

UNIVERSITÀ DEGLI STUDI DI MILANO

Selezione pubblica per n. 2 posto/i di Ricercatore a tempo determinato in tenure track (RTT) per il settore concorsuale 01/B1 - Informatica, settore scientifico-disciplinare INF/01 - Informatica presso il Dipartimento di Informatica “Giovanni Degli Antoni”, (avviso bando pubblicato sulla G.U. n. 41 del 21/05/2024). Codice concorso 5550.

Andrea Mazzullo

Curriculum Vitae

Personal Information

Name: Andrea

Surname: Mazzullo

Birthdate: 18/08/1991

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 AAI 2021, IJCAI-ECAI 2022, KR4HI 2022, AAI 2023, IJCAI 2023, DL 2023, ECAI 2023, JELIA 2023, OVERLAY 2023, AAI 2024, DL 2024, IJCAI 2024, KR 2024, RuleML+RR 2024, AAI 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.
- 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.
- 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