

Harvey Siy, Ph.D.

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RESEARCH INTERESTS

I am interested in studying and improving methods and techniques for reliably maintaining and evolving large, software-intensive systems. To this end, my current research uses software repository mining to empirically investigate how long-lived software products have evolved over time, and to assess the long-term quality and productivity impacts of software technologies for improving modularity and systematic reuse, such as product line engineering and aspect-oriented programming.

EDUCATION

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|-------|--|------------|
| Ph.D. | Computer Science, University of Maryland at College Park Dissertation: Identifying the Mechanisms Driving Code Inspection Costs and Benefits Advisor: Professor Adam Porter | 1992- 1996 |
| M.S. | Computer Science, University of Maryland at College Park | 1994 |
| B.S. | Computer Science, <i>magna cum laude</i> , University of the Philippines | 1985-1989 |

HONORS

University of Maryland Department of Computer Science Fellow, 1995
Member, Phi Kappa Phi Honor Society

APPOINTMENTS

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| Assistant Professor, University of Nebraska at Omaha | Courses taught: software engineering, object-oriented software development, user interface design and development. | 2005-present |
| Member of Technical Staff (Performance Engineer), Lucent Technologies | Capacity and performance verification and testing for telecommunications switching systems. Voice quality measurement and consultation for voice-over-IP and voice-over-ATM systems. Protocol analysis and simulation: H.323, MGCP, SIP. Real-time performance of Solaris-based applications. | 1999-2005 |
| Member of Technical Staff (Domain Engineer), Lucent Technologies | Facilitated domain analysis of various telecom software subsystems. | 1999 |
| Member of Technical Staff (Research Staff), Bell Labs | Conducted empirical studies on the effects of software inspections on development interval and software maintainability. Conducted case studies of 5ESS software evolution and how organizational, process and technological changes impacted it. | 1996-1999 |
| Member of Technical Staff (Summer Intern), AT&T Bell Laboratories | Started a 2-year live industrial experiment on code inspections with software professionals at AT&T to identify the mechanisms driving software inspection costs and benefits. Work involved combining novel experimental designs, techniques for ethnographic studies and nonparametric statistical analysis. | 1994 |
| Research Assistant, University of Maryland | Continued the code inspection experiment began as a summer intern. Spent most of two years as a visiting student at AT&T while working on Ph.D. thesis. | 1994-1996 |
| Teaching Assistant, University of Maryland | Courses assisted: introduction to computers, compiler design. | 1992-1993 |
| Instructor, University of the Philippines | Courses taught: computer organization, programming languages, software engineering. | 1991-1992 |

Systems Programmer, Software Brewers Inc., Philippines

1989-1991

Designed and implemented a software development environment for database applications. This involved implementing a data definition and program specification language, intermediate code generator and C/COBOL code generator.

PROFESSIONAL ACTIVITIES**Editorial Board**

International Journal of Software Engineering and Its Applications (IJSEIA)

Program Committees

APSEC Workshop on Accountability and Traceability in Global Software Engineering (ATGSE) 2008

3rd International Conference on Software and Data Technologies (ICSOFT) 2008

2nd International Symposium on Empirical Software Engineering and Measurement (ESEM) 2008

APSEC Workshop on Accountability and Traceability in Global Software Engineering (ATGSE) 2007

2nd International Conference on Software and Data Technologies (ICSOFT) 2007

1st International Symposium on Empirical Software Engineering and Measurement (ESEM) 2007

12th International Software Metrics Symposium (METRICS) 2005

11th International Software Metrics Symposium (METRICS) 2004

IEEE Workshop on Evolution of Large Scale Industrial Applications (ELISA) 2003

International Conference on Software: Theory and Practice (ICS) 2000

International Workshop on Feedback and Evolution in Software and Business Processes (FEAST) 2000

Beg, Borrow or Steal: Using Multidisciplinary Approaches in Empirical Software Engineering Research (ICSE Workshop) 2000

