

Chandra Krintz

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Vita:

Birth date: May 23, 1970
Birthplace: Monticello, Indiana
Gender: Female
Citizenship: United States

Research Interests:

My research interests include compilation, dynamically compiled and interpreted programming languages, adaptive optimizations and language support for emerging virtualization-based systems (e.g. cloud computing), and techniques for efficient interoperation of language runtimes and operating systems. My other interests include projects and programs that mentor, support, and encourage young people from underrepresented groups (especially women!) to consider and pursue computer science.

Education:

University of California **San Diego, CA**
Doctor of Philosophy degree in Computer Science, May 2001
Dissertation Title: Reducing Load Delay to Improve Performance of Internet-Computing Programs
Available as UCSD Technical Report CS2001-0672
Adviser: Brad Calder

University of California **San Diego, CA**
Master of Science degree in Computer Science, June 1998

California State University **Northridge, CA**
Bachelor of Science degree in Computer Science, December 1995
Honors: School of Engineering Outstanding Undergraduate Award

Professional Experience:

University of California, **Santa Barbara, CA**
Associate Professor. (July 2007 - Present)

University of California, **Santa Barbara, CA**
Assistant Professor. (July 2001 - June 2007)

Peer-Reviewed Conference & Workshop Publications:

1. N. Chohan, C. Bunch, S. Pang, C. Krintz, N. Mostafa, S. Soman, and R. Wolski AppScale: Scalable and Open AppEngine Application Development and Deployment, International Conference on Cloud Computing (CloudComp), Oct, 2009
2. N. Mostafa and C. Krintz, Tracking Performance Across Software Revisions, ACM International Conference on Principles and Practice of Programming in Java (PPPJ), Aug, 2009
3. M. Wegiel and C. Krintz, Dynamic Prediction of Collection Yield for Managed Runtimes, ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), Mar, 2009
4. S. Soman and C. Krintz and L. Daynes, *MTM²*: Scalable Memory Management for Multi-Tasking Managed Runtime Environments, European Conference on Object-Oriented Programming (ECOOP), Jul, 2008

