

Enrico Gallinucci

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CITIZENSHIP	Italian	
CURRENT PLACEMENT	University of Bologna, Department of Computer Science and Engineering <ul style="list-style-type: none">• Junior assistant professor (fixed-term)	
RESEARCH THEMES	My research activities are focused on the fields of Business Intelligence and Big Data, with a particular interest in the aspects of data modeling, integration and analysis, both from the methodological and algorithmic perspectives. Current research topics include: the design of a multistore system to manage data integration and to optimize queries on polyglot databases; the development of smart approaches to support the data scientist in searching, organizing and analyzing data in a big data environment; the design of innovative and scalable techniques to analyze large-scale trajectory data. I am involved in several projects to deploy my research efforts in practical applications, especially in the precision agriculture sector.	
RESEARCH METRICS	Scopus <ul style="list-style-type: none">• H-index: 7• H-index (without self-citations): 7• Number of citations: 197• Number of citations (without self-citations): 177 Google Scholar <ul style="list-style-type: none">• H-index: 8• I10-index: 8• Number of citations: 315	
EDUCATION	Dipartimento di Informatica – Scienza e Ingegneria, Università di Bologna, Bologna (BO), Italy Ph.D. in Computer Science and Engineering, May 2017 <ul style="list-style-type: none">• Thesis title: <i>Business Intelligence on Non-Conventional Data</i>• Thesis topic: extending traditional Business Intelligence techniques to store, integrate and analyze non-conventional data.<ul style="list-style-type: none">* Analysis of semantically-enriched semi-/unstructured data in advanced BI systems, with a particular focus on social network content.* Enhancement of multidimensional cubes in enterprise data warehouses through the integration of linked data.* Definition of schema profiling and analysis techniques over NoSQL database systems in a Big Data context.• Supervisor: Prof. Stefano Rizzi• Tutor: Prof. Matteo Golfarelli• External reviewer: Prof. Robert Wrembel• External reviewer: Prof. Esteban Zimanyi• Area of Study: Business Intelligence 2.0 Master's Degree, Computer Science and Engineering, March 2013	

- *110L/110 - Cum Laude*
- Thesis title: *DyNAMITE: Digital fighting tax evasion through data integration and analysis*
- Thesis topic: identification of potential tax evaders by integrating heterogeneous datasets and finding patterns describing fraudulent behaviors, followed by the development of a what-if predictive system to study fiscal fairness; conducted in collaboration with the Municipality of Cesena.
- Supervisor: Prof. Matteo Golfarelli
- Area of Study: Data Mining

Bachelor's Degree., Computer Science and Engineering, October 2010

- *105/110*
- Thesis topic: Development of a digital exam record-book.
- Supervisor: Prof. Antonella Carbonaro
- Area of Study: Web development

ITIS N. Baldini, Ravenna (RA), Italy

Scientific high school, focus on computer science, July 2007

- 90/100

RESEARCH
CONTRACTS

Junior assistant professor @ University of Bologna **2021-06-15 — today**
Three years fixed term research and teaching position. The main research theme is “Polyglot systems for data analysis”.

Post-doc research fellow @ University of Bologna **2017-01-01 — today**

Contract type	Title	Start date	End date	Duration
Research grant	Bringing intelligence to the big data lake through smart meta-data management	2020-04-03	2021-06-02	14 months
Research grant	Enabling OLAP on heterogeneous sources	2019-04-03	2020-04-02	1 year
Research grant	Flexible OLAP Analyses over NoSQL Databases	2018-04-03	2019-04-02	1 year
Term contract	Completion and consolidation of the MO.RE.Farming data platform	2018-01-01	2018-03-31	3 months
Research grant	Analysis of agri-food products' shelf-life quality and security	2017-01-01	2017-12-31	1 year

NOTE: Research grant = Assegno di ricerca. Term contract = Contratto di collaborazione continuativo.

