-02 *An overview of Semantic Web Services* at Università di Milano Bicocca, Milano, Italy

2005-11-04 *An overview of Semantic Web* at Università di Milano Bicocca, Milano, Italy

Invited Talks and Key Notes

2017-06-15 *Ten years of Big Data. Now what?* University of Oslo, Norway

2016-10-28 *Using Big Data and Stream Reasoning for everyday life monitoring.* Como, Italy

2016-07-20 *Listening to the pulse of our cities with Stream Reasoning (and few more technologies),* 12th Semantic Web Summer School, Bertinoro, Italy

2015-11-24 *Stream Reasoning: mastering the velocity and the variety dimensions of Big Data at once,* Fondazione Bruno Kessler, Trento, Italy

2015-11-10 *Stream Reasoning: mastering the velocity and the variety dimensions of Big Data at once,* TU Wien, Wien, Austria

2015-11-03 *Stream Reasoning: mastering the velocity and the variety dimensions of Big Data at once,* University of Oslo, Oslo, Norway

2015-06-22 *Listening to the pulse of our cities fusing Social Media Streams and Call Data Records,* BIS 2015, Poznań, Poland

2015-06-21 *Stream Reasoning,* SIEMENS, Munich, Germany

2013-11-22 *A Big Data Infrastructure to sense the pulse of the city in real-time* at IBM, Segrate, Italy

- 2013-10-21 *Listening to the pulse of our cities during City Scale Events* at DeRiVE 2013 Workshop collocated with ISWC 2013, Sydney, Australia
- 2012-11-06 *Order Matters! Harnessing a World of Orderings for Reasoning over Massive Data* at University of Trento, Italy
- 2012-09-25 *Challenges, Approaches, and Solutions in Stream Reasoning* at Semantic Days, Stavanger, Norway
- 2012-02-27 *BOTTARI: How to offer innovative services listening to the Social Media* at Senso Comune, University of Trento, Trento, Italy
- 2011-07-15 *Stream Reasoning* at Asian Semanti Web School 2011, University of Incheon, Seoul, Corea
- 2011-01-18 *Stream Reasoning, where we got so far* at Oxford University, UK
- 2009-03-02 *Building Mobile Data Mashups Using LarKC* at NTT-DoCoMo Labs, Munich, Germany
- 2008-02-19 *Le sfide per i CIO delle Enterprise 2.0* at *Virtualisation & Enterprise 2.0* organized by IDC, Milano, Italy
- 2007-11-15 *Web 2.0: le sfide per le moderne dot-com* at *WEB 2.0 – Tecnologie per il business o fenomeno sociale?* organized by Guide Italy (<http://www.guideitalia.org/>), Milano, Italy
- 2007-11-02 *SWE-ET Model Driven Semantic Web Application Development* at Almaden IBM Research Labs, CA, USA
- 2007-10-15 *SOA e Web 2.0* at *business Integration Forum 2007* organized by IIR, Milano, Italy
- 2007-03-15 *Future and perspectives for Service Oriented Architecture* at *Service Oriented Architecture (SOA): dalla sperimentazione all'implementazione strategica* organized Business International, Milano, Italy
- 2006-11-29 *SWE-ET: the Italian solution to the Semantic Web Service Challenge* a *The Semantic Dimension of Information Tecnology* organized by Fondazione IBM, Rome, Italy
- 2006-10-27 *Making already existing IT architecture flexible: from fragmented application to controllable business processes* at *Business Integration Forum 2006* organized by IIR
- 2006-07-05 *SOA: between myth and reality, the value of experience* at *SOA Day* organized by Ferrovie dello Stato, Rome, Italy
- 2006-06-21 *The market of Service Oriented Architecture: future and perspectives* at *Service Oriented Architecture (SOA): dalla sperimentazione all'implementazione strategica* organized by Business International, Roma, Italy
- 2006-03-15 *SOA: what is it? How it works? What's going on?* at *Convegno SOA* organized by IDG, Milan, Italy
- 2006-01-26 *Basta Cercare, Vogliamo Trovare!* at *IDC conference on Content Management Systems*, Milan, Italy
- 2005-04-10 *Evoluzione dei Web Services per l'interoperabilità: approcci a supporto della dinamicità e flessibilità nell'integrazione di infrastrutture IT* at *IDC conference on Web Services and Enterprise Application Integration*, Milan, Italy
- 2005-01-27 *Approcci innovativi allo sviluppo di portali: Semantic Web, accessibilità e*

- multimodalità* at IDC conference on Content Management Systems, Milan, Italy
- 2004-02-22 *A Semantic approach to Interoperability* at *Perspectives in eGovernment and eTransaction for Innovation in Europe*, Milano, Italy
- 2002-05-15 *Strumenti esperti per la rappresentazione della conoscenza* at *The Art of Knowledge Management* organized by OpenText, Getronics and Cisco Systems, Milan, Italy

Industrial Teaching Activities

- 2015-2017 *From traditional Data Management to Big Data revolution* - one day intensive course on Big Data, noSQL, hadoop ecosystem and spark offered by CEFRIEL and Fondazione Politecnico di Milano
- 2015-2017 *Big Data Technologies & Analytics* – three-five days course mainly centred on Spark and its SQL, Stream, Graph and Machine Learning extensions offered by People 3.0 and CEFRIEL
- 2013-03 SCRUM: an agile Software Project Management approach – one day in MASTER IN ALTO APPRENDISTATO GESTIONE AZIENDALE 2011-2013 Approvato con D.D.U.O n° 3215 del 7 Aprile 2011 at MIP – Politecnico di Milano, Milano, Italy
- 2010-09 *Successful Participation in the 7th Framework Programme (FP7) - Thematic Workshop: Information and Communication Technologies (ICT)* – two days jointly taught with Dario Cerizza at Pontificia Universidad Javeriana, Bogota, Colombia
- 2010-04 *Introduzione allo sviluppo di applicazioni basate su Semantic Web in ambito biomedico* – three days jointly taught with Ph.D. Paolo Romano and Ph.D. Andrea Splendiani at Istituto Nazionale per la Ricerca sul Cancro, Genova, Italia
- 2006-2007 *XML, Semantic Web* in *XVIII Master in Tecnologia dell'Informazione* offered by CEFRIEL, Milano, Italy
- 2005-2006 *XML and Semantic Web technologies* in *XVII Master in Tecnologia dell'Informazione* offered by CEFRIEL, Milano, Italy
- 2004-2005 *Java and Semantic Web technologies* in *corso di specializzazione in architetture software in java e .net* offered by CEFRIEL, Milano, Italy
- 2004-2005 *Java, XML, and Semantic Web technologies* in *XVI Master in Tecnologia dell'Informazione* offered by CEFRIEL, Milano, Italy
- 2004 *Java, J2ME, XML and Semantic Web technologies* in *corso Thera* organized by CEFRIEL, Milano, Italy
- 2003-2004 *Semantic Web technologies* in *Master in complessità dell'Università di Pavia* co-organized by CEFRIEL, Pavia, Italy
- 2003 *Semantic Web technologies* in *corso LuTech* organized by CEFRIEL, Milano, Italy
- 2003 *XML* in *corso ISET* organized by CEFRIEL, Milano, Italy
- 2002-2003 *Java, and Web Technologies* in *XML XV Master in Tecnologia dell'Informazione* offered by CEFRIEL, Milano, Italy
- 2002-2003 *J2ME* in *Master in progettista di reti mobili UMTS* offered by CEFRIEL, Milano, Italy

