

Matteo Palmonari – Scientific Curriculum Vitae

** Profile

MATTEO PALMONARI is **Associate Professor** (“*Professore di Seconda Fascia*”) at the Department of Informatics, Systems and Communication (DISCo) of the University of Milano-Bicocca (UNIMIB) since October 2018. In 2021 he has received the **Italian Certification for tenured Full Professorship in Computer Science and in Computer Engineering**.

He is member of [INSIDE Lab](#) at UNIMIB. He had a long term collaboration with the [ADVIS Lab](#) of [University of Illinois at Chicago](#), directed by Isabel F. Cruz.

* Early Career Research Contracts and Ph.D.

On years 2011 – 2018 he has been an **Assistant Professor** at DISCo

From September 2010 to 2011 he has been a **postdoc** with “Assegno di Ricerca” (funded by Italian Ministry of Education) at DISCo. Previously, he has been a **postdoc** under different contracts (June 2006 to October 2010).

He has received his **Ph.D** from UNIMIB in 2006, discussing a thesis about logic-based modeling of event correlation in pervasive computing systems (under the supervision of Prof. Stefania Bandini).

** Scientific and Professional Leadership

* Project Leadership

Matteo Palmonari has covered the role of general coordinator or principal investigator for UNIMIB in **several research and innovation projects** funded by the European Commission or Italian institutions (listed below). In the last five years he has collected and managed research fundings for a total amount greater than 1M €.

On years 2017-2019 he has been **member of the Steering Committee of the Big Data Value ecosystem (BDVe)**, which coordinates work among different H2020 projects that were supported by the Big Data Value Association (as part of the Public-Private Partnership initiative).

* Project Leadership / Coordinator

EW-Shopp: Supporting Event and Weather-based Marketing Along the Customer Journey (www.ew-shopp.eu). H2020, 2017-2019, Innovation Action, GA. 732590, #partners = 10. The project has developed solutions to support data analytics at scale by facilitating SMEs in the cross-domain and cross-lingual integration of their corporate data with weather and event data sources. *Roles: concept formulation, overall project coordinator, PI for UNIMIB*. Main results: semantic enrichment of tabular data with ASIA (semantic table annotation tool); extension of ABSTAT (knowledge graph profiling tool); a new evaluation benchmark for semantic table interpretation.

* Project Leadership / Principal Investigator at UNIMIB

Discount quality for responsible data science: Human-in-the-Loop for quality data. PRIN 2022, 11/2023-10/2025, 202248FWFS, #partners = 4). The project has the objective of investigating novel methodologies for data preparation that increase data quality over time with a human-in-the-loop approach to ensure control and responsible data science. *Roles: principal investigator (PI: “responsabile scientifico di unità”) for UNIMIB*.

enRichMyData: Enabling Data Enrichment Pipelines for AI-driven Business Products and Services. Horizon Europe, 10/2022-09/2025, Innovation Action, GA: 101070284, #partners = 14. The project has the objective of developing a toolkit to support data enrichment at scale for downstream applications, using semantic and knowledge graphs as key enablers. *Roles: principal investigator (PI: “responsabile scientifico di unità”) for UNIMIB; scientific manager of the project; among main proposers with SINTEF (project coordinator), with definition of core technical concepts and related sections in the project proposal*. Main results: approach for entity linking over tabular data with human-in-the-loop approach.

Next Generation UPP: nuovi schemi collaborativi tra Università e uffici giudiziari Per il miglioramento dell’efficienza e delle Prestazioni della giustizia nell’Italia nord-ovest. PON, 04/2022-09/2023. Among the many objectives of the project, the UNIMIB Computer Science team focus on developing and testing applications of AI to improve the management of documents relevant in the juridical domain using NLP and knowledge graphs. *Roles: PI for UNIMIB-informatics department*. Main results: methodology and web application to help users annotate court judgments with a human-in-the-loop approach, and explore the annotated content using a semantic search paradigm.

Datalake per Giustizia. Four scientific collaboration agreements with CINI (Consorzio Interuniversitario Nazionale per l’Informatica), 11/2020 – 04/2021, 06/2021 – 10/2021, 04/2022 – 10/2022, 04/2023 – 01/2024. Among the objectives

of the project, the UNIMIB team has focused on defining and experimenting NLP methodologies to knowledge in court judgements and criminal investigations, working on real-world data also on open investigations (August 2022 – in course). Functional specification documents written in the project are handed to companies contracted by the Ministry of Justice to develop a subset of the specified functionalities. *Roles*: PI for UNIMIB (first two agreements); lead of civil trial and investigation tracks (third agreement). Main results: algorithms for extracting entities from juridical documents, annotating the documents and populating a knowledge graph.

Fondo di Ateneo Quota Competitiva 2020. University grant for positively evaluated project proposals that are not funded, 2020-2022. The grant has been used for semantic data enrichment, eventually leading to the enRichMyData project proposal. *Roles*: PI. Main results: distributed scalable version of ABSTAT.

euBusinessGraph: Enabling the European Business Graph for Innovative Data Products and Services (www.euBusinessGraph.eu). H2020, 2017-2019, Innovation Action, GA. 732003, #partners = 10. The project developed a knowledge graph for company data supporting the integration of different data sources and the implementation of analytic services. *Roles*: PI for UNIMIB. Main results: human-in-the-loop mapping of tabular data to knowledge graphs with ASIA (semantic table annotation tool); ABSTAT extensions (knowledge graph profiling tool); NLP methodologies for entity-centric representation learning (TEE) and for aligning distributed representations (TWEC).

