

Andrea Rosà

Publication List

Updated: September 2025

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

Articles in Journals and Newsletters

- [J11] Matteo Basso, Aleksandar Prokopec, Andrea Rosà, Walter Binder. *Heap-Snapshot Matching and Ordering using CAHPs: A Context-Augmented Heap-Path Representation for Exact and Partial Path Matching using Prefix Trees*. In **Proc. ACM Program. Lang.**, Vol. 9, No. OOPSLA2, Article 325, pp.1–28, 2025. Artifact evaluated. In press.
- [J10] Matteo Basso, Aleksandar Prokopec, Andrea Rosà, Walter Binder. *Optimization-Aware Compiler-Level Event Profiling*. In **ACM Transactions on Programming Languages and Systems (TOPLAS)**, 45(2):1–50, 2023. Presented at the 2023 ACM SIGPLAN conference on Systems, Programming, Languages, and Applications: Software for Humanity (SPLASH 2023).
- [J9] Eduardo Rosales, Matteo Basso, Andrea Rosà, Walter Binder. *Large-scale Characterization of Java Streams*. In **Software: Practice and Experience**, 53(9):1763–1792, 2023.
- [J8] Eduardo Rosales, Matteo Basso, Andrea Rosà, Walter Binder. *Profiling and Optimizing Java Streams*. In **The Art, Science, and Engineering of Programming**, 7(3), 10:1–10:39, 2023. Artifact evaluated.
- [J7] Andrea Rosà, Eduardo Rosales, Walter Binder. *Analysis and Optimization of Task Granularity on the Java Virtual Machine*. In **ACM Transactions on Programming Languages and Systems (TOPLAS)** 41(3):19:1–19:47, 2019.
- [J6] Andrea Rosà, Walter Binder. *Optimizing Type-specific Instrumentation on the JVM with Reflective Supertype Information*. In **Journal of Visual Languages & Computing** 49:29–45, 2018.
- [J5] Andrea Rosà, Lydia Y. Chen, Walter Binder. *Failure Analysis and Prediction for Big-Data Systems*. In **IEEE Transactions on Services Computing**, 10(6): 984–998, 2017.
- [J4] Andrea Rosà, Eduardo Rosales, Walter Binder. *Accurate Reification of Complete Supertype Information for Dynamic Analysis on the JVM*. In **ACM SIGPLAN Notices**, 52(12):104–116, 2017. Presented at the 16th International Conference on Generative Programming: Concepts & Experience (GPCE 2017).
- [J3] Andrea Rosà, Lydia Y. Chen, Walter Binder. *Actor Profiling in Virtual Execution Environments*. In **ACM SIGPLAN Notices**, 52(3):36–46, 2017. Presented at the 15th International Conference on Generative Programming: Concepts & Experience (GPCE 2016).
- [J2] 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, 2015.
- [J1] Derya Çavdar, Andrea Rosà, Lydia Y. Chen, Walter Binder, Fatih Alagöz. *Quantifying the Brown Side of Priority Schedulers: Lessons from Big Clusters*. In **SIGMETRICS Perform. Eval. Rev.**, 42(3):76–81, 2014. Presented at Greenmetrics 2014.

Papers in Proceedings

- [C32] Matteo Basso, Aleksandar Prokopec, Andrea Rosà, Walter Binder. *Improving Native-Image Startup Performance*. In **Proceedings of the 23rd IEEE/ACM International Symposium on Code Generation and Optimization (CGO)**, 2025, pp. 689–703. Artifact evaluated.