Main research activities:

- Research and design of schema profiling techniques and OLAP analyses over NoSQL databases, even in presence of multiple storage systems (i.e., multistore).
- Predictive analytics and optimization of the execution of OLAP queries over SparkSQL and multistores through the development of advanced cost models.
- Envisioning and prototyping of a Big Data Platform approach to support data management and transformation within Data Lakes.
- Application of innovative and scalable techniques to analyze, anonymize and de-anonymize trajectory data.
- Profiling of social network users based on social interaction focused on topics like vaccines and politics.

- Design and development of a Big Data platform to support the analysis and spatial integration of information applied in the field of precision agriculture.
- Design and development of an approach to vocalize OLAP queries over data warehouses.

Ph.D. student @ University of Bologna **2014-01-01 — 2016-12-31**

Covered by a grant from the Italian Ministry of Research. I kept working on the research themes from the previous contract and contributed to novel proposals in the fields of Social BI, Exploratory BI, and Pervasive BI.

Research fellow @ University of Bologna **2013-04-05 — 2013-12-31**

Contract type	Title	Start date	End date	Duration
Research grant	Business Intelligence on Non-Conventional Data	2013-04-05	2013-12-31	8 months

NOTE: Research grant = Assegno di ricerca.

Research activity: I began my research activities in the fields of Social Business Intelligence and OLAP recommendation, envisioning analysis techniques for semantically-enriched semi-/unstructured data in advanced BI systems.

TEACHING

Alma Mater Studiorum Università di Bologna, Bologna (BO), Italy

Teacher in Master's Degree courses

Course name	Degree programme	A.Y.	CFU/ECTS	Hours	CS	ACS	NR
<i>Big Data</i>	Master's Degree in Computer Science and Engineering	2020/21	6	40	–	–	–
<i>Big Data</i>	Master's Degree in Computer Science and Engineering	2019/20	6	40	92.7%	81.5%	41
<i>Big Data</i>	Master's Degree in Computer Science and Engineering	2018/19	6	40	94.7%	79.6%	19
<i>Big Data</i>	Master's Degree in Computer Science and Engineering	2017/18	6	40	83.3%	78.1%	12

NOTE: Students are mandatorily submitted an anonymous form where they can express their opinion about several aspects of the course in a four-valued scale (very negative, negative, positive, very positive). Such evaluations are reported here in the following form:

CS: course satisfaction;

ACS: average course satisfaction within the School or the VRA area;

NR: number of respondents.

CS and *ACS* report the fraction of students evaluating the course positively or very positively.

Teaching tutor in Bachelor's Degree courses

Course name	Degree programme	A.Y.	CFU/ ECTS	Hours
<i>Lab-based Course on Databases</i>	Bachelor in Computer Science and Engineering	2015/16	4	30
<i>Lab-based Course on Databases</i>	Bachelor in Computer Science and Engineering	2014/15	4	30
<i>Lab-based Course on Databases</i>	Bachelor in Computer Science and Engineering	2013/14	4	30

Master thesis coordinator

- Tommaso Bombardi: *Compressione e Vocalizzazione di Risultati Multidimensionali nel Paradigma OLAP*, 2021.
- Marta Luffarelli: *A text mining approach to materiality assessment*, 2021.
- Maria Maddalena Mascellaro: *Pubblicazione di dati di traiettoria preservando il principio di non informatività*, 2021.
- Alex Ravaglia: *Riconoscimento di frodi attraverso la modellazione del comportamento degli utenti*, 2021.
- Riccardo Salvatori: *Analisi delle strategie di modellazione dei dati su database NoSQL*, 2021.
- Luca Semprini: *Anonimizzazione incrementale di dati di traiettoria*, 2020.
- Eugenio Cavina: *GEAR: una piattaforma Big Data per l'elaborazione di stream di dati attraverso Machine Learning e Business Rules*, 2020.
- Anna Giulia Leoni: *Gestione di un data lake strutturato attraverso il riconoscimento semantico dei dati acquisiti*, 2019.

Master thesis advisor

- Chiara Forresi: *Un framework per l'analisi di big data con elevata eterogeneità all'interno di multistore*, 2020.
- Rrok Gjinaj: *Progettazione e prototipazione di un sistema di Conversational BI*, 2020.
- Nicola Santolini: *Utilizzo di dati social per la deanonimizzazione di tracce GPS*, 2019.
- Giovanni Di Meo: *Analisi delle comunità Twitter legate al tema dei vaccini*, 2018.
- Alessio Addimando: *Progettazione di un intrusion detection system su piattaforma big data*, 2018.