Semantic Analysis and Quality-aware Management of Points of Interest at a Large Scale. Department grant. 2014-2016. Department project addressing the analysis of large collections of information harvested from the web, with specific reference to geospatial data. *Roles*: PI. Main results: first development of ABSTAT (knowledge graph profiling tool) and DaCENA (semantic data exploration tool).

* Visiting Researcher and/or Recipient of Research Contracts from International Institutions

Sofia University “St Kliment Ohridski” (BG) – with Prof. Sylvia Ilieva (GATE Centre of Excellence):

- Research contract from 15/07/2021 to 31/03/2022
- Research contract from 20/04/2022 to 31/03/2024

Both contracts are executed remotely, as part of the project *InterTwino: Building competence in data enrichment for artificial intelligence*, funded by the Bulgarian the Ministry of Education and Science (<https://intertwino.gate-ai.eu/>). The contract covers work to carry out actions in Capacity building facilitation, Capacity building and Dissemination work packages.

Appointed for teaching a course on Data Semantics in Fall 2024 together with Prof. Flavio De Paoli.

Topics: data enrichment and capacity building. *Main results*: application of SemTUI (follow up of the ASIA application) for the enrichment of Sofia’s municipality data; partnership in the enRichMyData project.

INRIA Sophie-Antipolis (FR) - with Serena Villata and Fabien Gandon (WIMMICS Group):

- Invited Researcher at 3IA Côte d'Azur from 06/26/2023 to 07/25/2023, in the context of the Chair "Artificial Argumentation for Humans"

Topics: LLMs for argumentation, argumentation theory, data enrichment. *Main results*: analysis of capabilities of GPT models on argumentative analysis.

University of Illinois at Chicago (USA) - with Prof. Isabel Cruz (ADVIS Lab):

- Visiting researcher from 01/09/2010 to 31/01/2011
- Visiting researcher from 06/01/2014 to 31/01/2014.
- Research contract from 29/08/2014 to 28/08/2015, executed remotely, in the context of the CyberSEES research project, funded by National Science Foundation (USA, https://www.nsf.gov/awardsearch/showAward?AWD_ID=1331800).

Topics: ontology matching and geospatial data integration. *Main results*: contributions to AgreementMaker and AgreementMakerLight ontology matching systems, especially on matching Linked Open Data ontologies, learning to configure ontology matching systems, and user-in-the-loop ontology matching.

* Contributions to Other Research Projects

Matteo Palmonari has lead research activities carried out in the context of different Italian and international research projects he has taken part to, and, in particular, to **COMSODE** (EU FP7 2013- 2015), **SIERA** (EU FP7, 2011- 2014), **SMART** (IT PON-01_00861, 2011-2014), **NeP4B** (FIRB, 2006 –2009).

* Supervision of Ph.D Students & Early-stage Researchers

Member of the PhD committee (“Collegio di Dottorato”) for cycles starting in years 2020, 2021, 2024.

Supervisor of four PhD students (Riccardo Porrini, Federico Bianchi, Vincenzo Cutrona, Manuel Vimercati), supervisor of **two industry-funded PhD students** under the schemes “Executive” and “Alto Apprendistato (Greta Greco – Banca Intesa, Federico Moiraghi Motta – SpazioDati). **Co-supervisor of four PhD students** (Anisa Rula, Blerina Spahiu, Pikakshi Manchanda, and Mamoun Abu Helou – co-supervised by Mustafa Jarrar from Birzeit University).

Supervised PhD students who remained in the academia hold the following positions: *Federico Bianchi* – PostDoc at Stanford University (USA); *Vincenzo Cutrona* – PostDoc at University of Applied Sciences and Arts of Southern Switzerland (Switzerland); *Pikakshi Manchanda* - Lecturer in Computer Science at University of Exeter (UK); *Mamoun Abu Helou* - Assistant Professor at Al Istiqlal University (Palestine); *Blerina Spahiu* – RTD-A at UNIMIB (Italy); *Anisa Rula* – Tenure (RTD-B) at Università di Brescia (Italy).

Supervisor of early-stage researchers ("assegno di ricerca") and research technicians: Renzo Alva Principle, Blerina Spahiu and Mauricio Soto Gomez (on the EW-Shopp and euBusinessGraph H2020 projects); Marco Ripamonti (on Next Generation UPP); Manuel Vimercati (mixed fundings); Federico Belotti (Discounted/Prin); Roberto Avogadro (enRichMyData).

With the EW-Shopp grant, he has **funded a determinate-time researcher position** (RTD-A), covered by Michele Ciavotta, who has become a tenure at UNIMIB (RTD-B) and Associate Professor in the same university.

In addition, he has been / is **supervisor of more than a dozen master students and research collaborators** (funded with “borse di ricerca”) in the context of EW-Shopp, Datalake for Giustizia and Next Generation UPP projects.

He has been **mentor of international and national students at PhD symposiums** (EKAW2014, ESWC2015-2018, AI*IA2018).

