

# Dr. Davide Lanti

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## Online References

Website: <https://www.inf.unibz.it/~dlanti/>

GitHub: <https://github.com/tirrolo>

Main Own GitHub Projects:

<https://github.com/ontop/npd-benchmark>

<https://github.com/ontop/vig>

<https://github.com/ontop/obda-mixer>

Main Collaborations in GitHub Projects:

<https://github.com/ontop>

Google Scholar: U91SlzEAAAAJ

Cited By: 1508

H-index: 14

i10-index: 21

ORCID: 0000-0003-1097-2965

Elsevier SCOPUS ID: 55973501200

## Present Appointment

I am an Assistant Professor (RTD-A) at the Free University of Bozen-Bolzano (Italy).

## Research Interests

My main research interests are ranked in the following order: *Ontology-based Data Access (aka Virtual Knowledge Graphs)*, *Description Logics*, *Semantic Web*, *Database Theory* and *Knowledge Representation and Reasoning* in general.

## Education since Leaving School

Dates	04/01/2014 - 12/02/2018
Attained Title	Ph.D. in Computer Science
Scientific Sector	ING-INF/05 (Information Processing Systems)
Thesis Title	Benchmarking and Optimization of Ontology-based Data Access Systems
Thesis Link	<a href="https://bia.unibz.it/handle/10863/6081">https://bia.unibz.it/handle/10863/6081</a>
Subject Area	Semantic Web, Knowledge Representation Systems, Databases, Logic
Institution(s)	Free University of Bolzano/Bozen
Place(s)	Bozen-Bolzano (Italy)
Dates	1/10/2010 - 11/04/2013
Attained Title	Master's Degree in Computational Logic (Joint German and Italian Degree)
Class	LM-18 (Informatics)
Thesis Title	Sharing Information in Parallel Search with Search Space Partitioning
Final Mark	1.3/4.0 (German System), 107/110 (Italian System)
Subjects Covered	Propositional Logic First Order Logic Modal Logic Model Checking SAT Solving Foundations of Logic Programming, and Prolog Answer Sets Programming Term Rewriting Systems

Description Logics, and Fuzzy Description Logics  
Information Integration  
English  
Institution(s) Technische Universität Dresden, Free University of Bozen-Bolzano  
Place(s) Dresden (Germany), Bolzano (Italy)

Dates 01/10/2006 - 15/03/2010  
Attained Title Bachelor's Degree in Computer Science  
Final Mark 110/110 cum Laude  
Thesis Title DALI Interpreter Re-engineering and Integration with the Semantic Web  
Subjects Covered Foundations of Computer Science and Mathematics  
Programming Languages and Computer Architectures  
Mathematical Analysis  
Probability Calculus

Institution(s) Università de L'Aquila  
Place L'Aquila (Italy)

### *Summer Schools*

Dates 20/09/2019 - 24/09/2019  
Name Reasoning Web Summer School (RW)  
Attended Lectures/Talks Provenance in Databases  
Algorithms for Description Logics  
Place(s) Bozen-Bolzano (Italy)

Dates 15/08/2016 - 26/08/2016  
Name European Summer School in Logic, Language and Information (ESLLI)  
Attended Lectures/Talks Description Logics  
Type Theory  
Algebraic Specification and Verification  
Logic Foundations of Databases  
Probabilistic Interpretation  
Ontology-mediated Query Answering  
Place(s) Bozen-Bolzano (Italy)

Dates 31/08/2015 - 04/08/2015  
Name Reasoning Web Summer School (RW) + RR Doctoral Consortium  
Attended Lectures/Talks Fuzzy Description Logics  
Modal Higher Order Logic  
TPTP (Automated Theorem Proving Competitions)  
Legal RuleML  
Datalog+/-  
Answer Set Programming  
Given Talk(s) Benchmarking and Optimization of OBDA Systems  
Poster(s) Benchmarking and Optimization of OBDA Systems  
Place(s) Berlin (Germany)

Dates 26/01/2015 - 30/01/2015  
Name International Winter School on Big Data (BigDat)  
Attended Lectures/Talks Decision Trees for Big Data Analytics  
Programming with Big Data  
Data-stream Security  
Search Engines  
Online Social Networks  
Kernel Models for Big Data

Place(s)	Tarragona (Spain)
Dates	08/09/2014 - 13/09/2014
Name	Reasoning Web Summer School (RW)
Attended Lectures/Talks	Linked Data Description Logics Query-processing for RDF Databases Graph Databases Ontology-based Query Answering Temporal Ontology-based Data Access Probabilistic Databases Smart Cities Machine Learning on Graphs
Poster(s)	The NPD Benchmark for OBDA Systems
Place(s)	Athens (Greece)
Dates	27/07/2014 - 1/08/2014
Name	EATCS Young Researchers School—Automata, Logic and Games
Attended Lectures/Talks	Logic Foundations of Databases
Place(s)	Telč (Czech Republic)
Dates	29/01/2014 - 31/01/2014
Name	Foundations and Challenges of Change in Ontologies and Databases (FCCOD)
Attended Lectures/Talks	Talks regarding dynamic aspects of logic and data access (Temporal Logics)
Given Talk(s)	A Survey of Temporal Extensions of DLs
Place(s)	Bolzano-Bozen (Italy)
Dates	01/08/2011 - 12/08/2011
Name	European Summer School in Logic, Language and Information (ESSLLI)
Attended Lectures/Talks	Logic in Action Logics of knowledge and strategic abilities in multi-agent systems Ordinals and Cardinals Strategies in Game: A logic automata study
Place(s)	Ljubljana (Slovenia)

## Professional Experience

Dates	01/08/2022 - ongoing
Company	Free University of Bozen-Bolzano
Academic Level	Assistant Professor (RTD A) with fixed-term contract (Faculty RTD)
Scientific Sector	ING-INF/05 (Information Processing Systems)
Responsibilities	Teaching duties (60h per academic year).
Place(s)	Bolzano-Bozen (Italy)
Dates	01/10/2020 - 30/07/2022
Company	Free University of Bozen-Bolzano
Academic Level	Assistant Professor (RTD A) with fixed-term contract
Project	European Union H2020 project “Intelligent Open Data Exploration” (H2020-863410 IN-ODE)
Scientific Sector	ING-INF/05 (Information Processing Systems)
Responsibilities	Foundational and applied research on the use of Virtual Knowledge Graphs for data management and integration of heterogenous data sources; Teaching duties (60h per academic year).
Place(s)	Bolzano-Bozen (Italy)

