

CURRICULUM VITAE

Martin C. Rinard

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RESEARCH INTERESTS

Computer Systems, Compilers, Programming Languages, Software Engineering, Program Analysis, Program Verification, 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

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

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.

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*, Volume 35, Number 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.

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.

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.

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.

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.

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. Beebee, 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.

Brian Demsky, Cristian Cadar, Daniel Roy, and Martin C. Rinard. Efficient Specification-Assisted Error Localization, In *Proceedings of the Second International Workshop on Dynamic Analysis*, Edinburgh, Scotland, May 2004.

Konstantine Arkoudas and Martin Rinard. Deductive Runtime Certification. In *Proceedings of the 2004*

Workshop on Runtime Verification (RV '04), Barcelona, Spain, April 2004.

Viktor Kuncak and Martin Rinard. Boolean Algebra of Shape Analysis Constraints. In *Proceedings of the 5th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2004)*, Venice, Italy, January 2004.

Brian Demsky and Martin Rinard. Static Specification Analysis for Termination of Specification-Based Data Structure Repair. In *Proceedings of the 14th IEEE International Symposium on Software Reliability Engineering*, Denver, Colorado, November 2003.

Martin Rinard. Acceptability-Oriented Computing. In *Proceedings of the 2003 ACM SIGPLAN Conference on Object-Oriented Programming Systems, Languages, and Applications Companion (OOPSLA '03 Companion)*, Anaheim, California, October 2003.

Brian Demsky and Martin Rinard. Automatic Detection and Repair of Errors in Data Structures. In *Proceedings of the 2003 ACM SIGPLAN Conference on Object-Oriented Programming Systems, Languages, and Applications (OOPSLA '03)*, Anaheim, California, October 2003.

Maria-Cristina Marinescu and Martin Rinard. A Formal Framework for Modular Synchronous System Design. In *Proceedings of the 12th International Formal Methods Europe Symposium*, Pisa, Italy, September 2003.

Patrick Lam and Martin Rinard. A Type System and Analysis for the Automatic Extraction and Enforcement of Design Information. In *Proceedings of the 2003 European Conference on Object-Oriented Programming (ECOOP 2003)*, Darmstadt, Germany, July 2003.

Viktor Kuncak and Martin Rinard. Structural Subtyping of Non-Recursive Types is Decidable. In *Proceedings of the Eighteenth Annual IEEE Symposium on Logic in Computer Science (LICS 2003)*, Ottawa, Canada, June 2003.

Viktor Kuncak and Martin Rinard. Existential Heap Abstraction Entailment is Undecidable. In *Proceedings of the 10th International Static Analysis Symposium*, San Diego, California, June 2003.

Brian Demsky and Martin Rinard. Automatic Data Structure Repair for Self-Healing Systems. In *Proceedings of the First Workshop on Algorithms and Architectures for Self-Managed Systems*, San Diego, California, June 2003.

C. Scott Ananian and Martin Rinard. Data Size Optimizations for Java Programs. In *2003 Workshop on Languages, Compilers, and Tools for Embedded Systems (LCTES 2003)*, San Diego, California, June 2003.

Chandrasekhar Boyapati, Alexandru Salcianu, William Beebe, and Martin C. Rinard. Ownership Types for Safe Region-Based Memory Management in Real-Time Java. In *Proceedings of the ACM SIGPLAN 2003 Conference on Programming Language Design and Implementation*, San Diego, California, June 2003.

Martin C. Rinard and Pedro Diniz. Eliminating Synchronization Bottlenecks Using Adaptive Replication. In *ACM Transactions on Programming Languages and Systems*, 25(3), pp. 316-359, May 2003.

Konstantine Arkoudas, Sarfraz Khurshid, Darko Marinov, and Martin Rinard. Integrating Model Checking and Theorem Proving for Relational Reasoning. In *7th International Seminar on Relational Methods in Computer Science (RelMiCS 2003)*, Malente, Germany, May 2003.

Jianjun Zhao and Martin C. Rinard. Pipa: A Behavioral Interface Specification Language for AspectJ. In *Proceedings of FASE 2003, Fundamental Approaches to Software Engineering*, Warsaw, Poland, April 2003.

Ovidiu Gheorghioiu, Alexandru Salcianu, and Martin C. Rinard. Interprocedural Compatability Analysis for Static Object Preallocation. In *Proceedings of the 30th Annual ACM Symposium on Principles of Programming Languages*, New Orleans, Louisiana, January 2003.