- 2002-2003 *J2ME in Master in progettista di applicazioni avanzate internet su reti a banda larga* offered by CEFRIEL, Milano, Italy
- 2002 *Semantic Web technologies in corso DICE* organized by CEFRIEL, Milano, Italy
- 2001-2002 *J2ME in XIV Master in Tecnologia dell'Informazione* offered by CEFRIEL, Milano, Italy
- 2001-2002 *Java, J2ME and Web technologies in Master Wireless & Web 2001* offered by CEFRIEL, Milano, Italy

Nominations, Awards and Prices

- 6-2017 his paper on *Incremental Reasoning on Streams and Rich Background Knowledge* was **nominated** for the **Best Paper 7 years** award of ESWC 2017
- 10-2016 his paper on *CitySensing: Fusing City Data for Visual Storytelling* wins the **best paper** award for IEEE MM 2016
- 10-2015 he is awarded the *ASP fellowship* as **best tutor**
- 6-2014 *Augmented Participation to Live Events through Social Network Content Enrichment* wins the *AI mashup Challenge 2014*
- 9-2013 Emanuele Della Valle wins the **IBM Faculty Award 2013** for the research program on *City Data Fusion*
- 5-2013 *TwindexFuorisalone: Social Listening of Milano Design Week* wins the *AI mashup Challenge 2013*
- 9-2011 *Bottari*, an App to deliver personalized and location-based recommendations by continuous analysis of social media, wins the *Semantic Web Challenge 2011*
- 6-2011 *Traffic LarKC* wins the *AI mashup Challenge 2011*
- 6-2008 *Squiggle Business Plan* wins the second prize of *StartCup Milano Lombardia 2008* and it is accepted among the finalist of Premio Nazionale Innovazione
- 6- 2007 *Enabling the European Patient Summary Through Triplespaces* wins *Best Paper Award* at Computer-Based Medical Systems
- 2- 2007 Emanuele Della Valle wins *CEFRIEL's Excellence Award 2007* for having started up and brought to internal level CEFRIEL's Semantic Web Practice.
- 11- 2006 *Flexible Specification of Semantic Services using Web Engineering Methods and Tools* wins the *Best Paper Award* at Semantic Web and Software Engineering Workshop 2006 co-located con ISWC 2006
- 9- 2006 Emanuele Della Valle wins the **IBM Faculty Award 2006** for the research on Model Driven Semantic Web Application Development (SWE-ET)
- 6-2006 SWE-ET is evaluated as “the most complete solution presented at Phase-II of Semantic Web Service Challenge”

Professional Activities

Research Projects

- 01/2017/12-2017 **CrowdInsight** is an activity, funded by the EIT Digital, and led by TIM, which aims at understanding people dynamics in urban spaces. It actively *monitors urban environments* detecting the composition, dynamics and motivations of crowds. It provides data analytics and actionable insights to support *decision-making and planning* among administrations and businesses.
Emanuele Della Valle is one of the promoters of the idea and brings its expertise in Big Data Analytics.
- 01/2017/12-2017 **BeCamGreen activity** is an activity, funded by the EIT Digital, and led by INDRA, which aims fostering the adoption of high occupancy lanes.
Emanuele Della Valle brings its expertise in real-time predictive Big Data Analytics to support INDRA in forecasting traffic and enforcing policies on high occupancy lanes.
- 01-2015/12-2016 **Personal Social Media Analytics within the HII Future Cloud activity** is a task, funded by the EIT Digital, which aims at providing personal social media analytics services. The goal is to offer this type of service within a Personal Data Store under development in Telecom Italia.
Emanuele Della Valle is the *principal investigator* of the task.
- 01-2015/12-2015 **CitySensing installation for EXPO within the 3city activity** is a task, funded by the ICT Labs of the European Institute of Innovation and Technologies (EIT), which aims deploying the CitySensing installation on 10 eWalls for the full duration of EXPO 2015 in Milano. The project is a joint effort with Telecom Italia and the Density Design Lab led by prof. Ciuccarelli.
Emanuele Della Valle is the *principal investigator* of the task.
- 09-2013/12-2014 **City Data Fusion for Event Management** is an activity, funded by the ICT Labs of the European Institute of Innovation and Technologies (EIT), which aims at enhancing the ability to feel the pulse of our cities to deliver innovative services. To this end, we started collecting in real-time data streams of different types ranging from social networks – specifically, Twitter, Instagram and Foursquare – to Mobile Phone Networks and sensors such as Traffic Flow, Weather and Pollution Sensors. We are also exploring pro-active crowdsourcing techniques, tailored to incentives applicable in urban environment and to urban life styles, to cleanse and semantically enrich those data streams. Last, but not least, we are experimenting with innovative technologies, methodologies and systems for data fusion, analysis and visualization to magnify the value of those data streams.
Emanuele Della Valle is the *principal investigator* of the activity.
- 10-2010/9-2014 **Urban Games with a Purpose for PlanetData.** PlanetData aimed to establish a sustainable European community of researchers that supports organizations in exposing their data in new and useful ways. PlanetData pushed forward the state-

of-the-art in large-scale data management and its application to the creation of useful, open data sets. This was motivated by the increasing reliance of business on large public data; the uptake of open data principles in many vertical sectors; and the need of research communities to make sense out of petabytes of scientific data, to describe and to expose this data in ways that encourage and enable collaboration.

Emanuele Della Valle contributed with his research on *crowdsourcing* techniques, whose incentives are tailored to urban lifestyle and needs, to the *Urban Games work package*.

10-2009/11-2013 **Search Computing** (SeCo) is a project funded by the European Research Council (ERC), responding to the 2008 Call for "IDEAS Advanced Grants", a program dedicated to the support of investigation-driven frontier research. Search computing focuses on building the answers to complex search queries like "Where can I attend an interesting conference in my field close to a sunny beach?" by interacting with a constellation of cooperating search services, using ranking and joining of results as the dominant factors for service composition.

Emanuele Della Valle participated to the development of SeCo concept and lead the group dedicated to Technology and Business Watch

4-2008/10-2011 The **Large Knowledge Collider** (LarKC) aim was to develop the Large Knowledge Collider (LarKC, for short, pronounced "lark"), a platform for massive distributed incomplete reasoning that will remove the scalability barriers of currently existing reasoning systems for the Semantic Web. This was achieved by: *a*) enriching the current logic-based Semantic Web reasoning with methods from information retrieval, machine learning, information theory, databases, and probabilistic reasoning, *b*) employing cognitively inspired approaches and techniques such as spreading activation, focus of attention, reinforcement, relevance reasoning, and bounded rationality; and *c*) building a distributed reasoning platform and realizing it both on a high-performance computing cluster and via "computing at home".