Dates	01/01/2018 - 30/09/2020
Company	Free University of Bozen-Bolzano
Academic Level	AR (Assistente alla Ricerca, Research Assistant)
Project	KENDO-Call+StyLoLA
Scientific Sector	ING-INF/05 (Information Processing Systems)
Responsibilities	Foundational and applied research within the framework of Virtual Knowledge Graphs, focusing on: benchmarking, optimization, explanation and aggregation.
Place(s)	Bolzano-Bozen (Italy)
Dates	01/10/2013 - 31/12/2013
Company	Free University of Bozen-Bolzano
Type of Collaboration	Fixed-term Contract (co.co.pro.)
Task Description	In <i>Ontology-based Data Access</i> (OBDA), the aim is to access heterogeneous physical data sources through a unified conceptual layer provided by a mediating ontology. My work focused on the production of a survey on OBDA research and on the understanding of the weaknesses of implemented VKG systems.
Place(s)	Bolzano-Bozen (Italy)
Dates	01/11/2012 - 31/03/2013
Company	SAP A.G.
Type of Collaboration	Internship
Responsibilities	<i>Complex Event Processing</i> (CEP) describes search patterns inside a continuous stream of events. During this internship I designed, implemented and tested a software artifact able to flexibly migrate resource demanding portions of queries (such as <i>correlated aggregations</i> ) over an existing CEP system ( <i>Sybase Event Stream Processor</i> ) to the SAP HANA database.
Place(s)	Dresden (Germany)
Dates	2005-2009 (Occasionally)
Company	Abruzzo Vetro - Ardagh Glass
Type of Collaboration	Fixed-term Contract
Responsibilities	Manual checking and discarding of defective glass bottles.
Place(s)	Montorio al Vomano (Italy)

## Experience in Academic Teaching

Dates	A.Y. 2023 - 2024, Winter Semester
University	Free University of Bozen-Bolzano
Type of Collaboration	Lecturer
Course Name	Capstone Project (6 ECTS)
Academic Level	Master's Degree (2nd year)
Scientific Sector	ING-INF/05
Number of Hours	4 (seminars by companies in South Tyrol)
Language	English
Place(s)	Bolzano-Bozen (Italy)
Dates	A.Y. 2023 - 2024, Winter Semester
University	Free University of Bozen-Bolzano
Type of Collaboration	Lecturer
Course Name	Intelligent Agents – Intelligent Agents Project (6 ECTS)
Academic Level	Bachelor Degree (3rd year)
Scientific Sector	INF/01
Number of Hours	60 (40 of frontal lectures, 20 of labs)
Language	English
Place(s)	Bolzano-Bozen (Italy)

Dates A.Y. 2022 - 2023, Summer Semester  
University Free University of Bozen-Bolzano  
Type of Collaboration Lecturer  
Course Name Modeling and Databases – Introduction to Databases for Business Informatics (6 ECTS)  
Academic Level Bachelor Degree (1st year)  
Scientific Sector INF/01  
Number of Hours 60 (40 of frontal lectures, 20 of labs)  
Language English  
Place(s) Bolzano-Bozen (Italy)

Dates A.Y. 2022 - 2023, Winter Semester  
University Free University of Bozen-Bolzano  
Type of Collaboration Lecturer  
Course Name Intelligent Agents – Intelligent Agents Project (6 ECTS)  
Academic Level Bachelor Degree (3rd year)  
Scientific Sector INF/01  
Number of Hours 60 (20 of frontal lectures, 40 of labs)  
Language English  
Place(s) Bolzano-Bozen (Italy)

Dates A.Y. 2021 - 2022, Summer Semester  
University Free University of Bozen-Bolzano  
Type of Collaboration Teaching Assistant (tutor)  
Course Name Programming Project (9 ECTS)  
Academic Level Bachelor Degree  
Scientific Sector INF/01  
Number of Hours 30 hours of labs  
Task Description I was responsible for the laboratories of this course  
Language English  
Place(s) Bolzano-Bozen (Italy)

Dates A.Y. 2021 - 2022, Winter Semester  
University Free University of Bozen-Bolzano  
Type of Collaboration Teaching Assistant (tutor)  
Course Name Computer Programming (9 ECTS)  
Academic Level Bachelor Degree  
Scientific Sector INF/01  
Number of Hours 30 hours of labs  
Task Description I was responsible for the laboratories of this course  
Language English  
Place(s) Bolzano-Bozen (Italy)

Dates A.Y. 2020 - 2021, Winter Semester  
University Free University of Bozen-Bolzano  
Type of Collaboration Lecturer  
Course Name Semantic Technologies and Linked Data (6 ECTS)  
Academic Level Master's Degree  
Scientific Sector INF/01  
Number of Hours 60 (40 of frontal lectures, 20 of labs)  
Language English  
Place(s) Bolzano-Bozen (Italy)

Dates A.Y. 2019 - 2020, Winter Semester  
University Free University of Bozen-Bolzano  
Type of Collaboration Teaching Assistant (tutor)

Course Name	Introduction to Databases (6 ECTS)
Academic Level	Bachelor's Degree
Scientific Sector	ING-INF/05
Task Description	I was responsible for the management of the projects for this course. My activities ranged from tutoring of the students to projects' discussions.
Language	English
Place(s)	Bolzano-Bozen (Italy)
Dates	A.Y. 2019 - 2020, Winter Semester
University	Free University of Bozen-Bolzano
Type of Collaboration	Teaching Assistant (tutor)
Course Name	Programming Paradigms
Scientific Sector	INF/01
Academic Level	Bachelor's Degree
Task Description	I was co-responsible for the laboratories for this course. Exercises were on the following programming paradigms: Object-oriented (Ruby), Functional (Haskell), Logic (Prolog), and Concurrent (ERLANG)
Language	Italian
Place(s)	Bolzano-Bozen (Italy)
Dates	A.Y. 2018 - 2019, Winter Semester
University	Free University of Bozen-Bolzano
Type of Collaboration	Teaching Assistant (tutor)
Course Name	Introduction to Databases (6 ECTS)
Academic Level	Bachelor's Degree
Scientific Sector	ING-INF/05
Task Description	I was responsible for the laboratories and the projects for this course. My activities were: exercises on foundational and applied notions of relational databases, managing of the students' projects and projects' discussions
Language	English
Place(s)	Bolzano-Bozen (Italy)
Dates	A.Y. 2018 - 2019, Winter Semester
University	Free University of Bozen-Bolzano
Type of Collaboration	Teaching Assistant (tutor)
Course Name	Intelligent Systems
Academic Level	Bachelor's Degree
Scientific Sector	INF/01
Task Description	I was responsible for the laboratories for this course. I proposed exercises over: Search, Logic Programming, Knowledge Representation
Language	Italian
Place(s)	Bolzano-Bozen (Italy)
Dates	A.Y. 2017 - 2018, Summer Semester
University	Free University of Bozen-Bolzano
Type of Collaboration	Teaching Assistant (tutor)
Course Name	Knowledge Representation and Ontologies
Academic Level	Master's Degree
Scientific Sector	INF/01
Task Description	I was responsible for the laboratories and the project for this course. I proposed exercises and projects over: Semantic Web, Description Logics, Virtual Knowledge Graphs
Language	English
Place(s)	Bolzano-Bozen (Italy)
Dates	A.Y. 2017 - 2018, Winter Semester
University	Free University of Bozen-Bolzano