Bachelor theses advisor

- Luca Paoloni: *Estrazione automatica degli schemi di una collection all'interno di un DBMS NoSql e calcolo delle dipendenze funzionali tra gli attributi dello schema*, 2019.
- Shapour Nemati: *Un sistema per l'acquisizione automatica dei metadati per SparkSQL*, 2018.
- Alessandro Collerà: *Classificazione e selezione di tecniche di visualizzazione per Big Data Analytics*, 2016.
- Francesco Capponi: *Analisi della piattaforma Nutch*, 2016.
- Antony Chiossi: *Progettazione e prototipazione di un sistema di Social Business Intelligence con Hadoop Impala*, 2015.
- Luca Longobardi: *Progettazione e prototipazione di un sistema di Social Business Intelligence con ElasticSearch*, 2015.

Bologna Business School (BBS), Bologna (BO), Italy

Teacher in Master Courses

Course name	Executive programme	A.Y.	Hours
Social BI & Location Intelligence	Data Strategy & Analytics	2020/21	8
Big Data	Master Philip Morris – Big Data	2019/20	12
Data and platforms	Master in Internet of Things	2018/19	6

Teaching tutor in Master Courses

Course name	Master programme	A.Y.	Hours
Business Intelligence and Data Warehouse	Master in Data Science	2020/21	11
Business Intelligence and Data Warehouse	Master in Finance and Fintech	2020/21	11
Business Intelligence and Data Warehouse	Master in Data Science	2019/20	11
Business Intelligence and Data Warehouse	Master in Finance and Fintech	2019/20	11
Information Systems	Master in Finance, Control and Auditing	2019/20	6
Business Intelligence and Data Warehouse	Master in Data Science	2018/19	10
Business Intelligence and Data Warehouse	Master in Data Science	2017/18	10
Information Systems	Master in Finance, Control and Auditing	2016/17	6
Information Systems	Master in Finance, Control and Auditing	2015/16	6
Information Systems	Master in Finance, Control and Auditing	2014/15	6
Information Systems	Master in Finance, Control and Auditing	2013/14	6
Information Systems	Master in Business Management	2013/14	6

FITSTIC, Cesena (FC), Italy

Teacher in Higher Technical Institute courses

Course name	Professional programme	A.Y.	Hours
Introduction to NoSQL systems	Alan Turing 5th edition	2020/21	30
Introduction to NoSQL systems	Alan Turing 4th edition	2019/20	30
Introduction to NoSQL systems	Alan Turing 3rd edition	2018/19	30
Introduction to NoSQL systems	Alan Turing 2nd edition	2017/18	40
Introduction to NoSQL systems	Alan Turing 1st edition	2016/17	50
Introduction to database systems	Alan Turing 1st edition	2016/17	50

Futura, San Giovanni in Persiceto (BO), Italy

Teacher in professional training courses

Professional programme	A.Y.	Hours
Analyst specialized in data warehousing and integrated information systems	2014/15	20

PARTICIPATION IN RESEARCH GROUPS **Business Intelligence Group** **March 2013 — today**
The primary research group I am working with. The main focus of the group is on studying the architectures, techniques, and methodologies aimed at extracting value from data in the most diverse business contexts. The group is lead by Prof. Stefano Rizzian and Prof. Matteo Golfarelli, and operates in the University of Bologna.

CIRI-ICT **June 2021 — today**
CIRI-ICT is the interdepartmental industrial research center of the University of Bologna for information and communication technologies. Its mission is to promote technology transfer and support innovation for large, medium, and small businesses in the area.

DTIM Group **October 2014 — January 2015**
Collaboration with the Database Technologies and Information Management research group at the Universitat Politècnica de Catalunya led by Prof. Alberto Abelló and Prof. Oscar Romero. The collaboration focused on creating innovation in the field of Exploratory Business Intelligence, with a specific emphasis on leveraging linked data to enhance multidimensional cubes.

