

Sunil Soman

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Vita

Birth date: November 30, 1979
Citizenship: United States

Research Interests

Managed Runtime Environments, Memory Management, Runtime Performance Analysis, Operating Systems support for Managed Runtime Environments, Runtime support for Multi-core architectures, Compilers, Virtualization, Distributed Storage, Profiling, Cloud Computing.

Education

University of California **Santa Barbara, CA**
Doctor of Philosophy degree in Computer Science, June 2008
Advisor: Prof. Chandra Krintz

University of California **Santa Barbara, CA**
Master of Science degree in Computer Science, June 2007

University of Pune **Pune, India**
Bachelor of Engineering in Computer Engineering, June 2001
(First Class with Distinction)

Professional Experience

University of California, **Santa Barbara, CA**
Postdoctoral Scholar. (July 2008 - present)
I am currently a postdoc in Prof. Rich Wolski's lab at UC Santa Barbara. I am working on virtualization, storage management and profiling support for cloud computing. I am a part of the Eucalyptus open source cloud computing infrastructure project (<http://eucalyptus.cs.ucsb.edu>).

Sun Microsystems Labs, **Menlo Park, CA**
Graduate Student Intern. (November 2007 - March 2008)
I investigated memory management and runtime support in the Maxwell virtual machine.

University of California, **Santa Barbara, CA**
Graduate Student Researcher. (June 2002 - November 2007)
I have worked on research projects involving a number of well-known virtual machine/managed runtime platforms (IBM's JikesRVM, Sun Microsystems' HotSpot VM and Sun Microsystems' Multi-tasking Virtual Machine). I have designed, implemented and investigated memory management (garbage collection) techniques, compiler and runtime support and empirically analyzed runtime performance. In particular, I have investigated application-specific memory management performance, designed a dynamic garbage collection hot-swapping framework, introduced support for efficient, yet general purpose on-stack replacement of specialized code. Recently, I have designed and implemented mechanisms for memory management for multi-tasking VMs that enable multi-tasking to outperform single-tasking for concurrent workloads.

Sun Microsystems Labs, **Grenoble, France**
Graduate Student Intern. (June 2005 - September 2005)
I investigated, implemented, and performed empirical analysis for garbage collection and runtime support for Sun Microsystems' Multi-tasking Virtual Machine (MVM). In particular, I designed and implemented a task-aware garbage collector (GC) for MVM and runtime support for enabling task-aware GC.

University of California,

Santa Barbara, CA

Teaching Assistant. (September 2001 - June 2002)

I assisted with undergraduate and graduate Computer Science courses, including undergraduate programming projects, and Security & Intrusion Detection.

Peer-Reviewed Publications

- **Sunil Soman**, Chandra Krintz, Laurent Daynès, *MTM²: Scalable Memory Management for Multi-Tasking Managed Runtime Environments*, The 22nd European Conference On Object-Oriented Programming (ECOOP), Paphos, Cyprus, July 7-11, 2008
- Chris Grzegorzcyk, **Sunil Soman**, Chandra Krintz, Rich Wolski, *Isla Vista Heap Sizing: Using Feedback to Avoid Paging*, The International Symposium on Code Generation and Optimization (CGO), San Jose, CA, March 2007
- Lingli Zhang, Chandra Krintz, **Sunil Soman**, *Efficient Support of Fine-grained Futures in Java*, The 18th IASTED International Conference on Parallel and Distributed Computing AND Systems (PDCS), Dallas, TX, Nov 2006
- **Sunil Soman**, Chandra Krintz, *Efficient and General On-Stack Replacement for Aggressive Program Specialization*, International Conference on Programming Languages and Compilers (PLC) 2006, Las Vegas, NV, June 2006
- **Sunil Soman**, Laurent Daynès Chandra Krintz, *Task-Aware Garbage Collection in a Multi-Tasking Virtual Machine*, The International Symposium on Memory Management (ISMM) 2006, Ottawa, Ontario, Canada, June 2006
- **Sunil Soman**, Chandra Krintz, David F. Bacon, *Dynamic Selection of Application-Specific Garbage Collectors*, The International Symposium on Memory Management (ISMM) 2004, Vancouver, BC, October 2004
- **Sunil Soman**, Chandra Krintz, Giovanni Vigna, *Detecting Malicious Java Code Using Virtual Machine Auditing*, 12th USENIX Security Symposium, Washington DC, Aug 2003
- **Sunil Soman**, Chandra Krintz, *Application-Specific Garbage Collection*, The Elsevier Journal of Systems and Software (2007)

Service

Reviewer, The Elsevier Journal of Systems and Software (JSS), 2008

Reviewer, The Elsevier Journal of Systems and Software (JSS), 2007

Reviewer, The International Conference on Principles an Practices of Programming In Java (PPPJ 2006)

Program Committee Member, 2007 Graduate Student Research Workshop, University of California, Santa Barbara, CA

References

Available on request.