* Experience of Technological Transfer of Research Results

[Role: contributor] On years 2017-ongoing, Matteo Palmonari has *participated to* technology transfer projects commissioned by “**Presidenza del Consiglio di Ministri**” of the Italian government (multiple contracts) on topics related to his expertise.

[Role: PI] In 2020, he has been responsible of the contract DaCENA API, where UNIMIB has been subcontracted by **TSP Tecnologie e Servizi Professionali Srl** to improve the code of its DaCENA framework for exploration of knowledge graphs, so that it could be used within the ARCA project, funded by Regione Lazio.

[Role: founder member] On years 2012-2016, he is among the founder partners of the start-up company **MAP-S S.R.L.** (R.E.A id: 1349893), whose mission was to develop solutions for information security.

[Role: contributor] On years 2013-2014, he has coordinated the research team that has developed CuPiD - Culture-based POI Discovery and profiling, a semantic engine built to find Points Of Interest (POIs) in large web data sources and assess their culture of origin (e.g., Italian or Indian). The design and development of CuPiD have been funded by **Connexun Srl**, an innovative start-up based in Milan.

[Role: PI] On year 2012, he has been principal investigator (responsabile scientifico) of two small research contracts funded by **C2T (CONSORZIO PER IL TRASFERIMENTO TECNOLOGICO)** on data integration mediated by abstraction and on knowledge graph exploration in the context of data journalism. The latter led to the development of the DaCENA research prototype (www.dacena.org).

* Other International Collaborations

In addition to the collaborations framed in the above-mentioned projects/contracts, Matteo Palmonari has collaborated with different research institutions.

With **Karlsruhe Institute of Technology** (DE) – Dr. Andreas Harth (2011-2012) and Dr. Mehwish Alam (2020-2022). *Topics:* temporal aspects of semantic web, temporal word embeddings. *Main results:* web-scale analysis of temporal information in the semantic web [ISWC 2012]; study about the impact of temporal word embeddings on metaphor detection [LREC 2022].

With **University of Leipzig / University of Bonn / University of Paderborn** (DE) – Prof. Axel Ngonga and Prof. Jens Lehman (multiple affiliations due to changed positions of the main collaborators) 2014-2019. *Topics:* temporal scoping of knowledge graph triples. *Main results:* a model for detecting temporal span of volatile facts in knowledge graphs [ESWC 2014; J. Web Semantics 2019].

** Publications: Statistics and Awards

* References and Statistics

A selected list of publications is included in the Appendix of this CV. For main scientific contributions and mapping to publications see the "Main Scientific Contributions" section.

For a complete list of publications see:

- DBLP: <https://dblp.uni-trier.de/pers/hd/p/Palmonari:Matteo>
- Google Scholar: <https://scholar.google.it/citations?user=QmrLvqYAAAAJ&hl=it&authuser=1>

Bibliometrics:

- Google Scholar: #pub: ~130, cit.: 2309; h-index: 25; i10-index = 58
- Scopus: #pub: 123, cit.: 1212, h-index: 19

* Awards

B. Spahiu, A. Maurino, and M. Palmonari. **"Towards Improving the Quality of Knowledge Graphs with Data-driven Ontology Patterns and SHACL."** - *Best Paper Award* at the 9th Workshop on Ontology Design and Patterns (WOP2018, co-located with ISWC 2018).

"B. Spahiu, R. Porrini, M. Palmonari, A. Rula, A. Maurino. **ABSTAT: Ontology-driven Linked Data Summaries with Pattern Minimalization.**" - *Best Paper Award* at the 2nd International Workshop on Summarizing and Presenting Entities and OntologiesSumPre, co-located with ESWC 2016.

"P. Manchanda, E. Fersini, M. Palmonari. **Leveraging Entity Linking to Enhance Entity Recognition in Microblogs.** KDIR 2015" - *Best Paper Award* at the 7th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management.

"A. Rula, M. Palmonari, A. N. Ngomo, D. Gerber, J. Lehmann, and L. Buhmann. **Hybrid acquisition of temporal scopes for rdf data.** In ESWC 2014." - *Best Student Paper Award* at 11th Extended Semantic Web Conference (Anisa Rula was a PhD student under his supervision).

** Scientific Contributions

Matteo Palmonari's contributions can be collocated at the intersection of Artificial Intelligence and Data Management. Starting from methods to represent, match and enrich knowledge bases, his recent interests focused on the interpretation and annotation of tabular data and texts, with particular attention to Natural Language Processing (NLP) and neuro-symbolic approaches. Contributions can be grouped in three broad areas: *semantic integration and data enrichment*, *representation learning and NLP-based data analysis*, and *neuro-symbolic AI*. Other contributions covered methodologies for *web-scale knowledge exploration*, and, in the past, *service modeling and matchmaking*. While most of his contributions can be framed in the area of the Semantic Web and Knowledge Graphs, several contributions can be related to the broader areas of AI and data management.

* Semantic Integration and Data Enrichment

Alignment of knowledge graphs and ontologies. He has contributed to ontology matching techniques in collaboration with the ADVIS Lab of the University of Illinois at Chicago [ODBASE 2013], focusing especially on matching Linked Open Data ontologies [Art. Int. Rew. 2020], configuring ontology matching systems [ESWC 2014], and developing human-in-the-loop solutions [EKAW 2014, J. Sem. Web 2016]. He has addressed cross-lingual matching methods applied to large lexical ontologies [J. Artif. Intell. Res. 2016] and interactive data linking tasks [ISWC 2013, Inf. Sci. 2017].