Type of Collaboration	Teaching Assistant (tutor)
Course Name	Intelligent Systems
Academic Level	Bachelor's Degree
Scientific Sector	INF/01
Task Description	I was responsible for the laboratories for this course. I proposed exercises over: Search, Logic Programming, Knowledge Representation
Language	Italian
Place(s)	Bolzano-Bozen (Italy)
Dates	A.Y. 2016 - 2017, Winter Semester
University	Free University of Bozen-Bolzano
Type of Collaboration	Teaching Assistant (tutor)
Course Name	Operating Systems
Academic Level	Bachelor's Degree
Scientific Sector	ING-INF/05
Task Description	I was responsible for the laboratories for this course. I proposed Bash and C exercises over core OS functionalities
Language	English
Place(s)	Bolzano-Bozen (Italy)

## Organization of Scientific Events

2024	Co-organizer of the 1st International Workshop on Semantic Technologies for Data Management (ST4DM)
2024	Local organizer of the 20th conference on Information and Research science Connecting to Digital and Library science (IRCDL 2024)
2023	Chair of the RuleML+RR 2023 Doctoral Consortium
2023	Chair of the session on <i>Learning frameworks and structures</i> for the 31st Symposium on Advanced Database Systems (SEBD 2023)
2023	Local organizer of the 7th INODE Project Plenary Meeting (Bolzano, 23-24/03/2023)
2023	Organization of the INODE USER Training Workshop (Virtual, 25/01/2023)
2022	Organization of the 2nd International INODE EOSC Workshop (01/06/2022)
2021	Organization of the 1st International INODE EOSC Workshop (03/05/2021)
2019	Chair of the session on <i>KRR   LKR - Logics for Knowledge Representation</i> for the 28th International Joint Conference on Artificial Intelligence (IJCAI 2019), Macao (China).

## Editorial Boards

2024	Editor of the Research Topic "Semantic Technologies for Data Management" for the journal "Frontiers in Computer Science"
2023	Editor of the Proceedings of the 17th International Rule Challenge and 7th Doctoral Consortium @ RuleML+RR 2023 co-located with 19th Reasoning Web Summer School (RW 2023) and 15th DecisionCAMP 2023 as part of Declarative AI 2023, Oslo, Norway, 18 - 20 September, 2023.

## Committee Memberships

2024	PC member for the 33th International Joint Conference on Artificial Intelligence (IJCAI 2024)
2024	PC member for the 21st Extended Semantic Web Conference (ESWC 2024)



2024	PC member for the 20th conference on Information and Research science Connecting to Digital and Library science (IRCDL 2024)
2023	PC member for the 3rd International Workshop on Semantic Web and Ontology Design for Cultural Heritage (SWODCH 2023)
2023	PC member for the 18th European Conference on Logics in Artificial Intelligence (JELIA 2023)
2023	PC member for the 4th International Workshop on Knowledge Graph Construction (KGCW 2023)
2023	PC member for the 13th International Conference on Formal Ontology in Information Systems, Demonstrations Track (FOIS 2023)
2023	PC member for the 31st Symposium on Advanced Database System (SEBD 2023)
2023	PC member for the special track on “AI and Social Good” of the 32th International Joint Conference on Artificial Intelligence (IJCAI 2023)
2023	PC member for the 32th International Joint Conference on Artificial Intelligence (IJ-CAI 2023)
2023	PC member for the 20th International Conference on Principles of Knowledge Representation and Reasoning (KR 2023)
2022	PC member for the 19th International Conference on Principles of Knowledge Representation and Reasoning (KR 2022)
2022	PC member for the 31th International Joint Conference on Artificial Intelligence (IJ-CAI 2022)
2021	PC member for the 30th International Joint Conference on Artificial Intelligence (IJ-CAI 2021)
2020	PC member for the 29th International Joint Conference on Artificial Intelligence (IJ-CAI 2020)
2019	PC member for the European Conference on Artificial Intelligence (ECAI 2019)
2019	PC member for the 28th International Joint Conference on Artificial Intelligence (IJ-CAI 2019)

## Journal Reviews

2023	Artificial Intelligence; Digital Scholarship in the Humanities
2022	Journal on Computing and Cultural Heritage; Semantic Web Journal
2021	Knowledge-Based Systems
2020	Journal of Web Semantics
2018	Journal of Web Semantics

## Third Mission

2023	Presentation for high-school students at the <i>Open Day for Schools</i> , organized by NOI Technology Park (02/03/2023)
2022	Presentation for high-school students at the <i>Open Day for Schools</i> , organized by NOI Technology Park (18/11/2022)
2022	Meeting with the Loacker company, in the context of the <i>Touch and Feel</i> event organized by ther Faculty of Computer Science of the Free University of Bozen-Bolzano (01/07/2022)

