

## UNIVERSITY OF MILAN

Selection procedure for recruiting full professors under art.18, paragraph 1, of Law No.240/2010 for competition sector 01/B1, (scientific-disciplinary sector INF/01 - Informatica) at the Department of COMPUTER SCIENCE "GIOVANNI DEGLI ANTONI", (announcement published in Official Gazette No. 75 of November 21, 2021) - Competition code 4844

## Davide Martinenghi

### CV SUMMARY

#### CAREER AND EDUCATION

- Associate professor at Politecnico di Milano since 2015. Habilitation as Full Professor in Italy (2018).
- Assistant professor at Politecnico (2008-15) and University of Bolzano (2006-07), Italy.
- Ph.D. degree in Computer Science, Roskilde University, Denmark (2002-05).
- Experience in industry as a Sw Engineer / Project Manager in Denmark, France, and Italy (1997-2002).
- M.Sc. degree summa cum laude as Computer Engineer, Politecnico di Milano, Italy (1998).

#### RESEARCH INTERESTS

- Ranking and preferences: top-k queries, skylines, big data, fairness, uncertainty, context-awareness.
- Data and constraints: access patterns, integrity checking, incomplete data.

#### SCIENTIFIC PRODUCTION

- 18 top-ranked Q1 journal papers, 7 top-level A++ and one A+ full conference papers; 1 one US patent.
- Published in all the flagship venues of the top organizations in data management: ACM (TODS, SIGMOD), IEEE (TKDE, ICDE), VLDB End. (VLDB J., PVLDB). Also published in the J. of the ACM.
- 107 papers, 2 best paper awards. Number of co-authors in top publications: avg = 2.8, mode = 2.

#### TEACHING ACTIVITIES

- In charge of 7 courses at Politecnico and 1 at U. Lugano (USI) during A.Y. 2021-22 (30 credits).
- Taught in total 80 courses as lecturer (343 credits) and 14 courses as teaching assistant; 1 workbook.
- Taught 5 Ph.D. courses and 1 second-level Specializing Master course.
- Chair of the Honours Programme "Scientific Research in Information Technology" for the Comp. Science and Eng. Track since 2018 at Politecnico. In charge of 3 courses for the Honours Programme.
- Students' opinion always "High" at Politecnico and above average at USI in the last 5 years.

#### PROJECTS

- *Leading role*: FP7 "CUBRIK" (11/2011, 3 years, ~523K€) as WP Leader, ERC "SeCo" (11/2008, 5 years, 2,500K€) as group leader, and FP6 "TONES" (01/2006, 2 years, ~400K€) as local co-coordinator.
- Major published results, with active participation in the proposal: ERC Grant "SeCo" (1 patent, TODS, 2 TKDE, SIGMOD, PVLDB, TPLP), FP7 Grant "CUBRIK" (TODS), PRIN "NGS" (PVLDB, ICDE), PRIN "EASE" (SIGMOD), PRIN "GenData" (VLDB Journal), POR-FESR "Proactive" (TKDE), FP7 Grant "SmartH2O" (WWW Journal), H2020 Innovation Action "ENCOMPASS" (PVLDB), ERC Grant "GeCo" (Inf. Syst.).
- Coordinator of a research contract (50K€) with WebRatio (www.webratio.com), 6/2016, 1 year.

#### TECHNOLOGY TRANSFER

- His TKDE 2012 article and its implementation were at the core of a US Patent (Appl. No. 12/540700).
- Developed teaching tools, including an app for *Databases 2*, downloaded by 5,000+ students.
- Scientific advisor of a Mobile app company (Frag-line) in the Asia market (2013-2015). Assisted the development of their main mobile app, topping 30,000+ installs in the Thai market in 2013.
- Lecturer in the second-level Specializing Master in Smart Grids coordinated by Enel Group.

#### CURRENT INSTITUTIONAL RESPONSIBILITIES AT POLITECNICO DI MILANO

- Director of the CINI Unit since 2019. In charge of Politecnico's node in the Big Data Lab since 2021.
- Member of the Committee for the Admission to the Master's Degree since 2015.

#### PROFESSIONAL ACTIVITIES

- Editorial Board Member for the Data & Knowledge Engineering Journal.
- PC memberships (selection): ICDE (2021, 2017), SEBD (2017-21), EDBT (2018-19), SIGMOD (2017).
- Reviewer for all the main conferences and journals in the data management area.
- Reviewer for academic research proposals for the Research Grants Council, Hong Kong (2010-2016).
- Assessor for the call for applications for the FP7 CHEST project (2014).

# CURRICULUM VITAE

## PERSONAL DATA

SURNAME	MARTINENGHI
NAME	DAVIDE
DATE OF BIRTH	09 NOVEMBER 1973

## QUALIFICATIONS

### DEGREE

Master's Degree in Computer Science and Engineering ("Laurea di Dottore in INGEGNERIA INFORMATICA (Sistemi ed applicazioni informatici - Sistemi di elaborazione)")  
 Politecnico di Milano  
 Degree obtained on July 23, 1998  
 Final grade: "100/100 e lode"

### DOCTORAL DEGREE OR EQUIVALENT QUALIFICATION EARNED IN ITALY OR ABROAD

Ph.D. Degree under the program "Design and Management of Information Technology".  
 Roskilde University (Denmark)  
 Degree obtained on November 21, 2005  
 Advisor: Professor Henning Christiansen  
 Ph.D. thesis: "Advanced Techniques for Efficient Data Integrity Checking"

### FURTHER QUALIFICATIONS

- Habilitation to the profession of Engineer ("Esame di Stato") with the highest possible grade (100/100), year 1998.
- National Scientific Qualification: habilitation as full professor in the sectors 09/H1 (since 30/3/2018) and 01/B1 (since 28/3/2018).

## EMPLOYMENT

### ACADEMIA

01/2015 - present Politecnico di Milano (Italy). Associate professor.  
 12/2008 - 01/2015 Politecnico di Milano (Italy). Assistant professor.  
 10/2007 - 11/2008 Politecnico di Milano (Italy). Post-doc researcher.  
 01/2006 - 09/2007 Free Univ. of Bozen-Bolzano (Italy). Research fellow<sup>1</sup>.  
 10/2005 - 09/2007 Politecnico di Milano (Italy). Research collaborator.  
 09/2005 - 11/2005 Cefriel/Politecnico di Milano (Italy). Consultant.  
 12/2002 - 11/2005 Roskilde University (Denmark). Ph.D. student.

### INDUSTRY (PRIOR TO PH.D.)

09/2002 - 11/2002 Fiditalia (loan company in Milan, Italy). Project Manager.  
 03/2001 - 09/2002 Altoprofilo (consulting company in Milan, Italy). Software Engineer.  
 12/1999 - 01/2001 SOPRA (consulting company in Paris, France). Software Engineer.  
 10/1997 - 11/1999 DIKU, University of Copenhagen (Denmark). Software Engineer.

