Rodrigo Otoni

Curriculum Vitae
Last Update in November 2025

Personal Details

Full Name Rodrigo Benedito Otoni   *E-Mail* r.b.otoni@rug.nl   *Profiles*

Summary

Tenure-Track Assistant Professor at the University of Groningen, Netherlands, working on approaches for automated reasoning in the contexts of verification, synthesis, and certification

Work Experience

Assistant Professor   Sep. 2025 – Present
University of Groningen, Netherlands
  Arrangement: with the Bernoulli Institute of the Faculty of Science and Engineering, on a tenure-track

Postdoctoral Researcher   Nov. 2023 – Aug. 2025
Università della Svizzera italiana, Switzerland
  Arrangement: 50% with Prof. Patrick Eugster's group and 50% with Prof. Laura Pozzi's group

Research Engineer   Sep. 2021 – Dec. 2022
Informal Systems, Switzerland
  Arrangement: 6 months as a full-time intern followed by 10 months as a part-time contractor, during the PhD, working with Dr. Igor Konnov's group on SMT-based symbolic model checking for TLA^+

Education

PhD in Informatics   Dec. 2018 – Oct. 2023
Università della Svizzera italiana, Switzerland
  Dissertation: Automated Verification of Blockchain Technologies with Correctness Guarantees
  Advisors: Prof. Patrick Eugster and Prof. Natasha Sharygina
  External Panel: Prof. Arie Gurfinkel (U. of Waterloo) and Dr. Shuvendu Lahiri (Microsoft Research)
  Additional Information: dissertation selected as the best of 2023 by the Faculty of Informatics

MSc in Computer Science   Aug. 2016 – Jul. 2018
Universidade Federal de Pernambuco, Brazil
  Dissertation: A Strategy for Local Analysis of Determinism
  Advisors: Prof. Augusto Sampaio and Prof. Ana Cavalcanti

BSc in Computer Science   Feb. 2012 – Jun. 2016
Universidade Federal de Sergipe, Brazil
  Final Project: A Verification Strategy for Control Systems Implementations in Safety-Critical Java
  Advisors: Prof. Ana Cavalcanti and Prof. Leila Silva
  Additional Information: visiting student at the University of York, UK, for one year (2014/15)

Languages

- Portuguese: native speaker (Brazilian citizen)

- English: fluent (Toefl iBT 113/120)

- Italian: basic (CEFR A2)

Funding

- Postdoc.Mobility fellowship grant from the Swiss National Science Foundation
  Project: Unbounded and Certified Model Checking for TLA$^+$
  Duration: Sep. 2025 – Aug. 2027
  Role: Principal Investigator
  Amount: CHF 108,600 (forfeited due to becoming an assistant professor in Sep. 2025)

- Seed grant from the Hasler Foundation
  Project: Automated Probabilistic Reasoning for Quantum Networks
  Duration: Dec. 2024 – Nov. 2025
  Role: Principal Investigator
  Amount: CHF 49,740

- Science without Borders scholarship from the Brazilian Ministry of Science and Technology
  Arrangement: visiting student at the University of York, UK, for one year
  Duration: Oct. 2014 – Sep. 2015
  Amount: GBP 23,440

Awards

- EASST Best Paper Award
  European Association of Software Science and Technology (EASST) best paper award at the 28th European Joint Conferences on Theory and Practice of Software (ETAPS'25)

- TACAS Distinguished Paper Award
  Distinguished paper award at the 31st International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS'25)

- GI Dissertation Prize nominee
  Nominated by the Università della Svizzera italiana, Switzerland, to the 2023 GI Dissertation Prize (joint PhD dissertation prize of the German, Austrian, and Swiss informatics societies)

- iFM Best Paper Award candidate
  One of three candidates selected for the best paper award at the 18th International Conference on integrated Formal Methods (iFM'23)

Teaching

Teaching Assistant
Università della Svizzera italiana, Switzerland

- Distributed Systems (MSc course)
  Editions: 2022/23 (34 students), 2020/21 (8 students), 2019/20 (13 students)

- Software Atelier 2: Human-Computer Interaction (BSc course)
  Editions: 2020/21 (56 students), 2019/20 (40 students), 2018/19 (42 students)

- Data Management (BSc course)
  Editions: 2022/23 (72 students), 2021/22 (57 students)

Teaching Assistant
Universidade Federal de Pernambuco, Brazil

- Systems Project and Analysis (BSc course)
  Editions: 2016 (31 students)

Supervision

PhD Students

- Morteza Rezaalipour (co-supervised with Prof. Laura Pozzi)
  Dissertation: Approximate Computing via Effective SMT-based Logic Synthesis
  Institution: Università della Svizzera italiana, Switzerland
  Defence date: 6th Jun. 2025

MSc and BSc Students

- Francesco Costa (co-supervised with Prof. Laura Pozzi)
  MSc Thesis: An SMT-based Approach to the Protein-Ligand Docking Problem
  Institution: Università della Svizzera italiana, Switzerland
  Defence date: 26th Jun. 2025

- Manuele Jelmini (co-supervised with Prof. Laura Pozzi)
  BSc Thesis: Scalable Synthesis of Approximate Circuits via Novel SMT Bit-Vectors Encoding
  Institution: Università della Svizzera italiana, Switzerland
  Defence date: 17th Jun. 2024

- Fedor Gromov (co-supervised with Prof. Andrey Ustjuzhanin)
  BSc Thesis: Embedding SMT Proofs into CHC Solving
  Institution: Constructor University, Germany
  Defence date: 19th Jun. 2023