Enrichment of semi-structured and tabular data. He has developed human-in-the-loop solutions for the interpretation and annotation of tabular data, applying the Semantic Table Interpretation (STI) to enrich data in tabular format [SEM 2019]. The ASIA tool has been developed to support annotation of large amount of data with humans-in-the-loop and tested in different enrichment scenarios [ISWCDemo 2019; ISWC 2021; Tech. and App. For BDV 2022]. In the EW-Shopp project, an STI approach has been applied to enrich data for downstream analysis in the marketing domain [ISWC 2019], while in euBusinessGraph, the same approach is applied to populate a target knowledge graph. He also contributed to the evaluation of STI approaches by proposing new benchmarks; one of these benchmarks became a reference dataset for the evaluation of STI approaches [ISWC 2020]. After investigating user behavior and preferences when they analyze a table [WI 2022], a novel method was proposed to estimate the confidence in links computed in STI approaches to support human-in-the-loop annotation of tabular data [WI 2023]. More work related to the enrichment of semi-structured data include: the extraction and semantic annotation of facets in very large data spaces [CAISE 2014; WWW 2018], and the imputation of temporal scopes of RDF triples by combining evidence from web data and reasoning [ESWC 2014; J. of Web Sem. 2019]. The latter work stems from a thorough web-scale analysis of the usage of temporal information in RDF [ISWC 2018].

Enrichment of texts. He has contributed to solutions for linking named entities in social media posts [#Microposts 2016, EACL 2017, EVALITA 2016] and to adapt existing Named Entity Recognition algorithms to a different target ontology [Inf. Proc. & Man. 2021]. He has investigated the problem of extracting entities from batches of documents to populate a target knowledge graph incrementally [IJCKG 2022], which is the case, for example, when information is extracted in the context of criminal investigations [SMDS 2021]. More recent results include algorithms to extract, link and cluster entities from court judgments [AIXIA 2023] to support an entity-centric approach to manage and search these documents [CLSR 2024].

* Language Representations and NLP-based Data Analysis

He has proposed the Compass method for aligning word embeddings trained from different corpora (TWEC) to support the analysis of meaning change across corpora (e.g., lexical semantic change detection) [AAAI 2019, EVALITA 2020]. The method has been used by several third-party researchers in different application domains, from the study of narrative styles to the analysis of COVID evolutions; a recent work explores the impact of temporal representations on analogy detection [LREC 2022]. As a follow-up contribution, he has led work to propose SWEAT, a measure to quantify polarization of two communities about a topic [EMNLP 2021].

* Neuro-symbolic AI

While most of the recent publications describe approaches where symbolic representations are combined with machine learning methods, some contributions focused on a deeper integration of these two paradigms. Among these contributions we mention methods to learn entity-level representations from annotated texts [ISWC 2018], a study on the integration of language-based representation into the Logic Tensor Network (LTN) neuro-symbolic framework [RuleML+ RR 2019], and a survey that discuss the relationship between Knowledge Graph Embeddings and explainable AI [KGxEXAI 2020]. Finally, a method based on LTN has been proposed to make classifiers fairer by encoding fairness constraints as logic axioms [ECAI 2023].

* Web-scale Knowledge Exploration

Since 2012, he has proposed a novel ontology-driven approach to profile large knowledge graphs, designing and leading to the development of ABSTAT (abstat.disco.unimib.it) [ESWC 2016, VLDB J. 2022]. After the initial small-scale study [ESWC 2016], robust evidence about the effectiveness of the proposed approach to support data understanding in a large-scale user study (117 users for a task lasting more than 1 hour) was collected [Sem. Web J. 2024]; such experiment was particularly challenging considering that literature on the evaluation of a subtle concepts such as "data understanding" is very limited and no attempt was made to evaluate competing knowledge graph profiling approaches from this perspective. ABSTAT was also proved to be effective in supporting feature selection for recommender systems [SAC 2017, ESWC 2018] and support the semi-automatic specification of SHACL profiles [ISWC-BW 2018].

Interactive knowledge graph exploration, leading to the development of DaCENA, an application to let readers of news and other textual content explore interesting data from knowledge graphs by leveraging active learning for personalization [ESWC 2017].

Finally, he has contributed to a web-scale study to profile the status of temporal information in the semantic web [ISWC 2012].

* Service Modeling & Matchmaking

Until 2014 he has investigated models to represent services and methods for service matchmaking. His main contributions in this field include: semantic descriptions of eGovernment services [DKE 2008] and policies that capture non-functional properties [EDOC 2008, ICWS 2013], methods to match these descriptions [ICSOC 2009, J. Web Eng. 2012], and methods to seamlessly match data and service descriptions [Inf. Sys. 2011].

** Teaching and related activities

Matteo Palmonari has been teaching in different BA and MA programs at UNIMIB - as further detailed below (course names are translated in English – courses taught in English are indicated by “EN”). He has also contributed to the design of the MA program in Data Science at UNIMIB, by advising the core proposer and first coordinator of the course, Prof. Carlo Batini, about topics related to Artificial Intelligence and Knowledge Representation.