<sup>1</sup> "Ricercatore a tempo determinato".

## TEACHING ACTIVITIES

### CLASSES AND MODULES

#### Overview

D. Martinenghi is currently teaching courses at Politecnico di Milano and University of Lugano. Previously he was teaching at the Free University of Bozen-Bolzano and Roskilde University. He has been teaching information and data management topics throughout his academic career, since 2003 (at the University of Lugano with the Business Intelligence course, at Politecnico di Milano with the Databases 2 and the Applied Informatics courses, at the second-level Specializing Master in Smart Grids coordinated by Enel Group with the Big Data analytics, Models and systems for integrating and storing Big Data module, at Roskilde University with the Advanced Topics in Databases course, plus several times as teaching assistant).

In addition to data management topics, he has been teaching a number of courses on foundational aspects of computer science (Computational Logic at the Free University of Bozen-Bolzano, Theoretical Computer Science and Algorithms and Data Structures at Politecnico di Milano). He is Chair of the Honours Programme “Scientific Research in Information Technology” (HPSR) for the Computer Science and Engineering Track. The HPSR is an extracurricular program offered at Politecnico di Milano for training MSc students in conducting scientific research in IT. He is in charge of three courses for the HPSR.

#### Salient facts

- In charge of 7 courses at Politecnico and 1 at U. Lugano (Switzerland) during Academic Year 2021-22 (30 credits).
- Taught in total 80 courses as lecturer (343 credits) and 14 courses as teaching assistant.
- Taught courses to more than 2,500 students.
- Author of one workbook.
- Taught 5 Ph.D. courses and 1 second-level Specializing Master course.
- Chair of the Honours Programme “Scientific Research in Information Technology” for the Computer Science and Engineering Track since 2018 at Politecnico. In charge of 3 courses for the Honours Programme.
- Students opinion always “High” (> 3.0 out of 4.0) in the last 5 years at Politecnico and always above Faculty/Program/University average at USI in all available course feedback.

In the following list, courses taught several times occupy a single entry, with an indication of the Academic Years during which they were taught.

#### AS LECTURER - GRADUATE AND UNDERGRADUATE COURSES

##### *Regular courses taught during Academic Year 2021-22*

- *Databases 2*, Politecnico di Milano, Master of Science degree (ord. 270) “Music and Acoustic Engineering”, “Biomedical Engineering”, “Telecommunication Engineering”, “Computer Science and Engineering”, 5 ECTS-credits, 220 students.
- *Theoretical Computer Science* (“Algoritmi e principi dell’informatica - modulo di informatica teorica”), Politecnico di Milano, Bachelor of Science degree (ord. 270) “Engineering of Computing Systems” and “Mathematical Engineering”, 5 ECTS-credits, 360 students. Taught every A.Y. since 2010-11. In Italian.
- *Algorithms and Data Structures* (“Algoritmi e principi dell’informatica - modulo di informatica 3”), Politecnico di Milano, Bachelor of Science degree (ord. 270) “Engineering of Computing Systems” and “Mathematical Engineering”, 5 ECTS-credits, 360 students. Taught every A.Y. since 2017-18. In Italian.
- *Final Examination - Algorithms and Data Structures* (“Prova finale (Progetto di algoritmi e strutture dati)”), Politecnico di Milano, Bachelor of Science degree (ord. 270) “Engineering of Computing Systems”, 1 ECTS-credit, 300 students. Taught every A.Y. since 2017-18. In Italian.
- *Business Intelligence and Applications*, University of Lugano, Master in “Management and Informatics” and Master in “Artificial Intelligence”, 6 ECTS-credits, 30 students. Taught every A.Y. since 2016-17.

*Courses offered for the Honours Programme in Scientific Research in Information Technology during Academic Year 2021-22*

- *Research laboratory and manuscript (HPSR)*, Politecnico di Milano, Master of Science degree (ord. 270) “Computer Science and Engineering”, 3 ECTS-credits. Taught every A.Y. since 2018-19.
- *Reviewing, rebuttal, and presentation (HPSR)*, Politecnico di Milano, Master of Science degree (ord. 270) “Computer Science and Engineering” 2 ECTS-credits. Taught every A.Y. since 2018-19.
- *State of the art review and project proposal (HPSR)*, Politecnico di Milano, Master of Science degree (ord. 270) “Computer Science and Engineering” 3 ECTS-credits. Taught every A.Y. since 2018-19.

#### Previous courses

- *Mobile Applications*, Politecnico di Milano (in Como), Master of Science degree (ord. 270) “Engineering of Computing Systems”, 5 ECTS-credits. Taught every A.Y. between 2013-14 and 2018-19.
- *Theoretical Computer Science* (“Algoritmi e principi dell’informatica - modulo di informatica teorica”), Politecnico di Milano (in Como), Bachelor of Science degree (ord. 270) “Engineering of Computing Systems”, 5 ECTS-credits. Taught during A.Y. 2010-11 and every A.Y. between 2012-13 and 2016-17. In Italian.
- *Business Intelligence and Applications* (jointly with Prof. Fraternali), University of Lugano, 6 ECTS-credits (taught 3). Taught every A.Y. between 2011-12 and 2015-16.
- *Databases 2*, Politecnico di Milano (IOL), 5 ECTS-credits. Taught every A.Y. between 2008-09 and 2014-15. In Italian.
- *Computational Logic*, Free University of Bozen-Bolzano, Master in Computational Logic. 4 ECTS-credits. Taught during A. Years 2006-07, 2008-09, 2009-10.
- *Applied informatics* (“Informatica applicata”), Politecnico di Milano, Bachelor of Science degree (ord. 509) “Biomedical Engineering” and Master of Science degree (ord. 509) “Biomedical Engineering”, 5 ECTS-credits. Taught during A. Y. 2009-10. In Italian.
- *Advanced Topics in Databases*, Roskilde University, Master in Computer Science, 7.5 ECTS-credits. Taught during A. Years 2003-04, 2004-05.

#### AS LECTURER - PH.D. COURSES

- *The Impact of Logic: from Proof Systems to Databases*, Politecnico di Milano, 5 ECTS-credits, Academic Years 2007-08, 2009-10, 2011-12, 2013-14.
- *Mobile Application Development* (jointly with Prof. Lanzi), Politecnico di Milano, 5 ECTS-credits (taught 2), A.Y. 2012-13.

#### AS LECTURER - SECOND-LEVEL SPECIALIZING MASTER COURSES

- *Big Data analytics, Models and systems for integrating and storing Big Data* module, Enel Group and Politecnico di Milano, 8 hours, June 2021.