## Talks

### *Dissemination*

Dates	25/01/2023
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Name	INODE User Training Workshop
Topic(s)	Introduction of the INODE system to the user community
Given Talk(s)	Knowledge Graphs for Accessing Data in OncoMX
Talk Video	
Place(s)	Virtual
Dates	01/06/2022
Name	Second INODE EOOSC Workshop
Topic(s)	Components and Services of the INODE System
Given Talk(s)	Knowledge Graphs for Data Access
Talk Video	<a href="https://eosc-portal.eu/events/2nd-inode-eosc-workshop">https://eosc-portal.eu/events/2nd-inode-eosc-workshop</a>
Place(s)	Virtual
Dates	21/05/2021
Name	INODE EOOSC Workshop
Topic(s)	Components and Services of the INODE System
Given Talk(s)	Knowledge Graphs for Data Access
Talk Video	<a href="https://tinyurl.com/3dsawcmb">https://tinyurl.com/3dsawcmb</a>
Place(s)	Virtual

### *Invited Talks*

Dates	25/11/2022
Event	15th Seminar on Ontology Research in Brazil – ONTOBRAS 2022
Session Name	Designing Virtual Knowledge Graphs with Ontop and Ontopic Studio
Topic(s)	VKGs, Ontop, Ontopic
Typology	Hands-on Tutorial on the VKG System Ontop (with Diego Calvanese and Benjamin Cogrel)
URL	<a href="https://www.inf.ufrgs.br/ontobras/en/tutorials-2022/">https://www.inf.ufrgs.br/ontobras/en/tutorials-2022/</a>
Place(s)	Virtual

### *Conference Presentations*

Dates	19/06/2022 - 22/06/2022
Name	30th Symposium on Advanced Database System (SEBD 2022)
Topic(s)	Databases
Given Talk(s)	Conceptually-grounded Mapping Patterns for Virtual Knowledge Graphs (Extended Abstract)
Place(s)	Tirrenia, Pisa (Italy)
Dates	28/06/2021 - 02/07/2021
Name	International Conference on Advanced Information Systems Engineering (CaiSE)
Topic(s)	Information Systems
Given Talk(s)	ADaMaP: Automatic Alignment of Relational Data Sources Using Mapping Patterns
Place(s)	Melbourne, Australia (Virtual due to Covid-19)
Dates	07/01/2021 - 15/01/2021
Name	International Joint Conference on Artificial Intelligence (IJCAI)
Topic(s)	Artificial Intelligence
Given Talk(s)	Counting Query Answers over a DL-Lite Knowledge Base
Place(s)	Yokohama, Japan (Virtual due to Covid-19)
Dates	10/08/2019 - 16/08/2019

Name International Joint Conference on Artificial Intelligence (IJCAI)  
Topic(s) Artificial Intelligence  
Given Talk(s) Enriching Ontology-based Data Access with Provenance (with Prof. Ana Ozaki)  
Place(s) Macao (China)

Dates 21/10/2017 - 25/10/2017  
Name International Semantic Web Conference (ISWC)  
Topic(s) Semantic Web  
Given Talk(s) Cost-driven Ontology-based Data Access  
Talk Video [http://videolectures.net/iswc2017\\_lanti\\_data\\_access/](http://videolectures.net/iswc2017_lanti_data_access/)  
Place(s) Vienna (Austria)

Dates 06/07/2016 - 09/07/2016  
Name International Web Rule Symposium (RuleML)  
Topic(s) Rule Systems  
Ontology-based Data Access  
Legal Rules and Reasoning  
Given Talk(s) OBDA Constraints for Effective Query Answering  
Talk Video <https://www.youtube.com/watch?v=ivcRyy8a-Fw>  
Place(s) Stony-Brook, New York (USA)

Dates 04/08/2015 - 05/08/2015  
Name International Conference on Web Reasoning and Rule Systems (RR)  
Topic(s) Rule Systems  
Given Talk(s) (Doctoral Consortium): Benchmarking and Optimization of OBDA Systems  
Place(s) Berlin (Germany)

Dates 7/01/2013 - 11/01/2013  
Name Learning and Intelligent Optimization Conference (LION)  
Topic(s) Combinatorial Optimization  
Large-scale Parallelization in Search  
Games and Computational Intelligence  
Given Talk(s) Information Sharing in Parallel SAT Solving  
Place(s) Catania (Italy)

### *Workshop Presentations*

Dates 12/09/2020 - 14/09/2020  
Name International Workshop on Description Logics (DL)  
Topic(s) Description Logics  
Given Talk(s) A Scalable Benchmark for OBDA Systems: Preliminary Report  
Talk Video <https://tinyurl.com/y2ulwpl5>  
Place(s) Rhodes, Greece (Virtual)

Dates 20/10/2014  
Name International Workshop on Scalable Semantic Web  
Topic(s) Semantic Web repositories etc.  
Given Talk(s) The NPD Benchmark for OBDA Systems  
Place(s) Riva del Garda (Italy)

Dates 17/07/2014 - 20/07/2014  
Name International Workshop on Description Logics (DL)  
Topic(s) Description Logics  
Place(s) Wien (Austria)

Dates 13/07/2014  
 Name OWL Reasoner Evaluation Workshop (ORE)  
 Topic(s) Knowledge Representation Systems  
 OWL Benchmarks  
 Given Talk(s) A Scalable Benchmark for OBDA Systems: Preliminary Report  
 Place(s) Wien (Austria)

Dates 14/04/2014 - 17/04/2014  
 Name EPCL PhD Workshop 2014  
 Topic(s) Static and dynamic aspects of OBDA  
 Argumentation theory  
 SAT Solving  
 Semantic Web  
 Computer Science (Polynomial Hierarchy)  
 Given Talk(s) Towards a Scalable Benchmark for OBDA Systems  
 Place(s) Dresden (Germany)

## Research Visits

Dates 01/03/2016 - 31/07/2016  
 Invited by Prof. Ioana Manolescu  
 Institution(s) Inria-Saclay Île-de-France  
 Place(s) Saclay-Paris (France)

Dates 21-23/02/2023  
 Invited by Dr. Elena Botoeva  
 Institution University of Kent  
 Place(s) Canterbury (UK)

## Research Projects

### *Principal Investigator (PI) and Co-Investigator (Co-PI) Role*

Project MP4OBDA: Mapping Patterns for Ontology-based Data Access  
 Short Description Foundational studies on mappings for the ontology-based data access (OBDA) paradigm, and implementation of a prototype tool for automatic generation of mappings.  
 Role Principal Investigator  
 Project Duration 2021 – 2023  
 Call RTD2021, Faculty of Computer Science of the Free University of Bozen-Bolzano

Project INODE: European Union H2020 Intelligent Open Data Exploration, grant n. 863410  
 Short Description Development of a suite of agile, fit-for-purpose, and sustainable services for exploration of open data sets that allow users to interact with data in a dialectic and natural way.  
 Role Co-investigator and Work Package Leader  
 Project Duration 2019 – 2023  
 Link <http://www.inode-project.eu/>

### *Other Roles*

List of projects in which I have participated through scientific contributions and/or writing of deliverables.