Emanuele Della Valle was a *member of the proposal writing team*. His major contributions to the project are the *Stream Reasoning* concept, its embodiment in *C-SPARQL* and the lead of the *Urban Computing* use case.

1-2008/12-2009 **Service-Finder** developed a platform for service discovery in which Web Services are embedded in a Web 2.0 environment. The project addresses the problem of utilising the Web Service technology for a wider audience by realising a comprehensive framework for Discovery. The approach is to develop novel means of obtaining the underlying semantic models for discovery, by analysing available Web content, leveraging direct and indirect user feedback on the extracted data and exploiting context information. The result will be a Search Engine that enables users to find up-to-date information on available Web Services, similarly to current search engines for content pages.

Emanuele Della Valle was the *principal investigator* of the project.

- 1-2006/6-2008 **Single European Employment Market-Place (SEEMP)** aimed at designing and implementing in a prototypal way an interoperability architecture for public e-Employment services which encompasses cross-governmental business and decisional processes, interoperability and reconciliation of local professional profiles and taxonomies, semantically enabled web services for distributed knowledge access and sharing.
- Emanuele Della Valle was *member of the proposal writing*, he acted as *Technical and Scientific Manger* during the project and contributed to the project with his research on *Web Service Discovery*.
- 4-2006/6-2008 **Triple Space Communication (TripCom)** goal was the development of a highly scalable, semantically enhanced communication infrastructure that is the result of the integration of Tuple Space, Semantic Web (triple), and Web service technologies.
- Emanuele Della Valle was *member of the proposal writing*, lead the *eHealth use case* and was a member of the exploitation board of the project.
- 4-2006/6-2008 **Semantics Utilised for Process management within and between EnteRprises (SUPER)** aimed to make a quantum leap with regard to efficiency and effectiveness in modelling and managing of business processes. It looked to enable companies to use information technology more efficiently and to improve the alignment between IT and business. In particular SUPER worked on enabling companies to: a) overcome the gap between business and IT, b) implement new business processes more quickly and efficiently, and c) make business processes accessible to reasoning and (advanced) querying.
- Emanuele Della Valle worked on the *project show cases* and participated to the *standardization* work of the Semantic Execution Environment at OASIS.
- 7-2006/6-2008 **Networked Peers for e-business (NeP4B)** aimed to contribute innovative ICTs solutions for SMEs, by developing an advanced technological infrastructure to enable companies of any nature, size and geographic location to search for partners, exchange data, negotiate and collaborate without limitations and constraints. The infrastructure was based on independent and interoperable semantic peers who behave as nodes of a virtual network. With these results the NeP4B project intended to provide a substantial contribute to the Single European Electronic Market (SEEM) concept, which represents one of the core aspects of the European Information Society 2010 initiative.
- Emanuele Della Valle *lead the user requirement work package* and contributed to the project with his research on *Semantic Web Service Discovery*.
- 1-2004/6-2007 **COCOON** was an Integrated Project aimed at supporting health care professionals in reducing risk management in their daily practices by building knowledge driven and dynamically adaptive networked communities within European healthcare systems. The main objective of COCOON project is to support knowledge driven collaborative practices in Networks of Healthcare Professionals in order to minimise medical errors in diagnosis and treatment. On

this basis the main COCOON project research directions are twofold: on one side the socio-economics research on health care risk management and the related business model for reducing risk by enabling the COCOON technologies; and on the other side the technological research that wants to deal an innovative tool-set for risk management.

Emanuele Della Valle was the *deputy Technical Manger* of the project and contributed to the project with his research on *Semantic Portals* and *Web Service Discovery*.

7-2003/6-2005 **NomadicMedia** is an ITEA project that developed solutions to allow consumers to enjoy multimedia content and employ interactive services at the times and in the places they prefer, using devices that best suit their circumstances.

Emanuele Della Valle contribute to the project with his research on *Web Service Discovery*.

11-2000/10-2002 **Octane24** aimed to deploy and validate an Open Contracting Service (OCS) to establish electronic contracts due to the needs of European SMEs affected by huge costs for building new European and global business relationships. OCTANE provided a solution by leveraging unproven new ICT-technology into user-friendly applications, and developing business models for encouraging access to low cost and reliable business information by improving the "time to contract". The solution consisted of three different clustered components: - the OCS software which supports contract composition and negotiation, - the Electronic Notary for certification and verification, - the Business Information Services (BIS) to support SMEs in evaluating potential contractors.

Emanuele Della Valle designed and developed the *electronic notary* using a workflow engine and XML signature.

Innovation Projects

1-2015/6-2015 **Oggi in Vetrina** (buyer: Como Municipality) developed of a multi-platform mobile app that extends the offer of ShopInComo. The new app informs tourists and citizens of offers launched by Como shops. If a user is interest in an offer, the app allows to open the ShopInComo app to learn more about the shop that offers it.

1-2015/6-2015 **CoVadis** (buyer: Como Municipality) developed of a multi-platform mobile app and to inform drivers of the availability of parking lots in Como parking silos and start a GPS navigator on the phone to guide them. The app alerts the driver when the chosen parking silo is running out of lots, so that the driver may decide to go to another parking silo.

1-2014/6-2014 **ShopInComo** (buyer: Como Municipality) developed a multi-platform mobile app and a Web site⁶ to inform tourists and citizens about the shops available in

⁶ <http://shopincomo.comune.como.it/>

Como. The app is available on the iOS⁷, Android⁸ and Windows phone market.

- 5-2013/12-2014 **CitySensing** (buyer: Telecom Italia) developed a post-hoc dashboard for visually analysing city scale events by fusing mobile telecommunication and social media data streams. Emanuele Della Valle applied his research results on social media analytics using the Streaming Linked Data framework and supervised the service side development of the dashboard.
- 10-2011/3-2012 **UrbanMatch** (buyer: SIEMENS) a Game with a Purpose to experiment with crowdsourcing techniques whose incentives are tailored to urban lifestyles and needs. Emanuele Della Valle conceived the Urban Match game and formalized the problem as a record linkage problem.
- 11-2005/2–2006 **Squiggle Ski** (buyer: Comitato Olimpico Torino 2006) a semantic search engine of athletes images (<http://squiggle.cefriel.it/ski/>). Emanuele Della Valle acted as Project Manager.
- 6-2005/1-2006 **ZappoTV goes Semantics** (buye: Alcatel) the design and implementation of the semantic extension of a multimedia search engine. Emanuele Della Valle acted as Project Manager and designed the core of Squiggle (CEFRIEL's Semantic Search engine).
- 3-2004/5-2004 **definizione dei Livelli di Servizio per email regionale in gestione a Lombardia Informatica s.p.a** (buyer: Lombardia Informatica s.p.a.) Emanuele Della Valle acted as Project Manager and contributor.
- 10-2003/4-2004 **definizione dei Livelli di Servizio per Nuova Anagrafe regionale in gestione a Lombardia Informatica s.p.a.** (buyer: Lombardia Informatica s.p.a.) Emanuele Della Valle acted as Project Manager and contributor.
- 7-2003/10-2003 **studio di visione strategica del Sistema Informativo Agricolo Regione Lombardia** (buyer: Regione Lombardia) Emanuele Della Valle acted as Project Manager and contributor.
- 3-2003/7-2003 **definizione di una metodologia per i Livelli di Servizio per gli applicativi di Regione Lombardia in gestione a Lombardia Informatica s.p.a.** (buyer: Lombardia Informatica s.p.a.) Emanuele Della Valle acted as Project Manager and contributor.
- 9-2002/1-2003 **Studio di fattibilità per la realizzazione di un sistema documentale per il Ministero dell'Economia e delle Finanze.** (buyer: SOGEI). Emanuele was the major contributor to the feasibility study.
- 1-2002/6-2002 **Regione Lombardia intranet portal** (buyer: Regione Lombardia). Emanuele Della Valle acted as Project Manager, solution architect and developer.
- 2-2002/5-2002 **linee guida per l'evoluzione della soluzione di protocollo informatico del ministero del Tesoro** (buyer: SOGEI). Emanuele was the major contributor to the document.

