

CURRICULUM VITAE

Martin C. Rinard

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Computer Science and Artificial Intelligence Laboratory
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RESEARCH INTERESTS

Computer Systems, Computer Security, Programming Languages, Software Engineering, Program Analysis, Program Verification, Compilers, Real-Time Systems, Embedded Systems, Distributed Systems, Parallel Systems.

EDUCATION

Stanford University. Ph.D. in Computer Science, Summer 1994.

Thesis: The Design, Implementation and Evaluation of Jade: A Portable, Implicitly Parallel Programming Language.

Advisor : Professor Monica S. Lam.

Brown University. Sc.B. in Computer Science, Magna Cum Laude and with Honors, June 1984.

Honors Thesis: The Internal Structure of an Ideographic Programming Environment.

Advisor: Professor Thomas W. Doepfner, Jr.

ACADEMIC EXPERIENCE

- 2006 – present **Professor**, Massachusetts Institute of Technology, Cambridge, Massachusetts.
- 2000 – 2006 **Associate Professor**, Massachusetts Institute of Technology, Cambridge, Massachusetts.
- 1997 – 2000 **Assistant Professor**, Massachusetts Institute of Technology, Cambridge, Massachusetts.
- 1994 – 1997 **Assistant Professor**, University of California at Santa Barbara, Santa Barbara, California.
- 1986 – 1994 **Research Assistant**, Stanford University, Stanford, California.
- 1989 **Teaching Fellow**, Stanford University, Stanford, California.
- 1982 – 1983 **Research Assistant**, Brown University, Providence, Rhode Island.

PROFESSIONAL EXPERIENCE

- 1985 - 1986 **Software Engineer**, Polygen Corporation, Waltham, Massachusetts. Member of a team developing a computer-aided molecular design system. Designed and implemented a novel algorithm for embedding complex merged and bridged ring systems into 3-space, and an algorithm for automatically determining atom types for molecular mechanics programs given a molecule's chemical structure.
- 1984 - 1985 **Software Engineer**, Ikan Systems, Providence, Rhode Island. Member of a team developing an electronic publishing system. Responsible for helping to design the user interface, designing software tools to implement the user interface, and implementing the user interface. Designed a hierarchical graphics package and a package to generate and automatically maintain graphical representations of data objects. Designed and implemented a special-purpose, explicitly parallel language for processing sequences of user actions.

HONORS AND AWARDS

Distinguished Artifact Award, SLE 2017

Best Paper Award, OOPSLA 2014

Best Paper Award, OOPSLA 2013

The Most Notable Paper Award / Onward! 2013

One of 25 Most Significant Papers from First 20 Years of IEEE International Symposium on Field-Programmable Custom Computing Machines

Best Paper Award, 33rd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2012), June 2012

Best Paper Award, 32nd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2011), June 2011

ACM Fellow, December 2009

Distinguished Paper Award, The 27th International Conference on Software Engineering, May 2005

Distinguished Paper Award, The 12th ACM Symposium on the Foundations of Software Engineering, November 2004

Most Influential Paper in 20 Years Award, Area: Concurrent Constraint Programming, The Association for Logic Programming, 2004

Solomon Buchsbaum AT&T Research Fund Award, 1999

Everett Moore Baker Memorial Award for Excellence in Undergraduate Teaching at MIT, Honorable Mention, 1998

National Science Foundation Faculty Early Career Development Award, 1997

University of California, Santa Barbara Outstanding Faculty Member in Computer Science, 1996

Alfred P. Sloan Research Fellowship, 1995

Brown University Undergraduate Research Fellowship, 1983

PUBLICATIONS

Jiasi Shen and Martin Rinard. Robust Programs With Filtered Iterators, In *Proceedings of 10th ACM SIGPLAN International Conference on Software Language Engineering (SLE 2017)*, Vancouver, Canada, October 2017.

Stelios Sidiroglou-Douskos, Eric Lahtinen, Anthony Eden, Fan Long, and Martin Rinard. CodeCarbonCopy, In *Proceedings of 2017 11th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering*, Paderborn, Germany, September 2017.