Role	Team member
Project	CRISP Phase 2: Climate Risk Planning & Managing Tool for Development Programmes in the Agriculture & Food Sector
Short Description	Creation of an ontology about climate risk, and implementation of a prototype system for managing climate risk
Project Duration	2022 – 2023
Role	Team member
Project	CRISP Phase 2: Climate Risk Planning & Managing Tool for Development Programmes in the Agriculture & Food Sector
Short Description	Creation of an ontology about climate risk, and implementation of a prototype system for managing climate risk
Project Duration	2022 – 2023
Role	Team member
Project	Integration and Analysis of Geodata using Virtual Knowledge Graphs (GeoVKG) IN2090 CRC 2019
Short Description	Integration and analysis of geo-spatial data using Virtual Knowledge Graphs.
Project Duration	2019 – 2023
Role	Team member
Project	High quality Open data Publishing and Enrichment (HOPE), grant by Miur (PRIN)
Project Duration	2019 – 2022
Short Description	Dealing with privacy-preserving management of open data, the project has set the basis for extending the VKG paradigm to data sources that are not relational (as openEO raster data), and specifically to NoSQL, temporal and geospatial data
Link	<a href="http://hope-prin.org/index.html">http://hope-prin.org/index.html</a>
Role	Team Member
Project	StyLoLA: South Tyrol Longitudinal study on Longevity and Ageing
Short Description	The aim of this project is to describe health and healthcare trends in South Tyrol.
Project Duration	2018 – 2021
Role	Team member
Project	KENDO: Knowledge-driven Enterprise Distributed cOmputing
Short Description	It aims at developing a formal, verifiable and executable framework for enterprise distributed systems (EDSs) empowered with knowledge.
Project Duration	2015 – 2018
Role	Team member
Project	OBATS: Ontology-based analysis of temporal and streaming data
Short Description	OBATS aims at applying the approaches of Semantic Web in the context of temporal and streaming data of devices and sensors.
Project Duration	Jul. 2017 – Jun. 2019
Role	Team member
Project	Optique: European Union FP7 IST Large Scale Integrating Project Scalable End-user Access to Big Data (Optique), grant agreement n. FP7-318338.
Short Description	The main objective of Optique is to develop an extensible platform that provides a complete and generic solution to the data access challenges posed by Big Data.
Project Duration	Nov. 2012 – Oct. 2016
Link	<a href="http://optique-project.eu/">http://optique-project.eu/</a>

## Other Academic Responsibilities

Dates	A.Y. 2015/2016
University	Free University of Bozen-Bolzano
Responsibility	Faculty-level PhD Students' Representative
Boards	PhD Committee Students Council
Faculty	Computer Science
Place(s)	Bolzano-Bozen (Italy)

Dates	A.Y. 2014/2015
University	Free University of Bozen-Bolzano
Responsibility	Faculty-level PhD Students' Representative
Boards	PhD Committee Students Council
Faculty	Computer Science
Place(s)	Bolzano-Bozen (Italy)

## Language Skills

Italian: C2  
English: C1  
German: A1 (Ich arbeite daran)

## Language Certificates

2021	English, Level C1. Released by the Language Center of the Free University of Bozen-Bolzano
2011	FCE certificate (B2 level, English), obtained in 2011
2010	Institutional paper based TOEFL (English). Released by the Wayne State University (Michigan) with a score of 580

## Programming Skills

### *Known Programming Languages*

Procedural and OO	Excellent knowledge of Java 8. Good knowledge of C++ (03), C (99), and Python 3. Fair knowledge of Ruby.
Functional, Logic, Parallel	Fair knowledge of Lisp, Haskell, OcaML, Prolog, ASP, and Erlang.
Web	Fair knowledge of PHP.
SAT+SMT/Constraint Programming	Good knowledge of Z3. Fair knowledge of ECLiPSe.
Script	Excellent knowledge of Bash.

### *Experience in the Development of Software Tools and Prototypes*

I have a solid experience in developing back-end software tools and prototypes:

- In my BSc thesis, I have autonomously designed and implemented an interface to the *Semantic Web* for DALI. DALI is a language for multi-agent systems whose interpreter is written in Prolog;
- During my internship at SAP, I designed, implemented (in Java) and tested a software artifact able to flexibly migrate resource demanding portions of queries (such as *correlated aggregations*) over an existing CEP system (*Sybase Event Stream Processor*) to the SAP HANA database;

- In my MSc thesis, I worked on the implementation of PCasso, a competitive parallel SAT solver based on MiniSAT and implemented in C++; The experimentations reported in articles [CI-9, WI-26, WI-25] rely on such tool.
  - During my PhD studies, I have autonomously designed and implemented a number of tools and prototypes in JAVA. Most notably, I have created the following tools:
    - <https://github.com/ontop/vig>: A *data-scaler* for OBDA benchmarks;
    - <https://github.com/ontop/obda-mixer>: A testing platform for OBDA benchmarks.
- Several scientific publications of mine, as well as a number of works from other researchers, rely on these two tools. According to Google Scholar, at the time of writing, the sum of citations to the works describing the tools [TR-40, WI-29, CI-15], and on the *NPD Benchmark* [CI-13, WI-28, WI-27] (a benchmark that has such tools at its core) is 78.
- Finally, I am one of the developers of the *popular* (in the sense that it is *massively* cited in scientific publications and it has over 300 stars on GitHub) VKG system `Ontop`:
    - <https://github.com/ontop>

## Prizes

2018: Best PhD Student Award, Faculty of Computer Science, Free University of Bozen-Bolzano

2016: Semantic Web Journal Outstanding Paper Award 2016

2015: Best Doctoral Consortium Contribution Award in RR Conference 2015

## Scholarships, Waivers, etc.

Date Granted	2017
Award Holder(s)	Davide Lanti
Funding Body	Semantic Web Science Association (SWSA) and the US National Science Foundation (NSF)
Title	Student Travel Award for participation at the International Semantic Web Conference
Amount Received	300 Eur.