Martin C. Rinard. Credible Compilation. *Singapore-MIT Alliance 2003 Symposium*, Singapore, January 2003.

Radu Rugina and Martin C. Rinard. Pointer Analysis for Structured Parallel Programs. In *ACM Transactions on Programming Languages and Systems*, 25(1), pp. 1-47, January 2003.

Chandrasekhar Boyapati, Robert Lee, and Martin C. Rinard. Ownership Types for Safe Programming: Preventing Data Races and Deadlocks. In *Proceedings of the 2002 ACM SIGPLAN Conference on Object-*

Oriented Programming Systems, Languages, and Applications, Seattle, Washington, November 2002.

Karen Zee and Martin C. Rinard. Write Barrier Removal by Static Analysis. In *Proceedings of the 2002 ACM SIGPLAN Conference on Object-Oriented Programming Systems, Languages, and Applications*, Seattle, Washington, November 2002.

Brian Demsky and Martin C. Rinard. Role-Based Exploration of Object-Oriented Programs. In *Proceedings of the 2002 International Conference on Software Engineering*, Orlando, Florida, May 2002.

Karen Zee and Martin C. Rinard. Write Barrier Removal by Static Analysis. In *ACM SIGPLAN Notices*, 37(4), April 2002.

Viktor Kuncak, Patrick Lam, and Martin C. Rinard. Role Analysis. In *Proceedings of the 29th Annual ACM Symposium on Principles of Programming Languages*, Portland, Oregon, January 2002.

Maria-Cristina Marinescu and Martin C. Rinard. High-Level Synthesis of Pipelined Circuits from Modular Queue-Based Specifications. In *Transactions of the Institute of Electronics, Information, and Communication Engineers (IEICE), Special Section on VLSI and CAD Algorithms*, E84-A (11), pp. 2655-2664, November 2001.

Chandrasekar Boyapati and Martin C. Rinard. A Parameterized Type System for Race-Free Java Programs. In *Proceedings of the 16th Annual ACM SIGPLAN Conference on Object-Oriented Programming Systems, Languages, and Applications*, Tampa Bay, Florida, October 2001.

William S. Beebe and Martin C. Rinard. An Implementation of Scoped Memory for Real-Time Java. In *Proceedings of EMSOFT 2001: First International Workshop on Embedded Software*, Tahoe City, California, October 2001.

Maria-Cristina Marinescu and Martin C. Rinard. High-Level Automatic Pipelining of Sequential Circuits. In *Proceedings of the 14th International Symposium on System Synthesis (ISSS 2001)*, Montreal, Canada, October 2001.

Viktor Kuncak, Patrick Lam, and Martin C. Rinard. A Language for Role Specifications. In *Proceedings of the Fourteenth International Workshop on Languages and Compilers for Parallel Computing*, Cumberland Falls, Kentucky, August 2001.

Martin C. Rinard. Analysis of Multithreaded Programs. In *Proceedings of the 8th Static Analysis Symposium*, Paris, France, July 2001.

Frederic Vivien and Martin C. Rinard. Incrementalized Pointer and Escape Analysis. In *Proceedings of the ACM SIGPLAN 2001 Conference on Programming Language Design and Implementation*, Snowbird, Utah, June 2001.

Alexandru Salcianu and Martin C. Rinard. Pointer and Escape Analysis for Multithreaded Programs. In *Proceedings of the Eighth ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, Snowbird, Utah, June 2001.

Radu Rugina and Martin C. Rinard. Design-Driven Compilation. In *Proceedings of the International Conference on Compiler Construction*, pp. 150-164, Genoa, Italy, April 2001.

Maria-Cristina Marinescu and Martin C. Rinard. High-Level Specification and Efficient Implementation of Pipelined Circuits. In *Proceedings of the Asia South Pacific Design Automation Conference*, Yokohama, Japan, January 2001.

Radu Rugina and Martin C. Rinard. Recursion Unrolling for Divide and Conquer Programs. In *Proceedings of the Thirteenth International Workshop on Languages and Compilers for Parallel Computing*, pp. 285-299, Yorktown Heights, New York, August 2000.

Radu Rugina and Martin C. Rinard. Symbolic Bounds Analysis of Pointers, Array Indices, and Accessed Memory Regions. In *Proceedings of the ACM SIGPLAN '00 Conference on Programming Language Design and Implementation*, pp. 182-195, Vancouver, Canada, June 2000.