#### AS TEACHING ASSISTANT

- More than 70 ECTS-credits as T.A. in courses on the fundamentals of computer science taught both at Politecnico di Milano and Free University of Bozen-Bolzano between 2005-06 and 2008-09.
- Other courses as T.A. taught between 2004-05 and 2009-10 include Technologies for Information Systems, Computer infrastructures (“Impianti di elaborazione”), Algorithms and complexity, and Databases.

## COMPLEMENTARY TEACHING ACTIVITIES AND SERVICE ACTIVITIES TO STUDENTS

### MENTORING BACHELOR’S DEGREE, MASTER’S DEGREE, PhD, AND SPECIALISATION SCHOOL DISSERTATIONS AND THESES

#### MASTER’S DEGREE AND BACHELOR’S DEGREE STUDENTS

Currently (Academic Year 2020-21):

- Advising 2 Master’s Degree students at Politecnico di Milano (Master of Science degree in Computer Science and Engineering)
- Co-advising 1 Master’s Degree student at University of Bologna (Master in Computer Engineering).
- Co-advising 1 Bachelor’s Degree student at University of Bologna (Bachelor in Computer Engineering).

Previously advised tens of different Master’s and Bachelor’s Degree students.

### MENTORING ACTIVITIES FOR THE HONOURS PROGRAMME “SCIENTIFIC RESEARCH IN INFORMATION TECHNOLOGY”

Three of the courses I am currently teaching at Politecnico are part of the Honours Programme “Scientific Research in Information Technology”, for which I chair the Computer Science and Engineering track. There, I teach students how to write a research manuscript, prepare a scientific presentation, review a paper, and respond to a review with a rebuttal. In other words, I am preparing a selection of talented students for professional research. In the last three years, I have thus co-advised 24 Master’s Degree students.

### PHD STUDENTS

Co-advisor of the following students who completed their PhD program:

- Angelo Rauseo, Ph.D. 2013. Ph.D. Thesis: “Context aware data management: a full fledged system based on answer set programming”. Advisor: Prof. Tanca. Currently: Software Engineer at T(h)inker, San Francisco Bay Area.
- Ilio Catallo, Ph.D. 2015. Ph.D. Thesis: “Achieving quality in crowdsourcing through task design and assignment”. Advisor: Prof. Fraternali. Currently: Research Fellow at San Raffaele Scientific Institute, Milano.
- Eleonora Ciceri, Ph.D. 2015. Ph.D. Thesis: “Humans in the loop: optimization of active and passive crowdsourcing”. Advisor: Prof. Fraternali. Currently: Research Fellow at San Raffaele Scientific Institute, Milano.

Currently, co-mentoring

- Davide Magnanini, PhD Executive at Banca d’Italia on Data Analytics and Decision Science - Cycle XXXV, Advisor: Prof. Ceri.

### TUTORING BACHELOR’S DEGREE, MASTER’S DEGREE, AND PhD STUDENTS, AND OTHER ACTIVITIES FOR SUPPORTING STUDENTS

I carried out several other activities for supporting students.

#### DEVELOPMENT OF TEACHING AIDS

Development of an app for iOS called *Data Base Schedule Analyzer*, freely available on the App Store between March 25, 2013 and January 10, 2019, published by Politecnico di Milano. The app allowed students of the Databases 2 course to enter, visualize, and analyze database schedules with respect to their serializability properties and to receive thorough explanations about the results. Estimated all-time installs: 5,041 (according to <https://appsfree.me/apps/data-base-schedule-analyzer/>).

#### OTHER TEACHING MATERIALS

- Preparation of part of the teaching materials for the course in Databases (A.Y. 2005/2006) at Alta Scuola Politecnica, a school founded by Politecnico di Milano and Politecnico di Torino that, through a highly selective process, gives to promising students the opportunity to participate in an additional advanced program, that runs in parallel to the courses of the main master’s program.
- Recording of classes for the course in Databases (A.Y. 2005/2006) taught in the joint M.Sc. program between Politecnico di Milano and University of Illinois at Chicago.

### SEMINARS

Selection of seminars held in the last 5 years in other teachers’ courses:

- “Ranking: Theory and Applications”, Milan, December 2, 2019, within the course “Technologies for Information Systems” held by Prof. Tanca for the Master of Science degree at Politecnico di Milano.
- “Finding Interesting Objects”, Milan, December 11, 2018, within the course “Technologies for Information Systems” held by Prof. Tanca for the Master of Science degree at Politecnico di Milano.
- “Getting the best out of your data”, Milan, December 11, 2017, within the course “Technologies for Information Systems” held by Prof. Tanca for the Master of Science degree at Politecnico di Milano.

## SCIENTIFIC RESEARCH ACTIVITIES

### SCIENTIFIC PUBLICATIONS

#### HIGHLIGHTS

- Co-author of 18 top-ranked Q1 journal papers (according to [www.scimagojr.com](http://www.scimagojr.com)), including Journal of the ACM, Transactions on Database Systems, VLDB Journal, PVLDB, Transactions on Knowledge and Data Engineering, Information Systems.
- Co-author of 7 top-level A++ full conference papers (ACM SIGMOD, VLDB, IEEE International Conference on Data Engineering) and 1 A+ full conference paper (ACM International Conference on Information and Knowledge Management), according to the GII-GRIN-SCIE (GGs) Conference Rating (<http://www.consortio-cini.it/gii-grin-scie-rating.html>).
- Co-author of 107 papers. Number of co-authors (including self) in top publications: median = mode = 2, average = 2.8.
- Published in all the flagship venues of the top organizations in data management: ACM (Transactions on Database Systems, SIGMOD), IEEE (Transactions on Knowledge and Data Engineering, International Conference on Data Engineering), VLDB Endowment (VLDB Journal, PVLDB). Also published in the Journal of the ACM.

#### LIST OF PUBLICATIONS

The list below includes, where relevant, either the quartile reported by the Scimago Journal Ranking (SJR) for the respective publication year and closest subject area/category, available at <https://www.scimagojr.com>, or the GII-GRIN-SCIE (GGs) Conference Rating, available at <http://www.consortio-cini.it/gii-grin-scie-rating.html>.