PARTICIPATION IN RESEARCH PROJECTS **WeLASER** **2020 — today**
Type: H2020-SFS-2018-2020
The increased use of pesticides and fertilisers damages the environment, destroys non-target plants and beneficial insects for the soil, and harms human and animal health. Most seeds develop herbicide-resistant properties, rendering pesticides ineffective. Mechanical automatic systems that are studied as alternatives to pesticides deteriorate soil features, damage beneficial soil organisms, and offer limited results for in-row weeding. The project will develop a non-chemical solution for weed management based on pioneering technology consisting of the application of lethal doses of energy on the weed meristems through a high-power laser source. An AI-vision system separates crops from weeds, identifying the weed meristems and pointing the laser at them. A smart controller based on IoT and cloud computing techniques coordinates the system, which is transferred all over the field by an autonomous vehicle.

Agro.Big.Data.Science **2019 — today**
Type: POR-FESR 2014-2020 - Asse 1 Ricerca e innovazione
The growing availability of technologically advanced sensors capable of gathering various information along all the links of the agro-food chain allows to face the problems related to the diagnosis, forecasting, and improvement of the supply chains, with a data-driven approach. The project intends to apply the data-driven logic to 3 production chains (kiwi, pear, and spinach) made available by the companies participating in the project, complete with the sensors for real-time data collection. Data collection and analysis will be managed by a Big Data platform specific to the agro-food sector, designed to be flexible and usable also by different supply chains.

Mo.Re.Farming **2016 — 2018**
Type: POR-FESR 2014-2020 - Asse 1 Ricerca e innovazione
The project intends to develop a data collection and management platform, that integrates enterprise data with public datasets to support technicians and farmers in the decision-making process and to promote more sustainable cultivation techniques (i.e., precision farming). To achieve this goal, the project aims to develop innovative ways of monitoring the status of the soil and the plant (in-situ sensors) and their spatial variability (satellite remote sensing, use of drones). It also intends to arrange an integrated data hub, overcoming the lack of interchange between public and private sources (e.g., agronomic, meteorological), so as to offer high-value information for the decision-making process.

Toreador**2016 — 2017**

Type: H2020 - Big Data: Research

The TOREADOR project is aimed at overcoming some major hurdles that until now have prevented many European companies from reaping the full benefits of Big Data analytics (BDA). To this end, the delivery of TOREADOR is an architectural framework and a set of components for model-driven set-up and management of BDA processes; the goal is to address automatically all major problems of on-demand data preparation, including handling Big Data opacity, diversity, security, and privacy compliance, as well as to support abstract modeling of the BDA life cycle.

Innofruve**2017**

Type: POR-FESR 2014-2020 - Asse 1 Ricerca e innovazione

The goal of the project is to foster innovation in the regional agro-food industry, the qualitative and functional improvement of various vegetable products, and the enhancement of waste processing. This is done by monitoring and analysing the decay of the organoleptic properties of products, from the primary production process and throughout the cold chain. Innovative technologies will be studied to stabilize and increase the shelf-life of minimally-processed fruit and vegetable preserves.

WebPolEU**2013 — 2015**

Type: FIRB 2012

Social media are widespread and are an integral part of people's daily lives. Web 2.0 is one of the social environments in which citizens manage a significant part of their relationships and become aware of political information and opportunities to be involved in the public sphere. Political actors also have to deal with these forums, and their strategies can help alleviate or exacerbate the crisis of citizens' trust towards parties and institutions. The project will address all these aspects, integrating qualitative and quantitative methods in a comparative perspective. In particular, the research will analyze the digital literacy of young people, the political behavior of online citizens, the content and methods of political discussions on social media, and strategies for online communication of institutional political actors. The European political elections in 2014 serve as the primary focus of the research project.

SERVICE IN
INTERNATIONAL
JOURNALS

International Journal of Data Mining, Modelling and Management
Editorial board member (since 2021)

MDPI Electronics, Special Issue on Big Data and Artificial Intelligence for Industry 4.0
Guest editor (2021)

SERVICE IN
INTERNATIONAL
CONFERENCES

23rd International Conference on Big Data Analytics and Knowledge Discovery (DaWaK 2021)

Program Committee member

10th International Conference on Model and Data Engineering (MEDI 2021)

Program Committee member

44th International Conference on Business Intelligence Systems (miproBIS 2021)

Program Committee member

43rd International Conference on Business Intelligence Systems (miproBIS 2020)

Program Committee member

2nd International Workshop on Qualitative Aspects of User-Centered Analytics (QUACA 2020)

Program Committee member

9th International Conference on Model and Data Engineering (MEDI 2019)
Program Committee member

42nd International Conference on Business Intelligence Systems (miproBIS 2019)
Program Committee member

8th International Conference on Model and Data Engineering (MEDI 2018)
Program Committee member

41st International Conference on Business Intelligence Systems (miproBIS 2018)
Program Committee member

21st European Conference on Advances in Databases and Information Systems (ADBIS 2017)
Program Committee member of the Doctoral Consortium

REVIEWING FOR
INTERNATIONAL
JOURNALS

Computing Surveys (CSUR), 2021

Expert Systems with Applications (ESWA), 2021

Knowledge and Information Systems (KAIS), 2020

Journal on Data Semantics (JoDS), 2020

Scientific Programming, 2020

Semantic Web journal (SWJ), 2020

Agriculture, 2019

Future Generation Computer Systems, 2019

Information Systems Frontiers (ISF), 2019

Information Systems (IS), 2018

Data & Knowledge Engineering, 2014, 2015

International Journal of Data Warehousing and Mining (IJDWM), 2014

TALKS IN
INTERNATIONAL
CONFERENCES

OLAP Querying of Document Stores in the Presence of Schema Variety
28th Italian Symposium on Advanced Database Systems (SEBD 2020)

A Hybrid Architecture for Tactical and Strategic Precision Agriculture
21st International Conference on Big Data Analytics and Knowledge Discovery (DaWaK 2019)

Variety-Aware OLAP of Document-Oriented Databases
20th International Workshop on Design, Optimization, Languages and Analytical Processing of Big Data (DOLAP 2018)

Schema Profiling of Document Stores
25th Italian Symposium on Advanced Database Systems (SEBD 2017)

Social Business Intelligence in Action
28th International Conference on Advanced Information Systems Engineering (CAiSE 2016)

Towards Exploratory OLAP on Linked Data
24th Italian Symposium on Advanced Database Systems (SEBD 2016)

Meta-Stars: Dynamic, Schemaless, and Semantically-Rich Topic Hierarchies in Social BI

18th International Conference on Extending Database Technology (EDBT 2015)

CubeLoad: A Parametric Generator of Realistic OLAP Workloads

26th International Conference on Advanced Information Systems Engineering (CAiSE 2014)

Meta-stars: multidimensional modeling for social business intelligence

16th International Workshop on Data warehousing and OLAP (DOLAP 2013)

INVITED TALKS

An Introduction to MongoDB

Seminar for the **Web Services and Applications** course, Master's Degree in Computer Science and Engineering, Cesena (FC), 2021

An Introduction to MongoDB

Seminar for the **Web Services and Applications** course, Master's Degree in Computer Science and Engineering, Cesena (FC), 2020

An Introduction to Big Data

Workshop "SKA data challenges", Bologna (BO), 2019

Exploratory OLAP on Big Data

Seminar for the "Business Intelligence" course of the PhD program in Computer Science and Engineering, Bologna (BO), 2017

The city's mood between social network and big data

Demonstration at the Modern Art Museum of Bologna (MAMbo), Bologna (BO), 2016

AWARDS

Best Demonstration Award, **EDBT 2021**, Nicosia, Cyprus

INTERNATIONAL EXPERIENCE

Universitat Politècnica de Catalunya, Barcelona, Spain

Visiting Researcher

October 2014, to January 2015

- Research on enhancing multidimensional cubes through linked data.
- UPC supervisor: Prof. Alberto Abelló
- UniBo supervisor: Prof. Matteo Golfarelli