5. M. Wegiel and C. Krintz, XMem: Type-Safe, Transparent, Shared Memory for Cross-Runtime Communication and Coordination, ACM Conference on Programming Language Design and Implementation (PLDI), Jun, 2008
6. R. Wolski, S. Gurun, C. Krintz, and D. Nurmi, Using Bandwidth Data to Make Computation Offloading Decisions, High-Performance Grid Computing Workshop (HPGC) – **invited and peer reviewed**, as part of the International Conference on Parallel and Distributed Processing, Apr, 2008
7. M. Wegiel and C. Krintz, The Mapping Collector: Virtual Memory Support for Generational, Parallel, and Concurrent Compaction, ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), Mar, 2008
8. L. Zhang, C. Krintz, and P. Nagpurkar, Supporting Exception Handling for Futures in Java, ACM International Conference on the Principles and Practice on Programming in Java (PPPJ), Sep, 2007
9. L. Zhang, C. Krintz, and P. Nagpurkar, Language and Virtual Machine Support for Efficient Fine-Grained Futures in Java, ACM International Conference on Parallel Architectures and Compilation Techniques (PACT), Sep, 2007
10. P. Nagpurkar, H. Cain, M. Serrano, J. Choi, and C. Krintz, Call-chain Software Instruction Prefetching in J2EE Server Applications, ACM International Conference on Parallel Architectures and Compilation Techniques (PACT), Sep, 2007
11. C. Grzegorzcyk, S. Soman, R. Wolski, and C. Krintz, Isla Vista Heap Sizing: Using Feedback to Avoid Paging, ACM International Symposium on Code Generation and Optimization (CGO), Mar, 2007
12. H. Mousa, C. Krintz, L. Youseff, and R. Wolski, VIProf: Vertically Integrated Full-System Performance Profiler, Workshop on Next-Generation Software, Mar, 2007
13. L. Youseff, R. Wolski, B. Gorda, and C. Krintz, Paravirtualization for HPC Systems, XHPC: Workshop on XEN in High-Performance Cluster and Grid Computing, Dec, 2006, **Won (Co-) Best Paper Award!**
14. L. Zhang, C. Krintz, and S. Soman, Efficient Support of Fine-grained Futures in Java, International Conference on Parallel and Distributed Computing and Systems (PDCS), Nov, 2006
15. L. Youseff, R. Wolski, B. Gorda, and C. Krintz, Evaluating the Performance Impact of Xen on MPI and Process Execution For HPC Systems, International Workshop on Virtualization Technologies in Distributed Computing (VTDC), Nov, 2006
16. S. Gurun and C. Krintz, A Run-Time, Feedback-Based Energy Estimation Model For Embedded Devices, International Conference on Hardware-Software Codesign and System Synthesis (CODES+ISSS), Oct, 2006
17. Y. Wen, S. Gurun, N. Chohan, R. Wolski, and C. Krintz, SimGate: Full-System, Cycle-Close Simulation of the Stargate Sensor Network Intermediate Node, International Conference on Embedded Computer Systems: Architectures, MOdeling, and Simulation (IC-SAMOS), Jul, 2006
18. S. Soman, L. Daynes, C. Krintz, Task-Aware Garbage Collection in a Multi-Tasking Virtual Machine, ACM International Symposium for Memory Management (ISMM), Jun, 2006
19. S. Soman and C. Krintz, Efficient and General On-Stack Replacement for Aggressive Program Specialization, International Conference on Programming Languages and Compilers (PLC), Jun, 2006
20. P. Nagpurkar, C. Krintz, M. Hind, P. Sweeney, and V.T. Rajan, Online Phase Detection Algorithms, ACM International Symposium on Code Generation and Optimization (CGO), Mar, 2006
21. C. Krintz and S. Gurun, Remote Performance Monitoring, Dagstuhl Seminar Proceedings – Schloss Dagstuhl Workshop on Automatic Performance Analysis, Apr, 2005

22. S. Gurun and C. Krintz, AutoDVS: An Automatic, General-Purpose, Dynamic Clock Scheduling System for Hand-Held Devices, ACM SIGBED International Conference on Embedded Systems Software (EMSOFT), Sep, 2005
23. H. Mousa and C. Krintz, HPS: Hybrid Profiling Support, ACM SIGARCH ACM International Conference on Parallel Architectures and Compilation Techniques (PACT), Sep, 2005
24. C. Krintz and R. Wolski, Using Phase Behavior in Scientific Application to Guide Linux Operating System Customization, Workshop on Next Generation Software at IPDPS, Apr, 2005
25. P. Nagpurkar, C. Krintz, and T. Sherwood, Phase-Aware Remote Profiling, ACM International Symposium on Code Generation and Optimization (CGO), Mar, 2005
26. S. Soman, C. Krintz, and D. Bacon, Dynamic Selection of Application-specific Garbage Collectors, ACM International Symposium for Memory Management (ISMM), Oct, 2004
27. C. Krintz, Y. Wen, and R. Wolski, Application-level Prediction of Battery Dissipation, ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPED), Aug, 2004
28. L. Zhang and C. Krintz, Adaptive Code Unloading for Resource-Constrained JVMs, ACM SIGPLAN Conference on Languages, Compilers, and Tools for Embedded Systems (LCTES), Jun, 2004
29. P. Nagpurkar and C. Krintz, Visualization and Analysis of Phased Behavior in Java Programs, ACM International Conference on the Principles and Practice of Programming in Java (PPPJ), Jun, 2004
30. L. Zhang and C. Krintz, Profile-driven Code Unloading for Resource-Constrained JVMs, ACM International Conference on the Principles and Practice of Programming in Java (PPPJ), Jun, 2004
31. S. Gurun, C. Krintz, and R. Wolski, NWSLite: A Light-Weight Prediction Utility for Mobile Devices, ACM International Conference on Mobile Systems, Applications, and Services (MobiSys), Jun, 2004
32. Y. Wen, R. Wolski, and C. Krintz, History-based, Online, Battery Lifetime Prediction for Embedded and Mobile Devices, Workshop on Power-Aware Computer Systems (PACS), Dec, 2003
33. S. Soman, C. Krintz, and G. Vigna, Detecting Malicious Java Code Using Virtual Machine Auditing, 12th USENIX Security Symposium, Aug, 2003
34. S. Sucu and C. Krintz, ACE: A Resource-Aware Adaptive Compression Environment, International Conference on Information Technology: Coding and Computing (ITCC), Apr, 2003
35. C. Krintz, Coupling On-Line and Off-Line Profile Information to Improve Program Performance, in the: ACM International Symposium on Code Generation and Optimization (CGO), Mar, 2003
36. C. Krintz, Improving Mobile Program Performance Through the Use of a Hybrid Intermediate Representation, Workshop on Intermediate Representation Engineering (IRE), Jun, 2002
37. C. Krintz, Using Adaptive Optimization Techniques To Teach Mobile Java Computing, ACM International Conference on Principles and Practice of Programming in Java (PPPJ), Jun, 2002
38. C. Krintz and B. Calder, Dynamic Selection of Compression Formats to Reduce Transfer Delay, High-Performance Distributed Computing (HPDC), Aug, 2001
39. C. Krintz and B. Calder, Using Annotation to Reduce Dynamic Optimization Time, ACM Conference on Programming Language Design and Implementation (PLDI), Jun, 2001