Served as External Reviewer

International Symposium on Software Testing and Analysis (ISSTA) 2007

31st Annual Computer Software and Applications Conference (COMPSAC) 2007

28th International Conference on Software Engineering (ICSE) 2006

IEEE International Conference on Communications (ICC) 2001

Served as Referee

IEEE Transactions on Software Engineering

Software Quality Journal

Empirical Software Engineering Journal

Automated Software Engineering

PUBLICATIONS**Papers in Refereed Journals**

1. Harvey Siy, Parvathi Chundi, Daniel Rosenkrantz, Mahadevan Subramaniam. A segmentation-based approach for temporal analysis of software version repositories. *Journal of Software Maintenance and Evolution: Research and Practice*, 20(3), May/June 2008, pp. 199-222.
2. Dewayne Perry, Harvey Siy, Lawrence Votta. Parallel Changes in Large Scale Software Development: An Observational Case Study. *ACM Trans. on Software Engineering and Methodology*, July 2001, pp. 308-337.
3. Todd Graves, Alan Karr, J.S. Marron, and Harvey Siy. Predicting Fault Incidence Using Software Change History. *IEEE Trans. on Software Engineering*, July 2000, pp. 653-661.
4. M. Ardis, N. Daley, D.M. Hoffman, H. Siy, and D. Weiss. Software Product Lines: A Case Study. *Software-Practice and Experience*, 30(7):825-847, May 2000.
5. David Atkins, Audris Mockus, Harvey Siy. Measuring Technology Effects on Software Change Cost. *Bell Labs Technical Journal*, April 2000, pp. 7-18.

6. Adam Porter, Harvey Siy, Audris Mockus, Lawrence Votta. Understanding the Sources of Variation in Software Inspections. *ACM Trans. on Software Engineering and Methodology*, Jan. 1998, pp. 41-79.
7. Adam Porter, Harvey Siy, Carol Toman, Lawrence Votta. An Experiment to Assess the Cost-Benefits of Code Inspection in Large Scale Software Development. *IEEE Trans. on Software Engineering*, June 1997, pp. 326-349.

Papers in Refereed Conferences

8. Y. Wu, H. Siy, L. Fan. Discovering Meaningful Clusters from Mining Software Engineering Literature. *Proceedings of the 20th International Conference on Software Engineering and Knowledge Engineering (SEKE '08)*, Redwood City, California, July 2008.
9. H. Siy, P. Chundi, D. Rosenkrantz, M. Subramaniam. Discovering dynamic developer relationships from software version histories by time series segmentation. *Proceedings of the International Conference on Software Maintenance (ICSM '07)*, Paris, France, Oct. 2007.
10. M. Subramaniam, H. Siy. Consistently Incorporating Changes to Evolve Transition-based Systems. *Proceedings of the European Conference on Software Maintenance and Reengineering (CSMR '07)*, Amsterdam, Netherlands, Mar. 2007.
11. Harvey Siy, Lawrence Votta. Does the modern code inspection have value? *Proceedings of the 2001 International Conference on Software Maintenance*, Florence, Italy, Nov. 2001.
12. James Herbsleb, Audris Mockus, Harvey Siy, Mayuram Krishnan, and George Tucker. Making the Software Factory Work: Lessons from a Decade of Experience. *Proceedings of the 8th International Metrics Symposium (METRICS'01)*, London, U.K., April 2001.
13. Harvey Siy, Audris Mockus. Measuring Domain Engineering Effects on Software Coding Cost. *Proceedings of the 6th International Metrics Symposium (METRICS'99)*, Boca Raton, Florida, Nov. 1999.
14. Nancy Staudenmayer, Todd Graves, Steve Marron, Audris Mockus, Harvey Siy, Lawrence Votta, Dewayne Perry. Adapting to New Environments: How a Legacy Software Organization Copes With Volatility and Change. *5th International Product Development Management Conference*, Como, Italy, May 1998.
15. Dewayne Perry, Harvey Siy, Lawrence Votta. Parallel Changes in Large Scale Software Development: An Observational Case Study. *Proceedings of the 1998 International Conference on Software Engineering*, Kyoto, Japan, April 1998.
16. Adam Porter, Harvey Siy, Lawrence Votta. Understanding the Effects of Developer Activities on Inspection Interval. *Proceedings of the 1997 International Conference on Software Engineering*, Boston, MA, May 1997.
17. Patricia McCarthy, Adam Porter, Harvey Siy, Lawrence Votta. An Experiment to Assess Cost-Benefits of Inspection Meetings and Their Alternatives. *Proceedings of the Third International Metrics Symposium (METRICS'96)*, Berlin, Germany, Mar. 1996.
18. Adam Porter, Harvey Siy, Carol Toman, Lawrence Votta. An Experiment to Assess the Cost-Benefits of Code Inspection in Large Scale Software Development. *Proceedings of the Third ACM SIGSOFT Symposium on Foundations of Software Engineering*, Washington, D.C., Oct. 1995.