Teaching in 2023-2024: Introduction to Artificial Intelligence (BA Computer Science - in Italian), Knowledge Representation and Reasoning–EN – Module 2 (BA Artificial Intelligence – Course in English Course), Artificial Intelligence–EN (MA Computer Science - in English), Data Semantics–EN (MA Data Science).

Teaching in 2022-2023: Foundations of Computer Science (BA Computer Science), Knowledge Representation and Reasoning–EN – Module 2 (BA Artificial Intelligence – Course in English Course), Artificial Intelligence–EN (MA Computer Science - in English), Data Semantics–EN (MA Data Science).

Teaching in previous years: Foundations of Computer Science, Elements of Artificial Intelligence, Complements of Artificial Intelligence, Knowledge Representation, Information and Knowledge Representation, Knowledge Engineering, Databases, Algorithms and Data Structures [BA Computer Science]; Computer Science II [BA in Communication and Psychology]. Knowledge Representation and Reasoning – Module 2 [BA Artificial Intelligence]; Artificial Intelligence (2011-current year), Information Architectures (MA Computer Science); Data Semantics [MA Data Science].

In 2017, he has taught a **PhD course** titled "Knowledge Graphs and Semantic Data Management: Models, Techniques and Applications" in the PhD program in Computer Science at UNIMIB.

** Services to the Scientific Community

* Member of Editorial Boards / Guest Editor / Program Chair

Member of the editorial board of Transactions on Graph Data and Knowledge (TGDK), a new open access journal launched in 2023 and published by Dagstuhl Publishing, ISSN:2942-7517 (more info: <https://drops.dagstuhl.de/entities/journal/TGDK>)

Program chair at ISWC 2024 - the 23rd International Semantic Web Conference - Resource Track. The resource track is a premier track at ISWC (Classifications: Core=A; GII/GRIN/SCIE=1) with similar acceptance rate as the research track.

Program chair at AIxIA 2021 - the 20th International Conference Italian Association for Artificial Intelligence.

Guest editor of a journal special issue on: Personalisation in E-Government and Smart Cities, International Journal of Electronic Governance (2017).

Program chair in four workshops: PEGOV 2013-2015, 1st/2nd/3rd International Workshop on Personalization in eGovernment Services and Applications, co-located with UMAP 2013/2014/2015; OnToContent 2012, 8th International Workshop on Ontology Content, co-located with OnTheMove conference 2012.

* Other Activities related to Organization and Evaluation

Served on the **program committees of several premier conferences** in his field of expertise such as IJCAI (2020-2024), AAAI (2021-2023), WWW (2018-2024), CIKM (2023), ISWC (2017-23 – Honorable Mention for Best Reviewer in 2022, senior PC 19-20,23), ESWC (2014-23), and other conferences like EKAW (Best Reviewer Award in 2014), Web Intelligence, SAC. He has served as a reviewer for outstanding international journals as Semantic Web Journal, Computer Surveys, Transactions on Knowledge and Data Engineering, Information Processing & Management, Expert Systems with Applications, Information Systems, Data & Knowledge Engineering, Journal of Web Semantics, Transactions on Internet Technology.

Local organizer of the 4th Mediterranean Machine Learning Summer School, organized by researchers of DeepMind, hosted at UNIMIB in September 2024 (<https://www.m2lschool.org/>). Expected 180 students from different institutions worldwide.

Sponsor Chair at ISWC 2022, obtaining a Certificate of Appreciation for the distinguished service.

Local organizer of the 2nd Mediterranean Machine Learning Summer School (first in-presence edition), organized by researchers of DeepMind at UNIMIB in September 2022 (<https://www.m2lschool.org/>). The school received approx. 600 applications and hosted approx. 120 students from different institutions worldwide.

Member of a commission for RTD-A the evaluation panel for five Ph.D. students: *Alessandro Daniele* of University of Trento (2020); *Erik Bryhn Myklebust* (2019 – Mid-term evaluation) of University of Oslo; *Mohamed Lamine Mouhoub* of Université Paris-Dauphine (2017); *Ruggeri Alice* (Interdisciplinary / Neuroscience - 2017) and *Alan Perotti* of University of Turin (2015).

Member of the evaluation panel for five Ph.D. students: *Alessandro Daniele* of University of Trento (2020); *Erik Bryhn Myklebust* (2019 – Mid-term evaluation) of University of Oslo; *Mohamed Lamine Mouhoub* of Université Paris-Dauphine (2017); *Ruggeri Alice* (Interdisciplinary / Neuroscience - 2017) and *Alan Perotti* of University of Turin (2015).

** Services to the Department

Member of the library committee: 2011. Negotiating access to library resources for the department.

Member of the academic timetable committee ("Commissione orari"): 2012 - 2018. Scheduling of lessons for the department.

Member of the Research Quality Assurance committee ("Assicurazione Qualità della Ricerca "): 2019 - Present. As a main role in the committee I have analyzed the publications of the members of the department, and, recently, of PhD students to report statistics about publications also considering their evolution along time.