Daniel Jackson and Martin C. Rinard. Software Analysis: A Roadmap. In *The Future of Software Engineering*, Anthony Finkelstein, editor, ACM Press, June 2000.

Maria-Cristina Marinescu and Martin C. Rinard. A Synthesis Algorithm for the Modular Design of Pipelined Circuits. In *Proceedings of the VLSI 99 X IFIP International Conference on VLSI*, Lisbon, Portugal, December 1999.

Martin C. Rinard. Effective Fine-Grain Synchronization for Automatically Parallelized Programs Using Optimistic Synchronization Primitives. In *ACM Transactions on Computer Systems*, 17(4), pp. 337-371, November 1999.

John Whaley and Martin C. Rinard. Compositional Pointer and Escape Analysis for Java Programs. In *Proceedings of the 14th Annual ACM SIGPLAN Conference on Object-Oriented Programming Systems, Languages, and Applications*, Denver, Colorado, November 1999.

Pedro C. Diniz and Martin C. Rinard. Synchronization Transformations for Parallel Computing. In *Concurrency: Practice & Experience*, 11(13) pp. 773-802, November 1999.

Martin C. Rinard and Darko Marinov. Credible Compilation with Pointers. In *Proceedings of the FLoC Workshop on Run-Time Result Verification*, Trento, Italy, July 1999.

Martin C. Rinard and Pedro C. Diniz. Eliminating Synchronization Bottlenecks in Object-Based Programs Using Adaptive Replication. In *Proceedings of the 1999 ACM International Conference on Supercomputing*, pp. 83-92, Rhodes, Greece, June 1999.

Radu Rugina and Martin C. Rinard. Automatic Parallelization of Divide and Conquer Algorithms. In *Proceedings of the Seventh ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, pp. 72-83, Atlanta, GA, May 1999.

Radu Rugina and Martin C. Rinard. Pointer Analysis for Multithreaded Programs. In *Proceedings of the ACM SIGPLAN '99 Conference on Programming Language Design and Implementation*, pp. 77-90, Atlanta, GA, May 1999.

Pedro C. Diniz and Martin C. Rinard. Eliminating Synchronization Overhead in Automatically Parallelized Programs Using Dynamic Feedback. In *ACM Transactions on Computer Systems*, 17(2), pp. 89-132, May 1999.

Jon Babb, Martin Rinard, Andras Moritz, Walter Lee, Matthew Frank, Rajeev Barua, and Saman Amarasinghe. Parallelizing Applications Into Silicon. In *Proceedings of the IEEE Workshop on FPGAs for Custom Computing '99*, Napa Valley, CA, April 1999.

Martin C. Rinard. Implicitly Synchronized Abstract Data Types: Data Structures for Modular Parallel Programming. In *Journal of Programming Languages*, Volume 6 (1998), pp. 1-35.

Martin C. Rinard and Monica S. Lam. The Design, Implementation and Evaluation of Jade. In *ACM Transactions on Programming Languages and Systems*, 20(3), pp. 483-545, May 1998.

Martin C. Rinard. Applications Experience in Jade. In *Concurrency: Practice & Experience*. 10(6) pp. 417-448, May 1998.

Pedro C. Diniz and Martin C. Rinard. Lock Coarsening: Eliminating Lock Overhead in Automatically Parallelized Object-based Programs. In *Journal of Parallel and Distributed Computing*, 49(2) pp. 218-244, March 1998.

Martin C. Rinard and Pedro C. Diniz. Commutativity Analysis: A New Analysis Technique for Parallelizing Compilers. In *ACM Transactions on Programming Languages and Systems*, 19(6), pp. 942-991, November 1997.

Martin C. Rinard. Effective Fine-Grain Synchronization For Automatically Parallelized Programs Using Optimistic Synchronization Primitives. In *Proceedings of the Sixth ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, pp. 112-123, Las Vegas, Nevada, June 1997.

Pedro C. Diniz and Martin C. Rinard. Dynamic Feedback: An Effective Technique for Adaptive Computing. In *Proceedings of the ACM SIGPLAN '97 Conference on Programming Language Design and Implementation*, pp. 71-84, Las Vegas, Nevada, June 1997.

Martin C. Rinard. Locality Optimizations for Parallel Computing Using Data Access Information. In *International Journal of High Speed Computing*, 9(2) pp. 161-179, June 1997.