⁷ <https://itunes.apple.com/us/app/shopincomo/id886182483?mt=8>

⁸ <https://play.google.com/store/apps/developer?id=shopincomo>

- 10-2001/12-2001 **Regione Lombardia intranet portal feasibility study** (buyer: Regione Lombardia) Emanuele was the major contributor to the feasibility study.
- 6-2001/10-2001 **Studio per l'evoluzione in ottica CRM per l'assistenza agli utenti del sistema informativo del ministero delle finanze** (buyer: SOGEL) Emanuele was the major contributor to the document.
- 5-2001/6-2001 **Studio di fattibilità del portale internet della Regione Lombardia** (buyer: Regione Lombardia) Emanuele was the one of the contributors to the feasibility study.

Standardization activities

- 8-2013/Today Active member of W3C RDF Stream Processing Community Group
<http://www.w3.org/community/rsp/>
- 11-2007/12-2008 Invited Expert al W3C SWS Challenge Testbed Incubator
<http://www.w3.org/2005/Incubator/swsc/>
- 10-2005/4-2009 Active member of Semantic Execution Environment TC at OASIS
<https://www.oasis-open.org/committees/semantic-ex/>
- 6-2005/6-2008 Contributor to W3C Semantic Web Health Care and Life Science WG
- 6-2004/5-2008 Active member of WSMO WG (Web Service Modeling Ontology)
<http://www.wsmo.org/>

Board of International Journals

- 2014/today member of the editorial board of Journal of Web Semantics (<http://www.journals.elsevier.com/journal-of-web-semantics/>)
- 2011/today member of the editorial board of International Journal On Semantic Web and Information Systems (<http://www.ijswis.org/>)

Conference Organization

- 2017 Chair of the Mobile Web, Sensors and Semantic Streams Track of the Extended Semantic Web Conference 2017 (ESWC 2017)
- 2011 Chair of the Reasoning Track of the Extended Semantic Web Conference 2011 (ESWC 2011)

Workshop Organization

- 2016 *Web Stream Processing 2017* (WSR2017) co-located with International Semantic Web Conference 2017 (ISWC 2017)
- 2016 *Stream Reasoning 2016* (SR2016) co-located with International Semantic Web Conference 2016 (ISWC 2016)
- 2015 *Ordering and Reasoning 2015* (OrdRing 2015) co-located with International Semantic Web Conference 2015 (ISWC 2015)
- 2014 *Ordering and Reasoning 2014* (OrdRing 2014) co-located with International Semantic Web Conference 2014 (ISWC 2014)

- 2013 *Ordering and Reasoning 2013* (OrdRing 2013) co-located with International Semantic Web Conference 2013 (ISWC 2013)
- 2011 *Ordering and Reasoning 2011* (OrdRing 2011) co-located with International Semantic Web Conference 2011 (ISWC 2011)
- 2010 *New Form of Reasoning 2010* (NeFoRS 2010) co-located with Extended Semantic Web Conference 2010 (ESWC 2010)
- 2009 *Stream Resoning 2009* (SR 2009) co-located with Extended Semantic Web Conference 2009 (ESWC 2009)
- 2008 International Workshop on *Evaluation of Ontology-based Tools and the Semantic Web Service Challenge* (EON-SWSC-2008) co-located with European Semantic Web Conference 2008 (ESWC 2009)

Referee

- 2016-10 – Springer – JWS (2 papers)
- 2016-08 – Elsevier – Journal of Logical and Algebraic Methods in Programming
- 2016-07 – IOS press – Semantic Web Journal
- 2016-05 – ACM - TOIT
- 2016-03 – Springer – Journal of Data Semantics
- 2016-02 – Springer - Social Network Analysis and Mining
- 2016-01 – Elsevier – JWS
- 2015-12 – Elsevier – JWS (2 papers)
- 2015-12 – Springer – Journal of Data Semantics
- 2015-11 – Elsevier – JWS
- 2015-09 – Elsevier - JWS
- 2015-08 – Springer – Journal of Data Semantics
- 2015-06 – Elsevier - JWS
- 2015-05 – IOS press – Semantic Web Journal
- 2015-05 – ACM - TOIT
- 2015-03 – IOS press – Semantic Web Journal
- 2014-03 – Elsevier - JWS
- 2014-01 – Elsevier - JPDC
- 2013-11 – ACM - Sigmod Records
- 2013-09 – Springer - Knowledge and Information Systems
- 2013-09 - Elsevier - Journal of Web Semantics
- 2013-08 - Elsevier - Journal of Web Semantics
- 2013-05 – IOS press – Semantic Web Journal
- 2013-03 - Elsevier - Journal of Web Semantics
- 2013-01 - IGI Global - International Journal On Semantic Web and Information Systems

2012-12 – ACM - Transactions on the Web (TWEB)
2012-12 – IOS press – Semantic Web Journal
2012-12 – ACM/Springer – VLDB Journal
2012-08 – ACM - Transactions on the Web
2012-08 – IEEE Software
2012-06 - IOS press – Semantic Web Journal
2012-06 – Springer – AI Mashup Challenge Book
2012-06 – Springer – Search Computing Book
2012-06 - IOS press – Semantic Web Journal
2012-06 - Rinton Press - Journal of Web Engineering
2012-04 - Elsevier - Journal of Web Semantics
2012-03 - Elsevier - Journal of Web Semantics
2012-01 – IGI Global - International Journal of Information Technology and Web
2012-01- ACM - Transactions on the Web
2012-01 - IEEE Internet Computing
2011-05 – IGI Global - International Journal On Semantic Web and Information Systems
2011-03 – Springer - Knowledge and Information Systems
2011-01 - Elsevier - Journal of Web Semantics
2011-01 – Elsevier - Data & Knowledge Engineering
2010-12 – IEEE - Transactions on Systems, Man, and Cybernetics
2010-11 - Elsevier - Journal of Web Semantics
2010-10 - Elsevier - Journal of Web Semantics
2010-09 – Wiley - Software: Practice and Experience
2010-08 – IEEE - Transactions on Systems, Man, and Cybernetics
2010-07 - Elsevier - Engineering Applications of Artificial Intelligence
2010-07 – Elsevier - Journal of Web Semantics
2010-07 – IEEE - Transactions on Software Engineering
2009-03 - IEEE - Internet Computing
2009-12 - Elsevier - Information Systems
2009-12 - IEEE - Internet Computing
2009-09 - ACM - Transactions on the Web

