

Simone Atzeni

CONTACT INFORMATION

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Citizenship: Italian

EDUCATION

University of Utah, Salt Lake City, Utah, USA

Fourth year PhD student in Computer Science

August 2013 – present

- Research area: Software verification, parallel computing
- Advisor: Ganesh Gopalakrishnan (Professor)
- Co-Advisor: Zvonimir Rakamarić (Assistant Professor)

Faculty of Mathematics, Physics and Natural Science, University of Rome “La Sapienza”, Italy

Master’s Degree (2-year degree) of Computer Science

September 2007 – December 2009

- Thesis Topic: Formal verification of parallel computing
- Advisors: Ganesh Gopalakrishnan (Professor, University of Utah), Enrico Tronci (Associate Professor, University of Rome “La Sapienza”)

Faculty of Mathematics, Physics and Natural Science, University of Cagliari, Italy

Bachelor’s Degree (3-year degree) of Computer Science

September 2004 – July 2007

- Thesis Topic: Compared analysis of Internet network vulnerability
- Advisor: Gianni Fenu (Associate Professor, University of Cagliari)

WORK EXPERIENCE

Summer Intern IBM Thomas J. Watson Research Center
Yorktown Heights, NY, U.S.A.

May 2016-August 2016

Mentor: Alexandre E. Eichenberger

- Implementation of OpenMP Tools API in IBM Lightweight OpenMP Runtime.
- Implementation of OpenMP Debugging API in IBM Lightweight OpenMP Runtime.

Summer Intern Lawrence Livermore National Laboratory
Livermore, CA, U.S.A.

May 2015-August 2015

Mentor: Dong H. Ahn

- Research on data-race detection techniques for large OpenMP applications.
- Porting of LLVM ThreadSanitizer pthread data-race checker to PPC64 architectures.

Summer Intern Lawrence Livermore National Laboratory
Livermore, CA, U.S.A.

May 2014-August 2014

Mentor: Dong H. Ahn

- Worked on a project that aims to provide a low overhead data-race analyzer in OpenMP programs. The goal of this research is to innovate ways to diagnose data races in a very large scientific applications.
- Accepted poster to the ACM Student Research Competition at Supercomputing 2014.
- Accepted workshop paper at LLVM Workshop at Supercomputing 2014.

Software Engineer Vitrociset S.p.A.
Villaputzu (CA), Italy

February 2010-June 2013

- Maintenance and development of features in graphics console (developed in a language from Barco company) for real-time visualization of air traffic in order to perform military mission.
- Development of driver for Tews Serial PMC Board in VME and PCI Bus.
- Development from scratch of a new suite of applications for visualization and management of military air traffic and data from test-range sensors. These applications make a huge use of

multithreading techniques in order to receive in Real-Time a big amount of data from different sources (radars and optical sensors in the Test Range), TCP and UDP communication socket, shared memory for IPC communication in C/C++, Nokia Qt API and OpenGL for graphic data presentations.

HONORS AND AWARDS

Best Poster Presentation, IPDPS 2016
PhD Forum Travel Award, IPDPS 2016
Graduate Student Travel Assistance, University of Utah
ACM Poster Competition Travel Award, SC'14

PROJECTS

PRUNER — Providing Reproducibility on Ubiquitously Non-deterministic Environments and Runs

Mentor: Ganesh Gopalakrishnan

September 2013 – present

This is a project launched by Lawrence Livermore National Laboratory (LLNL) in collaboration with the Formal Verification Group at School of Computing of University of Utah. This project seeks to identify and solve some of the variability-related problems that, if left to chance or *ad hoc* solutions, can impede continued progress in the field of Extreme Scale computing. In detail, the project consists in building a tool for helping programmers to identify sources of non-determinism results and data races in parallel programs that involve paradigms of concurrency in high-performance computing, namely OpenMP and MPI.

maline — Malware Detection for Android

Mentor: Zvonimir Rakamarić

October 2013 – present

maline is a malware detection tool for Android apps based on dynamic analysis and machine learning.

<https://github.com/soarlab/maline>

LLVM/Clang — Compiler Infrastructure Project

October 2015 – December 2015

Porting of the data-race checker ThreadSanitizer on PowerPC (64 bits, BE/LE) architecture.

PEER-REVIEWED PUBLICATIONS

Joachim Protze, Simone Atzeni, Dong H Ahn, Martin Schulz, Ganesh Gopalakrishnan, Matthias S Müller, Ignacio Laguna, Zvonimir Rakamarić, and Greg L Lee. Towards providing low-overhead data race detection for large openmp applications. In *Proceedings of the 2014 LLVM Compiler Infrastructure in HPC*, pages 40–47. IEEE Press, 2014

S. Atzeni, G. Gopalakrishnan, Z. Rakamarić, D. H. Ahn, I. Laguna, M. Schulz, G. L. Lee, J. Protze, and M. S. Müller. Archer: Effectively spotting data races in large openmp applications. In *2016 IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, pages 53–62, May 2016

TECHNICAL REPORTS

Marko Dimjašević, Simone Atzeni, Ivo Ugrina, and Zvonimir Rakamarić. Android malware detection based on system calls. Technical Report UUCS-15-003, School of Computing, University of Utah, May 2015

RESEARCH EXPERIENCE

School of Computing, University of Utah, Salt Lake City, Utah, USA

Research Assistant

August 2013 – present

TEACHING EXPERIENCE

School of Computing, University of Utah, Salt Lake City, Utah, USA

Teaching Assistant

August 2014 – December 2014

COMPUTER
SKILLS

Languages

C, C++, Python, Bash, Java, C#, Verilog, nesC, Racket, Go, XML, UML, Octave, SQL, PHP, HTML, Javascript, L^AT_EX, Pascal

Operating Systems

GNU/Linux, Windows, Mac, LynxOS Real-time

Version Control Systems

Git, Subversion

Other

Good experience with Qt Framework, Linear Programming (GLPK Library), modeling and solving of MILP/LP problems.

REFERENCES

Available upon request.