

# Andrea Rosà

## Curriculum Vitae

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### Contact Information

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### Education

- 10/2013–present **PhD candidate**, *Informatics, Università della Svizzera italiana (USI)*, Lugano, Switzerland.  
Advisor: Prof. Walter Binder
- 09/2011–10/2013 **MSc**, *Computer Science Engineering, Politecnico di Milano*, Milan, Italy.  
Advisor: Prof. Giuseppe Serazzi
- 09/2008–09/2011 **BSc**, *Computer Science Engineering, Politecnico di Milano*, Milan, Italy.  
Advisor: Prof. Carlo Ghezzi

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### Professional Experience

- 10/2013–present **Research Assistant**, *Università della Svizzera italiana (USI)*, Lugano, Switzerland.  
Supervisor: Prof. Walter Binder
- 10/2013–present **Teaching Assistant**, *Università della Svizzera italiana (USI)*, Lugano, Switzerland.

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### Skills

Experience Parallel and Distributed Frameworks, Hadoop and MapReduce Frameworks, Big-Data Analytics, Data Analysis, Data Mining, Machine Learning Techniques, Simulation, Performance Evaluation of Systems, Dependability, Static and Dynamic Program Analysis, Actor Frameworks, Runtime Monitoring and Verification.

Programming Languages Java, Scala, Python, C/C++, Akka, Hadoop MapReduce, Apache Spark, Apache Flink, Pascal, JavaScript, SQL, OpenMP, CUDA, Signal/Collect, R.

Tools MATLAB, LaTeX, Gnuplot.

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### Publications

All listed papers and articles are peer-reviewed (original publications).

#### Journals and Newsletters

- [1] [Andrea Rosà](#), Lydia Y. Chen, Walter Binder. *Failure Analysis and Prediction for Big-Data Systems*. In **IEEE Transactions on Services Computing**, to appear, 2016, pp. 1–14.
- [2] [Andrea Rosà](#), Lydia Y. Chen, Robert Birke, Walter Binder. *Demystifying Casualties of Evictions in Big Data Priority Scheduling*. In **SIGMETRICS Perform. Eval. Rev.**, **42(4):12-21**, Mar. 2015.
- [3] Derya Çavdar, [Andrea Rosà](#), Lydia Y. Chen, Walter Binder, Fatih Alagöz. *Quantifying the Brown Side of the Priority Scheduler: Lessons from Big Clusters*. In **SIGMETRICS Perform. Eval. Rev.**, **42(3):76-81**, Dec. 2014. Presented at Greenmetrics 2014.

## Conferences and Symposia

- [4] [Andrea Rosà](#), Lydia Y. Chen, Walter Binder. *Actor Profiling in Virtual Execution Environments*. In **Proceedings of the 15th International Conference on Generative Programming: Concepts & Experience (GPCE)**, 2016, pp. 36–46.
- [5] Omar Javed, Yudi Zheng, [Andrea Rosà](#), Haiyang Sun, Walter Binder. *Extended Code Coverage for AspectJ-based Runtime Verification Tools*. In **Proceedings of the 16th International Conference on Runtime Verification (RV)**, 2016, pp. 219–234.
- [6] [Andrea Rosà](#), Yudi Zheng, Haiyang Sun, Omar Javed, Walter Binder. *Adaptable Runtime Monitoring for the Java Virtual Machine*. In **Proceedings of the 7th International Symposium on Leveraging Applications of Formal Methods, Verification and Validation (ISoLA)**, to appear, 2016, pp. 531–546.
- [7] Yudi Zheng, [Andrea Rosà](#), Luca Salucci, Yao Li, Haiyang Sun, Omar Javed, Lubomír Bulej, Lydia Y. Chen, Zhengwei Qi, Walter Binder. *AutoBench: Finding Workloads That You Need Using Pluggable Hybrid Analyses*. In **Proceedings of the 23rd IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER)**, 2016, pp. 639–643.
- [8] [Andrea Rosà](#), Lydia Y. Chen, and Walter Binder. *Understanding the Dark Side of Big Data Clusters: An Analysis beyond Failures*. In **Proceedings of the 45th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN)**, 2015, pp. 207–218.
- [9] [Andrea Rosà](#), Lydia Y. Chen, and Walter Binder. *Catching Failures of Failures at Big-Data Clusters: a Two-Level Neural Network Approach*. In **Proceedings of the 23rd IEEE International Symposium of Quality of Service (IWQoS)**, 2015, pp. 231–236.
- [10] [Andrea Rosà](#), Lydia Y. Chen, and Walter Binder. *Predicting and Mitigating Jobs Failures in Big Data Clusters*. In **Proceedings of the 15th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid)**, 2015, pp. 221–230.
- [11] [Andrea Rosà](#), Lydia Y. Chen, and Walter Binder. *Understanding Unsuccessful Executions in Big-Data Systems*. In **Proceedings of the 15th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid)**, 2015, pp. 741–744.