- Oscar Ibarra and Pedro C. Diniz and Martin C. Rinard. On the Complexity of Commutativity Analysis. In *International Journal of Foundations of Computer Science*, pp. 81-94, March 1997.
- Pedro C. Diniz and Martin C. Rinard. Synchronization Transformations for Parallel Computing. In *Proceedings of the Twenty Fourth Annual ACM Symposium on Principles of Programming Languages*, pp. 187-200, Paris, France, January 1997.
- Martin C. Rinard and Pedro C. Diniz. Semantic Foundations of Commutativity Analysis. In *Proceedings of EUROPAR '96*, pp. 414-423 Lyon, France, August 1996.
- Pedro C. Diniz and Martin C. Rinard. Lock Coarsening: Eliminating Lock Overhead in Automatically Parallelized Object-Based Programs. In *Proceedings of the Ninth International Workshop on Languages and Compilers for Parallel Computing*, pp. 285-299, San Jose, California, August 1996.
- Oscar Ibarra and Pedro C. Diniz and Martin C. Rinard. On the Complexity of Commutativity Analysis. In *Proceedings of the Second Annual International Computing and Combinatorics Conference*, pp. 323-332, Hong Kong, June 1996.
- Martin C. Rinard and Pedro C. Diniz. Commutativity Analysis: A New Analysis Framework for Parallelizing Compilers. In *Proceedings of the ACM SIGPLAN '96 Conference on Programming Language Design and Implementation*, pp. 54-67, Philadelphia, Pennsylvania, May 1996.
- Martin C. Rinard. An Integrated Synchronization and Consistency Protocol for the Implementation of a High-Level Parallel Programming Language. In *Proceedings of the 10th International Parallel Processing Symposium*, pp. 549-553, Honolulu, Hawaii, April 1996.
- Martin C. Rinard and Pedro C. Diniz. Commutativity Analysis: A Technique for Automatically Parallelizing Pointer-Based Computations. In *Proceedings of the 10th International Parallel Processing Symposium*, Honolulu, Hawaii, pp. 14-22, April 1996.
- Martin C. Rinard. Communication Optimizations for Parallel Computing Using Data Access Information. In *Proceedings of SuperComputing '95*, San Diego, California, December 1995.
- Martin C. Rinard. Implicitly Synchronized Abstract Data Types: Data Structures for Modular Parallel Programming. In *Proceedings of the 2nd International Workshop on Massive Parallelism*, pp. 259-274, Capri, Italy, October 1994.
- Martin C. Rinard, Daniel J. Scales and Monica S. Lam. Jade: A High-Level, Machine-Independent Language for Parallel Programming. In *Computer*, pp. 28-38, June 1993.
- Martin C. Rinard, Daniel J. Scales and Monica S. Lam. Heterogeneous Parallel Programming in Jade. In *Proceedings of SuperComputing '92*, pp. 245-256, Minneapolis, Minnesota, November 1992.
- Martin C. Rinard and Monica S. Lam. Semantic Foundations of Jade. In *Proceedings of the Nineteenth Annual ACM Symposium on Principles of Programming Languages*, pp. 105-118, Albuquerque, New Mexico, January 1992.
- Daniel J. Scales, Martin C. Rinard, Monica S. Lam and Jennifer M. Anderson. Hierarchical Concurrency in Jade. In *Proceedings of the Fourth International Workshop on Languages and Compilers for Parallel Computing*, pp. 50-64, Santa Clara, California, August 1991.
- Monica S. Lam and Martin C. Rinard. Coarse-grain Parallel Programming in Jade. In *Proceedings of the Third ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, pp. 95-105, Williamsburg, Virginia, April 1991.
- Vijay Saraswat, Martin C. Rinard and Prakash Panangaden. Semantic Foundations of Concurrent Constraint Programming. In *Proceedings of the Eighteenth Annual ACM Symposium on Principles of Programming Languages*, pp. 333-352, Orlando, Florida, January 1991.
- Vijay Saraswat and Martin C. Rinard. Concurrent Constraint Programming. In *Proceedings of the Seventeenth Annual ACM Symposium on Principles of Programming Languages*, pp. 232-245, San Francisco, California, January 1990.
- Martin C. Rinard. Seminal New Book on Nanotechnology Inspires New Course at Stanford. In *Chemical*

Design Automation News, 3(8), pp. 8-10, August 1988.

Alessandro Giacalone, Martin C. Rinard and Thomas D. Doepfner. IDEOSY: An Ideographic and Interactive Program Description System. In *Proceedings of the ACM SIGSOFT/SIGPLAN Software Engineering Symposium on Practical Software Development Environments*, pp. 15-20, Pittsburgh, Pennsylvania, April 1984.