40. C. Krintz and R. Wolski, NwsAlarm: A Tool for Accurately Detecting Resource Performance Degradation, IEEE/ACM Symposium on Cluster Computing and the Grid (CCGRID), May 2001
41. C. Krintz and R. Wolski, JavaNws: The Network Weather Service for the Desktop, Java-Grande, Oct, 2000
42. C. Krintz, B. Calder, and U. Hölzle, Reducing Transfer Delay Using Java Class File Splitting and Prefetching, ACM Conference on Object-Oriented Programming Systems, Languages, and Applications (OOPSLA), Nov, 1999
43. R. Wolski, J. Brevik, C. Krintz, G. Obertelli, N. Spring, and A. Su, Running EveryWare on the Computational Grid, IEEE Supercomputing (SC), Oct, 1999
44. C. Krintz, B. Calder, H. B. Lee, and B. Zorn, Overlapping Execution with Transfer Using Non-Strict Execution for Mobile Programs, ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), Oct, 1998
45. B. Calder, C. Krintz, S. John, and T. Austin, Cache-Conscious Data Placement, ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), Oct, 1998
46. C. Krintz and S. Fitzgerald, AGAVE: A Visualization Tool for Parallel Programming, In Proceedings of International Association of Science and Technology for Development Conference (IASTED), Oct, 1995

Peer-Reviewed Journal Publications:

