

PERSONAL INFORMATION **Francesco Di Cosmo, PhD**

EDUCATION

- 1/10/2024 PhD in Computer Science, cum laude – Free University of Bozen-Bolzano.
- 3/2019 MSc in Mathematics, 110/110 cum laude – University of Trieste, Italy.
- 12/2014 BSc in Mathematics, 105/110 – University of Trieste, Italy.

EMPLOYMENT

- 11/2023 – ongoing Research Assistant – Free University of Bozen-Bolzano.
- 2021, 2022, 2024 Teaching assistant for *Introduction to Databases* of the BSc in Computer Science, winter semesters – Free University of Bozen-Bolzano.
- 7 – 10/2019 Software tester - Innova, Trieste, Italy.
- 2017 Tutor for *Mathematics* of the BSc in Chemistry, MSc in Pharmacy, and MSc in Pharmaceutical Chemistry and Technologies, winter semester – University of Trieste.
- 2016, 2017 Tutor for *Mathematics and Statistics* of the BSc in Biological Sciences and Technologies, winter semesters – University of Trieste.

RESEARCH

Research Fellowships

- 6/2024 Student grant, PODS 2024 conference, Chile.
- 3/9/2023 – 8/9/2023 Student grant, Advanced Course on Petri Nets 2023 at Toruń, Poland.
- 1/2023 – 3/2023 Visiting PhD student at Chennai Mathematical Institute, Tamil Nadu, India.
- 11/2019 – 10/2023 PhD Scholarship, Free University of Bozen-Bolzano, Italy.
- 3–5/2017 Visiting master student at Technische Universität Wien, Austria.

COMMUNITY SERVICE

- 8/2024-ongoing Guest-Editor of a special issue of *MDPI Logics* dedicated to the European Summer School in Logic, Language, and Computation (ESLLI) '23 and '24 Student Sessions.
- 2024 Chair, reviewer, and moderator of European Summer School in Logic, Language, and Computation, ESLLI 2024 Student Session..
- 2023 Reviewer for ECAI 2023.
- 2023 Co-Chair of European Summer School in Logic, Language, and Computation, ESLLI 2023 Student Session, Logic and Computation track.
- 2021 Moderator of discussion channels associated to a course of ESLLI 2021.

PRESENTATIONS

- 2024 PhD Thesis Defence – *Decidability Boundaries in Formal Verification of Declarative Distributed Systems* at UniBZ.
- 2024 Talk – *Bounded Verification of Petri Nets and EOSs using Telingo: An Experience Report* at CILC 2024.
- 2024 Talk – *Deciding Reachability and Coverability in Lossy EOS* at PNSE@Petri Nets 2024.
- 2024 Talk – *Verification of Unary Communicating Datalog Programs* at PODS 2024.
- 2023 Talk – *Analyzing Termination for Prev-Aware Fragments of Communicating Datalog Program* at RuleML+RR 2023.
- 2023 Poster – *Decidability Borders of Verification of Communicating Datalog Agents* at EUMAS 2023 PhD Day.
- 2023 Poster – *Applying Data-Aware Petri Nets to the Verification of Communicating Datalog Programs* at Advanced Course on Petri Nets 2023.

- 2023 Talk – *Verification of Prev-Free Communicating Datalog Programs*. at CILC 2023.
- 2023 Seminar – *A Tutorial on Datalog* at Chennai Mathematical Institute, Tamil Nadu, India.
- 2021 Talk – *Convergence Verification of Declarative Distributed Systems* at CILC 2021.
- 2021 Talk – *Verification of Sometimes Termination of Lazy-Bounded Declarative Distributed Systems* at ESSLLI 2021 Student Session.
- 2021 Talk – preliminary results on Lazy-Bounded DDSs at Midlands Graduate School in the Foundations of Computer Science 2021.
- 2019 Talk – *FO Queries Strongly Distributing over Components in Arbitrary Cardinality* at CILC 2019.
- 2018 Poster – *On Perfect Matchings for some Bipartite Graphs* at Proof Society Summer School 2018.

SCHOOLS AND COURSES

- 2024 Presentazioni che lasciano il segno – NOI Techpark, Bolzano.
- 2024 European Summer School in Logic, Language, and Computation, ESSLLI – Katholieke Universiteit Leuven, Belgium.
- 2024 Visual Thinking – NOI Techpark, Bolzano.
- 2023 Reasoning Web Summer School, RW – Oslo Metropolitan University, Oslo, Norway.
- 2023 Advanced Course on Petri Nets, ACPN – Nicolaus Copernicus University, Toruń, Poland.
- 2023 European Summer School in Logic, Language, and Computation, ESSLLI – University of Ljubljana, Slovenia.
- 2023 European Summer School in Artificial Intelligence, ESSAI – University of Ljubljana, Slovenia.
- 2022 European Summer School in Logic, Language, and Computation, ESSLLI – National University of Ireland, Galway, Ireland.
- 2021 European Summer School in Logic, Language, and Computation, ESSLLI – Free University of Bozen-Bolzano, Italy – Virtual.
- 2021 Summer school 2021 in HPC and AI – Free University of Bozen Bolzano, Italy – Virtual.
- 2021 Tenth Summer School on Formal Techniques, SSFT – Menlo College, Atherton, CA, USA – Virtual.
- 2021 Midlands Graduate School in the Foundations of Computer Science, MGS – University of Sheffield, United Kingdom – Virtual.
- 2020 Summer School on Modelling and Verification of Parallel Processes, MOVEP – University of Grenoble Alpes, France – Virtual.
- 2018 Proof Society Summer School – Ghent University, Belgium.
- 2016 European Summer School in Logic, Language, and Computation, ESSLLI – Free University of Bozen-Bolzano, Italy.
- 2016 Bayesian Analysis for Medical Data – University of Trieste, Italy.
- 2016 Logic Programming Summer School, CILC – University of Genova, Italy.