Fan Long, Peter Amidon, and Martin Rinard. Automatic Inference of Code Transforms for Patch Generation, In *Proceedings of 2017 11th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering*, Paderborn, Germany, September 2017.

Jurgen Cito, Julia Rubin, Phillip Stanley-Marbell, and Martin Rinard. Battery-Aware Transformations in Mobile Applications, In *Proceedings of the 31st IEEE/ACM International Conference on Automated Software Engineering (ASE 2016)*, Singapore, September 2016.

Michael Carbin, Sasa Misailovic, and Martin Rinard. Verifying Quantitative Reliability for Programs that Execute on Unreliable Hardware, In *Communications of the ACM*, 59(8), August 2016.

Fereshte Khani, Martin Rinard, and Percy Liang. AutoRand: Unanimous Prediction for 100% Precision with Application to Learning Semantic Mappings, In *Proceedings of Association for Computational Linguistics 2016 Conference (ACL 2016)*, Berlin, Germany, August 2016.

Jeff Perkins, Jordan Eikenberry, Alessandro Coglio, Daniel Willenson, Stelios Sidiroglou-Douskos, and Martin

Rinard. AutoRand: Automatic Keyword Randomization to Prevent Injection Attacks, In *Proceedings of the 13th Conference on Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA 2016)*, Donostia-San Sebastian, Spain, June 2016.

Sara Achour, Rahul Sarpeshkar, and Martin Rinard. Configuration Synthesis for Programmable Analog Devices with Arco, In *Proceedings of the 37th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2016)*, Santa Barbara, California, June 2016.

Phillip Stanley-Marbell and Martin Rinard. Reducing Serial I/O Power in Error-Tolerant Applications by Efficient Lossy Encoding, In *Proceedings of the 53rd Annual Design Automation Conference (DAC 2016)*, Austin, Texas, June 2016.

Fan Long and Martin Rinard. An Analysis of the Search Spaces for Generate and Validate Patch Generation Systems, In *Proceedings of the ACM/IEEE 38th International Conference on Software Engineering*, Austin, Texas, May 2016.

Julia Rubin and Martin Rinard. The Challenges of Staying Together While Moving Fast, In *Proceedings of the ACM/IEEE 38th International Conference on Software Engineering*, Austin, Texas, May 2016.

Phillip Stanley-Marbell, Virginia Estellers, and Martin Rinard. Crayon: Saving Power through Shape and Color Approximation on Next-Generation Displays, In *Proceedings of EuroSys 2016*, London, UK, April 2016.

Fan Long and Martin Rinard. Automatic Patch Generation By Learning Correct Code, In *Proceedings of the 43rd ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL 2016)*, St. Petersburg, Florida, January 2016.

Julia Rubin, Michael I. Gordon, Nguyen Nguyen, and Martin Rinard. Covert Communication in Mobile Applications, In *Proceedings of the 30th IEEE/ACM International Conference on Automated Software Engineering*, Lincoln, Nebraska, November 2015.

Sara Achour and Martin Rinard. Approximate Computation With Outlier Detection in Topaz, In *Proceedings of the 2015 ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2015)*, Pittsburgh, Pennsylvania, October 2015.

Peter Amidon, Eli Davis, Stelios Sidiroglou-Douskos, and Martin Rinard. Program Fracture and Recombination for Efficient Automatic Code Reuse, In *Proceedings of the 2015 IEEE High Performance Extreme Computing Conference (HPEC '15)*, Waltham, Massachusetts, September 2015.

Fan Long and Martin Rinard. Staged Program Repair with Condition Synthesis, In *Proceedings of the 10th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2015)*, Bergamo, Italy, August 2015.

Zichao Qi, Fan Long, Sara Achour, and Martin Rinard. An Analysis of Patch Plausibility and Correctness for Generate-And-Validate Patch Generation Systems, In *Proceedings of the 2015 International Conference on Software Testing and Analysis (ISSTA 2015)*, Baltimore, Maryland, July 2015.

Stelios Sidiroglou-Douskos, Eric Lahtinen, Fan Long, and Martin Rinard. Automatic Error Elimination by Horizontal Code Transfer Across Multiple Applications, In *Proceedings of the 36th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2015)*, Portland, Oregon, June 2015.

