Lorin Hochstein

Computer Scientist
Information Sciences Institute
University of Southern California
3811 N. Fairfax Drive, Suite 200
Arlington, VA 22203-1707
703.812.3710
lorin@isi.edu
http://www.east.isi.edu/~lorin

Education

University of Maryland, College Park
   Ph.D., Computer Science, August 2006

Boston University
   M.S., Electrical Engineering, May 2002.

McGill University (Montreal, Canada)
   B.Eng. with Great Distinction, Computer Engineering, May 1999.

Professional Experience

Computer Scientist, Information Sciences Institute, 2008 – present

Assistant Professor, University of Nebraska-Lincoln, 2006 – 2008.

Graduate Research Assistant, University of Maryland, 2002 – 2006.

Graduate Research Assistant, Boston University, 2001 – 2002.

Software Developer, Xiphos Technologies, Montreal, Canada, 1999 –2000.

Grants, Contracts and Awards

NSF
Software Application Discovery Initiative (SADI) Study
Award #OCI-0949403
September 2009 – February 2012
Total award: $280,961.

Book Chapters

Lorin Hochstein, Taiga Nakamura, Forrest Shull, Nico Zazworka, Victor R. Basili1,
Marvin V. Zelkowitz, "An Environment for Conducting Families of Software
Engineering Experiments", *Advances in Computers 74*, Elsevier, 2008.

Journal Publications

Jeffrey Carver, Roscoe Bartlett, Dustin Heaton, and Lorin Hochstein, "What Scientists
and Engineers Think They Know About Software Engineering: A Survey", *IEEE
Computing in Science & Engineering*, **in submission.**

Lorin Hochstein, Brian Schott, and Robert B. Graybill, "Computational Engineering in
the Cloud: Benefits and Challenges", *Journal of Organizational and End User
Computing*, Vol. 23, No. 4, 2011, pages 31-50.

Lorin Hochstein, Victor R. Basili, Uzi Vishkin, and John Gilbert, "A Pilot Study to
Compare Programming Effort for Two Parallel Programming Models", *Journal of
Systems and Software*, Vol. 81, 2008, pages 1920-1930.

Victor R. Basili, Jeffrey Carver, Daniela Cruzes, Lorin Hochstein, Jeffrey K.
Hollingsworth, Forrest Shull, and Marvin V. Zelkowitz, "Understanding the High
Performance Computing Community: A Software Engineer's Perspective", *IEEE
Software,* July/August 2008.

Lorin Hochstein, Victor Basili, "The ASC-Alliance projects: A Case Study of Large-Scale Parallel Scientific Code Development", *IEEE Computer*, March 2008.

Mikael Lindvall, Ioana Rus, Paolo Donzelli, Atif Memon, MarvinZelkowitz, Aysu Betin-Can, Tevfik Bultan, Chris Ackermann, Bettina Anders, Sima Asgari, Victor Basili, Jorg Fellmann, Daniel Hirschbach, Lorin Hochstein, Forrest Shull, Roseanne Tvedt, Daniel Pech, "Experimenting with Software Testbeds for Evaluating New Technologies", *Empirical Software Engineering*, Vol. 12, No. 4, August 2007, pages 417-444.

Lorin Hochstein, Taiga Nakamura, Victor R. Basili, Sima Asgari, Marvin V. Zelkowitz, Jeffrey K. Hollingsworth, Forrest Shull, Jeffrey Carver, Martin Voelp, Nico Zazworka, Philip Johnson, "Experiments to Understand HPC Time to Development", *CTWatch Quarterly*, Vol 2, No. 4A, November 2006, pages 24-32. **(Invited paper)**

Nicole Wolter, Michael O. McCracken, Allan Snavely, Lorin Hochstein, Taiga Nakamura, Victor Basili, "What's Working in HPC: Investigating HPC User Behavior and Productivity", *CTWatch Quarterly,* Vol. 2, No. 4A, November 2006, pages 9-17. **(Invited paper)**

Jeffrey Carver, Lorin Hochstein, Richard Kendall, Taiga Nakamura, Marvin Zelkowitz, Victor Basili, Douglass Post, "Observations about Software Development for High End Computing", *CTWatch Quarterly*, Vol. 2, No. 4A, November 2006, pages 33-38. **(Invited paper)**

Andrew Funk, Victor Basili, Lorin Hochstein, Jeremy Kepner, "Analysis of Parallel Software Development using the Relative Development Time Productivity Metric", *CTWatch Quarterly*, Vol. 2, No. 4A, November 2006, pages 46-51. **(Invited paper)**
Lorin Hochstein, Mikael Lindvall. "Combating Architectural Degeneration: A Survey" *Information & Software Technology*, Vol. 47, Issue 10, July 2005, pages 643-656.

Mikael Lindvall, Ioana Rus, Forrest Shull, Marvin V. Zelkowitz, Paolo Donzelli, Atif Memon, Victor R. Basili, Patricia Costa, Roseanne Tvedt, Lorin Hochstein, Sima Asgari, Chris Ackermann, Daniel Pech. "An Evolutionary Testbed for Software Technology Evaluation." *NASA Journal of Innovations in Systems and Software Engineering*. April 2005, pages 3-11.

Refereed Conference Publications

Lorin Hochstein, Yang Jiao. "The cost of the build tax in scientific software", *5th International Symposium on Empirical Software Engineering and Measurement (ESEM '11),* September 2011 (short papers track: 17 out of 43 papers accepted: 40%).