Program Committees Membership

2017-06 – ISWC 2017
2016-11 – WWW 2017
2016-08 – EKAW 2016
2016-06 – ISWC 2016

2016-05 – RuleML 2016
2016-03 – WebScience 2016
2016-01 – ICWE 2016
2016-01 – ESWC 2016
2015-05 – ISWC 2015
2015-01 – ESWC 2015
2014-08 – EKAW 2014
2014-06 – RuleML Challenge 2014
2014-03 – CrowdUI 2014
2014-01 – ESWC 2014
2013-07 – ODBASE 2013
2013-06 – AI mashup Challenge post Proceedings
2013-06 - RuleML-challenge
2013-04 – AI mashup Challenge 2013
2013-02 – ESWC 2013
2013-01 – WWW 2013
2012-11- SWESE 2012
2012-10 – EAAI 2012
2012-06 – ODBASE 2012
2012-06 - Conference on Business Process and Services Computing
2012-03 – ESWC 2012 Demo
2012-04 – ICWS 2012
2012-02 – ESWC 2012
2012-03 – LDOW 2012
2011-05 - AI mashup Challenge 2011
2011-07 – DATAVIEW 2011
2011-07 – Workshop on Emerging Web Services Technology 2011
2011-08 – ODBASE 2011
2011-08 – SDOW 2011
2011-08 – SWESE 2011
2011-11 – AINA 2012
2011-12 – WWW 2012
2010-07 – Workshop on Emerging Web Services Technology 2010
2010-06 - Conference on Business Process and Services Computing
2009-07 – Workshop on Emerging Web Services Technology 2009
2009-01 - Workshop on Advances in Accessing Deep Web
2008-07 – Workshop on Emerging Web Services Technology 2008

2008-01 – Workshop on Advances in Accessing Deep Web

Evaluation of Research Project

- 2013-11 *Project Proposal Evaluator* for the PICO_LOD project funded by Provincia Autonoma di Trento
- 2013-09 *Project Proposal Evaluator* for research project funded by Austrian Science Fundation
- 2013-03 *Project Proposal Evaluator* for a PRIN project funded by MIUR
- 2012-06 *Project Proposal Evaluator* for Urban Life and Mobility projects funded by EIT ICT-labs

Other activities

- 1-2012/12-2014 *National Action Line Leader* of Urban Life and Mobility for EIT ICT Labs
- 10-2007/10-2008 *Coordinator* of the Testbeds and Challenge Service for the Semantic Technology Institute International
- 4-2006/10-2008 *Project Manager* for evaluating the possibility to create a CEFRIEL spin-off to commercialize Squiggle (CEFRIEL's Semantic Search Engine)
- 6-2005/7-2008 *Program Manager* of CEFRIEL's Semantic Web Activities.

University Service

- 2008/today responsible for the Internalization activities of the degree in Engineering Of Computing Systems of Politecnico di Milano - Como Campus. Emanuele Della Valle evaluates the dossier of around 300 international students per year and supports in-going and out-going ERASMUS and TIME students.

Student Supervision

- 2017-04 Alessandro Donini: Una comparazione tra tecniche tradizionali e innovative di Data Visualization
- 2017-04 Blertan Libusha: Data Analytics of Milano Design Week 2016 Collected Using the Official Mobile App
- 2016-09 Farimah Fanaei: The power of time window in predicting hashtags while typing a tweet
- 2016-04 Marco Tagliabue: Lexicon-Based Domain-Agnostic Multilingual Sentiment Analytics as a Service
- 2015-04 Riccardo Tommasini: Heaven: supporting systematic comparative research of RDF stream processing engines
- 2014-10 Christian Marazzi, Andrea Mauri: Towards a tool set for social media analytics able to represent and anticipate the real world
- 2014-10 Luis Alberto Bonilla Leon: Implementing location based games with a purpose. The Urbanopoly Web case
- 2014-10 Soheil Behnam Roudsari, Kouroshe Sheykhvand: Land use identification using mobile phone data
- 2014-04 Claudio Caletti: Ontology matching enhanced with similarity measures for georeferenced datasets

- 2014-04 Gloria Re Calegari, Gioele Nasi: CSE LiVeTweet analyser : a system for generating links between Venues and Tweets during city scale events
- 2014-04 Sara Habil Amirkhiz: An experience on error awareness and recovery in an energy distribution data management system : design, implementation and verification
- 2013-12 Roberto Gualandris: WikiFinder : un game with a purpose per lo studio della popolarità di linked data
- 2013-10 Antonella Di Rienzo: Data Linking as a side effect of game playing
- 2013-10 Mona Naseri: Automating Processes in Clarity PPM by Gel Scripting
- 2013-10 Andrea Pozzetti and Lorenzo Onofrio: Un Centro Commerciale Naturale 2.0: un'esperienza su Como
- 2013-10 Shima Zahmatkesh: Towards A Top-K Sparql Query Benchmark Generator
- 2012-12 Sivakumar Ramachandran: GIS to virtual RDF graphs (G2R)
- 2012-12 Attilio Fiumano: Sviluppo di applicazioni mobile cross-platform con Apache Cordova: Il caso di Urbanopoly
- 2012-04 Federico Caimi: Ontology And Instance Matching For The Linked Open Data Cloud
- 2012-03 Stefano Fumeo and Simone Contessa: Linking and Improving Linked Urban Data with Games with a Purpose
- 2011-12 Dragan Lesic: Developing graphical user interface for LDA architecture
- 2011-08 Chris Dijkshoorn and Bas Groenewoud: Semantic Web Empowered City Trip Planning
- 2011-07 Marco Balduini and Mirko Bratomi: SLD4SM : un ambiente integrato per la gestione di Stream di Social Media tramite Linked Data
- 2011-03 Adil Nausherwan: Streaming Linked Data
- 2011-03 Geatano Niro: Punti di forza e debolezze nello sviluppo di applicazioni del Semantic Web
- 2011-03 Sara Magliacane: Towards A Rank-Aware Execution Of Top-K Sparql Queries
- 2011-12 ASP project supervision: The Social Computer for Milano and Torino (TSC@MITO)
- 2010-12 ASP project supervision: Urban Computing for Milano and Torino (UC@MITO)
- 2010-09 Hafiz Muhammad Qasim: Towards Treating GIS as Virtual RDF Graphs
- 2010-06 Marco Ragaldo: Traduzione automatica di interrogazioni Continuous-SPARQL su stream RDF in EPL e SPARQL
- 2010-04 Hadi-Choueiry: OpenStreetMap Recursive Street Extraction
- 2010-04 Catalina Mancas: An Empirical Study about the Impact of the Semantic Technologies upon the Software Development Lifecycle
- 2008-10 Daniele Dell'Aglio: Investigation on the convergence between Web 2.0 and Semantic Web
- 2008-7 Walter Corno: Intermediate Object-Oriented Layer to expose pre-existing Data Sources as SPARQL Endpoints
- 2006-6 Andrea Turati: PAGE: A Distributed Infrastructure for Fostering RDF-Based Interoperability