Phillip Stanley-Marbell and Martin Rinard. Lax: Approximating Outside the Processor, In *Proceedings of the 2015 Workshop on Approximate Computing Across the Stack (WAX 2015)*, Portland, Oregon, June 2015.

Sam Fingeret, Julian Gonzalez, Ulziibayar Otgonbaatar, Tiffany Tang, Howard Shrobe, Stelios Sidiroglou-Douskos, Martin Rinard, and Hamed Okhravi. Missing the Point(er): On the Effectiveness of Code Pointer Integrity, In *Proceedings of the 36th IEEE Symposium on Security and Privacy*, San Jose, California, May 2015.

Phillip Stanley-Marbell and Martin Rinard. Lax: Driver Interfaces for Approximate Sensor Device Access, In *Proceedings of the 15th Workshop on Hot Topics in Operating Systems*, Kartause Ittingen, Switzerland, May 2015.

Stelios Sidiroglou-Douskos, Eric Lahtinen, Nathan Rittenhouse, Paolo Piselli, Fan Long, Deokhwan Kim, and Martin Rinard. Principled Sampling for Anomaly Detection, In *Proceedings of the Twentieth International*

Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2015), Istanbul, Turkey, March 2015.

Brendan Juba, Christopher Musco, Fan Long, Stelios Sidiroglou-Douskos, and Martin Rinard. Principled Sampling for Anomaly Detection, In *2015 Network and Distributed System Security (NDSS) Symposium*, San Diego, California, February 2015.

Michael I. Gordon, Deokhwan Kim, Jeff Perkins, Limei Gilham, Nguyen Nguyen, and Martin Rinard. Information Flow Analysis of Android Applications in DroidSafe, In *2015 Network and Distributed System Security (NDSS) Symposium*, San Diego, California, February 2015.

Sasa Misailovic, Michael Carbin, Sara Achour, Zichao Qi, and Martin Rinard. Chisel: Reliability- and Accuracy-Aware Optimization of Approximate Computational Kernels, In *Proceedings of 2014 ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2014)*, Portland, Oregon, October 2014.

Fan Long, Stelios Sidiroglou-Douskos, and Martin Rinard. Automatic Runtime Error Repair and Containment via Recovery Shepherd, In *Proceedings of the 35th ACM Conference on Programming Language Design and Implementation (PLDI 2014)*, Edinburgh, United Kingdom, June 2014.

Fan Long, Stelios Sidiroglou-Douskos, Deokhwan Kim, and Martin Rinard. Sound Input Filter Generation for Integer Overflow Errors, In *Proceedings of the 41st ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL 2014)*, San Diego, California, January 2014.

Youry Khemelevsky, Martin Rinard, and Stelios Sidiroglou-Douskos. A Source-to-Source Transformation Tool for Error Fixing, In *CASCON 2013*, Toronto, Canada, November 2013.

Michael Carbin, Sasa Misailovic, and Martin Rinard. Verifying Quantitative Reliability for Programs That Execute on Unreliable Hardware, In *Proceedings of the 2013 ACM SIGPLAN International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2013)*, Indianapolis, Indiana, October 2013.

Tao Lei, Fan Long, Regina Barzilay, and Martin Rinard. From Natural Language Specifications to Program Input Parsers, In *Proceedings of the 51st Annual Meeting of the Association for Computational Linguistics*, Sofia, Bulgaria, August 2013.

Martin Rinard. Parallel Synchronization-Free Approximate Data Structure Construction, In *Proceedings of the 5th USENIX Workshop on Hot Topics in Parallelism*, San Jose, California, June 2013.

Sasa Misailovic, Deokhwan Kim, and Martin Rinard. Parallelizing Sequential Programs with Statistical Accuracy Tests, In *ACM Transactions on Embedded Computing Systems*, 12(2s), May 2013.

Karthick Jayaraman, Mahesh Tipunitara, Vijay Ganesh, Martin Rinard, and Steven Chapin. Mohawk: Abstraction-Refinement and Bound-Estimation for Verifying Access Control Policies, In *ACM Transactions on Information and System Security*, 15(4), April 2013.