## Workshops

- [12] [Andrea Rosà](#), Lydia Y. Chen, Walter Binder. *Profiling Actor Utilization and Communication in Akka*. In **Proceedings of the 15th ACM SIGPLAN Erlang Workshop (Erlang)**, in conjunction with ACM SIGPLAN ICFP, 2016, pp. 24–32.
- [13] [Andrea Rosà](#), Lydia Y. Chen, Walter Binder. *Efficient Profiling of Actor-based Applications in Parallel and Distributed Systems*. In **Proceedings of the 11th Workshop on Implementation, Compilation, Optimization of Object-Oriented Languages, Programs and Systems (ICOOOLPS)**, in conjunction with ECOOP, to appear, 2016, pp. 1–3.
- [14] Derya Çavdar, [Andrea Rosà](#), Lydia Y. Chen, Walter Binder, Fatih Alagöz. *Quantifying the Brown Side of the Priority Scheduler: Lessons from Big Clusters*. **Greenmetrics**, in conjunction with ACM SIGMETRICS, 2014. SIGMETRICS Perform. Eval. Rev., 42(3):76-81, Dec. 2014. pp. 76–81.

## Tool Demonstations and Posters

- [15] [Andrea Rosà](#), Lydia Y. Chen, Walter Binder. *AkkaProf: a Profiler for Akka Actors in Parallel and Distributed Applications*. In **Proceedings of the 14th Asian Symposium on Programming Languages and Systems (APLAS)**, 2016, pp. 139–147.
- [16] [Andrea Rosà](#), Lydia Y. Chen, Walter Binder. *An Endpoint Communication Profiling Tool for Distributed Computing Frameworks*. In **Proceedings of the 36th IEEE International Conference on Distributed Computing Systems (ICDCS)**, to appear, 2016, pp. 765–766.
- [17] [Andrea Rosà](#), Lydia Y. Chen, Walter Binder. *When Things Turn Sour at Big Data Clusters: Understanding Unsuccessful Executions*. **5th ACM Symposium on Cloud Computing (SoCC)**, 2014, poster.

- [18] [Andrea Rosà](#), Walter Binder, Lydia Y. Chen, Marco Gribaudo, Giuseppe Serazzi. *ParSim: a Tool for Workload Modeling and Reproduction of Parallel Applications*. In **Proceedings of the 22nd IEEE International Symposium on Modelling, Analysis & Simulation of Computer and Telecommunication Systems (MASCOTS)**, 2014, pp. 494–497.

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## Grants

- 2016 **ACM SIGPLAN PAC travel grant** to attend the 2016 ACM SIGPLAN conference on Systems, Programming, Languages and Applications: Software for Humanity (SPLASH).
- 2016 **ACM SIGPLAN PAC travel grant** to attend the 21st ACM SIGPLAN International Conference on Functional Programming (ICFP).
- 2016 **IEEE travel grant** to attend the 36th IEEE International Conference on Distributed Computing Systems (ICDCS).
- 2015 **IEEE travel grant** to attend the 45th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN).
- 2015 **ACM travel grant** to attend the 27th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA).
- 2014 **ACM travel grant** to attend the 5th ACM Symposium on Cloud Computing (SoCC).

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## Invited Talks

- 2016 Invited talk at the 3rd Virtual Machine Meetup (VMM).
- 2016 Seminar talk at University of Tokyo.
- 2016 Seminar talk at Tokyo Institute of Technology.
- 2016 Seminar talk at Kyoto University.

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## Project Participation

- 2013–present **LoadOpt - Workload Characterization and Optimization for Multicore Systems**  
Participating in the Swiss National Science Foundation (SNF) LoadOpt project as doctoral student. Investigating, characterizing and optimizing resource waste, performance, and dependability of parallel and distributed computing frameworks and big-data systems.
- 2016 **Analysis and Optimization of Task Granularity in Concurrent Applications**  
Participating in the Undergraduate Research Opportunities Programme (UROP) project as mentor. Leading the analysis, characterization, and optimization of task granularity in concurrent applications, and supervising the development of a profiler for task granularity.