Date Granted	2016
Award Holder(s)	Davide Lanti
Funding Body	Euregio
Title	Euregio Grant for participation at ESSLLI Summer School 2016
Amount Received	Fee Waiver, corresponding to 450 Eur.

Date Granted	2014-2016
Award Holder(s)	Davide Lanti
Funding Body	Free University of Bozen-Bolzano
Title	PhD bursary

Date Granted	2011
Award Holder(s)	Davide Lanti
Funding Body	Province of Bozen-Bolzano
Title	Bursary “per meriti particolari” (special merit)
Amount Received	1160 Eur.

## Publications

In the following list, I indicate with the *italic font* the main author (whenever applicable).

### *Papers in Refereed International Journals*

- [JI-1] M. Giese, A. Soyly, G. Vega-Gorgojo, A. Waaler, P. Haase, E. Jiménez-Ruiz, D. Lanti, M. Rezk, G. Xiao, Ö. L. Özçep, and R. Rosati. Optique: Zooming in on Big Data. *IEEE Computer*, 48(3):60–67, 2015. DOI: 10.1109/MC.2015.82.
- [JI-2] D. Calvanese, B. Cogrel, S. Komla-Ebri, R. Kontchakov, D. Lanti, M. Rezk, M. Rodriguez-Muro, and G. Xiao. Ontop: Answering SPARQL queries over relational databases. *Semantic Web Journal*, 8(3):471–487, 2017. DOI: 10.3233/SW-160217.
- [JI-3] E. Kharlamov, D. Hovland, M. G. Skjæveland, D. Bilidas, E. Jiménez-Ruiz, G. Xiao, A. Soyly, D. Lanti, M. Rezk, D. Zheleznyakov, M. Giese, H. Lie, Y. E. Ioannidis, Y. Kotidis, M. Koubarakis, and A. Waaler. Ontology based data access in statoil. *J. of Web Semantics*, 44:3–36, 2017. DOI: 10.1016/j.websem.2017.05.005.
- [JI-4] D. Lanti, G. Xiao, and D. Calvanese. VIG: Data scaling for OBDA benchmarks. *Semantic Web Journal*, 10(2):413–433, 2019. DOI: 10.3233/SW-180336.
- [JI-5] S. Amer-Yahia, G. Koutrika, M. Braschler, D. Calvanese, D. Lanti, H. Lücke-Tieke, A. Mosca, T. M. de Farias, D. Papadopoulos, Y. Patil, G. Rull, E. Smith, D. Skoutas, S. Subramanian, and K. Stockinger. INODE: building an end-to-end data exploration system in practice. *SIGMOD Record*, 50, 2021.
- [JI-6] D. Calvanese, D. Lanti, T. Mendes De Farias, A. Mosca, and G. Xiao. Accessing scientific data through knowledge graphs with Ontop. *Patterns*, 2:1–10, 2021. DOI: 10.1016/j.patter.2021.100346.
- [JI-7] D. Calvanese, A. Gal, D. Lanti, M. Montali, A. Mosca, and R. Shraga. Conceptually-grounded mapping patterns for virtual knowledge graphs. *Data and Knowledge Engineering*, 145:102157, 2023. DOI: 10.3233/SW-223201.
- [JI-8] Z. Gu, F. Corcoglioniti, D. Lanti, A. Mosca, X. Guohui, X. Jing, and D. Calvanese. A systematic overview of data federation systems. *Semantic Web Journal*, 15(1):107–165, 2024. DOI: 10.1016/J.DATAK.2023.102157.

### *Papers in Refereed International Conferences*

- [CI-9] D. Lanti and N. Manthey. Sharing information in parallel search with search space partitioning. In *Proceedings of the 7th International Conference on Learning and Intelligent Optimization (LION 2013)*, volume 7997 of *Lecture Notes in Computer Science*. Springer, 2013. ISBN: 978-3-642-44973-4. DOI: 10.1007/978-3-642-44973-4\_6.
- [CI-10] T. Bagosi, D. Calvanese, J. Hardi, S. Komla-Ebri, D. Lanti, M. Rezk, M. Rodriguez-Muro, M. Slusnys, and G. Xiao. The Ontop framework for ontology based data access. In *The Semantic Web and Web Science - 8th Chinese Conference, CSWS 2014, Wuhan, China, August 8-12, 2014, Revised Selected Papers*, pages 67–77, 2014. DOI: 10.1007/978-3-662-45495-4\_6.
- [CI-11] D. Calvanese, B. Cogrel, S. K. Ebri, D. Lanti, M. Rezk, and G. Xiao. How to stay ontop of your data: Databases, ontologies and more. In *Revised Selected Papers of ESWC 2015 Satellite Events*, volume 9341 of *Lecture Notes in Computer Science*, pages 20–25. Springer, 2015. DOI: 10.1007/978-3-319-25639-9\_4.
- [CI-12] E. Kharlamov, D. Hovland, E. Jiménez-Ruiz, D. Lanti, H. Lie, C. Pinkel, M. Rezk, M. G. Skjæveland, E. Thorstensen, G. Xiao, D. Zheleznyakov, and I. Horrocks. Ontology based access to exploration data at statoil. In *Proc. of the 14th Int. Semantic Web Conf. (ISWC)*, pages 93–112. Springer International Publishing, 2015. DOI: 10.1007/978-3-319-25010-6\_6.
- [CI-13] D. Lanti, M. Rezk, G. Xiao, and D. Calvanese. The NPD benchmark: Reality check for OBDA systems. In *Proceedings of the Eighteenth International Conference on Extending Database Technology (EDBT 2015)*, pages 617–628. OpenProceedings.org, 2015. DOI: 10.5441/002/edbt.2015.62.
- [CI-14] D. Hovland, D. Lanti, M. Rezk, and G. Xiao. OBDA constraints for effective query answering. In *Proceedings of the 10th International Web Rule Symposium (RuleML 2016)*, volume 9718 of *Lecture Notes in Computer Science*, pages 269–286, 2016. DOI: 10.1007/978-3-319-42019-6\_18.