Milan, 06/03/2024



** Appendix: Selected Publications^

^ Citation count (Google Scholar) reported for count ≥ 20

* Publications in International Journals

- [1] Bellandi, V., Bernasconi, C., Lodi, F., Palmonari, M., Pozzi, R., Ripamonti, M., & Siccardi, S. (2024). **An entity-centric approach to manage court judgments based on Natural Language Processing**. *Computer Law & Security Review*, 52, 105904.
- [2] Spahiu, B., Palmonari, M., Alva Principe, R. A., & Rula, A. (2024 / Online 2023). **Understanding the structure of knowledge graphs with ABSTAT profiles**. *Semantic Web* vol. Pre-press, no. Pre-press, pp. 1-27 (2003).
- [3] Alva Principe, R. A., Maurino, A., Palmonari, M., Ciavotta, M., & Spahiu, B. (2022). **ABSTAT-HD: a scalable tool for profiling very large knowledge graphs**. *The VLDB Journal*, 31(5), 851-876.
- [4] Nozza, D., Manchanda, P., Fersini, E., Palmonari, M., & Messina, E. (2021). **LearningToAdapt with word embeddings: domain adaptation of named entity recognition systems**. *Information Processing & Management*, 58(3), 102537. [#cit-gs = 46]
- [5] Rula, A., Palmonari, M., Rubinacci, S., Ngomo, A. C. N., Lehmann, J., Maurino, A., & Esteves, D. (2019). **TISCO: Temporal Scoping of Facts**. *Journal of Web Semantics* 54: 72-86. [#cit-gs = 25]
- [6] Narducci, F., Palmonari, M., Semeraro, G.: **Cross-lingual link discovery with TR-ESA**. *Inf. Sci.* 394: 68-87 (2017).
- [7] Abu Helou, M., Palmonari, M., Jarrar, M.: **Effectiveness of Automatic Translations for Cross-Lingual Ontology Mapping**. *J. Artif. Intell. Res. (JAIR)* 55: 165-208 (2016). [#cit-gs = 37]
- [8] Cruz, I. F., Palmonari, M., Loprete, F., Stroe, C., Taheri, A.: **Quality-based model for effective and robust multi-user pay-as-you-go ontology matching**. *Semantic Web* 7(4): 463-479 (2016).
- [9] Porrini, R., Palmonari, M. & Vizzari, G.. **Composite match autocompletion (COMMA): a semantic result-oriented autocompletion technique for e-marketplaces**. *Web Intelligence and Agent Systems*, 12(1): 35-49 (2014).
- [10] Cruz, I. F., Palmonari, M., Caimi, F., Stroe, C.: **Building linked ontologies with high precision using subclass mapping discovery**. *Artif. Intell. Rev.*, 40(2):127-145, 2013. [#cit-gs = 23]
- [11] Panziera, L., Comerio, M., Palmonari, M., De Paoli, F., Batini, C.: **Quality-driven Extraction, Fusion and Matchmaking of Semantic Web API Descriptions**. *J. Web Eng.* 11(3): 247-268 (2012). [#cit-gs = 29]
- [12] Palmonari, M., Sala, A., Maurino, A., Guerra, F., Pasi, G., Frisoni, G.: **Aggregated search of data and services**. *Information Systems*, Elsevier, Volume 36, Issue 2, pp. 134-150 (2011).
- [13] Mosca, A., Palmonari, M., Sartori, F.: **An Upper-level Functional Ontology to Support Knowledge Management in SMEs-based E-Manufacturing of Mechanical Products**. *Knowledge Engineering Review*, Cambridge University Press. Volume 24 , Issue 3, pp 265-285 (2009).
- [14] Palmonari, M., Viscusi, G., Batini, C. **A Semantic Repository Approach to Improve the Government to Business Relationship**. *Data & Knowledge Engineering*, Elsevier, Vol 65/3 2008, pp 485-511 (2008). [#cit-gs = 43]
- [15] Bandini, S., Mosca, A., Palmonari, M.: **Commonsense Spatial Reasoning for Information Correlation in Pervasive Computing**. *Applied Artificial Intelligence*, Taylor&Francis, Vol. 21/4-5, pp 405-425 (2007).
- [16] S. Bandini, A. Mosca, M. Palmonari, **Intelligent Alarm Correlation and Abductive Reasoning**. In L. Magnani (guest editor), *Logic Journal of IGPL*, Oxford University Press, Vol. 14., March 2006, pp. 347-362.