Publications

2017

- [j19] Daniele Dell'Aglio, Emanuele Della Valle, Frank van Harmelen and Abraham Bernstein: Ten years of Stream Reasoning. Now what?. J Data Science. TO APPEAR in 2017
- [j18] Lorenzo Affetti, Riccardo Tommasini, Alessandro Margara, Gianpaolo Cugola and Emanuele Della Valle: Defining the execution semantics of stream processing engines. J Big Data (2017) 4:12
- [c76] Marco Brambilla, Stefano Ceri, Emanuele Della Valle, Riccardo Volonterio, Felix Xavier Acero Salazar: Extracting Emerging Knowledge from Social Media. WWW 2017: 795-804
- [e7] Daniele Dell'Aglio, Emanuele Della Valle, Thomas Eiter, Markus Krötzsch, Maria Maleshkova, Ruben Verborgh, Federico M. Facca, Michael Mrisa: Joint Proceedings of the 3rd Stream Reasoning (SR 2016) and the 1st Semantic Web Technologies for the Internet of Things (SWIT 2016) workshops co-located with 15th International Semantic Web Conference (ISWC 2016), Kobe, Japan, October 17th - to - 18th, 2016. CEUR Workshop Proceedings 1783, CEUR-WS.org 2017

2016

- [c75] Emanuele Della Valle, Daniele Dell'Aglio, Alessandro Margara: Taming velocity and variety simultaneously in big data with stream reasoning: tutorial. DEBS 2016: 394-401
- [c74] Daniele Dell'Aglio, Minh Dao-Tran, Jean-Paul Calbimonte, Danh Le Phuoc, Emanuele Della Valle: A Query Model to Capture Event Pattern Matching in RDF Stream Processing Query Languages. EKAW 2016: 145-162
- [c73] Riccardo Tommasini, Emanuele Della Valle, Marco Balduini, Daniele Dell'Aglio: Heaven: A Framework for Systematic Comparative Research Approach for RSP Engines. ESWC 2016: 250-265
- [c72] Shima Zahmatkesh, Emanuele Della Valle, Daniele Dell'Aglio: When a FILTER Makes the Difference in Continuously Answering SPARQL Queries on Streaming and Quasi-Static Linked Data. ICWE 2016: 299-316
- [c71] Riccardo Tommasini, Pieter Bonte, Emanuele Della Valle, Erik Mannens, Filip De Turck, Femke Ongenaë:
Towards Ontology-Based Event Processing. OWLED 2016: 115-127
- [c70] Andrea Mauri, Jean-Paul Calbimonte, Daniele Dell'Aglio, Marco Balduini, Marco Brambilla, Emanuele Della Valle, Karl Aberer: TripleWave: Spreading RDF Streams on the Web. International Semantic Web Conference (2) 2016: 140-149
- [c69] Shen Gao, Daniele Dell'Aglio, Soheila Dehghanzadeh, Abraham Bernstein, Emanuele Della Valle, Alessandra Mileo: Planning Ahead: Stream-Driven Linked-Data Access Under Update-Budget Constraints. International Semantic Web Conference (1) 2016: 252-270

2015

- [j16] Marco Balduini, Emanuele Della Valle, Matteo Azzi, Roberto Larcher, Fabrizio Antonelli,

Paolo Ciuccarelli: CitySensing: Fusing City Data for Visual Storytelling. *IEEE MultiMedia* 22(3): 44-53 (2015)

- [c67] Emanuele Della Valle, Marco Balduini: Listening to and Visualising the Pulse of Our Cities Using Social Media and Call Data Records. *BIS (Workshops)* 2015: 3-14
- [c66] Daniele Dell'Aglio, Jean-Paul Calbimonte, Emanuele Della Valle, Óscar Corcho: Towards a Unified Language for RDF Stream Query Processing. *ESWC (Satellite Events)* 2015: 353-363
- [c65] Soheila Dehghanzadeh, Daniele Dell'Aglio, Shen Gao, Emanuele Della Valle, Alessandra Mileo, Abraham Bernstein: Approximate Continuous Query Answering over Streams and Dynamic Linked Data Sets. *ICWE* 2015: 307-325
- [c64] Andrea Mauri, Jean-Paul Calbimonte, Daniele Dell'Aglio, Marco Balduini, Emanuele Della Valle, Karl Aberer: Where Are the RDF Streams?: On Deploying RDF Streams on the Web of Data with TripleWave. *International Semantic Web Conference (Posters & Demos)* 2015
- [c63] Riccardo Tommasini, Emanuele Della Valle, Marco Balduini, Daniele Dell'Aglio: Heaven Test Stand: Towards Comparative Research on RSP Engines. *SSN-TC/OrdRing@ISWC* 2015: 87-92
- [c62] Marco Balduini, Emanuele Della Valle: FraPPE: A Vocabulary to Represent Heterogeneous Spatio-temporal Data to Support Visual Analytics. *International Semantic Web Conference (2)* 2015: 321-328
- [c61] Soheila Dehghanzadeh, Alessandra Mileo, Daniele Dell'Aglio, Emanuele Della Valle, Shen Gao, Abraham Bernstein: Online View Maintenance for Continuous Query Evaluation. *WWW (Companion Volume)* 2015: 25-26
- [e6] Elena Simperl, Barry Norton, Dunja Mladenic, Emanuele Della Valle, Iriini Fundulaki, Alexandre Passant, Raphaël Troncy: The Semantic Web: *ESWC 2012 Satellite Events - ESWC 2012 Satellite Events*, Heraklion, Crete, Greece, May 27-31, 2012. Revised Selected Papers. *Lecture Notes in Computer Science 7540*, Springer 2015, ISBN 978-3-662-46640-7 [contents]
- [e5] Kostis Kyzirakos, Cory A. Henson, Matthew Perry, Dalia Varanka, Rolf Grütter, Jean-Paul Calbimonte, Irene Celino, Emanuele Della Valle, Daniele Dell'Aglio, Markus Krötzsch, Stefan Schlobach: Joint Proceedings of the 1st Joint International Workshop on Semantic Sensor Networks and Terra Cognita (*SSN-TC 2015*) and the 4th International Workshop on Ordering and Reasoning (*OrdRing 2015*) co-located with the 14th International Semantic Web Conference (*ISWC 2015*), Bethlehem, Pennsylvania, United States, October 11th - and - 12th, 2015. *CEUR Workshop Proceedings 1488*, CEUR-WS.org 2015