- [C31] Júnior Löff, Filippo Schiavio, Andrea Rosà, Matteo Basso, Walter Binder. *Vectorized Intrinsic Can Be Replaced with Pure Java Code without Impairing Steady-State Performance*. In **Proceedings of the 15th ACM/SPEC International Conference on Performance Engineering (ICPE)**, 2024, pp. 14–24. Artifact evaluated. **Best-paper runner-up award**.
- [C30] Matteo Basso, Andrea Rosà, Luca Omini, Walter Binder. *Java Vector API: Benchmarking and Performance Analysis*. In **Proceedings of the 32nd ACM/SIGPLAN International Conference on Compiler Construction (CC)**, 2023, pp. 1–12. Artifact evaluated.
- [C29] Andrea Rosà, Matteo Basso, Leonardo Bohnhoff, Walter Binder. *Automated Runtime Transition between Virtual and Platform Threads in the Java Virtual Machine*. In **Proceedings of the 30th Asia-Pacific Software Engineering Conference (APSEC)**, 2023, pp. 607–611.
- [C28] Matteo Basso, Eduardo Rosales, Filippo Schiavio, Andrea Rosà, Walter Binder. *Accurate Fork-Join Profiling on the Java Virtual Machine*. In **Proceedings of the 28th International European Conference on Parallel and Distributed Computing (EuroPar)**, 2022, pp. 35–50.
- [C27] Eduardo Rosales, Andrea Rosà, Matteo Basso, Alex Villazón, Adriana Orellana, Ángel Zenteno, Jhon Rivero, Walter Binder. *Characterizing Java Streams in the Wild*. In **Proceedings of the 26th International Conference on Engineering of Complex Computer Systems (ICECCS)**, 2022, pp. 143–152.
- [C26] Matteo Basso, Filippo Schiavio, Andrea Rosà, Walter Binder. *Optimizing Parallel Java Streams*. In **Proceedings of the 26th International Conference on Engineering of Complex Computer Systems (ICECCS)**, 2022, pp. 23–32.
- [C25] Filippo Schiavio, Andrea Rosà, Walter Binder. *SQL to Stream with S2S: An Automatic Benchmark Generator for the Java Stream API*. In **Proceedings of the 21st International Conference on Generative Programming: Concepts & Experience (GPCE)**, 2022, pp. 179–186.
- [C24] Haiyang Sun, Andrea Rosà, Daniele Bonetta, Walter Binder. *Automatically Assessing and Extending Code Coverage for NPM Packages*. In **Proceedings of the 2nd ACM/IEEE International Conference on Automation of Software Test (AST)**, 2021, pp. 40–49.
- [C23] Andrea Rosà, Walter Binder. *P3: A Profiler Suite for Parallel Applications on the Java Virtual Machine*. In **Proceedings of the 18th Asian Symposium on Programming Languages and Systems (APLAS)**, 2020, pp. 364–372.
- [C22] Eduardo Rosales, Andrea Rosà, Walter Binder. *FJProf: Profiling Fork/Join Applications on the Java Virtual Machine*. In **Proceedings of the 13th EAI International Conference on Performance Evaluation Methodologies and Tools (VALUETOOLS)**, 2020, pp. 128–135.
- [C21] Aleksandar Prokopec, Andrea Rosà, David Leopoldseder, Gilles Duboscq, Petr Tůma, Martin Studener, Lubomír Bulej, Yudi Zheng, Alex Villazón, Doug Simon, Thomas Würthinger, Walter Binder. *Renaissance: Benchmarking Suite for Parallel Applications on the JVM*. In **Proceedings of the 40th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI)**, 2019, pp. 31–47. Artifact evaluated.
- [C20] Alex Villazón, Haiyang Sun, Andrea Rosà, Eduardo Rosales, Daniele Bonetta, Isabella Defilippis, Sergio Oporto, Walter Binder. *Automated Large-scale Multi-language Dynamic Program Analysis in the Wild*. In **Proceedings of the 2019 European Conference on Object-Oriented Programming (ECOOP)**, 2019, pp. 20:1–20:27. Artifact evaluated.
- [C19] Filippo Schiavio, Haiyang Sun, Daniele Bonetta, Andrea Rosà, Walter Binder. *NodeMOP: Runtime Verification for Node.js Applications*. In **Proceedings of the 34th ACM/SIGAPP Symposium On Applied Computing (SAC)**, 2019, pp. 1794–1801.
- [C18] Andrea Rosà, Eduardo Rosales, Walter Binder. *Analyzing and Optimizing Task Granularity on the JVM*. In **Proceedings of the 16th IEEE/ACM International Symposium on Code Generation and Optimization (CGO)**, 2018, pp. 27–37.

- [C17] Eduardo Rosales, Andrea Rosà, Walter Binder. *lpt: A Tool for Tuning the Level of Parallelism of Spark Applications*. In **Proceedings of the 25th Asia-Pacific Software Engineering Conference (APSEC)**, 2018, pp. 633–637.
- [C16] Andrea Rosà, Eduardo Rosales, Walter Binder. *Accurate Reification of Complete Supertype Information for Dynamic Analysis on the JVM*. In **Proceedings of the 16th International Conference on Generative Programming: Concepts & Experience (GPCE)**, 2017, pp. 104–116. ACM SIGPLAN Notices, 52(12):104–116, Dec. 2017
- [C15] Haiyang Sun, Andrea Rosà, Omar Javed, Walter Binder. *ADRENALIN-RV: Android Runtime Verification using Load-time Weaving*. In **Proceedings of the 10th IEEE International Conference on Software Testing, Verification and Validation (ICST)**, 2017, pp. 532–539.
- [C14] Eduardo Rosales, Andrea Rosà, Walter Binder. *tgp: a Task-Granularity Profiler for the Java Virtual Machine*. In **Proceedings of the 24th Asia-Pacific Software Engineering Conference (APSEC)**, 2017, pp. 570–575.
- [C13] Andrea Rosà, Walter Binder. *Speeding up Type-specific Instrumentation for the Analysis of Complex Systems*. In **22nd International Conference on Engineering of Complex Computer Systems (ICECCS)**, 2017, pp. 138–141.
- [C12] 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. ACM SIGPLAN Notices, 52(3):36–46, Mar. 2017.
- [C11] Yudi Zheng, Andrea Rosà, Luca Salucci, Yao Li, Haiyang Sun, Omar Javed, Lubomir 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.
- [C10] 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.
- [C9] 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)**, 2016, pp. 531–546.
- [C8] 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.
- [C7] 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.
- [C6] 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.
- [C5] 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 on Quality of Service (IWQoS)**, 2015, pp. 231–236.
- [C4] 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.
- [C3] 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.