PUBLICATIONS IN INTERNATIONAL JOURNALS, ORDERED BY TIME

- [1] M. Francia, E. Gallinucci, and M. Golfarelli, "COOL: A framework for conversational OLAP," *Information Systems*, p. 101752, 2021, IF: 2.466. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0306437921000211>
- [2] S. Bimonte, E. Gallinucci, P. Marcel, and S. Rizzi, "Data variety, come as you are in multi-model data warehouses," *Information Systems*, 2021, IF: 2.466. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0306437921000090>
- [3] M. Francia, E. Gallinucci, M. Golfarelli, and N. Santolini, "Dart: De-anonymization of personal gazetteers through social trajectories," *Journal of Information Security and Applications*, vol. 55, p. 102634, 2020, IF: 2.327. [Online]. Available: <http://www.sciencedirect.com/science/article/pii/S2214212620307973>
- [4] E. Gallinucci, M. Golfarelli, and S. Rizzi, "Mo.re.farming: A hybrid architecture for tactical and strategic precision agriculture," *Data*

Knowl. Eng., vol. 129, p. 101836, 2020, IF: 1.583. [Online]. Available: <https://doi.org/10.1016/j.datak.2020.101836>

- [5] —, “Approximate OLAP of document-oriented databases: A variety-aware approach,” *Inf. Syst.*, vol. 85, pp. 114–130, 2019, IF: 2.066. [Online]. Available: <https://doi.org/10.1016/j.is.2019.02.004>
- [6] M. Francia, E. Gallinucci, and M. Golfarelli, “Social BI to understand the debate on vaccines on the web and social media: unraveling the anti-, free, and pro-vax communities in italy,” *Soc. Netw. Anal. Min.*, vol. 9, no. 1, pp. 46:1–46:16, 2019. [Online]. Available: <https://doi.org/10.1007/s13278-019-0590-x>
- [7] E. Gallinucci, M. Golfarelli, and S. Rizzi, “Schema profiling of document-oriented databases,” *Inf. Syst.*, vol. 75, pp. 13–25, 2018, IF: 2.777. [Online]. Available: <https://doi.org/10.1016/j.is.2018.02.007>
- [8] E. Gallinucci, M. Golfarelli, S. Rizzi, A. Abelló, and O. Romero, “Interactive multidimensional modeling of linked data for exploratory OLAP,” *Inf. Syst.*, vol. 77, pp. 86–104, 2018, IF: 2.777. [Online]. Available: <https://doi.org/10.1016/j.is.2018.06.004>
- [9] J. Aligon, E. Gallinucci, M. Golfarelli, P. Marcel, and S. Rizzi, “A collaborative filtering approach for recommending OLAP sessions,” *Decis. Support Syst.*, vol. 69, pp. 20–30, 2015, IF: 2.313. [Online]. Available: <https://doi.org/10.1016/j.dss.2014.11.003>
- [10] E. Gallinucci, M. Golfarelli, and S. Rizzi, “Advanced topic modeling for social business intelligence,” *Inf. Syst.*, vol. 53, pp. 87–106, 2015, IF: 1.456. [Online]. Available: <https://doi.org/10.1016/j.is.2015.04.005>
- PUBLICATIONS IN
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CONFERENCES,
ORDERED BY TIME
- [11] M. Francia, E. Gallinucci, and M. Golfarelli, “Conversational OLAP in action,” in *Proceedings of the 24th International Conference on Extending Database Technology, EDBT 2021, Nicosia, Cyprus, March 23 - 26, 2021*. OpenProceedings.org, 2021, pp. 646–649. [Online]. Available: <https://doi.org/10.5441/002/edbt.2021.74>
- [12] —, “Towards conversational OLAP,” in *Proceedings of the 22nd International Workshop on Design, Optimization, Languages and Analytical Processing of Big Data co-located with EDBT/ICDT 2020 Joint Conference, DOLAP@EDBT/ICDT 2020, Copenhagen, Denmark, March 30, 2020*, ser. CEUR Workshop Proceedings, vol. 2572. CEUR-WS.org, 2020, pp. 6–15. [Online]. Available: <http://ceur-ws.org/Vol-2572/paper1.pdf>
- [13] E. Gallinucci, M. Golfarelli, and S. Rizzi, “A hybrid architecture for tactical and strategic precision agriculture,” in *Big Data Analytics and Knowledge Discovery - 21st International Conference, DaWaK 2019, Linz, Austria, August 26-29, 2019, Proceedings*, ser. Lecture Notes in Computer Science, vol. 11708. Springer, 2019, pp. 13–23. [Online]. Available: https://doi.org/10.1007/978-3-030-27520-4_2
- [14] E. Gallinucci and M. Golfarelli, “Sparktune: tuning spark SQL through query cost modeling,” in *Advances in Database Technology - 22nd International Conference on Extending Database Technology, EDBT 2019, Lisbon, Portugal, March 26-29, 2019*. OpenProceedings.org, 2019, pp. 546–549. [Online]. Available: <https://doi.org/10.5441/002/edbt.2019.52>
- [15] H. B. Hamadou, E. Gallinucci, and M. Golfarelli, “Answering GPSJ queries in a polystore: A dataspace-based approach,” in *Conceptual Modeling - 38th International Conference, ER 2019, Salvador, Brazil, November 4-7, 2019, Proceedings*,