*** Selected Publications from International Conferences (highly ranked conferences and/or papers with more citations)**

- [17] Greco, G., Alberici, F., Palmonari, M., & Cosentini, A. (2023). **Declarative Encoding of Fairness in Logic Tensor Networks**. In *Proceedings of the 26th European Conference on Artificial Intelligence, ECAI* (pp. 908-915). IOS Press.
- [18] Bianchi, F., Marelli, M., Nicoli, P., & Palmonari, M. (2021, November). **SWEAT: Scoring Polarization of Topics across Different Corpora**. In *Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing* (pp. 10065-10072).
- [19] Ciavotta, M., Cutrona, V., Paoli, F. D., Palmonari, M., & Spahiu, B. (2021, October). **BEE0: Semantic Support for Event-Based Data Analytics**. In *International Semantic Web Conference* (pp. 580-596). Springer, Cham.
- [20] Cutrona V., Bianchi F., Jiménez-Ruiz E., Palmonari M. (2020) **Tough Tables: Carefully Evaluating Entity Linking for Tabular Data**. In: Pan J.Z. et al. (eds) *The Semantic Web – ISWC 2020*. ISWC 2020. Lecture Notes in Computer Science, vol 12507. Springer, Cham. [#cit-gs = 50]
- [21] Cutrona, V., Paoli, F. D., Košmerlj, A., Nikolov, N., Palmonari, M., Perales, F., & Roman, D. (2019, October). **Semantically-enabled optimization of digital marketing campaigns**. In *International Semantic Web Conference* (pp. 345-362). Springer, Cham.
- [22] Di Carlo, V., Bianchi, F., & Palmonari, M. (2019, July). **Training temporal word embeddings with a compass**. In *Proceedings of the AAAI conference on artificial intelligence* (Vol. 33, No. 01, pp. 6326-6334). [#cit-gs = 77]
- [23] Federico Bianchi, Matteo Palmonari, Debora Nozza: **Towards Encoding Time in Text-Based Entity Embeddings**. *International Semantic Web Conference* (1) 2018: 56-71
- [24] Porrini, R., Palmonari, M., & Cruz, I. F.: **Facet Annotation Using Reference Knowledge Bases**. In *Proceedings of The Web Conference (former WWW)* (pp. 1215-1224). International World Wide Web Conferences Steering Committee. 2018.
- [25] Di Noia, T., Magarelli, C., Maurino, A., Palmonari, M., Rula, A.: **Using Ontology-based Data Summarization to Develop Semantics-aware Recommender Systems**. In *Proceedings of ESWC*. LNCS, Springer-Verlag. 2018. [#cit-gs = 42]
- [26] Spahiu, B., Maurino, A., Palmonari, M.: **Towards Improving the Quality of Knowledge Graphs with Data-driven Ontology Patterns and SHACL**. *ISWC (Best Workshop Papers)* 2018: 103-117. [#cit-gs = 46]
- [27] Bianchi, F., Palmonari, M., Cremaschi, M., Fersini, E.: **Actively Learning to Rank Semantic Associations for Personalized Contextual Exploration of Knowledge Graphs**. In *proceedings of ESWC (1) 2017*, Springer, pp.120-135.
- [28] Ragone, A., Tomeo, P., Magarelli, C., Di Noia, T., Palmonari, M., Maurino, A., & Di Sciascio, E.: **Schema Summarization in Linked-data-based Feature Selection for Recommender Systems**. In *Proceedings of SAC 2017* (330-335). [#cit-gs = 29]
- [29] Spahiu, B., Porrini, R., Palmonari, M., Rula, A., & Maurino, A. (2016, May). **ABSTAT: ontology-driven linked data summaries with pattern minimalization**. In *European Semantic Web Conference – Revised Selected Papers* (pp. 381-395). Springer, Cham. [#cit-gs = 74]
- [30] Anisa Rula, Matteo Palmonari, Axel-Cyrille Ngonga Ngomo, Daniel Gerber, Jens Lehmann, and Lorenz Buhmann (2014). **Hybrid acquisition of temporal scopes for rdf data**. In *proceedings of ESWC 2014*, Springer, pp. 488-503. [#cit-gs = 33]
- [31] Cruz, I. F., Loprete, F., Palmonari, M., Stroe, C., Taheri, A. (2014). **Pay-as-you-go multi-user feedback model for ontology matching**. In *proceedings of the 19th International Conference on Knowledge Engineering and Knowledge Management, EKAW* (pp. 80-96). [#cit-gs = 26]

- [32] Riccardo Porrini, Matteo Palmonari, and Carlo Batini. **Extracting facets from lost fine-grained categorizations in dataspace**s. In *CAISE 2014*, 580-594.
- [33] Fedelucio Narducci, Matteo Palmonari, and Giovanni Semeraro. **Cross- language semantic retrieval and linking of e-Gov services**. In *proceedings of ISWC 2013*, Springer, pp 130-145.
- [34] Daniel Faria, Catia Pesquita, Emanuel Santos, Matteo Palmonari, Isabel F. Cruz, and Francisco M. Couto. **The AgreementMakerLight ontology matching system**. In *ODBASE 2013*, volume 8185 of *Lecture Notes in Computer Science*, pages 527-541. Springer, 2013. [#cit-gs = 364]
- [35] C. Tziviskou, M. Palmonari, M. Comerio, and F. De Paoli. **SeDL-C: A language for modeling business terms in service descriptions**. In *ICWS 2013*. IEEE Computer Society, 2013.
- [36] Anisa Rula, Matteo Palmonari, Andreas Harth, Steffen Stadtmüller, Andrea Maurino: **On the Diversity and Availability of Temporal Information in Linked Open Data**. In *proceedings of ISWC (1) 2012*, Springer, pp. 492-507. [#cit-gs = 65]
- [37] Rula, A., Palmonari, M., & Maurino, A. (2012). **Capturing the age of linked open data: Towards a dataset-independent framework**. In *2012 IEEE Sixth International Conference on Semantic Computing* (pp. 218-225). IEEE. [#cit-gs = 27]
- [38] Isabel F. Cruz, Alessio Fabiani, Federico Caimi, Cosmin Stroe, Matteo Palmonari: **Automatic Configuration Selection Using Ontology Matching Task Profiling**. *ESWC 2012*: 179-194.
- [39] Matteo Palmonari, Marco Comerio, Flavio De Paoli. **Effective and Flexible NFPbased Ranking of Web Services**. In *proceedings of ICSOC 2009*, IEEE Computer Society, pp. 546-560. [#cit-gs = 57]
- [40] Flavio De Paoli, Matteo Palmonari, Marco Comerio, and Andrea Maurino. **A meta-model for non-functional property descriptions of web services**. In *proceedings of ICWS 2008*, IEEE Computer Society, pp. 393-400. [#cit-gs = 73]
- [41] Comerio, M., De Paoli, F., Maurino, A., & Palmonari, M. (2007, October). **Nfp-aware semantic web services selection**. In *11th IEEE International Enterprise Distributed Object Computing Conference (EDOC 2007)* (pp. 484-484). IEEE. [#cit-gs = 30]