1. L. Zhang and C. Krintz, As-If-Serial Exception Handling Semantics for Java Futures, Elsevier Journal on the Science of Computer Programming, 2009
2. S. Gurun, D. Nurmi, R. Wolski, and C. Krintz, On the Efficiency of Computation Offloading, Decision Making Strategies International Journal of High Performance Computing Applications, Vol. 22, No.4, pg460-479, Nov, 2008
3. Ye Wen, Selim Gurun, Navraj Chohan, Rich Wolski, and Chandra Krintz, Accurate and Scalable Simulation of Network of Heterogeneous Sensor Devices, Journal of Signal Processing Systems: Special Issue on Embedded Computer Systems for DSP, Vol 50, No. 2, pg115-136, Springer Science, Feb, 2008
4. S. Gurun and C. Krintz, NWSLite: A General-purpose, Non-parametric Prediction Utility for Embedded Systems, ACM Transactions on Embedded Systems (TECS), Vol. 80, Issue 7, pp 1037-1056, July, 2007
5. Y. Wen, S. Gurun, N. Chohan, R. Wolski, and C. Krintz, Accurate and Scalable Simulation of Network of Heterogeneous Sensor Devices, Journal of VLSI Signal Processing Systems, 2007
6. S. Soman and C. Krintz, Application-specific Garbage Collection, Journal of Systems and Software, Volume 80, Issue 7, pp. 1037-1056, July, 2007
7. P. Nagpurkar, H. Mousa, C. Krintz, and T. Sherwood, Efficient Remote Profiling for Resource-Constrained Devices, ACM Transactions on Architecture and Code Optimization (TACO), Vol. 3, Number 1, Mar, 2006, pp 1-32
8. P. Nagpurkar and C. Krintz, Phase-Based Visualization and Analysis of Java Programs, Elsevier Science of Computer Programming – Special Issue on Principles Practices and Programming in Java, Vol. 59, Number 1-2, Jan, 2006, pp 64-81
9. C. Krintz and S. Sucu, Adaptive On-The-Fly Compression, IEEE Transactions on Parallel and Distributed Systems (TPDS), Vol. 17, Number 1, Jan, 2006, pp 15-24
10. L. Zhang and C. Krintz, The Design, Implementation, and Evaluation of Adaptive Code Unloading for Resource-Constrained Devices, ACM Transactions on Architecture and Code Optimization (TACO), Vol. 2, Number 2, Jun, 2005, pp 131-164

11. Y. Wen, R. Wolski, and C. Krintz, Online Prediction of Battery Lifetime for Embedded and Mobile Devices, Lecture Notes in Computer Science (LNCS); Springer-Verlag, V3164/2004, Dec, 2004
12. C. Krintz, D. Grove, V. Sarkar, and B. Calder, Reducing the Overhead of Dynamic Compilation, Journal of Software: Practice and Experience, Volume 31, Issue 8, Dec, 2000, pp 717-738
13. C. Krintz and R. Wolski, Using JavaNws to Compare C and Java TCP-socket Performance, Journal of Concurrency and Computation: Practice and Experience, Volume 13, Issue 8-9, Jun, 2001, pp 815-859

Invited Talks (Past 2 Years):

- AppScale: Open-source Platform-Level Cloud Computing Framework, IBM Research, Aug, 2009
- Panel: The Value of Awards and How to Get Them, Grace Hopper Conference, Sep, 2009
- AppScale: Open-source Platform-as-a-Service (PaaS) System for Energy-Aware Cloud Computing Research, Oracle, Sep, 2009
- AppScale: Open-source Platform-as-a-Service (PaaS) in Support of Cloud Computing Research, Jet Propulsion Lab, July, 2009
- AppScale: Open-source Platform-as-a-Service (PaaS) in Support of Cloud Computing Research, VMWare, Jul, 2009
- ACM Programming Languages Summer School Lectures on Adaptive Optimizations and Modern Language Runtimes, Jul, 2009
- Efficient, Type-Safe Shared Memory for Cross-MRE Communication and Coordination; Colloquium at Boston University, April 4th, 2008
- **Diversity:** 2007-08 Academic Year: Microsoft+UCSB – using Boku to introduce Girls Inc. (<http://www.girlsincsb.org/>) students to programming and computer science. Lead w/ 12 undergraduate students (Boku advocates).
- **Diversity:** Balancing Work and Life/Time Management CRA-W Mentoring Workshop, Invited Speaker, June 2007, with FCRC
- **Diversity:** Information Technology and the Community (UCSB course for undergraduates on outreach to the community (local non-profits and high-schools). Introduce young people to computer science and to impact our local community through information technology support and education (<http://www.cs.ucsb.edu/~ckrintz/classes/cs193/>). Winter Quarter 2007 UCSB