Michael Carbin, Deokhwan Kim, Sasa Misailovic, and Martin Rinard. Verified Integrity Properties for Safe Approximate Program Transformations, In *Proceedings of the ACM SIGPLAN 2013 Workshop on Partial Evaluation and Program Manipulation (PEPM 2013)*, Rome, Italy, January 2013.

Peter Hawkins, Alex Aiken, Kathleen Fisher, Martin Rinard, and Mooly Sagiv. An Introduction to Data Representation Synthesis, In *Communications of the ACM*, 55(12), December 2012.

Sasa Misailovic, Stelios Sidiroglou, and Martin Rinard. Dancing With Uncertainty, In *RACES-SPLASH 2012 Workshop on Relaxing Synchronization for Multicore and Manycore Scalability*, Tucson, Arizona, October 2012.

Martin Rinard. Unsynchronized Techniques for Approximate Parallel Computing, In *RACES-SPLASH 2012 Workshop on Relaxing Synchronization for Multicore and Manycore Scalability*, Tucson, Arizona, October 2012.

Michael Carbin and Martin Rinard. (Relative) Safety Properties for Relaxed Approximate Programs, In *RACES-SPLASH 2012 Workshop on Relaxing Synchronization for Multicore and Manycore Scalability*, Tucson,

Arizona, October 2012.

Michael Kling, Sasa Misailovic, Michael Carbin, and Martin Rinard. Bolt: On-Demand Infinite Loop Escape in Unmodified Binaries, In *Proceedings of the 27th Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2012)*, Tucson, Arizona, October 2012.

Martin Rinard. Example-Driven Program Synthesis for End-User Programming: Technical Perspective, In *Communications of the ACM*, 55(8), August 2012.

Vijay Ganesh, Charles W. O'Donnell, Mate Soos, Srinivas Devadas, Martin Rinard, and Armando-Solar Lezama. Lynx: A Programmatic SAT Solver for the RNA-Folding Problem, In *Theory and Applications of Satisfiability Testing – SAT 2012 – 15th Annual Conference*, Trento, Italy, June 2012.

Martin Rinard. Obtaining and Reasoning About Good Enough Software, In *49th Annual Design Automation Conference 2012 (DAC '12)*, San Francisco, California June 2012.

Michael Carbin, Deokhwan Kim, Sasa Misailovic, and Martin Rinard. Proving Acceptability Properties of Relaxed Nondeterministic Approximate Programs, In *Proceedings of the 33rd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2012)*, Beijing, China June 2012.

Peter Hawkins, Alex Aiken, Kathleen Fisher, Martin Rinard, and Mooly Sagiv. Concurrent Data Representation Synthesis, In *Proceedings of the 33rd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2012)*, Beijing, China June 2012.

Fan Long, Vijay Ganesh, Michael Carbin, Stelios Sidiroglou, and Martin Rinard. Automatic Input Rectification, In *Proceedings of the 34th International Conference on Software Engineering*, Zurich, Switzerland June 2012.

Peter Hawkins, Alex Aiken, Kathleen Fisher, Martin Rinard, and Mooly Sagiv. Reasoning About Lock Placements, In *Proceedings of Programming Languages and Systems – 21st European Symposium on Programming (ESOP 2012)*, Tallinn, Estonia March 2012.

Martin Rinard. What to do When Things Go Wrong: Recovery in Complex (Computer) Systems, In *Companion Volume of the 11th International Conference on Aspect-Oriented Software Development (AOSD 2012)*, Potsdam, Germany March 2012.

Zeyuan Allen Zhu, Sasa Misailovic, Jonathan Kelner, and Martin Rinard. Randomized Accuracy-Aware Transformations for Efficient Approximate Computing, In *Proceedings of the 39th Annual ACM Symposium on Principles of Programming Languages*, Philadelphia, Pennsylvania, January 2012.

Karthik Jayaraman, Vijay Ganesh, Mahesh Tripunitara, Martin Rinard, and Steve Chapin. Automatic Error Finding in Access-Control Policies, In *ACM Conference on Computer and Communications Security*, Chicago, Illinois, October 2011.

Sasa Misailovic, Dan Roy, and Martin Rinard. Probabilistically Accurate Program Transformations, In *Static Analysis – 18th International Symposium (SAS 2011)*, Venice, Italy, September 2011.