#### INTERNATIONAL JOURNALS

- [IJ-1] P. Ciaccia, D. Martinenghi and R. Torlone. Preference Queries over Taxonomic Domains. **Proceedings of the VLDB Endowment**, 14(10):1859-1871, 2021. Available at <http://www.vldb.org/pvldb/vol14/p1859-martinenghi.pdf>. (GGs: A++).
- [IJ-2] P. Ciaccia and D. Martinenghi. Flexible Skylines: Dominance for Arbitrary Sets of Monotone Functions. **ACM Transactions on Database Systems**, 45(4):18:1-18:45, 2020. [doi:<https://doi.org/10.1145/3406113>]. (SJR: Q1).
- [IJ-3] P. Ciaccia, D. Martinenghi and R. Torlone. Foundations of Context-Aware Preference Propagation. **Journal of the ACM**, 67(1):4:1-4:43, 2020. [doi:<https://doi.org/10.1145/3375713>]. (SJR: Q1).
- [IJ-4] P. Pinoli, S. Ceri, D. Martinenghi and L. Nanni. Metadata Management for Scientific Databases. **Information Systems**, 81:1-20, 2019. [doi:10.1016/j.is.2018.10.002]. (SJR: Q1).
- [IJ-5] P. Ciaccia and D. Martinenghi. Reconciling Skyline and Ranking Queries. **Proceedings of the VLDB Endowment**, 10(11):1454-1465, 2017. Available at <http://www.vldb.org/pvldb/vol10/p1454-martinenghi.pdf>. (GGs: A++).
- [IJ-6] I. Catallo, S. Coniglio, P. Fraternali and D. Martinenghi. A workload-dependent task assignment policy for crowdsourcing. **World Wide Web**, 20(6):1179-1210, 2017. [doi:10.1007/s11280-016-0428-7]. (SJR: Q1 in 2017 for the closest subject area/category).
- [IJ-7] E. Ciceri, P. Fraternali, D. Martinenghi and M. Tagliasacchi. Crowdsourcing for Top-K Query Processing over Uncertain Data. **IEEE Transactions on Knowledge & Data Engineering**, 28(1):41- 53, 2016. [doi:10.1109/TKDE.2015.2462357]. (SJR: Q1).
- [IJ-8] D. Martinenghi and R. Torlone. Taxonomy-based Relaxation of Query Answering in Relational Databases. **VLDB Journal**, January 2014. [doi:10.1007/s00778-013-0350-x]. (SJR: Q1).
- [IJ-9] I. Catallo, E. Ciceri, P. Fraternali, D. Martinenghi and M. Tagliasacchi. Top-k diversity queries over bounded regions. **ACM Transactions on Database Systems**, 38(2):10, 2013. [doi:10.1145/2487259.2487262]. (SJR: Q1).
- [IJ-10] D. Martinenghi and M. Tagliasacchi. Proximity measures for rank join. **ACM Transactions on Database Systems**, 37(1), 2012. [doi:10.1145/2109196.2109198]. (SJR: Q1).
- [IJ-11] D. Martinenghi and M. Tagliasacchi. Cost-Aware Rank Join with Random and Sorted Access. **IEEE Transactions on Knowledge & Data Engineering**, 24(12):2143-2155, 2012. [doi:10.1109/TKDE.2011.161]. (SJR: Q1).
- [IJ-12] H. Decker and D. Martinenghi. Inconsistency-tolerant Integrity Checking. **IEEE Transactions on Knowledge & Data Engineering**, 23(2):218-234, 2011. [doi:10.1109/TKDE.2010.87]. (SJR: Q1).
- [IJ-13] D. Martinenghi and M. Tagliasacchi. Proximity Rank Join. **Proceedings of the VLDB Endowment**, 3(1):352-363, 2010. Available at <http://www.comp.nus.edu.sg/~vldb2010/proceedings/files/papers/R31.pdf>. (GGs: A++).

- [IJ-14] A. Cali and D. Martinenghi. Querying incomplete data over extended ER schemata. **Theory and Practice of Logic Programming**, 10(3):291-329, 2010. [doi:10.1017/S1471068410000104]. (SJR: Q1 in 2010 for the closest subject/area category).
- [IJ-15] S. Ceri, A. Abid, M. Abu Helou, A. Bozzon, D. Braga, M. Brambilla, A. Campi, F. Corcoglioniti, E. Della Valle, D. Eynard, P. Fraternali, M. Grossniklaus, D. Martinenghi, S. Ronchi, M. Tagliasacchi and S. Vadacca. Search Computing: an Approach for Managing Complex Search Queries. **IEEE Internet Computing**, 14(6):14-22, 2010. [doi:10.1109/MIC.2010.106]. (SJR: Q1).
- [IJ-16] A. Cali, L. V. S. Lakshmanan and D. Martinenghi. Selected papers from the Logic in Databases Workshop 2008. **Journal of Applied Logic**, 8(2):151-152, 2010. [doi:10.1016/j.jal.2009.09.003]. (SJR: Q1 in 2010 for the closest subject/area category).
- [IJ-17] A. Cali, L. V. S. Lakshmanan and D. Martinenghi. Logic In Databases: Report on the LID 2008 Workshop. **SIGMOD Record**, 38(3):44-49, 2009. [doi:10.1145/1815933.1815946]. (SJR: Q2).
- [IJ-18] A. Cali, D. Calvanese and D. Martinenghi. Dynamic Query Optimization under Access Limitations and Dependencies. **Journal of Universal Computer Science**, 15(21):33-62, 2009. Available at [http://www.jucs.org/jucs/15\\_1/dynamic\\_query\\_optimization\\_under](http://www.jucs.org/jucs/15_1/dynamic_query_optimization_under). (SJR: Q2).
- [IJ-19] D. Braga, S. Ceri, F. Daniel and D. Martinenghi. Optimization of Multi-Domain Queries on the Web. **Proceedings of the VLDB Endowment**, 1(1):562-573, 2008. Available at <http://www.vldb.org/pvldb/1/1453918.pdf>. (GGS: A++).
- [IJ-20] D. Braga, S. Ceri, F. Daniel and D. Martinenghi. Mashing up Search Services. **IEEE Internet Computing**, 12(5):16-23, 2008. [doi:10.1109/MIC.2008.105]. (SJR: Q1).
- [IJ-21] H. Christiansen and D. Martinenghi. On Simplification of Database Integrity Constraints. **Fundamenta Informaticae**, 71(4):371-417, 2006. (SJR: Q2).
- [IJ-22] H. Christiansen and D. Martinenghi. Symbolic Constraints for Meta-Logic Programming. **Applied Artificial Intelligence**, 14(4):345-367, 2000. (SJR: Q2).