Service & Professional Activities (Past 2 Years):

- 2008-Present – Invited Member: Advisory Board for the Anita Borg Institute for Women and Technology
- 2007-08 Lead: Microsoft+UCSB using Boku to introduce Girls Inc. (<http://www.girlsincsb.org/>) students to programming and computer science. Lead w/ 12 undergraduate students (Boku advocates).
- Elected Member: ACM Special Interest Group on Programming Languages (SIGPLAN) Executive Committee - Vice Chair 2007-2009 (With position: Steering committee member: PLDI, POPL, OOPSLA, ICFP, AOSD)
- CRA-W Cohort 2007-9 Workshop Speaker
- CRA-W Mentoring Workshop 2007 Invited Speaker (June 2007, San Diego with FCRC 2007)
- General Chair for the 2007 ACM International Conference on Virtual Execution Environments (VEE) at FCRC 2007

- Publications Chair: ACM Conference on Code Generation and Optimization (CGO) 2005
- Program Committee Member: CGO07, ISMM07, ASPLOS08, CGO08, ASPLOS08, Grace-Hopper09, PLDI09, PPOPP09, ASPLOS09, OOPSLA09, CC10

Grants:

- 2009 IBM Open-Collaboration Research Award, C. Krintz, PI
- Defense University Research Instrumentation Program (DURIP): Large-Scale Multimodal Wireless Sensor Network, Dept. of Defense, FY08-FY11, C. Krintz, Co-PI
- NETS/NOSS: SENSIMIDE: Integrated Software Development and Multi-Mode Simulation for Large-Scale Sensor Networks, NSF FY06-FY09, C. Krintz, Co-PI
- NSF 2009 UCSB Faculty Outreach Grant, C. Krintz, Co-PI
- NSF 2008 Workshop on Modern Programming Language Curricula, C. Krintz, Co-PI
- CAREER: VIVA – Vertically Integrated VirtualizAtion: Automatic, Full System, Specialization for High-End Computing, NSF FY06-FY11, C. Krintz, PI
- Microsoft Phoenix Award, Microsoft Research FY05-FY07, C. Krintz, PI
- ST-HEC: Automatic Linux Customization and Optimization for High-Performance Scientific Applications, NSF FY04-FY07, C. Krintz, PI
- Wireless Sensor Network Laboratory Infrastructure, NSF FY04 - FY06, C. Krintz, Co-PI
- NGS: Developing a Resource-Aware Adaptive Compilation System for High-Performance Distributed Computing, NSF Next Generation Software, FY02 - FY03, C. Krintz, Co-PI
- Annotation-Based Optimizations for Java Virtual Machines, Intel Corporation / UC-MICRO, FY03-FY05, C. Krintz, PI
- ITR: Virtual Power for a Wireless Campus - A Vision of Ubiquitous Computing On Low-Cost Mobile Devices, NSF (CCR-0205712), FY02 - FY05, C. Krintz, Co-PI
- Empirical Evaluation of IPF Optimizations, Intel Corporation, FY02-FY04, C. Krintz, PI

Awards:

- 2008-9 UCSB Academic Senate Distinguished Teaching Award
- 2008 CRA-W Anita Borg Early Career (BECA) Award for outstanding research and outreach contributions
- 2008 Outstanding Faculty in Computer Science (co-award) for teaching excellence
- (also listed under grants) CAREER: VIVA – Vertically Integrated VirtualizAtion: Automatic, Full System, Specialization for High-End Computing, NSF FY06-FY11, C. Krintz, PI
- Microsoft Phoenix Award, Microsoft Research FY05-FY06, C. Krintz, PI

Number of PhD Advisees: 5

Number of MS Advisees: 4

Number of Undergraduate Advisees: 1

Number of Graduated PhD Advisees: 4

Number of Graduated MS Advisees: 8

Number of Graduated Undergraduate Advisees: 17 (+2 BS/MS)