

Curriculum Vitae

Martin AVANZINI, PhD

Name Martin AVANZINI, PhD
Nationality Austrian
Date / Place of Birth 30/07/1982 / Hall in Tirol, Austria
Marital Status married
Personal Address 27bis Chemin des Bérenguiers
06530 Peymeinade, France
Email martin.avanzini@inria.fr

Affiliations

- Centre Inria d'Université Côte d'Azur 2018 – now
Chargé de Recherche.
- Universities of Bologna and Innsbruck 2014 – 2017
FWF (Austrian science fund) Schrödinger Fellow.
- University of Innsbruck 2008 – 2014
Research Assistant.

Higher Education

- PhD Degree in Computer Science. 2013
Institute of Computer Science, University of Innsbruck, Austria.
Thesis *Verifying Polytime Computability Automatically*, supervised by Georg Moser.
- Master's Degree in Computer Science. 2009
Institute of Computer Science, University of Innsbruck, Austria.
Master Thesis *Automation of Polynomial Path Orders*, supervised by Georg Moser.
- Bachelor's Degree in Computer Science. 2007
Institute of Computer Science, University of Innsbruck, Austria.
Bachelor Thesis *Termination Analysis for Scheme using S-Expression Rewrite Systems*, supervised by Nao Hirokawa and *Scheme Programs with Polynomially Bounded Evaluation Length* supervised by Georg Moser.
- Diploma Höhere Technische Lehranstalt. 2001
Civil Engineering, Htl Trenkwaldstraße, Innsbruck, Austria.

Projects

- Higher-Order Probabilistic and resource-aware Reasoning (HOPR) January, 2025 – December, 2029
Site Leader. ANR PRC Project 2024. *Université de Lille (CRISTAL)*, *INRIA (Olas)*, *Université de Rennes (IRISA)*.
- Probabilistic Programming Semantics (PPS) January, 2020 – December, 2024
Site Leader. ANR PRC Project 2019 (project number ANR-19-CE48-0014). *INRIA*, *IRIF*, *LIPN*, *I2M*.
- Termination and Complexity Properties of Probabilistic Programs (TC(Pro)³) February, 2020 – December, 2024
Project member. Inria associate team. *Inria Nancy Grand-Est (Moqua)*, *Inria Sophia (OLAS)*, *University of Innsbruck*.

- Concurrent, Resourceful and Effectful COmputation, by Geometry of Interaction June, 2015 – June, 2020
Project member. INRIA associate team. INRIA (Focus), University of Bologna, Université Paris Cité (IRIF), Kyoto University, NII (Hasuo-Lab).
- Expanding Logical Ideas for Complexity Analysis (ELICA) October, 2014 – September, 2019
Project member. ANR Digital Foundations (DS0705) 2014 (project number ANR-14-CE25-0005). INRIA (Focus, Carte), Paris 6 (LIP6), Paris 7 (IRIF), Paris 13 (LIPN), Paris Paris-Est Créteil (LACL), ENS Lyon (Plume).
- Higher-Order Complexity Analysis of Rewrite Systems April, 2014 – May, 2017
Principle investigator. FWF Schrödinger Fellowship (project number J-3563). University of Bologna / University of Innsbruck.
- Improving Certifiers for Termination Proofs December, 2013 – March, 2014
Research assistant. FWF standalone project (project number P22767). University of Innsbruck.
- Structural and Computational Proof Theory November, 2012 – May, 2013
Research assistant. Bilateral research project between ANR and FWF (project number I608-N18). University of Innsbruck.
- Automated Complexity Analysis November, 2011 – October, 2012
Principal investigator. Doctoral fellowship (project number NWF-2011/2/Mip7). University of Innsbruck.
- Derivational Complexity Analysis October, 2008 – August, 2011
Research assistant. FWF standalone project (project number P20133). University of Innsbruck.

Awards

- Proposed for the Heinz Zemanek Price. October, 2016
The *Heinz Zemanek price* is awarded every 3 years by the *Austrian Computer Society (OCG)* to young researchers for outstanding PhD dissertations. I was nominated by the University of Innsbruck for this price, and also passed the final selection (8 persons) from the OCG.
- Kurt Gödel Medal. August, 2014
Our *Tyrolean Complexity tool* was distinguished with the prestigious *Kurt Gödel Medal* as best tool for the complexity analysis of term rewrite systems at the *FLoC Olympic Games*, held during the *Vienna Summer of Logic*.
- European Summer School in Logics, Languages and Computation. August, 2008
My work received second place in *Springer best paper awards*.

Scientific Activities

- Reviewer.
Reviewer for the *Deutsche Forschungsgemeinschaft (DFG)*.
- member.
IFIP Working Group 1.6 on Rewriting (IFIP 1.6).
- PC member. 2023
8th International Conference on Formal Structures for Computation and Deduction (FSCD'23), Rome, Italy.
- PC member. 2023
19th International Workshop on Termination (WST'23), Obergurgl, Austria.
- PC member. 2022
12th International Workshop on Computing with Terms and Graphs (TERMGRAPH'22), Haifa, Israel.
- PC member. 2021
17th International Workshop on Termination (WST'21), Virtual.
- Organiser. 2020
21st International Workshop on Logic and Computational Complexity (LCC'20), Saarbrücken, Germany (Virtual).
- Invited speaker. 2019
10th International Workshop on Higher-Order Rewriting (HOR'19), Dortmund, Germany.

- **PC member.** 2019
Workshop on Developments in Implicit Computational Complexity and Foundational and Practical Aspects of Resource Analysis 2019 (DICE-FOPARA'19), Prague, Czech Republic.
- **Guest editor.** 2018
Special issue on DICE (TCS, Elsevier) (TCS DICE'18).
- **Organiser.** 2017
9th Workshop on Developments in Implicit Computational Complexity (DICE'17), Thessaloniki, Greece.
- **PC member.** 2017
17th International Workshop on Logic and Computational Complexity (LCC'17), Reykjavik, Iceland.
- **PC member.** 2014
5th Workshop on Developments in Implicit Computational Complexity (DICE'14), Grenoble, France.
- **Invited speaker.** 2013
15th International Workshop on Logic and Computational Complexity (LCC'13), Torino, Italy.
- **Invited speaker.** 2013
3rd Workshop on Proof Theory and Rewriting (PTR'13), Kanazawa, Japan.

Software Development

The following gives a short list of most important software projects that I was involved in. If not mentioned otherwise, I am (among) the main developer(s). Details can be found at my [software page](#).

- **IsaFoR/CeTA**: A formally verified tool for checking termination, confluence and complexity proofs. I have contributed the formalisation of dependency tuples.
- **EasyCrypt**: Game-based cryptographic proof assistant.
- **Expected Cost Analysis for Imperative Programs (eco-imp)**: Expected Cost Analysis for Imperative Programs.
- **GUBS**: A constraint solver for polynomial inequalities.
- **Higher Order Complexity Analysis (HOCA)**: Frontend for analysing the runtime complexity of OCaml programs through first-order tools.
- **Higher Order Sized-Type Analysis (HOSA)**: Complexity analyser of higher-order programs through sized-type analysis and program instrumentation.
- **Implicit Computational Complexity Tool (ICCT)**: Analyses the complexity of functions defined through rewrite systems.
- **Tyrolean Complexity Tool (TCT)**: Full-fledged runtime complexity analyser.