#### INTERNATIONAL CONFERENCES

- [C-23] P. Ciaccia, D. Martinenghi and R. Torlone. Finding Preferred Objects with Taxonomies. In **Conceptual Modeling - 38th International Conference, ER 2019, Salvador, Bahia, Brazil, November 4-7, 2019, Proceedings**, pages 379-411, 2019. [doi:10.1007/978-3-030-33223-5\_33]. (GGS: B).
- [C-24] M. Bedo, P. Ciaccia, D. Martinenghi and D. de Oliveira. A k-Skyband Approach for Feature Selection. In **International Conference on Similarity Search and Applications, SISAP 2019, Newark, NJ, USA, October 2-4, 2019, Proceedings**, pages 160-168, 2019. [doi:10.1007/978-3-030-32047-8\_15].
- [C-25] P. Ciaccia and D. Martinenghi. FA + TA < FSA: Flexible Score Aggregation. In **Proceedings of the 27th ACM International Conference on Information and Knowledge Management, CIKM 2018, Torino, Italy, October 22-26, 2018**, pages 57-66, 2018. [doi:10.1145/3269206.3271753]. (GGS: A+).
- [C-26] I. Catallo and D. Martinenghi. The Dimensions of Crowdsourcing Task Design. In **Web Engineering - 17th International Conference, ICWE 2017, Rome, Italy, June 5-8, 2017, Proceedings**, pages 394-402, 2017. [doi:10.1007/978-3-319-60131-1\_25]. (GGS: B).
- [C-27] A. Cali, D. Martinenghi and R. Torlone. Keyword Queries over the Deep Web. In **Conceptual Modeling - 35th International Conference, ER 2016, Gifu, Japan, November 14-17, 2016, Proceedings**, pages 260-268, 2016. [doi:10.1007/978-3-319-46397-1\_20]. (GGS: B).
- [C-28] A. Cali, T. W. Lynch, D. Martinenghi and R. Torlone. Processing Keyword Queries Under Access Limitations. In **Semantic Keyword-Based Search on Structured Data Sources - First COST Action IC1302 International KEYSTONE Conference, IKC 2015, Coimbra, Portugal, September 8-9, 2015. Revised Selected Papers**, pages 30-35, 2015. [doi:10.1007/978-3-319-27932-9\_3].
- [C-29] C. Bernaschina, I. Catallo, P. Fraternali and D. Martinenghi. On the Role of Task Design in Crowdsourcing Campaigns. In **Proceedings of the Third AAAI Conference on Human Computation and Crowdsourcing, HCOMP 2015, November 8-11, 2015, San Diego, California., pages 4-5, 2015**. Available at <http://www.aaai.org/ocs/index.php/HCOMP/HCOMP15/paper/view/11625>.
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### ORGANISATION, SUPERVISION AND COORDINATION OF NATIONAL AND INTERNATIONAL RESEARCH CENTRES OR GROUPS, OR PARTICIPATION IN THEM

- Member of the Database group in the “Data, Web and Society” area at Politecnico di Milano, DEIB Department, since 2007.
- Director of the CINI Unit (“Consorzio interuniversitario nazionale per l’informatica”) for Politecnico di Milano since 2019.
- I am also in charge of Politecnico’s node in the CINI Big Data Lab since 2021.
- Scientific coordinator of the “Theory and methods” group for the ERC “Search Computing” project (2008-2012).

### SUPERVISION OF OR PARTICIPATION IN PUBLISHING COMMITTEES OF SCIENTIFIC MAGAZINES

#### EDITORIAL ACTIVITIES

- Member of the Editorial Board for the Data & Knowledge Engineering Journal (since September 2017).
- Guest editor for the Journal of Applied Logic (2010).

#### PROGRAM CHAIR OR CO-CHAIR

- Program Co-Chair of the Fifth International Workshop on Ranking in Databases (DBRank 2011).
- Program Co-Chair of the Second International Workshop on Logic in Databases (LID 2008).
- Program Co-Chair of the Second International Workshop on Logical Aspects and Applications of Integrity Constraints (LAAIC 2006).

- Program Chair of the First International Workshop on Logical Aspects and Applications of Integrity Constraints (LAAIC 2005).

**STEERING COMMITTEE MEMBER**

- Steering Committee member for the 4th International Workshop on Logic in Databases (LID 2011).
- Steering Committee member for the 3rd International Workshop on Logic in Databases (LID 2009).

**PROGRAM COMMITTEE MEMBER**

- PC member for the 37th IEEE International Conference on Data Engineering (ICDE 2021).
- PC member for the 29th Italian Symposium on Advanced Database Systems (SEBD 2021).
- PC member for the 3rd International Workshop on Processing Information Ethically: a plus for data Quality (PIE+Q 2021).
- PC member for the 28th Italian Symposium on Advanced Database Systems (SEBD 2020).
- PC member for the 2nd International Workshop on Processing Information Ethically (PIE 2020).
- PC member for the 22nd International Conference on Extending Database Technology (EDBT 2019).
- PC member for the 27th Italian Symposium on Advanced Database Systems (SEBD 2019).
- PC member for the Processing Information Ethically Workshop (PIE 2019).
- PC member for the 21st International Conference on Extending Database Technology (EDBT 2018).
- PC member for the 26th Italian Symposium on Advanced Database Systems (SEBD 2018).
- PC member for the 36th ACM SIGMOD International Conference on Management of Data (SIGMOD 2017).
- PC member for the 2017 IEEE International Conference on Data Engineering (ICDE 2017).
- PC member for the 25th Italian Symposium on Advanced Database Systems (SEBD 2017).
- PC member for the 35th ACM SIGMOD International Conference on Management of Data (SIGMOD 2016).
- PC member for the 24th Italian Symposium on Advanced Database Systems (SEBD 2016).
- PC member for the First International Workshop on Consistency and Inconsistency (COIN 2016).
- PC member for the 34th ACM SIGMOD International Conference on Management of Data (SIGMOD 2015).
- PC member for the 23rd Italian Symposium on Advanced Database Systems (SEBD 2015).
- PC member for the 7th International Workshop on Ranking in Databases (DBRank 2013).
- PC member for the 16th International Conference on Extending Database Technology (EDBT 2013 - demonstrations).
- PC member for the 6th International Workshop on Ranking in Databases (DBRank 2012).
- PC member for the 1st International Workshop on Non Conventional Data Access (NoCoDa 2012).
- PC member for the 27th International Conference on Logic Programming (ICLP 2011).
- PC member for the 9th International Conference on Flexible Query Answering Systems (FQAS 2011).
- PC member for the 1st International Workshop on Data, Logic and Inconsistency (DALI 2011).
- PC member for the 8th International Conference on Flexible Query Answering Systems (FQAS 2009).
- PC member for the 15th Intelligent Symposium on Methodologies for Intelligent Systems (ISMIS 2005).
- PC member for the 6th Intelligent Conference on Flexible Query Answering Systems (FQAS 2004).

**ORGANIZING COMMITTEE MEMBER**

- Organizing Committee member for the 20th International Workshop on Description Logics (DL 2007).

**REVIEWER FOR CONFERENCES AND JOURNALS (SELECTION)**

I have been serving as a reviewer for several prestigious international journals, including ACM Transactions on Database Systems (TODS), VLDB Journal, Transactions on Knowledge and Data Engineering (TKDE), and Proceedings of the VLDB Endowment (PVLDB).

**REVIEWER FOR ACADEMIC RESEARCH PROPOSALS**

- External reviewer for the Research Grants Council, Hong Kong, between 2010 and 2016.
- Assessor for the call for applications for the FP7 CHEST project (2014).

