Felipe R. Monteiro

Eldorado Institute
The Office Intelligent Building
315 Av. Mário Ypiranga, 69057-070
Manaus, Amazonas, Brazil

Phone: +55 92 98194-3154
Email: felipemonteiro@ufam.edu.br
LinkedIn: Felipe R. Monteiro
Webpage: https://feliperodri.github.io

Personal

Felipe R. Monteiro is currently a Software Engineer at the Eldorado Institute and is pursuing a M.Sc. degree in Computer Science at the Federal University of Amazonas (UFAM). He earned his bachelor's degree in Computer Engineering from UFAM and he was awarded the Science without Borders scholarship, which has sponsored his studies in the Computer Science course at the Goldsmiths University of London, in 2013-2014. He has worked on 7 research and development (R&D) projects and his main experiences are in formal verification, model checking, and software engineering. His most recent work implements bounded model checking based on satisfiability modulo theories to handle verification of C++ programs.

Education

M.Sc. Computer Science, Federal University of Amazonas, 2018 – currently[1].

B.Eng. Computer Engineering, Federal University of Amazonas, 2011 – 2017.

Exchange Program in Computer Science, Goldsmiths University of London, 2013 – 2014.

Technical in Software Programming, National Service of Industrial Learning, 2010 – 2011.

Professional Experience

1. **Software Engineer** at Eldorado Institute, 01/2018 – Currently

   – Research on battery management for Android-based smartphones;

   – Development of an Android application to perform stress test hardware components and measure current drain;

   – Programming tasks including enhancements, maintenance, and testing in Android applications.

   – Eldorado Institute

2. **Research Fellow and Developer** at Electronic and Information Research Center, 10/2011 – 10/2017

   – Research on formal verification of digital systems (DSVerifier);

   – Research on model checking of C++ programs based on the Qt framework (QtOM);

   – Research on model checking of CUDA-based applications (ESBMC-GPU);

   – Programming tasks including enhancements, maintenance, and testing (C/C++).

   – Systems & Software Verification Laboratory

3. **Google Summer of Code Student** at Checker Framework, 06/2017 – 08/2017 (*sponsored by Google*)

---

[1]Expected December 2019

– Research on whole-program inference (Checker Framework);

– Programming tasks including enhancements, maintenance, and testing (Java);

– Google Summer of Code 2017

4. **Internship** at Samsung Electronics, 04/2015 – 01/2016

– Mobile application development (Android);

– Programming tasks including enhancements, maintenance, and testing (Java);

– Led, architected and participated in the design, testing, and deployment of an Android application and related components. In addition, participated as a Scrum master.

5. **Research Fellow and Developer** at Institute of Technology Development (INdT), 11/2011 – 04/2013

– Research on formal verification of C++ programs using SMT-based BMC (ESBMC++);

– Programming tasks including enhancements, maintenance, and testing (C/C++).

– Systems & Software Verification Laboratory

6. **Research Fellow** at Institute of Computing, 04/2011 – 12/2011

– Research on assistive technology for autistic children;

– Usability and semiotic engineering of human-computer interaction;

– Laboratory of Intelligent Systems.

Publications

Journal Articles

F. R Monteiro, E. H. da S. Alves, I. S. da Silva, H. I. Ismail, L. C. Cordeiro, E. B. de Lima Filho. **ESBMC-GPU A Context-Bounded Model Checking Tool to Verify CUDA Programs**, Science of Computer Programming (2018). doi:10.1016/$j.scico$.2017.09.005.

F. R. Monteiro, F. A. P. Januário, L. C. Cordeiro, E. B. de Lima Filho. **BMCLua: A Translator for Model Checking Lua Programs**, ACM SIGSOFT Software Engineering Notes. 42 (2017) 1 – 10. doi:10.1145/3127360.3127367.

F. R. Monteiro, M. A. P. Garcia, L. C. Cordeiro, E. B. de Lima Filho. **Bounded Model Checking of C++ programs based on the Qt cross-platform framework**, Journal of Software Testing, Verification and Reliability. 27 (2017) e1632 – n/a. doi:10.1002/$stvr$.1632.