PUBLICATIONS

- [1] C. Aiswarya, Diego Calvanese, Francesco Di Cosmo, and Marco Montali. “Verification of Unary Communicating Datalog Programs”. In: *Proc. ACM Manag. Data* 2.2 (2024), p. 89.
- [2] Francesco Di Cosmo, Soumodev Mal, and Tephilla Prince. “Deciding Reachability and Coverability in Lossy EOS”. In: *Proceedings of the International Workshop on Petri Nets and Software Engineering 2024 co-located with the 45th International Conference on Application and Theory of Petri Nets and Concurrency (PETRI NETS 2024), June 24 - 25, 2024, Geneva, Switzerland*. Ed. by Michael Köhler-Bussmeier, Daniel Moldt, and Heiko Rölke. Vol. 3730. CEUR Workshop Proceedings. CEUR-WS.org, 2024, pp. 74–95.

- [3] Francesco Di Cosmo and Tephilla Prince. “Bounded Verification of Petri Nets and EOSs using Telingo: An Experience Report”. In: *Proceedings of the 39th Italian Conference on Computational Logic, Rome, Italy, June 26-28, 2024*. Ed. by Emanuele De Angelis and Maurizio Proietti. Vol. 3733. CEUR Workshop Proceedings. CEUR-WS.org, 2024.
- [4] Francesco Di Cosmo. “Verification of Prev-Free Communicating Datalog Programs”. In: *Proceedings of the 38th Italian Conference on Computational Logic, Udine, Italy, June 21-23, 2023*. Ed. by Agostino Dovier and Andrea Formisano. Vol. 3428. CEUR Workshop Proceedings. CEUR-WS.org, 2023.
- [5] Diego Calvanese, Francesco Di Cosmo, Jorge Lobo, and Marco Montali. “Convergence Verification of Declarative Distributed Systems”. In: *Proceedings of the 36th Italian Conference on Computational Logic, Parma, Italy, September 7-9, 2021*. Ed. by Stefania Monica and Federico Bergenti. Vol. 3002. CEUR Workshop Proceedings. CEUR-WS.org, 2021, pp. 62–76.
- [6] Francesco Di Cosmo. “Verification of Sometimes Termination of Lazy-Bounded Declarative Distributed Systems”. In: *Proceedings of the ESSLLI Student Session 2021, 32nd European Summer School in Logic, Language and Information July 26 – August 13, online*. Ed. by Mina Young Pedersen and Alexandra Pavlova. Available at <https://doi.org/10.48550/arXiv.2308.10007>. 2021, pp. 13–23.
- [7] Francesco Di Cosmo. “FO Queries Strongly Distributing over Components in Arbitrary Cardinality”. In: *Proceedings of the 34th Italian Conference on Computational Logic, Trieste, Italy, June 19-21, 2019*. Ed. by Alberto Casagrande and Eugenio G. Omodeo. Vol. 2396. CEUR Workshop Proceedings. CEUR-WS.org, 2019, pp. 260–268.
- [8] Alberto Casagrande, Francesco Di Cosmo, and Eugenio G. Omodeo. “On Perfect Matchings for some Bipartite Graphs”. In: *Proceedings of the 3rd International Workshop on Sets and Tools co-located with the 6th International ABZ Conference, SETS@ABZ 2018, Southampton, UK, June 5, 2018*. Ed. by Maximiliano Cristiá, David Delahaye, and Catherine Dubois. Vol. 2199. CEUR Workshop Proceedings. CEUR-WS.org, 2018, pp. 38–51.
- [9] Francesco Di Cosmo. “Analyzing Termination for Prev-Aware Fragments of Communicating Datalog Programs”. In: *Rule ML + RR 2023*. To appear. 2023.
- [10] Francesco Di Cosmo. “Decidability Borders of Verification of Communicating Datalog Agents”. In: *Multi-Agent Systems - 20th European Conference, EUMAS 2023, Naples, Italy, September 14-15, 2023, Proceedings*. Ed. by Vadim Malvone and Aniello Murano. Vol. 14282. Lecture Notes in Computer Science. Springer, 2023, pp. 507–513.
- [11] Francesco Di Cosmo. “The Impact of Propositional Messages on Termination of Declarative Distributed Systems”. In: *Selected reflections in logic, language and information*. Ed. by Mina Young Pedersen and Alexandra M. Pavlova. Lecture Notes in Computer Science. To Appear. Springer, 2023.
- [12] Diego Calvanese, Francesco Di Cosmo, Jorge Lobo, and Marco Montali. “Convergence Verification of Declarative Distributed Systems (Extended Version)”. Submitted to an international journal.