**HOLDING PATENTS**

Co-inventor of 1 patent application with Politecnico di Milano (already granted), based on his article [IJ-11]:

- D. Braga, M. Brambilla, A. Campi, S. Ceri, E. Della Valle, P. Fraternali, D. Martinenghi, M. Tagliasacchi. “Method for extracting, merging and ranking search engine results.” USA Patent Application No. 12/540700, granted in March 2012 - Patent holder: Politecnico di Milano.

## **NATIONAL AND INTERNATIONAL AWARDS AND ACCOLADES FOR RESEARCH ACTIVITY**

- Best Paper-Title Award at SEBD 2020 (28th Italian Symposium on Advanced Database Systems).
- Best Student Paper Award at ADBIS 2004 for the paper [C-48].
- According to the site csrankings.org, he is the most prolific researcher in Italy in top database conferences since 2008.

## **SPEAKING AT CONFERENCES AND CONVENTIONS OF INTERNATIONAL INTEREST**

### **TUTORIALS**

- Query Processing under Access Limitations, 12th International Asia-Pacific Web Conference (APWeb 2010), Busan, Korea, April 6-8, 2010.
- Querying the Deep Web, 13th International Conference on Extending Database Technology (EDBT 2010), Lausanne, Switzerland, March 22-26, 2010.

### **INVITED TALKS AND SEMINARS**

- Flexible Score Aggregation, Free University of Bozen-Bolzano, Italy, November 12, 2018.
- Skylines and Ranking Queries: a Reconciliation, Università Roma Tre, Rome, Italy, April 28, 2017.
- Joys and Sorrows of Teaching and Developing Apps for Mobile Devices, Università Roma Tre, Rome, Italy, July 2, 2014.
- Reducing Uncertainty in Top-K Queries, University of Trento, Povo, Italy, November 21, 2013.
- Humans Fighting Uncertainty in Top-K Scenarios, Università Roma Tre, Rome, Italy, July 9, 2013.
- Ranking and queries: as good as it gets, University of Lugano, Lugano, Switzerland, July 5, 2012.
- Ranking with uncertain scoring functions, University of Oxford, Oxford, UK, May 17, 2011.
- Query Optimization in the Deep Web, Università Roma Tre, Rome, Italy, June 11, 2010.
- Query answering under access limitations, Universidade Nova de Lisboa, Portugal, Dec. 15, 2008.
- Query answering and containment under access limitations, Free University of Bozen-Bolzano, Italy, November 3-4, 2008.
- Advanced Techniques for Efficient Integrity Checking, Free University of Bozen-Bolzano, Italy, November 18, 2005.
- Efficient integrity checking: from deductive databases to XML, Politecnico di Milano, Italy, December 15, 2004.
- Application of Integrity Checking Techniques to Data Integration, Arise Workshop on Exchange and Integration of Data, Toronto, Canada, September 7-9, 2004.
- Simplified Integrity Checking for Data Integration, Roskilde University, February 12, 2004.
- Integrity checking for combined databases, CoLogNET Workshop on Logic-based Methods for Information Integration, Technische Universität Wien, Vienna, Austria, August 23, 2003.
- Simplified Integrity Checking, Sørensen's research seminars, Sørensen, Denmark, May 2003.
- Achieving reversibility and incrementality in meta-logic programming, The Logic & Constraints Seminar, CWI, Amsterdam, The Netherlands, October 2000.

## **MANAGING, ORGANISATIONAL, AND SERVICE ACTIVITIES**

**MANAGING TASKS AND DUTIES UNDERTAKEN AT COLLEGIATE BODIES AND COMMITTEES, AT CONSIDERABLE PUBLIC AND PRIVATE INSTITUTIONS AND SCIENTIFIC AND CULTURAL ORGANISATIONS, OR AT THE UNIVERSITY OF MILAN OR AT OTHER UNIVERSITIES**

### **INSTITUTIONAL RESPONSIBILITIES AT POLITECNICO DI MILANO**

- Director of the CINI Unit (“Consorzio interuniversitario nazionale per l’informatica”) since 2019. I am also in charge of Politecnico’s node in the CINI Big Data Lab since 2021.
- Chair for the Computer Science and Engineering Track of the Honours Programme “Scientific research in Information Technology” since 2018.
- Member of the Committee for the Admission to the Master’s Degree since 2015.
- Member of the Committee for the Admission to the PhD Programme (2016).

- Designated member for relationships with GII (Group of Italian Professors of Computer Engineering) for research in the period 2013-2015.

#### COMMISSIONS OF TRUST

- 2021: Participation in the recruitment committee at Sapienza Univ. for an RTD-B position.
- 2019: Participation in the recruitment committee at Sapienza Univ. for an associate professor position.

## RESEARCH INTERESTS

Major research interests: top-k queries, skylines, preferences, access patterns for web querying. Other interests: integrity checking, uncertain/incomplete data, context, data taxonomies, crowdsourcing.

#### TOP-k QUERIES AND SKYLINE QUERIES

When posing a query over multiple sources, a user is often interested in determining the  $k$  most relevant results that match given conditions. Relevance is usually expressed as a function that combines the scores of the data from each single source into an aggregate score. The naive approach to address these queries consists in first computing all the query results, then sorting them by relevance. This process is very expensive. Fortunately, the sources are often endowed with special access modes that allow retrieving only a small fraction of the available tuples, yet guaranteeing that the top  $k$  results are found.

I have been focusing on several top-k query scenarios. In proximity rank join [IJ-10, IJ-13], the objects returned by the sources are equipped with a score as well as with a real-valued feature vector, which represents the “geometry” of the problem, e.g., the location of the object in the space. Here, the vector space plays a distinctive role in the computation of the overall score of a result and makes the problem more challenging than in the traditional case. In the same setting, one may additionally wish to diversify the result set, yet retaining only results with high scores [IJ-9, C-32, NC-88]. When multiple sources are joined, and both random and sorted accesses are available, suitable execution strategies can be devised so as to further speed up the computation of the top  $k$  results [IJ-11, TR-105]. The topology of the join between two sources (in parallel or in a sequence) is also a relevant factor that determines the most promising execution strategy for a top-k query [IW-70]. Often, users are unable to precisely specify the scoring functions (e.g., weighted sums) used to rank the results of a query. Adopting uncertain/incomplete scoring functions (e.g., weight ranges) can better capture user’s preferences. Semantics of ranking queries and sensitivity of computed results to refinements made by the user in the presence of uncertainty are studied in [C-35]. All these optimization opportunities are especially relevant in the context of search [BC-55, NC-91, NC-93] and image processing tasks such as image segmentation [C-31, C-30]. Another standard way of selecting potentially interesting objects out of a large dataset is to focus on the skyline, i.e., the set of objects that are dominated by no other object in the dataset. Top-k queries run very efficiently but depend too heavily on the choice of parameters (such as weights) used in the query; skyline queries, instead, are slower to execute, but do not require any parameter whatsoever. Restricted skylines [IJ-2, IJ-5, NC-84] are an attempt at reconciling top-k and skyline queries while overcoming the limitations inherent in both approaches, also in a distributed setting [C-25, NC-83]. From a more practical point of view, restricted skylines are a useful tool for the combination of different filters in feature selection [C-24] as well as for addressing ethics-related issues [NC-85].

