

# MATTEO MARESCOTTI

Currently at University of Lugano (USI), Lugano, Switzerland

Email: [matte.marescotti@gmail.com](mailto:matte.marescotti@gmail.com)  
Personal page: <https://www.inf.usi.ch/phd/marescotti>

Languages: Italian (native), English (fluent)  
Date of Birth: 24 November 1989  
Nationality: Italian  
Last update: March 23, 2020



## About me

I am currently a Ph.D. candidate at USI Lugano. My research interests focus on software verification, in particular - verification of smart contracts in Ethereum [4], and - software verification using distributed computing for improving scalability [6, 5]. I am the main developer of the parallel solver for software verification *SMTS* [9, 7]. I worked on the C++ projects Microsoft Z3, OpenSMT2, and Solc (Solidity compiler, Ethereum). During my master thesis I worked on bioinformatics, focusing on improving the creation of full-text indexes using parallel computing. In my spare time I enjoy mountain sports, especially climbing and hiking, and reading nonfiction books.

## Education

**Ph.D. Computer Science.** 2015 – *ongoing*. *University of Lugano, Switzerland.*

**Research project:** *Harnessing Parallel Computing for Model Checking* funded by SNSF.

Advisor: Prof. Natasha Sharygina.

**M.Sc. Computer Science.** 2012 – 2014. *Università del Piemonte Orientale, Italy.*

**Thesis:** Semi-external algorithms for computing suffix-array and Burrows-Wheeler transform of biosequences.

Grade: 110/110 *cum laude*. Advisor: Prof. Giovanni Manzini.

**B.Sc. Computer Science.** 2009 – 2012. *Università del Piemonte Orientale, Italy.*

**Thesis:** Designing a customer loyalty and relationship management web service.

## Research Collaborations

**Ethereum Foundation**, 2019 – *ongoing*, with Leonardo Alt

**University of Waterloo**, 2017 – 2019, with Prof. Arie Gurfinkel [5]

**King's College London**, 2018, with Prof. Hana Chockler [8]

Reviewer for the following conferences: CAV ('20, '19, '18, '16, '15); TACAS ('20, '18, '17, '16); VMCAI ('20, '19); SAT ('19); FM ('19, '18, '16); AACL ('19); FMCAD ('18, '17, '16, '15); HVC ('17); VSTTE ('16)

## Grants and Funding

*3rd CSE School: Blockchains and Cryptocurrencies.* Grant from *Israel Institute for Advanced Studies* – Dec. 2018.

*International Visiting Graduate Student (IVGS)* grant from University of Waterloo (1'700 \$CAD) – Dec. 2017.

*1st SCSC School.* Partial support by EU Horizon 2020 grant No H2020-FETOPEN-2015-CSA 712689 – Aug. 2017.

*Morgan Deters Travel Award* from New York University for attending the SMT workshop – Jul. 2017.

*The NATO Science for Peace and Security Programme* student award, *Marktoberdorf School* – Aug. 2015.

## Publications

- [1] M. Blicha, A. E. J. Hyvärinen, M. Marescotti, and N. Sharygina. “A Cooperative Parallelization Approach for Property-Directed k-Induction”. In: *Proc. VMCAI 2020*. Vol. 11990. LNCS. Springer, pp. 270–292.
- [2] A. E. J. Hyvärinen, M. Marescotti, L. Alt, and N. Sharygina. “OpenSMT2: An SMT Solver for Multi-core and Cloud Computing”. In: *Proc. SAT 2016*. Vol. 9710. LNCS. Springer, pp. 547–553.
- [3] A. E. J. Hyvärinen, M. Marescotti, and N. Sharygina. “Search-Space Partitioning for Parallelizing SMT Solvers”. In: *Proc. SAT 2015*. Vol. 9340. LNCS. Springer, pp. 369–386.
- [4] M. Marescotti, M. Blicha, A. E. J. Hyvärinen, S. Asadi, and N. Sharygina. “Computing Exact Worst-Case Gas Consumption for Smart Contracts”. In: *Proc. ISoLA 2018, Part IV*. Vol. 11247. LNCS. Springer, pp. 450–465.
- [5] M. Marescotti, A. Gurfinkel, A. E. J. Hyvärinen, and N. Sharygina. “Designing parallel PDR”. In: *Proc. FMCAD 2017*. IEEE, pp. 156–163.
- [6] M. Marescotti, A. E. J. Hyvärinen, and N. Sharygina. “Clause Sharing and Partitioning for Cloud-Based SMT Solving”. In: *Proc. ATVA 2016*. Vol. 9938. LNCS. Springer, pp. 428–443.
- [7] M. Marescotti, A. E. J. Hyvärinen, and N. Sharygina. “An Arboriculture Approach for Parallel SMT and Symbolic Model Checking”. In: *ALP Newsletter* 32.2 (Aug. 2019). URL: <https://www.cs.nmsu.edu/ALP/wp-content/uploads/2019/07/main.pdf>.
- [8] A. E. J. Hyvärinen, M. Marescotti, P. Sadigova, H. Chockler, and N. Sharygina. “Lookahead-Based SMT Solving”. In: *Proc. LPAR-22*. 2018, pp. 418–434.
- [9] M. Marescotti, A. E. J. Hyvärinen, and N. Sharygina. “SMTS: Distributed, Visualized Constraint Solving”. In: *Proc. LPAR-22*. 2018, pp. 534–542.