Book Chapters

19. D.L. Atkins, A. Mockus, H. Siy. Quantifying the Impact of Using Software Technology. In Steffan Biffl, et al, editors, *Value-Based Software Engineering*, Springer-Verlag, pp. 327-344, 2006.
20. Adam Porter, Harvey Siy, Lawrence Votta. A Review of Software Inspections. In Marvin Zelkowitz, editor, *Software Process*, volume 42 of Advances in Computers, May 1996.

Papers in Refereed Workshops

21. H. Siy, P. Chundi, M. Subramaniam. Summarizing Developer Work History Using Time Series Segmentation. *5th Working Conference on Mining Software Repositories (MSR '08)*, Leipzig, Germany, May 2008.
22. H. Siy. Monitoring Offshored/Outsourced Software Maintenance Projects. *Workshop on Accountability and Traceability in Global Software Engineering (ATGSE '07)*, Nagoya, Japan, Dec. 2007.
23. M. Subramaniam, P. Chundi, H. Siy. Aggregating Changes to Efficiently Check Consistency. *International Workshop on Principles of Software Evolution (IWPSE '07)*, Dubrovnik, Croatia, Sept. 2007.
24. H. Siy, P. Aryal, V. Winter, M. Zand. Aspectual Support for Specifying Requirements in Software Product Lines. *Early Aspects at ICSE: Workshop in Aspect-Oriented Requirements Engineering and Architecture Design*, Minneapolis, Minnesota, May 2007.
25. Y. Wu, H. Siy, M. Zand, V. Winter. Construction of Ontology-Based Software Repositories by Text Mining. *International Conference on Computational Science (ICCS '07)*, Beijing, China, May 2007.
26. W. Sousan, V. Winter, M. Zand, H. Siy. ERTSAL: A Prototype of a Domain-Specific Aspect Language for Analysis for Embedded Real-Time Systems. *2nd Workshop on Domain Specific Aspect Languages (DSAL '07)*, Vancouver, British Columbia, March 2007.
27. Yan Wu, Mansour Zand, Victor Winter, Harvey Siy. Systematic text-mining approach for deriving aspects and patterns from domain knowledge. *ICSE 2006 Workshop on Early Aspects*, Shanghai, China, May 2006.
28. Victor Winter, Harvey Siy, Mansour Zand, Prasanna Aryal. Aspect Traceability through Invertible Weaving. *AOSD 2006 Early Aspects Workshop on Traceability*, Bonn, Germany, Mar. 2006.
29. Harvey Siy, Mansour Zand, Victor Winter. The Role of Aspects in Domain Engineering. *SPLC 2005 Workshop on Aspects and Product Lines*, Rennes, France, Sept. 2005.
30. Harvey Siy, Dewayne Perry. Challenges in Large Scale Software Evolution. *ICSE 1998 International Workshop on Principles of Software Evolution*, Kyoto, Japan, April 1998.
31. Thomas Ball, Yung-Min Kim, Adam Porter, Harvey Siy. If Your Version Control System Could Talk... *ICSE 1997 Workshop on Process Modeling and Empirical Studies of Software Engineering*, Boston, Massachusetts, May 1997.
32. Adam Porter, Harvey Siy, Carol Toman, Lawrence Votta. An Experiment to Assess the Cost-Benefits of Code Inspection in Large Scale Software Development: A Preliminary Report. *19th Annual Software Engineering Workshop (SEW)*, NASA Goddard Space Flight Center, Greenbelt, Maryland, Nov. 1994.

Talks and Other Presentations

33. **Harvey Siy. Potentials and Impacts of Software Product Line Engineering. UNO CS Departmental Colloquium, Oct. 2005.**
34. **Harvey Siy. Understanding The Evolution of Large Software Systems. Invited talk. Department of Computer Science, North Carolina State University, Raleigh, North Carolina, Mar. 2005.**
35. **Harvey Siy. Understanding The Evolution of Large Software Systems. Invited talk. Department of Computer Science, University of Nebraska at Omaha, Omaha, Nebraska, Feb. 2005.**
36. **Harvey Siy. Measuring the Long Term Impact of Domain Engineering on Software Quality and Development Interval. 11th International Software Metrics Symposium (METRICS'04), Chicago, Illinois, Sept. 2004.**
37. **Harvey Siy. Making the Software Factory Work: Lessons from a Decade of Experience. Invited talk. Software Engineering Institute, Carnegie Mellon University, Pittsburg, Pennsylvania, July 2001.**