Stelios Sidiroglou, Sasa Misailovic, Henry Hoffman, and Martin Rinard. Managing Performance vs. Accuracy Trade-offs with Loop Perforation, In *Proceedings of the 19th ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE-19) and ESEC '11: 13th European Software Engineering Conference (ESEC-13)*, Szeged, Hungary, September 2011.

Michael Carbin, Sasa Misailovic, Michael Kling, and Martin Rinard. Detecting and Escaping Infinite Loops with Jolt, In *Proceedings of the 25th European Conference on Object-Oriented Programming (ECOOP 2011)*, Lancaster, United Kingdom, July 2011.

Deokhwan Kim and Martin Rinard. Verification of Semantic Commutativity Conditions and Inverse Operations on Linked Data Structures, In *Proceedings of the 32nd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2011)*, San Jose, California, June 2011.

Peter Hawkins, Alex Aiken, Kathleen Fisher, Martin Rinard, and Mooly Sagiv. Data Representation Synthesis, In *Proceedings of the 32nd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2011)*, San Jose, California, June 2011.

Henry Hoffman, Stelios Sidiroglou, Michael Carbin, Sasa Misailovic, Anant Agarwal, and Martin Rinard.

Dynamic Knobs for Responsive Power-Aware Computation, In *Proceedings of the 16th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2011)*, Newport Beach, California, March 2011.

Martin Rinard. Probabilistic Accuracy Bounds for Perforated Programs: A New Foundation for Program Analysis and Transformation, In *Proceedings of the ACM SIGPLAN 2011 Workshop on Partial Evaluation and Program Manipulation (PEPM '11)*, Austin, Texas, January 2011.

Peter Hawkins, Alex Aiken, Kathleen Fisher, Martin Rinard, and Mooly Sagiv. Data Structure Fusion, In *Proceedings of the Eighth Asian Symposium on Programming Languages and Systems*, Shanghai, China, November 2010.

Peter Hawkins, Alex Aiken, Kathleen Fisher, Martin Rinard, and Mooly Sagiv. Data Structure Fusion, In *Proceedings of the Eighth Asian Symposium on Programming Languages and Systems*, Shanghai, China, November 2010.

Amy Williams, David Housman, Martin Rinard, and David Gifford. Rapid Haplotype Inference for Nuclear Families, In *Genome Biology 2010*, 11(10):R108.

Martin Rinard, Henry Hoffman, Sasa Misailovic, and Stelios Sidiroglou. Patterns and Statistical Analysis for Understanding Reduced Resource Computing, In *Proceedings of Onward! 2010*, Reno/Tahoe Nevada, October 2010.

Stefan Andrei, Albert Cheng, Martin Rinard, and Lawrence Osborne. Optimal Scheduling of Urgent Preemptive Tasks, In *Proceedings of the 16th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA '10)*, Trento, Italy July 2010.

Michael Carbin and Martin Rinard. Automatically Identifying Critical Input Regions and Code in Applications, In *Proceedings of the 2010 International Conference on Software Testing and Analysis (ISSTA 2010)*, Trento, Italy July 2010.

Sasa Misailovic, Stelios Sidiroglou, Henry Hoffman, and Martin Rinard. Quality of Service Profiling, In *Proceedings of the ACM/IEEE 32nd International Conference on Software Engineering (ICSE 2010)*, Cape Town, South Africa May 2010.

Nate Kushman, Micah Brodsky, S.R.K. Branavan, Dina Katabi, Regina Barzilay and Martin Rinard. WikiDo, In *Proceedings of the Eighth ACM Workshop on Hot Topics in Networks (HotNets-VII)*, New York, New York October 2009.

Jeff H. Perkins, Sunghun Kim, Sam Larsen, Saman Amarasinghe, Jonathan Bachrach, Michael Carbin, Carlos Pacheco, Frank Sherwood, Stelios Sidiroglou, Greg Sullivan, Weng-Fai Wong, Yoav Zibin, Michael D. Ernst, and Martin Rinard. Automatically Patching Errors in Deployed Software, In *Proceedings of the 22nd ACM Symposium on Operating Systems Principles*, Big Sky, Montana October 2009.