**Crowdsourcing.** Whenever the results are too vague or uncertain, one can try to leverage the so-called “wisdom of the crowd” to eliminate ambiguities in the ranking of objects. This can be done on a crowdsourcing platform by assigning simple tasks (such as selecting the best of two objects) to a crowd of “workers” [IJ-6] and then discarding the rankings that are incompatible with their indications [IJ-7, P-61, NC-87]. The effectiveness of a crowdsourcing campaign may be improved by wisely choosing an appropriate platform as well as relevant task design parameters, such as payment and feedback [C-29, D-60].

#### DATA AND CONSTRAINTS

**Integrity checking.** In the context of relational as well as deductive databases, correct and efficient integrity checking is a crucial issue: without any guarantee of data consistency, the answers to queries cannot be trusted. Checking integrity constraints from scratch may be prohibitively time consuming, as databases may contain huge quantities of data. However, a procedure that generates “simplified”

incremental checks for given update patterns can be adopted: simplified versions of the constraints can be automatically derived at database design time and tested before the execution of any update. In this way, virtually no time is spent for optimization or rollbacks at run time [IJ-21, BC-57, BC-59, C-45, C-46, C-47, C-48, C-49, C-51, T-98, TR-101]. The simplification procedure may also be adapted to several other contexts, such as data integration systems [C-50], automatic generation of repairs for inconsistent data [IW-78], and XML data collections [IW-79, IW-80, NC-97, BC-58]. It is also possible to reconsider the whole approach in an “inconsistency-tolerant” way, i.e., without requiring full data integrity (which is indeed very unlikely in real cases): in this case one can guarantee, through simplified checking, that no new inconsistencies are introduced by updates [IJ-12, C-41, C-43, C-44, NC-96, IW-71, IW-74, IW-76, IW-77, BC-56].

**Access patterns.** An access pattern is a constraint indicating which attributes of a relation schema are used as input and which ones are used as output. In this respect, access patterns may suitably characterize several relevant contexts, such as Web forms, legacy data, Web services, and the so-called Deep Web [C-37, C-38, BC-53]. Query processing under access patterns requires specialized techniques. Among these, static optimization, including query containment, has been studied for limited forms of conjunctive queries [IJ-15, IJ-19, IJ-20, C-40, C-42, IW-72, IW-73, IW-75, NC-94, NC-95, TR-100]. More general cases are covered in the context of dynamic optimization [IJ-18], where results are available for schemata with functional dependencies and simple full-width inclusion dependencies. The latter kind of dependencies, albeit simple, can be used to state equivalence, and thus captures the notion of relations with multiple access patterns. Initial results are also available for queries, like standard Web queries, expressed by means of keywords [C-27, C-28, IW-63].

**Data enriched with taxonomies, contexts, preferences, and scientific data.** Traditional information search, in which queries are posed against a known and rigid schema over a structured database, is shifting towards a Web scenario in which exposed schemas are vague or absent, and data comes from heterogeneous sources. In this framework, query answering cannot be precise and needs to be relaxed, with the goal of matching user requests with accessible data. Suitable models and languages are needed for querying data sets with vague schemas. When additional information about the data is available (in the form of simple classifications of terms arranged in a hierarchical structure or contextual information), extensions of relational algebra addressing these issues become possible [IJ-1, IJ-3, IJ-8, C-36, C-39, BC-54, NC-92, TR-104, C-23, NC-82, NC-81].

The case of scientific data poses interesting challenges regarding the metadata that are typically available to annotate experiments. To this end, ad hoc extensions of relational algebra prove a convenient tool for managing scientific databases [IJ-4].

Taxonomical information can be provided via the notion of context. When answering a query, it is important to remove all the data that are not relevant with respect to the context in which they are used. This process, known as context-aware data tailoring, is obtained in [IW-69] via Answer Set Programming techniques.

**Incomplete data.** Incompleteness in databases is a central topic in the field of logic in databases [IJ-16, IJ-17]. Data incompleteness is likely to occur in several application scenarios, such as data integration. When querying incomplete data, reasoning on the schema is often necessary in order to provide the correct answers. A query answering algorithm addressing incomplete data under constraints is described in [IJ-14, TR-102, TR-103]. There, the schema is expressed with an extended version of the Entity-Relationship model, and the initial query is rewritten as a recursive Datalog query that encodes the information about the schema.

#### **LOGIC PROGRAMMING AND META-PROGRAMMING**

Logic programming, with its declarative bias as well as unification and the direct representation of linguistic structures, is well qualified for meta-programming, i.e., programs working with representations of other programs as their data. However, constraint techniques seem necessary in order to fully exploit this paradigm. In the Demo System, the language of Constraint Handling Rules (CHR) has been used to provide a functionality that appears difficult to obtain without such means. For example, reversibility of a meta-interpreter, which can be obtained by means of constraints, turns it into a powerful program generator; in the same way, negation-as-failure implemented by means of constraints provides an incremental evaluation of integrity constraints [IJ-22]. The Demo System has also been used as a platform to formulate problems in the Event Calculus [TR-106].



## RESEARCH PROJECTS

### PARTICIPATION WITH A LEADING ROLE

#### *Thinking ONtologiES (TONES), EU FP6-7603*

- Funding from European Commission, 6th Framework Programme: €1,399,610.
- URL: <https://cordis.europa.eu/project/rcn/75945/factsheet>
- Principal Investigator: Diego Calvanese. Project start: September 14, 2005. Duration: 3 years.
- Role: local co-coordinator at Free University of Bozen-Bolzano for all project activities involving a consortium of five universities in the period January 2006 - September 2007.

#### *Search Computing (SeCo), ERC GRANT*

- Funding from European Research Council (Grant agreement no. 227793): €2,500,000.
- URL: <http://searchcomputing.deib.polimi.it>
- Principal Investigator: Stefano Ceri. Project start: November 1, 2008. Duration: 5 years.
- Role: scientific coordinator of the “Theory and methods” group.
- Main results: 1 patent, ACM Transactions on Database Systems [IJ-10], IEEE Transactions on Knowledge and Data Engineering [IJ-11, IJ-12], SIGMOD [C-35], PVLDB [IJ-13], Theory and Practice of Logic Programming [IJ-14].