- [CI-15] D. Lanti, G. Xiao, and D. Calvanese. An evaluation of VIG with the BSBM benchmark. In *Proceedings of the ISWC 2016 Posters & Demonstrations Track co-located with 15th International Semantic Web Conference (ISWC 2016)*, volume 1690 of *CEUR Electronic Workshop Proceedings*, <http://ceur-ws.org/>. CEUR-WS.org, 2016.
- [CI-16] D. Lanti, G. Xiao, and D. Calvanese. Cost-driven ontology-based data access. In *Proc. of the 16th Int. Semantic Web Conf. (ISWC)*, volume 10587 of *Lecture Notes in Computer Science*, pages 452–470. Springer, 2017. DOI: 10.1007/978-3-319-68288-4\_27.
- [CI-17] D. Calvanese, D. Lanti, A. Ozaki, R. Peñaloza, and G. Xiao. Enriching ontology-based data access with provenance. In *Proc. of the 28th Int. Joint Conf. on Artificial Intelligence (IJCAI)*, pages 1616–1623. Int. Joint Conf. on Artificial Intelligence Org., 2019. DOI: 10.24963/ijcai.2019/224.
- [CI-18] D. Calvanese, J. Corman, D. Lanti, and S. Razniewski. Counting query answers over a DL-Lite knowledge base. In *Proc. of the 29th Int. Joint Conf. on Artificial Intelligence (IJCAI)*, pages 1658–1666. IJCAI Org., 2020. DOI: 10.24963/ijcai.2020/230.
- [CI-19] G. Xiao, D. Lanti, R. Kontchakov, S. Komla-Ebri, E. Güzel-Kalayci, L. Ding, J. Corman, B. Cogrel, D. Calvanese, and E. Botoeva. The virtual knowledge graph system ontop. In *Proc. of the 19th Int. Semantic Web Conf. (ISWC 2020)*, *Lecture Notes in Computer Science*. Springer, 2020.
- [CI-20] D. Calvanese, A. Gal, N. Haba, D. Lanti, M. Montali, A. Mosca, and R. Shraga. ADaMaP: Automatic alignment of relational data sources using mapping patterns. In M. L. Rosa, S. W. Sadiq, and E. Teniente, editors, *Advanced Information Systems Engineering - 33rd International Conference, CAiSE 2021, Melbourne, VIC, Australia, June 28 - July 2, 2021, Proceedings*, volume 12751 of *Lecture Notes in Computer Science*, pages 193–209. Springer, 2021. DOI: 10.1007/978-3-030-79382-1\_12.
- [CI-21] Z. Gu, D. Lanti, A. Mosca, G. Xiao, J. Xiong, and D. Calvanese. Ontology-based data federation. In A. Artale, D. Calvanese, H. Wang, and X. Zhang, editors, *Proceedings of the 11th International Joint Conference on Knowledge Graphs, IJCKG 2022, Hangzhou, China, October 27-28, 2022*, pages 10–19. ACM, 2022. DOI: 10.1145/3579051.3579070.

### *Papers in Refereed National Conferences and Workshops*

- [CN-22] D. Calvanese, B. Cogrel, E. G. Kalayci, S. Komla-Ebri, R. Kontchakov, D. Lanti, M. Rezk, M. R. Muro, and G. Xiao. OBDA with the ontop framework. In *Proceedings of the 23rd. Italian Symposium on Database Systems (SEBD 2015)*, 2015.
- [CN-23] D. Calvanese, A. Gal, Davide Lanti, M. Montali, A. Mosca, and R. Shraga. Conceptually-grounded mapping patterns for virtual knowledge graphs. In *Proceedings of the 30th. Italian Symposium on Database Systems (SEBD 2022)*, volume 3194 of *CEUR Workshop Proceedings*, pages 85–92. CEUR-WS.org, 2022.
- [CN-24] Z. Gu, D. Calvanese, M. D. Panfilo, D. Lanti, A. Mosca, and G. Xiao. Ontology-based data federation - A framework proposal. In D. Calvanese, C. Diamantini, G. Faggioli, N. Ferro, S. Marchesin, G. Silvello, and L. Tanca, editors, *Proceedings of the 31st. Italian Symposium on Database Systems (SEBD 2022)*, volume 3478 of *CEUR Electronic Workshop Proceedings*, <http://ceur-ws.org/>, pages 210–219. CEUR-WS.org, 2023.

### *Papers in Refereed International Workshops*

- [WI-25] A. Irfan, D. Lanti, and N. Manthey. Modern cooperative parallel SAT solving. In *POS-13. Fourth Pragmatics of SAT workshop, a workshop of the SAT 2013 conference, July 7, 2013, Helsinki, Finland*, volume 29 of *EPiC Series in Computing*, pages 41–54. EasyChair, 2013.
- [WI-26] A. Balint, D. Lanti, A. Irfan, and N. Manthey. Clas – a parallel SAT solver that combines CDCL, look-ahead and SLS search strategies. In *Proceedings of SAT Competition 2014*, volume B-2014-2 of *Department of Computer Science Series of Publications B*, page 21. University of Helsinki, Helsinki, Finland, 2014.
- [WI-27] D. Calvanese, D. Lanti, M. Rezk, M. Slusnys, and G. Xiao. A scalable benchmark for OBDA systems: Preliminary report. In *Proceedings of the Third International Workshop on OWL Reasoner Evaluation (ORE 2014)*, volume 1207 of *CEUR Electronic Workshop Proceedings*, <http://ceur-ws.org/>, pages 36–43. CEUR-WS.org, 2014.