ser. Lecture Notes in Computer Science, vol. 11788. Springer, 2019, pp. 189–203. [Online]. Available: https://doi.org/10.1007/978-3-030-33223-5_16

- [16] M. Francia, E. Gallinucci, and F. Vitali, “Map-matching on big data: a distributed and efficient algorithm with a hidden markov model,” in *42nd International Convention on Information and Communication Technology, Electronics and Microelectronics, MIPRO 2019, Opatija, Croatia, May 20-24, 2019*. IEEE, 2019, pp. 1238–1243. [Online]. Available: <https://doi.org/10.23919/MIPRO.2019.8757119>
- [17] E. Gallinucci, M. Golfarelli, and S. Rizzi, “Variety-aware OLAP of document-oriented databases,” in *Proceedings of the 20th International Workshop on Design, Optimization, Languages and Analytical Processing of Big Data co-located with 10th EDBT/ICDT Joint Conference (EDBT/ICDT 2018), Vienna, Austria, March 26-29, 2018*, ser. CEUR Workshop Proceedings, vol. 2062. CEUR-WS.org, 2018. [Online]. Available: <http://ceur-ws.org/Vol-2062/paper02.pdf>
- [18] S. Castano, A. Ferrara, E. Gallinucci, M. Golfarelli, S. Montanelli, L. Mosca, S. Rizzi, and C. Vaccari, “SABINE: A multi-purpose dataset of semantically-annotated social content,” in *The Semantic Web - ISWC 2018 - 17th International Semantic Web Conference, Monterey, CA, USA, October 8-12, 2018, Proceedings, Part II*, ser. Lecture Notes in Computer Science, vol. 11137. Springer, 2018, pp. 70–85. [Online]. Available: https://doi.org/10.1007/978-3-030-00668-6_5
- [19] M. Francia, E. Gallinucci, M. Golfarelli, and S. Rizzi, “Social business intelligence in action,” in *Advanced Information Systems Engineering - 28th International Conference, CAiSE 2016, Ljubljana, Slovenia, June 13-17, 2016. Proceedings*, ser. Lecture Notes in Computer Science, vol. 9694. Springer, 2016, pp. 33–48. [Online]. Available: https://doi.org/10.1007/978-3-319-39696-5_3
- [20] E. Gallinucci, M. Golfarelli, and S. Rizzi, “Meta-stars: Dynamic, schemaless, and semantically-rich topic hierarchies in social BI,” in *Proceedings of the 18th International Conference on Extending Database Technology, EDBT 2015, Brussels, Belgium, March 23-27, 2015*. OpenProceedings.org, 2015, pp. 529–532. [Online]. Available: <https://doi.org/10.5441/002/edbt.2015.50>
- [21] S. Rizzi and E. Gallinucci, “Cubeload: A parametric generator of realistic OLAP workloads,” in *Advanced Information Systems Engineering - 26th International Conference, CAiSE 2014, Thessaloniki, Greece, June 16-20, 2014. Proceedings*, ser. Lecture Notes in Computer Science, vol. 8484. Springer, 2014, pp. 610–624. [Online]. Available: https://doi.org/10.1007/978-3-319-07881-6_41
- [22] E. Gallinucci, M. Golfarelli, and S. Rizzi, “Meta-stars: multidimensional modeling for social business intelligence,” in *Proceedings of the sixteenth international workshop on Data warehousing and OLAP, DOLAP 2013, San Francisco, CA, USA, October 28, 2013*. ACM, 2013, pp. 11–18. [Online]. Available: <https://doi.org/10.1145/2513190.2513195>