Stefan Andrei, Gheorghe Grigoras, Martin Rinard, and Roland Yap. A Hierarchy of Tractable Subclasses for SAT and Counting SAT Problems, In *Proceedings of the 11th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC '09)*, Timisoara, Romania September 2009.

Martin Rinard. Integrated Reasoning and Proof Choice Point Selection in the Jahob System (Mechanisms for Program Survival) (Invited Paper), In *Proceedings of the 22nd International Conference on Automated Deduction (CADE 2009)*, Montreal, Canada August 2009.

Martin Rinard. Survival Strategies for Synthesized Hardware Systems (Invited Paper), In *Proceedings of the Seventh ACM-IEEE International Conference on Formal Methods and Models for Codesign (MEMOCODE 2009)*, Cambridge, Massachusetts July 2009.

Karen Zee, Viktor Kuncak, and Martin Rinard. An Integrated Proof Language for Imperative Programs, In *Proceedings of 2009 ACM SIGPLAN Conference on Programming Language Design and Implementation*, Dublin, Ireland June 2009.

Brian Demsky and Martin Rinard. Automatic Extraction of Heap Reference Properties in Object-Oriented Programs, *IEEE Transactions on Software Engineering*, 35(3), May-June 2009.

Vijay Ganesh, Tim Leek, and Martin Rinard. Taint-Based Directed White-Box Fuzzing, In *Proceedings of the 31st International Conference on Software Engineering (ICSE 2009)*, Vancouver, Canada May 2009.

Quang Hieu Vu, Beng Chin Ooi, Martin C. Rinard, and Kian-Lee Tan. Histogram-Based Global Load Balancing in Structured Peer-to-Peer Systems, In *IEEE Transactions on Knowledge and Data Engineering*, 21(4), April 2009.

Martin C. Rinard. Technical Perspective – Patching Program Errors, In *Communications of the ACM*, 51(12), December 2008.

Eric Allen, Mark W. Bailey, Rastislav Bodik, Kim B. Bruce, Kathleen Fisher, Stephen N. Freund, Robert Harper, Chandra Krintz, Shriram Krishnamurthi, James R. Larus, Doug Lea, Gary T. Leavens, Lori L. Pollock, Stuart Reges, Martin C. Rinard, Mark A. Sheldon, Franklyn A. Turbak, and Mitchell Wand. SIGPLAN Programming Language Curriculum Workshop: Discussion Summaries and Recommendations, In *SIGPLAN Programming Language Curriculum Workshop, SIGPLAN Notices* 43(11), November 2008.

Martin C. Rinard. Using Programming Language Concepts to Teach General Thinking Skills, In *SIGPLAN Programming Language Curriculum Workshop, SIGPLAN Notices* 43(11), November 2008.

Karen Zee, Viktor Kuncak, and Martin Rinard. Full Functional Verification of Linked Data Structures, In *Proceedings of 2008 ACM SIGPLAN Conference on Programming Language Design and Implementation*, Tucson, Arizona June 2008.

Karen Zee, Viktor Kuncak, and Martin Rinard. Verifying Linked Data Structure Implementations, In *NSF Next Generation Software (NGS) Workshop, IPDPV – IEEE International Parallel & Distributed Processing Symposium*, Miami, Florida April 2008.

Martin Rinard. Using Early Phase Termination to Eliminate Load Imbalances at Barrier Synchronization Points, In *Proceedings of 2007 ACM SIGPLAN Conference on Object-Oriented Programming Systems, Languages, and Applications*, Montreal, Canada October 2007.

Huu Hai Nguyen and Martin Rinard. Detecting and Eliminating Memory Leaks Using Cyclic Memory Management, In *Proceedings of 2007 International Symposium on Memory Management*, Montreal, Canada October 2007.

Martin Rinard. Living in the Comfort Zone, In *Proceedings of 2007 ACM SIGPLAN Conference on Object-Oriented Programming Systems, Languages, and Applications, Onwards! Session*, Montreal, Canada October 2007.

