



# Rodrigo Otoni

*Curriculum Vitae*

*Last Update on April 2024*

## Personal Details

*Full Name* Rodrigo Benedito Otoni

*E-Mail* otonir@usi.ch

## Summary

Postdoctoral researcher at the Università della Svizzera italiana, Switzerland, working on approaches for automated reasoning in the contexts of verification, synthesis, and certification. Experienced with model checking, SMT and CHC solving, TLA<sup>+</sup> specifications, and process algebras, as well as smart contracts and other blockchain technologies.

## Work Experience

### Postdoctoral Researcher

Nov. 2023 - Present

*Università della Svizzera italiana, Switzerland*

Arrangement: 50% with Prof. Patrick Eugster's group and with Prof. Laura Pozzi's group

### Research Engineer

Sep. 2021 - Dec. 2022

*Informal Systems, Switzerland*

Arrangement: 6 months as an intern followed by 10 months as a contractor, working with

Dr. Igor Konnov's group on SMT-based symbolic model checking of TLA<sup>+</sup> specifications

## 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

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*

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)

## Academic Roles

### Teaching Assistant

*Università della Svizzera italiana, Switzerland*

Feb. 2019 - Jun. 2023

MSc Course: Distributed Systems (2019/20, 2020/21, 2022/23)

BSc Course: Software Atelier 2 (2018/19, 2019/20, 2020/21)

BSc Course: Data Management (2021/22, 2022/23)

*Universidade Federal de Pernambuco, Brazil*  
BSc Course: Systems Project and Analysis (2016)

Aug. 2016 - Nov. 2016

### **Undergraduate Research Assistant**

*Universidade Federal de Sergipe, Brazil*

Project: Exploring Optimization Algorithms in Requirements Engineering  
Advisor: Prof. Leila Silva

Aug. 2013 - Jul. 2014

## **Publications**

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- A. Buckley, P. Chuprikov, **R. Otoni**, R. Soulé, R. Rand, and P. Eugster. An Algebraic Language for Specifying Quantum Networks. Proceedings of the ACM on Programming Languages (PACMPL), 8(PLDI), 2024 – to appear.
- **R. Otoni**, M. Blich, P. Eugster, and N. Sharygina. CHC Model Validation with Proof Guarantees. 18th International Conference on integrated Formal Methods (iFM'23) – best paper award candidate.
- A. Buckley, P. Chuprikov, **R. Otoni**, R. Rand, R. Soulé, and P. Eugster. Towards an Algebraic Specification of Quantum Networks. 1st Workshop on Quantum Networks and Distributed Quantum Computing (QuNet'23).
- **R. Otoni**, I. Konnov, J. Kukovec, P. Eugster, and N. Sharygina. Symbolic Model Checking for TLA<sup>+</sup> Made Faster. 29th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS'23).
- **R. Otoni**, M. Marescotti, L. Alt, P. Eugster, A. Hyvärinen, and N. Sharygina. A Solicitous Approach to Smart Contract Verification. ACM Transactions on Privacy and Security (TOPS), 26(2), 2023.
- **R. Otoni**, M. Blich, P. Eugster, A. Hyvärinen, and N. Sharygina. Theory-Specific Proof Steps Witnessing Correctness of SMT Executions. 58th ACM/IEEE Design Automation Conference (DAC'21).
- M. Marescotti, **R. Otoni**, L. Alt, P. Eugster, A. Hyvärinen, and N. Sharygina. Accurate Smart Contract Verification Through Direct Modelling. 9th International Symposium on Leveraging Applications of Formal Methods (ISoLA'20).
- **R. Otoni**, A. Cavalcanti, and A. Sampaio. Local Analysis of Determinism for CSP. 20th Brazilian Symposium on Formal Methods (SBMF'17).

## **Awards**

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- Nominated by the Università della Svizzera italiana for the GI dissertation prize 2024 (joint PhD dissertation prize of the German, Austrian, and Swiss informatics societies)
- Recipient of a Science without Borders scholarship from the Brazilian government (funding for a 1-year stay abroad during BSc, done at the University of York, UK)

## **Community Service**

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- Program committee member for the FMCAD'24 Student Forum
- Sub-Reviewer for CAV'24, LPAR'24, SAT'24, FMCAD'23, SPIN'23, TACAS'23, CAV'22, FMCAD'22, OOPSLA'22, TACAS'22, CAV'21, FMCAD'21, TACAS'21, VSTTE'21, CAV'20, FMCAD'20, LPAR'20, MARS'20, SAT'20, TACAS'20, FORTE'19

## Languages

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- Portuguese: native speaker (Brazilian citizen)
- English: fluent (Toefl iBT 113/120)
- Italian: basic (CEFR A2)

## References

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- Prof. Patrick Eugster ([eugstp@usi.ch](mailto:eugstp@usi.ch))
- Prof. Laura Pozzi ([pozzil@usi.ch](mailto:pozzil@usi.ch))
- Prof. Natasha Sharygina ([sharygin@usi.ch](mailto:sharygin@usi.ch))
- Dr. Igor Konnov ([igor@konnov.phd](mailto:igor@konnov.phd))
- Prof. Ana Cavalcanti ([ana.cavalcanti@york.ac.uk](mailto:ana.cavalcanti@york.ac.uk))