Community Service

- Reviewer for the following journals:
  - ACM Transactions on Privacy and Security (TOPS)
  - ACM Transactions on Software Engineering and Methodology (TOSEM)
  - International Journal on Software Tools for Technology Transfer (STTT)
  - Science of Computer Programming (SCP)

- Program committee member for the following events:
  - Int. Conf. on Formal Techniques for Distributed Objects, Components, and Sys. (FORTE)
    Editions: 2026
  - Student Forum of the Int. Conf. on Formal Methods in Computer-Aided Design (FMCAD)
    Editions: 2024

- Sub-reviewer for the following events:
  - International Conference on Formal Methods in Computer-Aided Design (FMCAD)
    Editions: 2025, 2023, 2022, 2021, 2020
  - Int. Conf. on Tools and Algs. for the Construction and Analysis of Systems (TACAS)
    Editions: 2025, 2023, 2022, 2021, 2020
  - International Conference on Computer-Aided Verification (CAV)
    Editions: 2024, 2022, 2021, 2020
  - Int. Conf. on Logic for Programming, Artificial Intelligence and Reasoning (LPAR)
    Editions: 2024, 2020

- International Conference on Theory and Applications of Satisfiability Testing (SAT)
  Editions: 2024, 2020
- International Symposium on Formal Methods (FM)
  Editions: 2024
- International Symposium on Model Checking Software (SPIN)
  Editions: 2023
- Int. Conf. on Object-Oriented Programming Systems, Languages, and Apps. (OOPSLA)
  Editions: 2022
- International Conference on Verified Software: Theories, Tools, and Experiments (VSTTE)
  Editions: 2021
- Workshop on Models for Formal Analysis of Real Systems (MARS)
  Editions: 2020
- Int. Conf. on Formal Techniques for Distributed Objects, Components, and Sys. (FORTE)
  Editions: 2019

Publications

Journal Papers

5. *Approximate Logic Synthesis via Iterative SMT-based Subcircuit Rewriting*
   M.Rezaalipour, M.Biasion, F.Costa, C.Tirelli, L.Ferretti, **R.Otoni**, G.Constantinides, and L.Pozzi
   IEEE Trans. on Computer-Aided Design of Integrated Circuits and Systems (TCAD), Just Accepted
   To appear

4. *A Language for Quantifying Quantum Network Behavior*
   A. Buckley, P. Chuprikov, **R. Otoni**, R. Soulé, R. Rand, and P. Eugster
   Proceedings of the ACM on Programming Languages (PACMPL), 9(OOPSLA2), 2025

3. *Validation of CHC Satisfiability with ATHENA*
   R. Otoni, M. Blicha, P. Eugster, and N. Sharygina
   Formal Aspects of Computing (FAC), 37(4), 2025

2. *An Algebraic Language for Specifying Quantum Networks*
   A. Buckley, P. Chuprikov, **R. Otoni**, R. Soulé, R. Rand, and P. Eugster
   Proceedings of the ACM on Programming Languages (PACMPL), 8(PLDI), 2024

1. *A Solicitous Approach to Smart Contract Verification*
   R. Otoni, M. Marescotti, L. Alt, P. Eugster, A. Hyvärinen, and N. Sharygina
   ACM Transactions on Privacy and Security (TOPS), 26(2), 2023

Conference Papers

7. *Unsatisfiability Proofs for Horn Solving*
   R. Otoni, M. Blicha, M. Rivera, P. Eugster, J. Kofroň, and N. Sharygina
   31st Int. Conf. on Tools and Algs. for the Construction and Analysis of Systems (TACAS'25)
   Distinguished Paper Award 🏅 and EASST Best Paper Award 🏅

6. *Monomorphism-based CGRA Mapping via Space and Time Decoupling*
   C. Tirelli, **R. Otoni**, and L. Pozzi
   28th Design, Automation and Test in Europe Conference (DATE'25)

5. *CHC Model Validation with Proof Guarantees*
   R. Otoni, M. Blicha, P. Eugster, and N. Sharygina
   18th International Conference on integrated Formal Methods (iFM'23)
   Best Paper Award candidate 🏅

4. *Symbolic Model Checking for TLA^+ Made Faster*
   R. Otoni, I. Konnov, J. Kukovec, P. Eugster, and N. Sharygina
   29th Int. Conf. on Tools and Algs. for the Construction and Analysis of Systems (TACAS'23)

3. *Theory-Specific Proof Steps Witnessing Correctness of SMT Executions*
   R. Otoni, M. Blicha, P. Eugster, A. Hyvärinen, and N. Sharygina
   58th ACM/IEEE Design Automation Conference (DAC'21)

2. *Accurate Smart Contract Verification Through Direct Modelling*
   M. Marescotti, **R. Otoni**, L. Alt, P. Eugster, A. Hyvärinen, and N. Sharygina
   9th International Symposium on Leveraging Applications of Formal Methods (ISoLA'20)

1. *Local Analysis of Determinism for CSP*
   R. Otoni, A. Cavalcanti, and A. Sampaio
   20th Brazilian Symposium on Formal Methods (SBMF'17)

Other Papers

2. *Automatisierte Garantierte Blockchain-Technologie Verifizierung*
   R. Otoni
   GI Ausgezeichnete Informatikdissertationen 2023 (Band 24), 2024

1. *Towards an Algebraic Specification of Quantum Networks*
   A. Buckley, P. Chuprikov, **R. Otoni**, R. Rand, R. Soulé, and P. Eugster
   1st Workshop on Quantum Networks and Distributed Quantum Computing (QuNet'23)