2014

- [j16] Daniele Dell'Aglio, Emanuele Della Valle, Jean-Paul Calbimonte, Óscar Corcho: RSP-QL Semantics: A Unifying Query Model to Explain Heterogeneity of RDF Stream Processing Systems. *Int. J. Semantic Web Inf. Syst.* 10(4): 17-44 (2014)
- [j15] Marco Balduini, Alessandro Bozzon, Emanuele Della Valle, Yi Huang, Geert-Jan Houben: Recommending Venues Using Continuous Predictive Social Media Analytics. *IEEE Internet Computing* 18(5): 28-35 (2014)
- [j14] Marco Balduini, Irene Celino, Daniele Dell'Aglio, Emanuele Della Valle, Yi Huang, Tony

Kyung-il Lee, Seon-Ho Kim, Volker Tresp: Reality mining on micropost streams - Deductive and inductive reasoning for personalized and location-based recommendations. *Semantic Web* 5(5): 341-356 (2014)

- [c60] Fabrizio Antonelli, Matteo Azzi, Marco Balduini, Paolo Ciuccarelli, Emanuele Della Valle, Roberto Larcher: City sensing: visualising mobile and social data about a city scale event. *AVI* 2014: 337-338
- [c59] Marco Brambilla, Daniele Dell'Aglio, Emanuele Della Valle, Andrea Mauri, Riccardo Volonterio: Augmented Participation to Live Events through Social Network Content Enrichment. *AIMashup@ESWC* 2014
- [c58] Marco Brambilla, Daniele Dell'Aglio, Emanuele Della Valle, Andrea Mauri, Riccardo Volonterio: Enriching Live Event Participation with Social Network Content Analysis and Visualization. *ESWC (Satellite Events) 2014*: 159-170
- [c57] Marco Balduini, Stefano Bocconi, Alessandro Bozzon, Emanuele Della Valle, Yi Huang, Jasper Oosterman, Themis Palpanas, Mikalai Tsytsarau: A Case Study of Active, Continuous and Predictive Social Media Analytics for Smart City. *S4SC@ISWC* 2014: 31-46
- [c56] Shima Zahmatkesh, Emanuele Della Valle, Daniele Dell'Aglio, Alessandro Bozzon: Towards a Top-K SPARQL Query Benchmark. *International Semantic Web Conference (Posters & Demos) 2014*: 349-352
- [e3] Irene Celino, Óscar Corcho, Daniele Dell'Aglio, Emanuele Della Valle, Markus Krötzsch, Stefan Schlobach: Proceedings of the 3rd International Workshop on Ordering and Reasoning Co-located with the 13th International Semantic Web Conference (ISWC 2014), Riva del Garda, Italy, October 20th, 2014. *CEUR Workshop Proceedings* 1303, CEUR-WS.org 2014

2013

- [b3] Stefano Ceri, Alessandro Bozzon, Marco Brambilla, Emanuele Della Valle, Piero Fraternali: Web Information Retrieval. *Data-centric systems and applications*, Springer 2013, ISBN 978-3-642-39313-6, pp. I-XIV, 1-284
- [j13] Emanuele Della Valle, Stefan Schlobach, Markus Krötzsch, Alessandro Bozzon, Stefano Ceri, Ian Horrocks: Order matters! Harnessing a world of orderings for reasoning over massive data. *Semantic Web* 4(2): 219-231 (2013)
- [j12] Stefano Ceri, Themis Palpanas, Emanuele Della Valle, Dino Pedreschi, Johann-Christoph Freytag, Roberto Trasarti: Towards mega-modeling: a walk through data analysis experiences. *SIGMOD Record* 42(3): 19-27 (2013)
- [c55] Thomas Scharrenbach, Jacopo Urbani, Alessandro Margara, Emanuele Della Valle, Abraham Bernstein: Seven Commandments for Benchmarking Semantic Flow Processing Systems. *ESWC* 2013: 305-319
- [c54] Marco Balduini, Emanuele Della Valle, Daniele Dell'Aglio, Mikalai Tsytsarau, Themis Palpanas, Cristian Confalonieri: Twindex Fuorisalone: Social Listening of Milano during Fuorisalone 2013. *ESWC (Satellite Events) 2013*: 327-336
- [c53] Tony Kyung-il Lee, Seon-Ho Kim, Marco Balduini, Daniele Dell'Aglio, Irene Celino, Yi Huang, Volker Tresp, Emanuele Della Valle: Location-Based Mobile Recommendations by

Hybrid Reasoning on Social Media Streams. JIST 2013: 261-273

- [c52] Marco Balduini, Emanuele Della Valle, Daniele Dell'Aglio, Mikalai Tsytsarau, Themis Palpanas, Cristian Confalonieri: Social Listening of City Scale Events Using the Streaming Linked Data Framework. International Semantic Web Conference (2) 2013: 1-16
- [c51] Marco Balduini, Emanuele Della Valle: A Restful Interface for RDF Stream Processors. International Semantic Web Conference (Posters & Demos) 2013: 209-212
- [c50] Daniele Dell'Aglio, Jean-Paul Calbimonte, Marco Balduini, Óscar Corcho, Emanuele Della Valle: On Correctness in RDF Stream Processor Benchmarking. International Semantic Web Conference (2) 2013: 326-342
- [p2] Daniele Dell'Aglio, Irene Celino, Emanuele Della Valle: Urban mashups. Semantic Mashups – Intelligent Reuse of Web Resources. Springer. 2013.
- [e3] Irene Celino, Emanuele Della Valle, Markus Krötzsch, Stefan Schlobach (Eds.): Proceedings of the 2nd International Workshop on Ordering and Reasoning, OrdRing 2013, Co-located with the 12th International Semantic Web Conference (ISWC 2013), Sydney, Australia, October 22nd, 2013. CEUR Workshop Proceedings 1059, CEUR-WS.org 2013

2012

- [j11] Marco Balduini, Irene Celino, Daniele Dell'Aglio, Emanuele Della Valle, Yi Huang, Tony Kyung-il Lee, Seon-Ho Kim, Volker Tresp: BOTTARI: An augmented reality mobile application to deliver personalized and location-based recommendations by continuous analysis of social media streams. J. Web Sem. 16: 33-41 (2012)
- [c49] Stefano Ceri, Emanuele Della Valle, Dino Pedreschi, Roberto Trasarti: Mega-modeling for Big Data Analytics. ER 2012: 1-15
- [c48] Irene Celino, Simone Contessa, Marta Corubolo, Daniele Dell'Aglio, Emanuele Della Valle, Stefano Fumeo, Thorsten Krüger: Linking Smart Cities Datasets with Human Computation - The Case of UrbanMatch. International Semantic Web Conference (2) 2012: 34-49
- [c47] Sara Magliacane, Alessandro Bozzon, Emanuele Della Valle: Efficient Execution of Top-K SPARQL Queries. International Semantic Web Conference (1) 2012: 344-360
- [c46] Irene Celino, Dario Cerizza, Simone Contessa, Marta Corubolo, Daniele Dell'Aglio, Emanuele Della Valle, Stefano Fumeo: Urbanopoly - A Social and Location-Based Game with a Purpose to Crowdsourc Your Urban Data. SocialCom/PASSAT 2012: 910-913
- [c45] Irene Celino, Simone Contessa, Marta Corubolo, Daniele Dell'Aglio, Emanuele Della Valle, Stefano Fumeo, Thorsten Krüger: UrbanMatch - linking and improving Smart Cities Data. LDOW 2012
- [p1] Alessandro Bozzon, Emanuele Della Valle, Sara Magliacane: Extending SPARQL Algebra to Support Efficient Evaluation of Top-K SPARQL Queries. SeCO Book 2012: 143-156

