

Rafael Ferreira Toledo

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Education

Ph.D. Candidate in Computer Science

University of Waterloo

Waterloo Formal Methods Research Group

Expected Spring 2023

Waterloo, Canada

M.S. in Systems and Computing

Universidade Federal do Rio Grande do Norte

Formal Methods and Languages Research Laboratory

Jul 2018

Natal, Brazil

B.E. in Control and Automation

Instituto Federal Fluminense

Sandwich-Graduation with associated courses at University of Ottawa, Canada.

Jun 2016

Campos dos Goytacazes, Brazil

Qualifications

- Design and execute software engineering research to investigate solutions for complex problems experienced by the programmers, with particular focus on the analysis and debugging of large heterogeneous systems
- Organize and plan the distribution of time and short-term tasks to execute a research project
- Communicate research findings and complex concepts to large audiences through clear presentations and technical writing
- C++ and JavaScript proficiency

Research Experience

Ph.D. Research Assistant

University of Waterloo

- Studying the use of visual interfaces to support the inspection and comprehension of analysis results of large heterogeneous systems. My current focus is developing interactive lightweight models to represent the variability-aware analysis results of software product lines.

Sep 2018 – Present

MSc Research Assistant

Universidade Federal do Rio Grande do Norte

- Investigated new algorithms to enable the search of candidate replacements for failed web service of a self-healing composition

Jul 2016 – Jul 2018

Undergraduate Research Assistant

Instituto Federal Fluminense

- Contributed to the compilation of a set of tools and practices to study the application of finite state machines and test-driven development for embedded systems modelling and verification

Apr 2014 – Nov 2015

Undergraduate Researcher Assistant

University of Ottawa

- Contributed to the development of a user interface for monitoring the proximity detection provided by a robotic instrumented compliant wrist

May – Aug 2013

Teaching Experience

Instructor <i>University of Waterloo</i>	CS 246 - Object-Oriented Software Development <i>Spring 2021, Spring 2022</i>
Instructional Apprentice <i>University of Waterloo</i>	CS 246E - Object-Oriented Software Development (Enriched) <i>Fall 2021</i>
Teaching Assistant <i>University of Waterloo</i>	SE 463 - Software Requirements: Specification & Analysis <i>Spring 2020</i>
Teaching Assistant <i>University of Waterloo</i>	CS 442/642 - Principles of Programming Languages <i>Winter 2019, Winter 2020</i>
Teaching Assistant <i>University of Waterloo</i>	CS 442/642 - Principles of Programming Languages <i>Winter 2019, Winter 2020</i>
Teaching Assistant <i>University of Waterloo</i>	CS 246E - Object-Oriented Software Development (Enriched) <i>Fall 2019, Fall 2020</i>
Teaching Assistant <i>University of Waterloo</i>	CS 246 - Object-Oriented Software Development <i>Fall 2018, Spring 2019</i>

Languages

- **Portuguese:** Native Speaker
- **French:** Elementary Proficiency
- **English:** Bilingual Proficiency

Publications

- "Applying Declarative Analysis to Software Product Line Models: An Industrial Study", R. Shahin, R. Hackman, **R. Toledo**, Ramesh S, JM Atlee, and M. Chechik. ACM/IEEE 24th International Conference on Model Driven Engineering Languages and Systems (MODELS) 2021.
- "Interactive Graph Exploration for Comprehension of Static Analysis Results", **R. Toledo**. IEEE/ACM 43rd International Conference on Software Engineering: Companion Proceedings (ICSE-Companion) 2021.
- "Self-healing of web service compositions: a specification rewriting approach.", **R. Toledo**, U. Da Costa, M. Musicante, and G. Vargas-Solar. International Journal of Web and Grid Services 16, no. 2 (2020): 172-199.
- "Instrumented Compliant Wrist for Dexterous Robotic Interaction", P. Laferrière, P. Payeur, **R. Toledo**, Proceedings of the IEEE International. Symposium on Robotic and Sensors Environments (ROSE 2014), pp. 66-71, Timisoara, Romania, 16-18 Oct. 2014.
- "An Integrated Vision-Guided Robotic System for Rapid Vehicle Inspection", R. Fareh, P. Payeur, D. Nakhaeinia, R. Macknoja, A. Chavez-Aragon, A.-M. Cretu, P. Lafférière, R. Laganière, **R. Toledo**. Proceedings of the IEEE International Systems Conference (SYSCON 2014), pp. 446-451, Ottawa, ON, 31 Mar. - 3 Apr. 2014 (Best Paper Award)