PUBLICATIONS IN
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- [23] M. Francia, E. Gallinucci, M. Golfarelli, and S. Rizzi, “OLAP querying of document stores in the presence of schema variety,” in *Proceedings of the 28th Italian Symposium on Advanced Database Systems, Villasimius, Sud Sardegna, Italy (virtual due to Covid-19 pandemic), June 21-24, 2020*, ser. CEUR Workshop Proceedings, vol. 2646. CEUR-WS.org, 2020, pp. 128–135. [Online]. Available: <http://ceur-ws.org/Vol-2646/07-paper.pdf>

- [24] E. Gallinucci, M. Golfarelli, and S. Rizzi, "Schema profiling of document stores," in *Proceedings of the 25th Italian Symposium on Advanced Database Systems, Squillace Lido (Catanzaro), Italy, June 25-29, 2017*, ser. CEUR Workshop Proceedings, vol. 2037. CEUR-WS.org, 2017, p. 9. [Online]. Available: http://ceur-ws.org/Vol-2037/paper_3.pdf
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PROFESSIONAL EXPERIENCE

C.R.P.V. soc. coop., Cesena (FC), Italy

Consultant data analyst **2020**

- Understanding the reasons behind the spread of diseases on pear plants.

RE2N S.r.l., Cesena (FC), Italy

Consultant data analyst **2017, 2018, 2019**

- Materiality assessment for big enterprises.

Onit S.r.l., Cesena (FC), Italy

Consultant data analyst **2015, 2016**

- Analysis of social media discussions concerning vaccines and related fears.

Tinfo S.r.l., Forlì (FC), Italy

Software developer **2010**

- Back-end and front-end development of an IT management system.

Web Consulting S.r.l., Cesena (FC), Italy

Software developer **2009**

- Back-end and front-end development of an IT management system.

SKILLS

Big Data management and analysis:

- Distributed file systems (HDFS)
- Distributed databases (MongoDB, Cassandra, HBase, ElasticSearch)
- Distributed execution frameworks (Spark, Hive, Impala)
- Ecosystem management (Cloudera CDH)
- System orchestration and administration (Oozie, Hue)

Business Intelligence and Data Mining:

- Conceptual modeling (Indyco)
- Data integration (Pentaho DI, Talend)
- Multidimensional engines (Mondrian)
- OLAP analysis and visualization (Tableau, Saiku, JPivot)
- Data Mining (Weka)

Database Management Systems:

- Relational DBMSs (Oracle, MySQL, PostgreSQL, Microsoft Access, Microsoft SQL Server)
- NoSQL DBMSs (MongoDB, Neo4j, Cassandra, Redis, HBase, AgensGraph)
- GIS systems (Oracle Spatial & Graph, PostGIS, GeoSpark)

Computer programming:

- Java, PHP, Scala, Python, R, JavaScript, HTML, CSS, SQL, PLSQL, SPARQL
- Object-oriented and functional programming
- Mobile programming (Android)

Software engineering:

- Distributed Version Control Systems (Git)
- Build systems (Gradle, Maven)

Web development:

- Web servers (Apache, Tomcat)
- Content Management Systems (Drupal)
- Responsive frameworks (Bootstrap)
- Charts and maps (D3, OpenLayers)

Operating Systems:

- Linux (CentOS, Debian, Ubuntu)
- Microsoft Windows family

SPOKEN
LANGUAGES

Italian

- Mother tongue

English

- C1 (understanding); B2 (speaking, writing)

Spanish

- A1 (understanding, speaking, writing)