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## Academic Service

### Program Committee

- 2017 8th ACM/SPEC International Conference on Performance Engineering (ICPE) - Posters and Demonstrations track

### Conference Organization

- 2017 **Publicity Co-chair**, 8th ACM/SPEC International Conference on Performance Engineering (ICPE) and 8 co-located workshops.
- 2016 **Publicity Chair**, Managed Languages & Runtimes Week, including the 13th International Conference on Principles and Practices of Programming on the Java Platform: Virtual Machines, Languages, and Tools (PPPJ), the 14th International Workshop on Java Technologies for Real-time and Embedded Systems (JTRES), and the 3rd Virtual Machine Meetup (VMM).
- 2014 **Local Arrangements**, 13th International Conference on Modularity (Modularity).

### Reviewer

- 2016 15th International Conference on Generative Programming: Concepts & Experience (GPCE)
- 2016 14th Asian Symposium on Programming Languages and Systems (APLAS)

- 2016 14th International Conference on Service-Oriented Computing (ICSOC)
- 2016 24th IEEE International Symposium on Modelling, Analysis & Simulation of Computer and Telecommunication Systems (MASCOTS)
- 2016 7th International Symposium on Leveraging Applications of Formal Methods, Verification and Validation (ISoLA)
- 2016 IEEE Transactions on Modeling and Performance Evaluation of Computing Systems
- 2016 6th International Workshop on Big Data and Cloud Performance (DCPerf)
- 2016 7th ACM/SPEC International Conference on Performance Engineering (ICPE)
- 2015 5th ACM/IFIP/USENIX International Middleware Conference (Middleware)
- 2015 14th International Conference on Generative Programming: Concepts & Experience (GPCE)
- 2015 13th International Conference on Service-Oriented Computing (ICSOC)
- 2015 23rd IEEE International Symposium on Modelling, Analysis & Simulation of Computer and Telecommunication Systems (MASCOTS)
- 2015 23rd IEEE International Symposium of Quality of Service (IWQoS)
- 2015 12th IEEE International Conference on Autonomic Computing (ICAC)
- 2015 6th ACM/SPEC International Conference on Performance Engineering (ICPE)
- 2014 12th International Conference on Service-Oriented Computing (ICSOC)
- 2014 12th IEEE Global Communications Conference (GLOBECOM)

### Teaching Assistant

- Fall 2016 **Programming Fundamentals III**, Università della Svizzera italiana (USI).  
Teacher: Prof. Walter Binder
- Fall 2015 **Advanced Programming & Design**, Università della Svizzera italiana (USI).  
Teacher: Prof. Walter Binder
- Spring 2015 **Algorithms & Data Structures**, Università della Svizzera italiana (USI).  
Teacher: Prof. Antonio Carzaniga
- Fall 2014 **Computer Networking**, Università della Svizzera italiana (USI).  
Teacher: Prof. Antonio Carzaniga
- Spring 2014 **Databases**, Università della Svizzera italiana (USI).  
Teacher: Prof. Gabriella Pasi

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### Software

- 2016 **AkkaProf**. Developer of AkkaProf, a profiling tool for Akka actors in parallel and distributed applications. Presented at the 14th Asian Symposium on Programming Languages and Systems (APLAS), 2016.
- 2013 **ParSim**. Developer of ParSim, a software tool for modeling, reproduction, and analysis of arbitrary workloads in parallel systems. Presented at the 22nd IEEE International Symposium on Modelling, Analysis & Simulation of Computer and Telecommunication Systems (MASCOTS), 2014.

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### References

- [1] **Prof. Walter Binder**, Faculty of Informatics, Università della Svizzera italiana (USI), via Giuseppe Buffi 13, Lugano, Switzerland, CH-6904.  
E-mail: walter.binder@usi.ch. Phone: +41 58 666 4303.
- [2] **Dr. Lydia Y. Chen**, Zurich Research Laboratory, IBM, Säumerstrasse 4, Rüschlikon, Switzerland, CH-8803.  
E-mail: yic@zurich.ibm.com. Phone: +41 44 724 8379.
- [3] **Prof. Giuseppe Serazzi**, Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB), Politecnico di Milano, via Ponzio 34/5, Milan, Italy, IT-20133.  
E-mail: giuseppe.serazzi@polimi.it. Phone: +39 02 2399 3535.

- [4] **Prof. Marco Gribaudo**, Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB), Politecnico di Milano, via Ponzio 34/5, Milan, Italy, IT-20133.  
E-mail: marco.gribaudo@polimi.it. Phone: +39 02 2399 3568.
- [5] **Prof. Lubomír Bulej**, Department of Distributed and Dependable Systems, Charles University, Malostranské náměstí 25, Prague, Czech Republic, CZ-11800.  
E-mail: lubomir.bulej@d3s.mff.cuni.cz. Phone: +420 221 914 267.