2011

- [j10] Emanuele Della Valle, Irene Celino, Daniele Dell'Aglio, Ralph Grothmann, Florian Steinke, Volker Tresp: Semantic Traffic-Aware Routing Using the LarKC Platform. IEEE Internet Computing 15(6): 15-23 (2011)

- [c44] Irene Celino, Daniele Dell'Aglio, Emanuele Della Valle, Yi Huang, Tony Kyung-il Lee, Seon-Ho Kim, Volker Tresp: Towards BOTTARI: Using Stream Reasoning to Make Sense of Location-Based Micro-posts. ESWC Workshops 2011: 80-87
- [c43] Alessandro Bozzon, Marco Brambilla, Emanuele Della Valle, Piero Fraternali, Chiara Pasini: A Conceptual Framework for Linked Data Exploration. ICWE Workshops 2011: 109-118
- [c42] Alessandro Bozzon, Marco Brambilla, Stefano Ceri, Emanuele Della Valle, Silvia Quarteroni: Understanding Web Data Sources for Search and Exploration. LDH 2011: 67-72
- [c41] Irene Celino, Daniele Dell'Aglio, Emanuele Della Valle, Yi Huang, Tony Kyung-il Lee, Stanley Park, Volker Tresp: Making Sense of Location-based Micro-posts Using Stream Reasoning. #MSM 2011: 13-18
- [c40] Matthias Assel, Alexey Cheptsov, Georgina Gallizo, Irene Celino, Daniele Dell'Aglio, Luka Bradesko, Michael Witbrock, Emanuele Della Valle: Large knowledge collider: a service-oriented platform for large-scale semantic reasoning. WIMS 2011: 41
- [o3] Alessandro Bozzon, Emanuele Della Valle, and Sara Magliacane: Towards An Efficient SPARQL Top-K Query Processing in Virtual RDF Stores, 5th International Workshop on Ranking in Databases (DBRANK 2011), VLDB 2011

2010

- [j9] Davide Francesco Barbieri, Daniele Braga, Stefano Ceri, Emanuele Della Valle, Yi Huang, Volker Tresp, Achim Rettinger, Hendrik Wermser: Deductive and Inductive Stream Reasoning for Semantic Social Media Analytics. IEEE Intelligent Systems 25(6): 32-41 (2010)
- [j8] Davide Francesco Barbieri, Daniele Braga, Stefano Ceri, Emanuele Della Valle, Michael Grossniklaus: C-SPARQL: a Continuous Query Language for RDF Data Streams. Int. J. Semantic Computing 4(1): 3-25 (2010)
- [j7] Stefano Ceri, Adnan Abid, Mamoun Abu Helou, Davide Francesco Barbieri, Alessandro Bozzon, Daniele Braga, Marco Brambilla, Alessandro Campi, Francesco Corcoglioniti, Emanuele Della Valle, Davide Eynard, Piero Fraternali, Michael Grossniklaus, Davide Martinenghi, Stefania Ronchi, Marco Tagliasacchi, Salvatore Vadacca: Search Computing: Managing Complex Search Queries. IEEE Internet Computing 14(6): 14-22 (2010)
- [j6] Davide Francesco Barbieri, Daniele Braga, Stefano Ceri, Emanuele Della Valle, Michael Grossniklaus: Querying RDF streams with C-SPARQL. SIGMOD Record 39(1): 20-26 (2010)
- [j5] Emanuele Della Valle, Irene Celino, Daniele Dell'Aglio: The Experience of Realizing a Semantic Web Urban Computing Application. T. GIS 14(2): 163-181 (2010)
- [c39] Davide Francesco Barbieri, Daniele Braga, Stefano Ceri, Emanuele Della Valle, Michael Grossniklaus: Incremental Reasoning on Streams and Rich Background Knowledge. ESWC (1) 2010: 1-15
- [c38] Stefano Ceri, Adnan Abid, Mamoun Abu Helou, Alessandro Bozzon, Daniele Braga, Marco Brambilla, Alessandro Campi, Francesco Corcoglioniti, Emanuele Della Valle, Davide Eynard, Piero Fraternali, Michael Grossniklaus, Davide Martinenghi, Stefania Ronchi, Marco Tagliasacchi, Salvatore Vadacca: Search Computing Systems (Extended Abstract). SEBD 2010: 446-453

- [c37] Fabian M. Suchanek, Alessandro Bozzon, Emanuele Della Valle, Alessandro Campi, Stefania Ronchi: Towards an Ontological Representation of Services in Search Computing. SeCO Workshop 2010: 101-112
- [c36] Tommaso Buganza, Marta Corubolo, Emanuele Della Valle, Elena Pellizzoni: An Experience in Applying User Centered Design to Search Computing. SeCO Workshop 2010: 239-255
- [c35] Tommaso Buganza, Marta Corubolo, Emanuele Della Valle, Elena Pellizzoni: Analysis of Business Models for Search Computing. SeCO Workshop 2010: 256-271
- [c34] Tony Kyung-il Lee, Stanley Park, Zhisheng Huang, Emanuele Della Valle: Toward Seoul Road Sign Management on LarKC Platform. ISWC Posters&Demos 2010
- [c33] Davide Francesco Barbieri, Emanuele Della Valle: A Proposal for Publishing Data Streams as Linked Data - A Position Paper. LDOW 2010

2009

- [b2] Emanuele Della Valle, Irene Celino, Dario Cerizza: Semantic Web: dai fondamenti alla realizzazione di un'applicazione, Pearson Education 2009, ISBN 978-8871925783, pp. 1-273
- [j4] Reto Krummenacher, Elena Paslaru Bontas Simperl, Dario Cerizza, Emanuele Della Valle, Lyndon J. B. Nixon, Doug Foxvog: Enabling the European Patient Summary through triplespaces. Computer Methods and Programs in Biomedicine 95(2-S1): 33-43 (2009)
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Autorizzo Politecnico di Milano al trattamento dei miei dati personali, ai sensi del D.Lgs. n. 196/2003, "Codice in materia di protezione dei dati personali".

Il sottoscritto Emanuele Della Valle, consapevole delle sanzioni penali previste dall'art. 76 T.U. N. 445 del 28.12.2000 sulle disposizioni legislative e regolamentari in materia di documentazione amministrativa, nel caso di mendaci dichiarazioni, o esibizione di atti falsi o contenenti dati non rispondenti a verità, dichiara sotto la propria responsabilità che quanto sopra riportato risponde a verità.

A handwritten signature in black ink, appearing to read 'E. Della Valle', written over a horizontal line.