Viktor Kuncak and Martin Rinard. Towards Efficient Satisfiability Checking for Boolean Algebra with Presburger Arithmetic, In *Proceedings of 21st Conference on Automated Deduction (CADE-21)*, Bremen, Germany July 2007.

Bruno Marnette, Viktor Kuncak, and Martin Rinard. Polynomial Constraints for Sets with Cardinality Bounds, In *Proceedings of 10th International Conference on Foundations of Software Science and Computation Structures*, Braga, Portugal March 2007.

Thomas Weis, Viktor Kuncak, Karen Zee, Andreas Podelski, and Martin Rinard. Verifying Complex Properties Using Symbolic Shape Analysis, In *Proceedings of Workshop on Heap Abstraction and Verification (HAV 2007)*, Braga, Portugal March 2007.

Karen Zee, Viktor Kuncak, Michael Taylor, and Martin Rinard. Runtime Checking for Program Verification, In *Seventh Workshop on Runtime Verification (RV '07)*, Vancouver, British Columbia, Canada March 2007.

Charles Bouillaguet, Viktor Kuncak, Thomas Weis, Karen Zee, and Martin Rinard. Using First-Order Theorem Provers in the Jahob Data Structure Verification System, In *Eighth International Conference on Verification, Model Checking, and Abstract Interpretation*, Nice, France January 2007.

Viktor Kuncak, Patrick Lam, Karen Zee, and Martin Rinard. Modular Pluggable Analyses for Data Structure Consistency, In *IEEE Transactions on Software Engineering*, 32(12) December 2006.

Stefan Andrei, Wei-Ngan Chin, and Martin Rinard. Incremental Deterministic Planning, In *Proceedings of 8th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC '06)*,

Timisoara, Romania September 2006.

Brian Demsky, Michael Ernst, Philip Guo, Stephen McCamant, Jeff Perkins, and Martin Rinard. Automatic Inference and Enforcement of Data Structure Consistency Specifications, In *International Symposium on Software Testing and Analysis (ISSTA 2006)*, Portland, Maine July 2006.

Martin Rinard. Probabilistic Accuracy Bounds for Fault-Tolerant Computations that Discard Tasks, In *20th ACM International Conference on Supercomputing*, Cairns, Australia June 2006.

Viktor Kuncak, Huu Hai Nguyen, and Martin Rinard. Deciding Boolean Algebra with Presburger Arithmetic, In *Journal of Automated Reasoning*, 36(3) April 2006.

Viktor Kuncak and Martin Rinard. An Overview of the Jahob Analysis System: Project Goals and Current Status, In *NSF Next Generation Software Workshop (held with the IEEE International Parallel and Distributed Processing Symposium)*, Rhodes, Greece April 2006.

Thomas Weis, Viktor Kuncak, Patrick Lam, Andreas Podelski, and Martin Rinard. Field Constraint Analysis, In *7th International Conference on Verification, Model Checking, and Static Analysis*, Charleston, SC January 2006.

Martin Rinard, Cristian Cadar, and Huu Hai Nguyen. Exploring the Acceptability Envelope, In *2005 ACM SIGPLAN Conference on Object-Oriented Programming Systems, Languages, and Applications Companion (OOPSLA '05 Companion) Onwards! Session*, San Diego, CA October 2005.

C. Scott Ananian and Martin Rinard. Efficient Object-Based Software Transactions, In *Synchronization and Concurrency (SCOOOL) OOPSLA 2005 Workshop*, San Diego, CA October 2005.

Viktor Kuncak, Patrick Lam, Karen Zee, and Martin Rinard. Implications of a Data Structure Consistency Checking System, In *Verified Software: Theories, Tools, Experiments (VSTTE) IFIP Working Group 2.3 Conference*, Zurich, Switzerland October 2005.

Wei-Ngan Chin, Huu Hai Nguyen, Shengchao Qin, and Martin Rinard. Memory Usage Verification for OO Programs, In *Proceedings of Static Analysis: 12th International Symposium (SAS 2005)*, London, UK September 2005.

Viktor Kuncak, Huu Hai Nguyen, and Martin Rinard. An Algorithm for Deciding BAPA: Boolean Algebra with Presburger Arithmetic, In *Proceedings of the 20th Annual Conference on Automated Deduction (CADE-20)*, Tallinn, Estonia July 2005.