#### *CUBRIK, FP7 GRANT*

- Funding from the European Commission’s 7th Framework ICT Programme for Research and Technological Development (Grant agreement no: 287704): €6,834,400.
- URL: <https://cordis.europa.eu/project/rcn/100872/factsheet>
- Coordinated by: Engineering S.p.A. Project start: November 1, 2011. Duration: 3 years.
- Role: Work Package Leader (title of the WP: “CUBRIK Applications and Evaluation”).
- Main results: ACM Transactions on Database Systems [IJ-9].

### PARTICIPATION AS SCIENTIFIC INVESTIGATOR WITH MAJOR PUBLISHED RESULTS

#### *New Generation Search (NGS: “New technologies and tools for the integration of Web search services”), ITALIAN PRIN<sup>2</sup> PROJECT*

- Funding from MIUR (Italian Ministry for University and Research).
- Principal Investigator: Stefano Ceri. Project start: January 2006. Duration: 3 years.
- D. Martinenghi established the contact between Free University of Bozen-Bolzano (his affiliation until September 2007) and Politecnico di Milano. He also actively participated in writing the project proposal. Main results: PVLDB [IJ-19], ICDE [C-42].

#### *Entity-Aware Search Engines (EASE), ITALIAN PRIN PROJECT*

- Funding from MIUR (Italian Ministry for University and Research).
- URL: <https://prinease.weebly.com/index.html>
- Principal Investigator: Stefano Ceri. Project start: February 4, 2009. Duration: 2 years. D. Martinenghi collaborated with the P.I. and the other partners to writing the proposal. Main results: SIGMOD [C-32].

#### *“Data-Driven Genomic Computing” (GenData), ITALIAN PRIN PROJECT*

- Funding from MIUR (Italian Ministry for University and Research).
- URL: <https://gendata.weebly.com/index.html>
- Principal Investigator: Stefano Ceri. Project start: February 1, 2013. Duration: 2 years. Main results: VLDB Journal [IJ-8].

#### *“PROtezione del territorio con infrAstrutture iCT avanzate, clttadinanza attiva e rEti sociali” (Proactive), POR-FESR PROJECT*

- Funding from Regione Lombardia.

<sup>2</sup> “Progetti di Rilevante Interesse Nazionale” (Research Projects of Relevant National Interest).

- URL: <https://www.polimi.it/it/ricerca-scientifica/la-ricerca-al-politecnico/progetti-di-ricerca/smart-cities/proactive-protezione-del-territorio-con-infrastrutture-ict-avanzate-cittadinanza-attiva-e-reti-sociali/>
- Principal Investigator: Piero Fraternali. Project start: March 1, 2014. Duration: 21 months. Main results: IEEE Transactions on Knowledge and Data Engineering [IJ-7].

#### *SmartH2O, FP7 GRANT*

- Funding from the European Commission's 7th Framework ICT Programme.
- URL: <https://cordis.europa.eu/project/rcn/191632/factsheet>
- Coordinated by: Scuola Universitaria Professionale della Svizzera Italiana. Project start: April 1, 2014. Duration: 1 year.
- Main results: WWW Journal [IJ-6].

#### *ENCOMPASS, H2020 INNOVATION ACTION*

- Funding from European Research Council (Grant agreement no. 693174).
- URLs: <http://www.encompass-project.eu>, <https://cordis.europa.eu/project/rcn/205670/factsheet>
- Principal Investigator: Piero Fraternali. Project start: November 1, 2016. Duration: 3 years.
- Main results: PVLDB [IJ-5].

#### *Data-Driven Genomic Computing (GeCo), ERC GRANT*

- Funding from European Research Council (Grant agreement no. 693174).
- URLs: <http://www.bioinformatics.deib.polimi.it/geco/?home>, <https://cordis.europa.eu/project/rcn/204796/factsheet>
- Principal Investigator: Stefano Ceri. Project start: September 1, 2016. Duration: 5 years.
- Main results: Information Systems [IJ-4].

## PARTICIPATION IN OTHER PROJECTS

#### *The Demo System*

- Funding from the Danish Research Council within the Design, Analysis and Reasoning about Tools project. At Roskilde University in the period October 1997 - November 1999.

#### *"HII Street Smart Retail", EIT DIGITAL PROJECT*

- Funding from the European Commission's H2020 Programme. Project start: January 1, 2016. Duration: 1 year.

#### *"Psychological social and financial barriers to energy efficiency" (Penny)*

- Funding from the European Commission's H2020 Programme.
- URLs: <http://www.penny-project.eu>, <https://cordis.europa.eu/project/rcn/205451/factsheet>
- Coordinated by: Fondazione ENI Enrico Mattei. Project start: October 13, 2016. Duration: 3 years.

#### *"RECKON", BRIC INAIL 2018 PROJECT*

- Funding from the European Commission's H2020 Programme.
- Coordinated by: Polimi (Letizia Tanca). Project start: May 1, 2019. Duration: 2 years.

#### *"PRECEPT (A novel decentralized edge-enabled PREScriptivE and ProactiVe framework for increased energy efficiency and well-being in residential buildings)", H2020-NMBP-ST-IND-2020-SINGLESTAGE.*

- Funding from the European Commission's H2020 Programme.
- URL: <https://cordis.europa.eu/project/id/958284>
- Coordinated by: WATT AND VOLT A.E. Project start: October 1, 2020. Duration: 3 years.

## INDUSTRIAL COLLABORATIONS AND TECHNOLOGY TRANSFER

- Coordinator of a research contract (50K€) with WebRatio ([www.webratio.com](http://www.webratio.com)) for a project titled "Studio di metodi e strumenti basati su modello per la specifica e l'esecuzione di sistemi software, web, mobili e per Internet of Things (IoT)" in the period June 2016 - June 2017.

- Research-wise, active contacts with several major actors in the IT market, such as Google Research (Prof. Tagliasacchi) and Facebook AI (Prof. Halevy).
- Active contacts with RelationalAI (Prof. Cali, Prof. Bertossi) with the goal of devising solutions in the areas of information integration, machine learning and databases (<https://www.relational.ai>).
- Ongoing contact with Renault (Dr. Belluco) for the *Parts Advisor* initiative.
- Scientific advisor of a Mobile app Company, called Frag-line, that was active in Asia in the period 2013- 2015. Assisted the development of their main mobile app, which reached 30,000 users in the Thai market alone during the first year (2013).
- Among the industrial partnerships established during his project activities, his contact with IBM Italia has been fruitfully brought into play to secure funding for the LID workshop organized by the applicant.
- Several technology transfer activities, including collaborations with Azero (<https://www.azero.it>) and YouCo ([youco.eu](https://www.youco.eu)).
- Lecturer of the *Big Data analytics, Models and systems for integrating and storing Big Data* module in the Second-level Specializing Master coordinated by Enel Group in collaboration with Politecnico di Milano (2021).

Date

13/10/2021

Place

Milano