- [C2] Derya Çavdar, Andrea Rosà, Lydia Y. Chen, Walter Binder, Fatih Alagöz. *Quantifying the Brown Side of Priority Schedulers: Lessons from Big Clusters*. **Greenmetrics**, in conjunction with ACM SIGMETRICS, 2014, pp. 6. SIGMETRICS Perform. Eval. Rev., 42(3):76-81, Dec. 2014.
- [C1] 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.

— Editor of Proceedings

- [E2] Andrea Rosà, Paulo Ferreira. **Proceedings of the 20th Workshop on Implementation, Compilation, Optimization of OO Languages, Programs and Systems, ICOOLPS 2025**, Bergen, Norway, 2025. In press.
- [E1] Andrea Rosà, Martin Henz. **Proceedings of the 15th ACM SIGPLAN International Workshop on Virtual Machines and Intermediate Languages, VMIL 2023**, Cascais, Portugal, 2023.

— Other Contributions in Proceedings

- [O11] Alex Villazón, Haiyang Sun, Andrea Rosà, Eduardo Rosales, Daniele Bonetta, Isabella Defilippis, Sergio Oporto, Walter Binder. *Automated Large-scale Multi-language Dynamic Program Analysis in the Wild*. In **Proceedings of the 2021 Software Engineering Conference (SE)**, 2021, pp. 111.
- [O10] Eduardo Rosales, Andrea Rosà, Walter Binder. *Profiling Streams on the Java Virtual Machine*. In **Proceedings of the 4th Workshop on Modern Language Runtimes, Ecosystems, and VMs (MoreVMs)**, in conjunction with <Programming>, 2020, pp. 27–30.
- [O9] Aleksandar Prokopec, Andrea Rosà, David Leopoldseider, Gilles Duboscq, Petr Tůma, Martin Studener, Lubomír Bulej, Yudi Zheng, Alex Villazón, Doug Simon, Thomas Würthinger, Walter Binder. *Renaissance: Benchmarking Suite for Parallel Applications on the JVM*. In **Proceedings of the 2020 Software Engineering Conference (SE)**, 2020, pp. 145–146.
- [O8] Andrea Rosà, Eduardo Rosales, Walter Binder. *Analysis and Optimization of Task Granularity on the Java Virtual Machine*. In **Proceedings of the 2020 Software Engineering Conference (SE)**, 2020, pp. 147.
- [O7] Aleksandar Prokopec, Andrea Rosà, David Leopoldseider, Gilles Duboscq, Petr Tůma, Martin Studener, Lubomír Bulej, Yudi Zheng, Alex Villazón, Doug Simon, Thomas Würthinger, Walter Binder. *Renaissance: A Modern Benchmark Suite for Parallel Applications on the JVM*. In **Proceedings Companion of the 2019 ACM SIGPLAN International Conference on Systems, Programming, Languages, and Applications: Software for Humanity, (SPLASH)**, 2019, pp. 11–12.
- [O6] Alex Villazón, Haiyang Sun, Andrea Rosà, Eduardo Rosales, Daniele Bonetta, Isabella Defilippis, Sergio Oporto, Walter Binder. *NAB: Automated Large-scale Multi-language Dynamic Program Analysis in Public Code Repositories*. In **Proceedings Companion of the 2019 ACM SIGPLAN International Conference on Systems, Programming, Languages, and Applications: Software for Humanity, (SPLASH)**, 2019, pp. 9–10.
- [O5] Eduardo Rosales, Andrea Rosà, Walter Binder. *Optimization Coaching for Fork/Join Applications on the Java Virtual Machine*. In **Proceedings of the 3rd Workshop on Modern Language Runtimes, Ecosystems, and VMs (MoreVMs)**, in conjunction with <Programming>, 2019, pp. 7:1–7:3.
- [O4] Alex Villazón, Haiyang Sun, Andrea Rosà, Eduardo Rosales, Daniele Bonetta, Isabella Defilippis, Sergio Oporto, Walter Binder. *Automated Large-Scale Multi-Language Dynamic Program Analysis in the Wild (Artifact)*. In **Dagstuhl Artifacts Ser. 5(2):11:1-11:3**, 2019.

- [O3] Andrea Rosà, Eduardo Rosales, Filippo Schiavio, Walter Binder. *Understanding Task Granularity on the JVM: Profiling, Analysis, and Optimization*. In **Proceedings of the 2nd Workshop on Modern Language Runtimes, Ecosystems, and VMs (MoreVMs)**, in conjunction with <Programming>, 2018, pp. 54–56.
- [O2] 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)**, 2016, pp. 765–766.
- [O1] 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, 2016, pp. 9:1–9:3.