Darko Marinov, Sarfraz Khurshid, Suhabe Bugrara, Lintao Zhang, and Martin Rinard. Optimizations for Compiling Declarative Models into Boolean Formulas, In *Proceedings of the 8th International Conference on Theory and Applications of Satisfiability Testing (SAT 2005)*, St. Andrews, Scotland June 2005.

Brian Demsky and Martin Rinard. Data Structure Repair Using Goal-Directed Reasoning, In *Proceedings of the 2005 International Conference on Software Engineering*, St. Louis, Missouri May 2005.

Patrick Lam, Viktor Kuncak, and Martin Rinard. Hob: A Tool for Verifying Data Structure Consistency, In *Proceedings of the International Conference on Compiler Construction, Tool Demonstration Paper*, Edinburgh, Scotland, April 2005.

Patrick Lam, Viktor Kuncak, and Martin Rinard. Cross-cutting Techniques in Program Specification and Analysis, In *Proceedings of the 2005 International Conference on Aspect-Oriented Software Development*, Chicago, Illinois, March 2005.

Radu Rugina and Martin Rinard. Symbolic Bounds Analysis of Pointers, Array Indices, and Accessed Memory Regions, *ACM Transactions on Programming Languages and Systems*, 27(2) March 2005.

Viktor Kuncak and Martin Rinard. Decision Procedures for Set-Valued Fields, *1st International Workshop on Abstract Interpretation of Object-Oriented Languages (AIOOL 2005)*, Paris, France January 2005.

Patrick Lam, Viktor Kuncak, and Martin Rinard. Generalized Typestate Checking for Data Structure Consistency, In *Proceedings of the 6th International Conference on Verification, Model Checking and Abstract Interpretation*, Paris, France, January 2005.

Alexandru Salcianu and Martin Rinard. Purity and Side Effect Analysis for Java Programs, In *Proceedings of the 6th International Conference on Verification, Model Checking and Abstract Interpretation*, Paris, France, January 2005.

Martin Rinard, Cristian Cadar, Daniel Dumitran, Daniel M. Roy, Tudor Leu, and William S. Beebe, Jr. Enhancing Server Availability and Security Through Failure-Oblivious Computing, In *Proceedings of the 6th Symposium on Operating Systems Design and Implementation*, San Francisco, California December 2004.

Martin Rinard, Cristian Cadar, Daniel Dumitran, Daniel M. Roy, and Tudor Leu. A Dynamic Technique for Eliminating Buffer Overflow Vulnerabilities (and Other Memory Errors), In *Proceedings of the 2004 Annual Computer Security Applications Conference*, Tucson, Arizona, December 2004.

Konstantine Arkoudas, Karen Zee, Viktor Kuncak, and Martin Rinard. Verifying a File System Implementation, In *Proceedings of the Sixth International Conference on Formal Engineering Methods (ICFEM 2004)*, Seattle, Washington, November 2004.

Karen Zee, Patrick Lam, Viktor Kuncak, and Martin Rinard. Combining Theorem Proving With Static Analysis for Data Structure Consistency, In *Proceedings of the Second Workshop on Software Verification and Validation*, Seattle, Washington, November 2004.

Martin Rinard, Alexandru Salcianu, and Suhabe Bugrara. A Classification System and Analysis for Aspect-Oriented Programs, In *Proceedings of the Twelfth International Symposium on the Foundations of Software Engineering*, Newport Beach, California, November 2004.

Viktor Kuncak and Martin Rinard. Generalized Records and Spatial Conjunction in Role Logic, In *Proceedings of the 11th Annual International Static Analysis Symposium (SAS 2004)*, Verona, Italy, August 2004.

Wei-Ngan Chin, Florin Craciun, Shengchao Qin, and Martin Rinard. Region Inference for an Object-Oriented Language, In *Proceedings of the ACM SIGPLAN 2004 Conference on Programming Language Design and Implementation (PLDI 2004)*, Washington, DC, June 2004.

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TEACHING

Winter 1994. CS270A, Advanced Topics in Operating Systems (University of California, Santa Barbara)

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