

LUCAS MARTINELLI TABAJARA

(667) 303-4367 \diamond lucasmt@rice.edu

DH 3053, Duncan Hall, Rice University \diamond 6100 Main St, Houston, TX, United States

EDUCATION

Rice University, Houston

Aug 2015-Present

Pursuing Ph.D. in Computer Science

Advisor: Prof. Moshe Y. Vardi

Rice University, Houston

Aug 2015-May 2018

M.S. in Computer Science (defended Dec 2017)

Thesis: “BDD-Based Boolean Synthesis”

Advisor: Prof. Moshe Y. Vardi

Federal University of Rio Grande do Sul, Porto Alegre (Brazil)

Mar 2010-Jul 2015

Bachelor of Computer Science (with Honors)

Thesis: “Synthesis of Boolean functions through Binary Decision Diagrams”

Advisor: Prof. Luís da Cunha Lamb

Co-advisor: Prof. Moshe Y. Vardi

Overall GPA: 9.5/10.0

Rice University, Houston

Aug 2013-May 2014

Visiting Student in Computer Science

AWARDS AND HONORS

- Selected to participate in **Summer School Marktoberdorf** *August 2017*
- Selected to participate in **Seventh Summer School on Formal Techniques** *May 2017*
- **Ciência Sem Fronteiras Ph.D. Fellowship** *Sept 2015*
- **First place, Entrance exam for Computer Science** *Jan 2010*
Federal University of Rio Grande do Sul
- **Travel grants:** CAV 2016, IJCAI 2017, FMCAD 2017, VDMW 2018, IJCAI 2019, AAI 2020

PUBLICATIONS

1. **Runtime Verification on FPGAs with LTL_f Specifications**
Tommy Tracy II, Lucas M. Tabajara, Moshe Y. Vardi, Kevin Skadron
In Proc. of Formal Methods in Computer-Aided Design (FMCAD) 2020
2. **LTL_f Synthesis under Partial Observability: From Theory to Practice**
Lucas M. Tabajara, Moshe Y. Vardi
In Proc. of International Symposium on Games, Automata, Logics, and Formal Verification (GandALF) 2020
3. **Hybrid Compositional Reasoning for Reactive Synthesis from Finite-Horizon Specifications**
Suguman Bansal, Yong Li, Lucas M. Tabajara, Moshe Y. Vardi
In Proc. of AAAI Conference on Artificial Intelligence (AAAI) 2020

4. **Witnessing Secure Compilation**
Kedar S. Namjoshi, Lucas M. Tabajara
In Proc. of International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI) 2020
5. **Partitioning Techniques in LTL_f Synthesis**
Lucas M. Tabajara, Moshe Y. Vardi
In Proc. of International Joint Conference on Artificial Intelligence (IJCAI) 2019
6. **Functional Synthesis via Input-Output Separation**
Supratik Chakraborty, Dror Fried, Lucas M. Tabajara, Moshe Y. Vardi
In Proc. of Formal Methods in Computer-Aided Design (FMCAD) 2018
7. **A Symbolic Approach to Safety LTL Synthesis**
Shufang Zhu, Lucas M. Tabajara, Jianwen Li, Geguang Pu, Moshe Y. Vardi
In Proc. of Haifa Verification Conference (HVC) 2017
8. **Factored Boolean Functional Synthesis**
Lucas M. Tabajara, Moshe Y. Vardi
In Proc. of Formal Methods in Computer-Aided Design (FMCAD) 2017
9. **Symbolic LTL_f Synthesis**
Shufang Zhu, Lucas M. Tabajara, Jianwen Li, Geguang Pu, Moshe Y. Vardi
In Proc. of International Joint Conference on Artificial Intelligence (IJCAI) 2017
10. **BDD-Based Boolean Functional Synthesis**
Dror Fried, Lucas M. Tabajara, Moshe Y. Vardi
In Proc. of International Conference on Computer Aided Verification (CAV) 2016
11. **Leveraging Collaboration: A Methodology for the Design of Social Problem-Solving Systems**
Lucas M. Tabajara, Marcelo O. R. Prates, Diego Noble, and Luís C. Lamb
In Proc. of AAAI Conference on Human Computation and Crowdsourcing (HCOMP) 2013

TALKS

1. LTL_f Synthesis under Partial Observability: From Theory to Practice. *GandALF 2020*, September 2020
2. Witnessing Secure Compilation. *VMCAI 2020*, January 2020
3. Partitioning Techniques in LTL_f Synthesis. *Institute of Software Chinese Academy of Sciences*, August 2019
4. Partitioning Techniques in LTL_f Synthesis. *IJCAI 2019*, August 2019
5. Reactive Synthesis for Reachability and Safety Goals. *SYNT 2019*, July 2019
6. Functional Synthesis via Input-Output Separation. *FMCAD 2018*, November 2018
7. A Symbolic Approach to Safety LTL Synthesis. *HVC 2017*, November 2017
8. Factored Boolean Functional Synthesis. *FMCAD 2017*, October 2017
9. Symbolic LTL_f Synthesis. *ExCAPE meeting, University of Pennsylvania*, May 2017
10. BDD-Based Boolean Functional Synthesis. *CAV 2016*, July 2016
11. Boolean Synthesis via Self-Substitution. *ExCAPE meeting, University of Pennsylvania*, May 2016

12. Uma ferramenta para coleta e análise de dados sobre o comportamento humano através de redes sociais (A tool for gathering and analyzing data on human behavior through social networks). *Undergraduate Research Meeting, Federal University of Rio Grande do Sul*, October 2012
13. Resolução de problemas através de computação humana utilizando redes sociais (Solving problems through human computation using social networks). *Undergraduate Research Meeting, Federal University of Rio Grande do Sul*, October 2011

TEACHING EXPERIENCE

Fall 2018 Substitute lecturer for COMP 409/509 - Logic in Computer Science

Spring 2018 Teaching Assistant for COMP 403/503 - Reasoning about Software

Fall 2017 Teaching Assistant for COMP 409/509 - Logic in Computer Science

Spring 2017 Teaching Assistant for COMP 430/533 - Introduction to Database Systems

Fall 2016 Teaching Assistant for COMP 382 - Reasoning about Algorithms

Spring 2016 Teaching Assistant for COMP 100 - Introduction to Computing and Information Systems

WORK EXPERIENCE

Rice University

Graduate Researcher

Aug 2015-Present

Houston, TX

- Researches techniques for synthesis from formal specifications in propositional and temporal logic.
- Develops synthesis tools implementing such techniques.

Amazon Web Services

Summer Intern with the Automated Reasoning Group

June 2019-Aug 2019

Boston, MA

- Used the C Bounded Model Checker (CBMC) to verify memory safety of part of the AWS Encryption SDK for C.
- Created abstract model of part of the OpenSSL cryptographic library, in order to verify that the library is called correctly by the AWS Encryption SDK.

Nokia Bell Labs

Summer Intern

June 2018-Aug 2018

Murray Hill, NJ

- Designed a novel framework for verifying the preservation of security properties under compiler optimizations.

Federal University of Rio Grande do Sul

Undergraduate Research Assistant

Aug 2014-Jul 2015

Porto Alegre, Brazil

- Continuation of research initiated at Rice University.

Rice University

Undergraduate Research Assistant

May-Jul 2014

Houston, TX

- Researched novel techniques for automated program verification and synthesis.
- Developed tool for synthesis of Boolean functions from high-level specifications.

Federal University of Rio Grande do Sul

Undergraduate Research Assistant

Aug 2011-Jul 2013

Porto Alegre, Brazil

- Researched social networks as potential means to solve computationally hard problems.
- Developed new version of online platform for massive human problem-solving experiments.

- Devised a methodology for designing and analyzing human social computing experiments.

SERVICE

- Reviewer: Tools and Algorithms for the Construction and Analysis of Systems (TACAS) 2017 (Sub-reviewer), NASA Formal Methods Symposium (NFM) 2019 (Sub-reviewer), International Conference on Developments in Language Theory (DLT) 2019 (Sub-reviewer), Formal Methods in Computer-Aided Design (FMCAD) 2019 (Sub-reviewer), Workshop on Synthesis (SYNT) 2019 (PC member).
- President, Graduate Student Gaming Club (GradGames) *2018-2020*
- Treasurer, Graduate Student Gaming Club (GradGames) *2017-2018*
- Public Relations Director, Rice Computer Science Graduate Student Association *2017-2018*
- Treasurer, Brazilian Student Association (BRASA at Rice) *2016-2018*
- Rice Computer Science Graduate Student Mentor *2016-2017*