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, Machine Learning, Artificial Intelligence, 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. Doeppner, 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

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

Feras Saad, Cameron Freer, Martin Rinard, and Vikash Mansinghka. The Fast Loaded Dice Roller: A Near-Optimal Exact Sampler for Discrete Probability Distributions, In *Proceedings of 23rd International Conference on Artificial Intelligence and Statistics (AISTATS 2020),* Online, August 2020.

Sara Achour and Martin Rinard. Noise-Aware Dynamical System Compilation for Analog Devices with Legno, In *Proceedings of the Twenty-Fifth International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2020),* Lausanne, Switzerland March 2020.

Phillip Stanley-Marbell and Martin Rinard. Warp: A Hardware Platform for Efficient Multimodal Sensing with Adaptive Approximation, In *IEEE Micro 48(1),* Jan.-Feb. 2020.

Malavika Samak, Deokhwan Kim, and Martin Rinard. Synthesizing Replacement Classes, In *Proceedings of the ACM on Programming Languages 4 (POPL 2020),* New Orleans, Louisiana January 2020.

Feras Saad, Cameron Freer, Martin Rinard, and Vikash Mansinghka. Optimal Approximate Sampling from Discrete Probability Distributions, In *Proceedings of the ACM on Programming Languages 4 (POPL 2020),* New Orleans, Louisiana January 2020.

Jose Cambronero and Martin Rinard. AL: Autogenerating Supervised Learning Programs, In *Proceedings of the ACM on Programming Languages 3 (OOPSLA 2019),* Athens, Greece October 2019.

Jose Cambronero, Thurston Dang, Nikos Vasilakis, Jiasi Shen, Jerry Wu, and Martin Rinard. Active Learning for Software Engineering, In *Proceedings of the 2019 ACM SIGPLAN International Symposium on New Ideas, New Paradigms, and Reflections on Programming and Software (Onward! '19),* Athens, Greece October 2019.

Jose Cambronero, Jiasi Shen, Jurgen Cito, Elena Glassman, and Martin Rinard. Characterizing Developer Use of Automatically Generated Patches. In *Proceedings of the* 2019 *IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC),* Memphis, Tennessee October 2019.

Jiasi Shen and Martin Rinard. Using Active Learning to Synthesize Models of Applications that Access Databases, In *Proceedings of the 40ᵗʰ ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2019),* Phoenix, Arizona June 2019.

Jurgen Cito, Philipp Leitner, Martin Rinard, and Harald Gall. Interactive Production Performance Feedback in the IDE. In *Proceedings of the 41ˢᵗ International Conference on Software Engineering (ICSE 2019),* Montreal, Canada May 2009.

Martin Rinard. Technical Perspective: Borrowing Big Code to Automate Programming Activities, In *Communications of the ACM* 62(3), February 2019.

Feras Saad, Marco Cusumano-Towner, Martin Rinard, and Vikash Mansinghka. Bayesian Synthesis of Probabilistic Programs for Automatic Data Modeling, In *Proceedings of ACM on Programming Languages 3 (POPL 2019),* Cascais, Portugal January 2019.

Martin Rinard, Jiasi Shen, and Varun Mangalick. Active Learning for Inference and Regeneration of Computer Programs that Store and Retrieve Data, In *Proceedings of the 2018 ACM SIGPLAN International Symposium on New Ideas, New Paradigms, and Reflections on Programming and Software (Onward! 2018),* Boston, Massachusetts November 2018.

Vladimir Kiriansky, Haoran Xu, Martin Rinard, and Saman Amarasinghe. Cimple: Instruction and Memory Level Parallelism: A DSL for Uncovering ILP and MLP, In *Proceedings of the 27ᵗʰ International Conference on Parallel Architectures and Compilation Techniques (PACT 18),* Limassol, Cyprus November 2018.

Phillip Stanley-Marbell and Martin Rinard. Perceived-Color Approximation Transforms for Programs that Draw, In *IEEE Micro 38(4),* Jul./Aug. 2018.

Justin Gottschlich, Armando Solar-Lezama, Nesime Tatbul, Michael Carbin, Martin Rinard, Regina Barzilay, Saman P. Amarasinghe, Joshua Tenenbaum, and Tim Mattson. The Three Pillars of Machine Programming, In *Proceedings of the 2ⁿᵈ ACM SIGPLAN International Workshop on Machine Learning and Programming Languages (MAPL@PLDI 2018),* Philadelphia, Pennsylvania June 2018.

Vikash Mansingha, Ulrich Schaechtle, Shivam Handa, Alexey Radul, Yutian Chen, and Martin Rinard. Probabilistic Programming with Programmable Inference, In *Proceedings of the 39ᵗʰ ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2018),* Philadelphia, Pennsylvania, June 2018.

Sara Achour and Martin Rinard. Time Dilation and Contraction for Programmable Analog Devices with Jaunt, In *Proceedings of Twenty-Third International Conference on Architectural Support for Programming Languages and Operating Systems,* Williamsburg, Virginia, March 2018.

Phillip Stanley-Marbell and Martin Rinard. Error-Efficient Computing Systems, *Foundations and Trends in Electronic Design Automation,* 11(4), December 2017.

Jiasi Shen and Martin Rinard. Robust Programs with Filtered Iterators, In *Proceedings of 10ᵗʰ ACM SIGPLAN International Conference on Software Language Engineering,* 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.

Phillip Stanley-Marbell and Martin Rinard. Encoder Logic for Reducing Serial I/O Power in Sensors and Sensor Hubs. In *Proceedings of Hot Chips Symposium 2016,* Cupertino, California, August 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.

Phillip Stanley-Marbell and Martin Rinard. Efficiency Limits for Value-Deviation-Bounded Approximate Communication, In *IEEE Embedded Systems Letters* 7(4) Dec. 2015.

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.

Isaac Evans, Fan Long, Ulziibayar Otgonbaatar, Howard E. Shrobe, Martin Rinard, Hamed Okhravi, and Stelios Sidiroglou-Douskos. Control Jujutsu: On the Weaknesses of Fine-Grain Control Flow Integrity, In *Proceedings of the 22nd ACM SIGSAC Conference on Computer and Communications Security (CCS 2015),* Denver, Colorado, 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: Reliabity- 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 Shepherding, 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 SIPLAN-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.

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TEACHING

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