*** Selected Publications from Other International Conferences (recent and/or representative of research activities)**

- [42] Avogadro, R., Ciavotta, M., De Paoli, F., Palmonari, M., & Roman, D. (2023). **Estimating Link Confidence for Human-in-the-loop Table Annotation**. In *2023 IEEE International Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT)* (pp. 142-149). IEEE.
- [43] Pozzi, R., Rubini, R., Bernasconi, C., & Palmonari, M. (2023). **Named Entity Recognition and Linking for Entity Extraction from Italian Civil Judgements**. In *International Conference of the Italian Association for Artificial Intelligence* (pp. 187-201). Cham: Springer Nature Switzerland.
- [44] Ottolina, G., Palmonari, M., Alam, M., & Vimercati, M. (2021). **On the Impact of Temporal Representations on Metaphor Detection**. *LREC 2022*: 623-632. European Language Resources Association 2022
- [45] Cremaschi, M., Barbato, J. A., Rula, A., Palmonari, M., & Actis-Grosso, R. (2022). **What Really Matters in a Table? Insights from a User Study**. In *2022 IEEE/WIC/ACM International Joint Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT)* (pp. 263-269). IEEE.
- [46] Batini, C., Bellandi, V., Ceravolo, P., Moiraghi, F., Palmonari, M., & Siccardi, S. (2021, September). **Semantic Data Integration for Investigations: Lessons Learned and Open Challenges**. In *2021 IEEE International Conference on Smart Data Services (SMDS)* (pp. 173-183). IEEE.
- [47] Cutrona, V., Puleri, G., Bianchi, F., & Palmonari, M. (2021, September). **NEST: Neural Soft Type Constraints to Improve Entity Linking in Tables**. In *SEMANTiCS* (pp. 29-43).

- [48] Bianchi, F., Palmonari, M., Hitzler, P., & Serafini, L. (2019). **Complementing logical reasoning with sub-symbolic commonsense**. In *Rules and Reasoning: Third International Joint Conference, RuleML+ RR 2019, Bolzano, Italy, September 16–19, 2019, Proceedings 3* (pp. 161-170). Springer International Publishing.
- [49] Cutrona, V., Ciavotta, M., De Paoli, F., & Palmonari, M. (2019). **ASIA: a Tool for Assisted Semantic Interpretation and Annotation of Tabular Data**. In *ISWC (Satellites)* (pp. 209-212).
- [50] Bianchi, F., Palmonari, M., Hitzler, P., & Serafini, L. "Complementing Logical Reasoning with Sub-symbolic Commonsense." *International Joint Conference on Rules and Reasoning*. Springer, Cham, 2019.
- [51] Alva Principe, R.A., Spahiu, B., Palmonari, M., Rula, A., De Paoli, F., Maurino, A.: **ABSTAT 1.0: Compute, Manage and Share Semantic Profiles of RDF Knowledge Graphs**. In *Proceedings of ESWC 2 (Posters & Demo)*. LNCS, Springer-Verlag, 2018.
- [52] Vito Walter Anelli, Andrea Calì, Tommaso Di Noia, Matteo Palmonari, Azzurra Ragone: **Exposing Open Street Map in the Linked Data Cloud**. IEA/AIE 2016: 344-355
- [53] Rula, A., Palmonari, M., & Maurino, A. (2012, September). **Capturing the age of linked open data: Towards a dataset-independent framework**. In *2012 IEEE Sixth International Conference on Semantic Computing* (pp. 218-225). IEEE.
- [54] Cruz, I. F., Stroe, C., & Palmonari, M. (2012, April). **Interactive user feedback in ontology matching using signature vectors**. In *2012 IEEE 28th International Conference on Data Engineering* (pp. 1321-1324). IEEE. [#cit-gs = 58]

* Selected Book Chapters

- [55] Ciavotta, M., Cutrona, V., De Paoli, F., Nikolov, N., Palmonari, M., & Roman, D. (2022). **Supporting Semantic Data Enrichment at Scale**. In *Technologies and Applications for Big Data Value* (pp. 19-39). Springer, Cham.
- [56] Bianchi, F., Rossiello, G., Costabello, L., Palmonari, M., & Minervini, P. **Knowledge Graph Embeddings and Explainable AI**. (2020). Knowledge graph embeddings and explainable AI. *Knowledge Graphs for Explainable Artificial Intelligence: Foundations, Applications and Challenges*, 47, 49. [#cit-gs = 101]