- [WI-28] D. Lanti, M. Rezk, M. Slusnys, G. Xiao, and D. Calvanese. The NPD benchmark for OBDA systems. In *Proceedings of the 10th International Workshop on Scalable Semantic Web Knowledge Base Systems (SSWS 2014)*, volume 1261 of *CEUR Electronic Workshop Proceedings*, <http://ceur-ws.org/>, pages 3–18. CEUR-WS.org, 2014.
- [WI-29] D. Lanti, G. Xiao, and D. Calvanese. Fast and simple data scaling for OBDA benchmarks. In *Proceedings of the Workshop on Benchmarking Linked Data (BLINK 2016)*, volume 1700 of *CEUR Electronic Workshop Proceedings*, <http://ceur-ws.org/>. CEUR-WS.org, 2016.
- [WI-30] D. Calvanese, J. Corman, D. Lanti, and S. Razniewski. Rewriting count queries over DL-Lite tboxes with number restrictions. In *Proc. of the 33rd Int. Workshop on Description Logics (DL 2020)*, CEUR Electronic Workshop Proceedings, <http://ceur-ws.org/>, 2020.
- [WI-31] D. Calvanese, A. Gal, D. Lanti, M. Montali, A. Mosca, and R. Shraga. Mapping patterns for virtual knowledge graphs (a report on ongoing research). In *Proc. of the 33rd Int. Workshop on Description Logics (DL 2020)*, CEUR Workshop Proceedings, <http://ceur-ws.org/>, 2020.
- [WI-32] G. Xiao, D. Lanti, R. Kontchakov, S. Komla-Ebri, E. Güzel-Kalayci, L. Ding, J. Corman, B. Cogrel, D. Calvanese, and E. Botoeva. The virtual knowledge graph system ontop (extended abstract). In *Proc. of the 33rd Int. Workshop on Description Logics (DL 2020)*, CEUR Workshop Proceedings, <http://ceur-ws.org/>, 2020.
- [WI-33] D. Calvanese, A. Gal, N. Haba, D. Lanti, M. Montali, A. Mosca, and R. Shraga. ADaMaP: Automatic alignment of relational data sources using mapping patterns (Abstract). In M. Homola, V. Ryzhikov, and R. A. Schmidt, editors, *Proc. of the 34th International Workshop on Description Logics (DL 2021) part of Bratislava Knowledge September (BAKS 2021)*, volume 2954 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2021.
- [WI-34] Z. Gu, D. Lanti, A. Mosca, G. Xiao, J. Xiong, and D. Calvanese. Ontology-based data federation (extended abstract). In *Proc. of the 35th Int. Workshop on Description Logics (DL)*, volume 3263 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2022.
- [WI-35] D. Lanti, A. Mosca, D. Calvanese, and M. Montali. Direct mappings under the lens of information capacity (extended abstract). In O. Kutz, C. Lutz, and A. Ozaki, editors, *Proc. of the 36th Int. Workshop on Description Logics (DL)*, volume 3515 of *CEUR Electronic Workshop Proceedings*, <http://ceur-ws.org/>. CEUR-WS.org, 2023.

### *Technical Reports and Project Deliverables*

- [TR-36] K. Bereta, E. Botoeva, D. Calvanese, B. Cogrel, D. Lanti, M. Rezk, S. Komla-Ebri, and G. Xiao. Optique Project Deliverable D6.2. Optique Project Consortium, 2014.
- [TR-37] E. Botoeva, D. Calvanese, B. Cogrel, E. G. Kalayci, S. Komla-Ebri, D. Lanti, M. Rezk, G. Xiao, A. Artale, E. Franconi, W. Nutt, , and S. Tessaris. Optique Project Deliverable D6.3. Optique Project Consortium, 2015.
- [TR-38] D. Lanti, M. Rezk, G. Xiao, and D. Calvanese. The NPD benchmark: Reality check for OBDA systems. Technical report. Technical report, Free University of Bozen-Bolzano, 2015. Available at <http://www.inf.unibz.it/~dlanti/techreportNPD-EDBT.pdf>.
- [TR-39] D. Hovland, D. Lanti, M. Rezk, and G. Xiao. OBDA Constraints for Effective Query Answering (Extended Version). *ArXiv e-prints*, May 2016. Available at <http://arxiv.org/abs/1605.04263>.
- [TR-40] D. Lanti, G. Xiao, and D. Calvanese. Data Scaling in OBDA Benchmarks: The VIG Approach. *ArXiv e-prints*, July 2016. Available at <http://arxiv.org/abs/1607.06343>.
- [TR-41] D. Lanti, G. Xiao, and D. Calvanese. Cost-driven ontology-based data access (extended version). Technical report, Free University of Bozen-Bolzano, 2017.
- [TR-42] D. Calvanese, D. Lanti, A. Ozaki, R. Peñaloza, and G. Xiao. Enriching ontology-based data access with provenance (extended version). *CoRR*, abs/1906.00179, 2019.
- [TR-43] D. Calvanese, J. Corman, D. Lanti, and S. Razniewski. Counting query answers over a dl-lite knowledge base (extended version). Technical Report arXiv:2005.05886, arXiv.org e-Print archive, 2020. Available at <http://arxiv.org/abs/2005.05886>.

- [TR-44] D. Calvanese, A. Gal, D. Lanti, M. Montali, A. Mosca, and R. Shraga. Mapping patterns for virtual knowledge graphs. Technical Report arXiv:2012.01917, arXiv.org e-Print archive, 2020. Available at <https://arxiv.org/abs/2012.01917>.
- [TR-45] S. Amer-Yahia, G. Koutrika, F. Bastian, T. Belmpas, M. Braschler, U. Brunner, D. Calvanese, M. Fabricius, O. Gkini, C. Kosten, D. Lanti, A. Litke, H. Lücke-Tieke, F. A. Massucci, T. M. de Farias, A. Mosca, F. Multari, N. Papadakis, D. Papadopoulos, Y. Patil, A. Personnaz, G. Rull, A. C. Sima, E. Smith, D. Skoutas, S. Subramanian, G. Xiao, and K. Stockinger. INODE: building an end-to-end data exploration system in practice [extended vision]. *CoRR*, abs/2104.04194, 2021.

### *National Journals and Newsletters in Italian*

- [NTNI-46] S. Costantini, D. Lanti, and A. Paolucci. Agenti ed ontologie: verso la web intelligenze. *AIDAinformazioni*, 28(2):63–86, 2011.

### *Other Publications*

- [O-47] D. Lanti. Benchmark and optimization of OBDA systems. In *Doctoral Consortium of the 9th International Conference on Web Reasoning and Rule System (RR 2015)*, 2015. The whole proceedings of the Doctoral Consortium have never appeared in print due to unsolvable issues with the publishing process.
- [O-48] D. Lanti. *Benchmarking and Optimization of OBDA Systems*. PhD thesis, Free University of Bozen-Bolzano. Available at <http://hdl.handle.net/10863/6081>, 2018.

### *Edited Proceedings*

- [EP-49] J. Vanthienen, T. Kliegr, P. Fodor, D. Lanti, D. Arndt, E. V. Kostylev, T. Mitsikas, and A. Soylu, editors. *Proceedings of the 17th International Rule Challenge and 7th Doctoral Consortium @ RuleML+RR 2023 co-located with 19th Reasoning Web Summer School (RW 2023) and 15th DecisionCAMP 2023 as part of Declarative AI 2023, Oslo, Norway, 18 - 20 September, 2023*, volume 3485 of *CEUR Electronic Workshop Proceedings*, <http://ceur-ws.org/>. CEUR-WS.org, 2023.