P. Pereira, H. Albuquerque, I. da Silva, H. Marques, **F. R. Monteiro**, R. Ferreira, L. C. Cordeiro. **SMT-based Context-Bounded Model Checking for CUDA Programs**, Journal of Concurrency and Computation: Practice and Experience (2016) doi:10.1002/cpe.3934.

Proceedings

M. R. Gadelha, **F. R. Monteiro**, L. C. Cordeiro, D. A. Nicole. **Towards Counterexample-guided k-Induction for Fast Bug Detection**, ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), 2018.

M. R. Gadelha, **F. R. Monteiro**, J. Morse, L. C. Cordeiro, B. Fisher, D. A. Nicole. **ESBMC v5.0 - An Industrial-Strength C Model Checker**, 33rd IEEE/ACM International Conference on Automated Software Engineering, 2018.

F. R. Monteiro, M. A. P. Garcia, L. C. Cordeiro, E. B. de Lima Filho. **Bounded Model Checking of C++ Programs, based on the Qt Cross-Platform Framework: Journal-First Abstract**, 33rd IEEE/ACM International Conference on Automated Software Engineering, 2018.

F. R. Monteiro. **Bounded model checking of state-space digital systems: the impact of finite word-length effects on the implementation of fixed-point digital controllers based on state-space modeling**, 24th ACM SIGSOFT International Symposium on Foundations of Software Engineering, 2016.

M. Garcia, **F. R. Monteiro**, L. C. Cordeiro, E. B. de Lima Filho. **ESBMC^{QtOM}: A Bounded Model Checking Tool to Verify Qt Applications**, Model Checking Software. SPIN 2016. Lecture Notes in Computer Science, vol 9641. Springer, 2016.

F. R. Monteiro, P. A. Pereira, L. C. Cordeiro, C. F. F. Costa Filho, M. G. F. Costa. **Complementary training programme for electrical and computer engineering students through an industrial-academic collaboration**, IEEE Frontiers in Education Conference, 2016.

F. R. Monteiro, L. C. Cordeiro, E. B. de Lima Filho. **Bounded model checking of C++ programs based on the Qt framework**, IEEE 4th Global Conference on Consumer Electronics, 2015.

F. R. Monteiro, L. C. Cordeiro, E. B. de Lima Filho. *VerificaÃğÃčo de Programas C++ Baseados no Framework Multiplataforma Qt*, *Encontro Regional de ComputaÃğÃčo e Sistemas de InformaÃğÃčo*, 2015.

M. Ramalho, M. Freitas, **F. R. Monteiro**, H. Marques, L. C. Cordeiro, B. Fischer. **SMT-based bounded model checking of C++ programs**, 20th IEEE International Conference and Workshops on the Engineering of Computer Based Systems, 2013.

F. R. Monteiro, E. A. B. Costa, T. H. C. de Castro. *WorldTour: Software para Suporte no Ensino de CrianÃğas Autistas*, XXIII Brazilian Symposium on Computers in Education, 2012.

F. R. Monteiro, T. H. C. de Castro. **WorldTour: Towards an Adaptive Software to Support Children with Autism in Tour Planning**, IEEE 36th Annual Computer Software and Applications Conference, 2012.

Accomplishments

Silver Medal at the International ACM Student Research Competition, Association for Computing Machines, 2016.

Best Mobile Application Award of the 3rd Meeting of Technological Innovation, Samsung Electronics of Amazonia Ltda., 2016.

Woody Bledsoe Student Travel Award at the 9th International Joint Conference on Automated Reasoning, 2018.

Program committee member of the International Competition on Software Verification (SV-COMP), 2018.

15 revised publications. Full list available at Google Scholar.

Technology Summary

Agile Methodologies (e.g., SCRUM and Kanban);

Version Control (e.g., Git and Github/Gerrit);

Issue tracker (e.g., Jira);

Programming (e.g., ANSI-C, C++, Java);

Building Tools (e.g. cmake, ant, and Autotools);

IDE (e.g., Eclipse and Android Studio);

Continuous Integration (e.g., Travis CI);

MATLAB, Simulink, LabView;

Embedded Systems, UML, LaTeX;

Linux, Mac OS X, Windows.

Additional Skills

Proficient in English.