Min Zhang, Lorin Hochstein, "Fitting a workflow model to captured development data", *3rd International Symposium on Empirical Software Engineering and Measurement (ESEM '09)*, October 2009. (36 out of 95 papers accepted: 38%).

Lorin M. Hochstein, Forrest Shull, Lynn B. Reid, "The role of MPI in development time: a case study", *International Conference for High Performance Computing, Networking, Storage and Analysis (SC'08)*, November 2008. (59 out of 277 papers accepted: 21%).

Andhy Koesnandar, Sebastian Elbaum, Gregg Rothermel, Lorin Hochstein, Kathryn Stolee, Christopher Scaffidi, "Using Assertions to Help End-User Programmers Create Dependable Web Macros", *16th ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 16)*, November 2008.

Taiga Nakamura, Lorin Hochstein, Victor R. Basili. "Identifying Domain-Specific Defect Classes Using Inspections and Change History". *5th International Symposium on Empirical Software Engineering (ISESE '06)*. September 2006, pages 346-355. (31 out of 152 papers accepted: 20%)

Lorin Hochstein, Jeff Carver, Forrest Shull, Sima Asgari, Victor R. Basili, Jeffrey K. Hollingsworth, Marvin V. Zelkowitz. "Parallel Programmer Productivity: A Case Study of Novice Parallel Programmers." *International Conference for High Performance Computing, Networking and Storage (SC'05)*. November 2005. **Best student paper award.** (62 out of 260 papers accepted: 24%)

Forrest Shull, Victor R. Basili, Jeff Carver, Lorin Hochstein. "Empirical Study Design in the Area of High-Performance Computing (HPC)." *4th International Symposium on Empirical Software Engineering (ISESE '05)*. November 2005. (acceptance rate: 40%).

Lorin Hochstein, Victor R. Basili, Marvin V. Zelkowitz, Jeffrey K. Hollingsworth, Jeff Carver. "Combining Self-reported and Automatic Data to Improve Effort Measurement." *Joint 10th European Software Engineering Conference and 13th ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE'05)*. September 2005. (25 out of 169 papers accepted: 25%).

Marvin V. Zelkowitz, Victor R. Basili, Sima Asgari, Lorin Hochstein, Jeffrey K. Hollingsworth, Taiga Nakamura. "Measuring Productivity on High Performance Computers." *11th IEEE International Software Metrics Symposium*. September 2005. (39 out of 89 papers accepted: 44%).

S. Hamid Nawab, Robert P. Wotiz, Lorin M. Hochstein, Carlos J. De Luca. "Next-Generation Decomposition of Multi-channel EMG Signals." *Proceedings of the 24th Annual Conference and the Annual Fall Meeting of the Biomedical Engineering Society*. October 2002.

Lorin Hochstein, Sorin Lerner, James Clark, Jeremy Cooperstock. "Soccer-Swarm: A Graphical Framework for Soccer-Player Design." *Proceedings of the International Symposium on Robotics, Montreal, Canada*. May 2000.

Workshop Publications

Steve Crago, Kyle Dunn, Patrick Eads, Lorin Hochstein, Dong-In Kang, Mikyung Kang, Devendra Modium, Karandeep Singh, Jinwoo Suh, and John Paul Walters, "Heterogeneous Cloud Computing", *Workshop on Parallel Programming on Accelerator Clusters (PPAC2011)*, IEEE Cluster, Austin, Texas. September 2011

Jeffrey C. Carver, Lorin Hochstein, Jason Olin, "Identifying Programmer Ability Using Peer Evaluation: An Exploratory Study", *First Workshop on Human Aspects of Software Engineering (HAoSE 2009)*, OOPSLA, Orlando, Florida. September 2009.

Victor Basili, Thiago Craveiro, Daniela Cruzes, Kate Despain, Bill Dorland, Lorin Hochstein, Nico Zazworka, Marvin Zelkowitz, "Large Efficient Table-Top Teraflop Computing", *Workshop on Software Engineering for Computational Science & Engineering (SE-CSE)*, ICSE, Leipzig, Germany. May 2008.

Lorin Hochstein, Victor R. Basili, "Position Paper and Brief Announcement: An Empirical Study to Compare Two Parallel Programming Models", *ACM Symposium on Parallel Algorithms and Architectures (SPAA '06)*. July 2006.

Sima Asgari, Lorin Hochstein, Victor R. Basili, Jeff Carver, Jeffrey K. Hollingsworth, Forrest Shull. "Generating Testable Hypotheses from Tacit Knowledge for High Productivity Computing." *Workshop on Software Engineering for High Performance Computing Applications (SE-HPCS)*, ICSE, St. Louis, MO. May 2005.

Andy Funk, Lorin Hochstein, Victor R. Basili, Jeremy Kepner. "Application of a Development Time Productivity Metric to Parallel Software Development." *Workshop on Software Engineering for High Performance Computing Applications (SE-HPCS)*, ICSE, St. Louis, MO. May 2005.

Robert Numrich, Lorin Hochstein, Victor R. Basili. "A Metric Space for Productivity Measurement in Software Development." *Workshop on Software Engineering for High Performance Computing Applications (SE-HPCS)*, ICSE, St. Louis, MO. May 2005.

Sima Asgari, Victor R. Basili, