

UNIVERSITÀ DEGLI STUDI DI MILANO

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## Andrea Mazzullo

### Curriculum Vitae

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### Personal Information

Name: Andrea

Surname: Mazzullo

Birthdate: ██████████

### Position

- 2024 – ... **Fixed-term Researcher** (Ricercatore a Tempo Determinato, Tipo A),  
Free University of Bozen-Bolzano, 15/04/2024 – current position.
- 2023 – 2024 **Fixed-term Researcher** (Ricercatore a Tempo Determinato, Tipo A),  
University of Trento, 02/05/2023 - 14/04/2024.  
PNRR Project: FAIR – Future of Artificial Intelligence Research.
- 2022 – 2023 **Postdoctoral Researcher** (Assegnista di Ricerca),  
Free University of Bozen-Bolzano, 01/02/2022 - 01/05/2023.

### Education

- 2017 – 2022 **PhD in Computer Science**, Free University of Bozen-Bolzano, with distinction,  
08/06/2022.  
Subject area: Knowledge Representation.  
Thesis: *Finite Traces and Definite Descriptions: A Knowledge Representation Journey*.  
Supervisor: Prof. Alessandro Artale. Co-supervisor: Prof. Ana Ozaki.
- 2014 – 2017 **Master in Philosophical Sciences**, University of Bologna, 110/110 *cum laude*,  
16/03/2017.  
Subject area: Logic.  
Thesis: *Transition rules for the evolution of models in modal logic*.  
Supervisor: Prof. Giovanna Corsi. Co-supervisor: Prof. Alessandro Artale.
- 2009 – 2014 **Bachelor in Philosophy**, University of Bologna, 110/110 *cum laude*,  
16/10/2014.  
Subject area: Logic.  
Thesis: *Modelli di subordinazione per logiche modali libere* (in Italian).  
Supervisor: Prof. Giovanna Corsi.

## Learning Experiences

- 2020 • Reasoning Web Summer School, online, June 24-26.
- 2019 • Visiting Student, University of Liverpool, Department of Computer Science, September.  
Project title: *Description Logics with Non-Denoting Terms*.  
Supervisor: Prof. Frank Wolter.
  - Topology, Algebra, and Categories in Logic Summer School, Île de Porquerolles, June 10-15.
- 2018 • European Summer School on Logic, Language and Information, Sofia, August 6-17.
- 2017 • Nordic Logic Summer School, Stockholm, August 7-11.
  - Erasmus+ Intern, University of Manchester, School of Computer Science, May-July.  
Project title: *Knowledge Representation for the Analysis of Phylogenetic Trees*.  
Supervisor: Prof. Uli Sattler.
- 2016 • Autumn School on Linear Logic, Lyon, November 7-8.
  - Scuola Estiva di Logica, Gargnano, August 21-27.
  - Interdisciplinary School on Applied Ontology, Bolzano, June 27-July 1.
  - OWL & Protege Tutorial (Advanced), Manchester, April 21-22.
  - OWL & Protege Tutorial (Basic), Manchester, March 3-4.
- 2015 • Scuola Estiva di Logica, Gargnano, August 23-29.

## Teaching Activities

- 2023 • Lab Instructor, *Logica e Ragionamento*, Corso di Laurea in Scienze e Tecnologie della Comunicazione, Dipartimento di Psicologia e Scienze Cognitive, Università di Trento, October-December.  
Professor: Prof. Katya Tentori.
  - Lab Instructor, *Programmazione 1*, Corso di Laurea in Informatica, Dipartimento di Ingegneria e Scienza dell'Informazione, Università di Trento, October.  
Professor: Prof. Marco Roveri.
- 2022 • Lab Instructor, *Logica e Ragionamento*, Corso di Laurea in Scienze e Tecnologie della Comunicazione, Dipartimento di Psicologia e Scienze Cognitive, Università di Trento, September-December.  
Professor: Prof. Katya Tentori.
- 2021 • Lab Instructor, *Logica e Ragionamento*, Corso di Laurea in Scienze e Tecnologie della Comunicazione, Dipartimento di Psicologia e Scienze Cognitive, Università di Trento, September-December.  
Professor: Prof. Katya Tentori.
- 2020 • Lab Instructor, *Logica e Ragionamento*, Corso di Laurea in Scienze e Tecnologie della Comunicazione, Dipartimento di Psicologia e Scienze Cognitive, Università di Trento, September-December.  
Professor: Prof. Katya Tentori.

- 2017 • Tutor, Summer School for High School Students, *Functional Programming, Graphs and Logic*, University of Manchester, School of Computer Science, July.  
Organiser: Prof. Giles Reger.

## Academic Service

- Reviewer for *Information and Computation*, *Journal of Automated Reasoning*, *Journal of Artificial Intelligence Research*, *Journal of Philosophical Logic*, *Artificial Intelligence*, *Synthese*, *Semantic Web Journal*
- Program Committee Member of AAAI 2021, IJCAI-ECAI 2022, KR4HI 2022, AAAI 2023, IJCAI 2023, DL 2023, ECAI 2023, JELIA 2023, OVERLAY 2023, AAAI 2024, DL 2024, IJCAI 2024, KR 2024, RuleML+RR 2024, AAAI 2025.

## Awards

- 2023 • Special mention for Prize “Marco Cadoli” to recent PhD graduates in Artificial Intelligence (awarded yearly by the Italian Association for Artificial Intelligence).

## Research Interests

My main research interests are logics for knowledge representation, in particular *description logics* (DLs), with a focus on the following topics.

- *Temporal logics*, in particular *temporal DLs*, for verification, planning, temporal conceptual modelling, and temporal ontology-based data access.
- DLs based on *free logic* semantics for non-denoting and temporally non-rigid terms, as well as the problem of *explicit definability* of individual names by means of *definite descriptions*.
- Modal logics and DLs with *non-normal modalities*, used to represent obligations and permissions in normative settings, as well as forms of coalitional reasoning and epistemic notions.
- *Ontology-based models for data-aware business processes*, addressing safety verification by means of Satisfiability Modulo Theory techniques.
- At the intersection of DLs and *computational learning theory*, the complexity of learning query-inseparable lightweight DL ontologies.

## Publications

### Journal Papers

- 2024 • A. Artale, A. Ozaki, A. Mazzullo: First-order Temporal Logic on Finite Traces: Semantic Properties, Decidable Fragments, and Applications. *ACM Trans. Comput. Log.*, 25(2): 13:1–13:43 (2024), DOI: <https://doi.org/10.1145/3651161>.

- 2023 • A. Artale, J.C. Jung, A. Ozaki, A. Mazzullo, F. Wolter: Living Without Beth and Craig: Definitions and Interpolants in Description and Modal Logics with Nominals and Role Inclusions. *ACM Trans. Comput. Log.* 24(4): 34:1-34:51 (2023), DOI: <https://doi.org/10.1145/3597301>

## Conference Papers

- 2023 • A. Artale, L. Geatti, N. Gigante, A. Mazzullo, A. Montanari: A Singly Exponential Transformation of LTL[X, F] into Pure Past LTL. KR 2023. DOI: <https://doi.org/10.24963/kr.2023/7>.
- A. Artale, L. Geatti, N. Gigante, A. Mazzullo, A. Montanari: Complexity of Safety and coSafety Fragments of Linear Temporal Logic. AAAI 2023. DOI: <https://doi.org/10.1609/aaai.v37i5.25768>.
- A. Artale, L. Geatti, N. Gigante, A. Mazzullo, A. Montanari: LTL over Finite Words Can Be Exponentially More Succinct Than Pure-Past LTL, and vice versa. TIME 2023. DOI: [10.4230/LIPICS.TIME.2023.2](https://doi.org/10.4230/LIPICS.TIME.2023.2).
- D. Calvanese, A. Gianola, A. Mazzullo, M. Montali: SMT Safety Verification of Ontology-Based Processes. AAAI 2023. DOI: <https://doi.org/10.1609/aaai.v37i5.25772>.
- T. Dalmonte, A. Mazzullo: CoNP Complexity for Combinations of Non-normal Modal Logics. TABLEAUX 2023. DOI: [https://doi.org/10.1007/978-3-031-43513-3\\_17](https://doi.org/10.1007/978-3-031-43513-3_17).
- T. Dalmonte, A. Mazzullo, A. Ozaki, N. Troquard: Non-Normal Modal Description Logics. JELIA 2023. DOI: [https://doi.org/10.1007/978-3-031-43619-2\\_22](https://doi.org/10.1007/978-3-031-43619-2_22).
- 2021 • A. Artale, J.C. Jung, A. Ozaki, A. Mazzullo, F. Wolter: Living Without Beth and Craig: Explicit Definitions and Interpolants in Description Logics with Nominals and Role Inclusions. AAAI 2021. DOI: <https://doi.org/10.1609/aaai.v35i7.16770>.
- A. Artale, A. Mazzullo, A. Ozaki, F. Wolter: On Free Description Logics with Definite Descriptions. KR 2021. DOI: <https://doi.org/10.24963/kr.2021/7>.
- 2020 • A. Ozaki, C. Persia, A. Mazzullo: Learning Query Inseparable  $\mathcal{ELH}$  Ontologies. AAAI 2020. DOI: <https://doi.org/10.1609/aaai.v34i03.5688>.
- 2019 • A. Artale, A. Mazzullo, A. Ozaki: Do You Need Infinite Time?. IJCAI 2019. DOI: <https://doi.org/10.24963/ijcai.2019/210>.

## Workshop Papers

- 2023 • A. Artale, A. Mazzullo: Non-Rigid Designators in Epistemic and Temporal Free Description Logics (Extended Abstract). DL 2023.
- A. Artale, L. Geatti, N. Gigante, A. Mazzullo: A Landscape of First-Order Linear Temporal Logics in Infinite-State Verification and Temporal Ontologies. OVERLAY 2023.
- P. Giorgini, A. Mazzullo, M. Robol, M. Roveri: Towards Large Language Model Architectures for Knowledge Acquisition and Strategy Synthesis. OVERLAY 2023.
- 2022 • J.C. Jung, A. Mazzullo, F. Wolter: More on Interpolants and Explicit Definitions for Description Logics with Nominals and/or Role Inclusions. DL 2022.
- T. Dalmonte, A. Mazzullo, A. Ozaki: Reasoning in Non-normal Modal Description Logics. ARQNL 2022.

- 2021 • D. Calvanese, A. Gianola, A. Mazzullo, M. Montali: SMT-Based Safety Verification of Data-Aware Processes under Ontologies (Preliminary Results). DL 2021.
- 2020 • A. Artale, J.C. Jung, A. Mazzullo, A. Ozaki, F. Wolter: Living Without Beth and Craig: Explicit Definitions and Interpolants in Description Logics with Nominals (Extended Abstract). DL 2020.
  - A. Artale, A. Mazzullo, A. Ozaki: Finite vs. Infinite Traces in Temporal Logics. OVERLAY 2020
  - A. Artale, A. Mazzullo, A. Ozaki, F. Wolter: On Free Description Logics with Definite Descriptions. DL 2020.
  - A. Ozaki, C. Persia, A. Mazzullo: Learning Query Inseparable  $\mathcal{ELH}$  Ontologies (Extended Abstract). DL 2020.
- 2019 • T. Dalmonte, A. Mazzullo, A. Ozaki: On Non-normal Modal Description Logics. DL 2019.
  - A. Artale, A. Mazzullo, A. Ozaki: Temporal *DL-Lite* over Finite Traces (Preliminary Results). DL 2019.
- 2018 • A. Artale, A. Mazzullo, A. Ozaki: Temporal Description Logics over Finite Traces. DL 2018.

## Invited Talks

- 2023 • *Formal Ontologies, Applied Sciences and Data*, OntoCommons. October 2-4. Department of Arts, University of Bologna

## Dissemination

- 2023 • Mention in *Alto Adige Innovazione* news article (in Italian): *Il Gotha dell'Intelligenza Artificiale a congresso a Washington. C'era anche Unibz*, 1 March.  
<https://www.altoadigeinnovazione.it/il-gotha-dellintelligenza-artificiale-a-congresso-a-washington-cera-anche-unibz/>

## Languages

Italian (native speaker), English (fluent).

**Data: 20/06/2024**

**Luogo: Bolzano**