

Rafael Ferreira Toledo |

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Education

Ph.D. Candidate in Computer Science

University of Waterloo

Expected Fall 2024

Waterloo, Canada

M.S. in Systems and Computing

Universidade Federal do Rio Grande do Norte

Jul 2018

Natal, Brazil

Formal Methods and Languages Research Laboratory

B.E. in Control and Automation

Instituto Federal Fluminense

Jun 2016

Campos dos Goytacazes, Brazil

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

Qualifications

- Design and execute software engineering research, with particular focus on the code analysis, software modeling, and debugging of large heterogeneous systems
- Design and use compiler-level tools for code analysis
- Design and evaluate interactive user interfaces for data visualization
- 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

Sep 2018 – Present

- Studying the use of interactive visual interfaces to support the inspection and comprehension of analysis results of large software product lines.

MSc Research Assistant

Universidade Federal do Rio Grande do Norte

Jul 2016 – Jul 2018

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

Undergraduate Research Assistant

Instituto Federal Fluminense

Apr 2014 – Nov 2015

- 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

Undergraduate Researcher Assistant

University of Ottawa

May – Aug 2013

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

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 2019, Fall 2020, Fall 2021, Fall 2022</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 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. Macknojiia, A. Chavez-Aragon, A.-M. Cretu, P. Lafferièrre, 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)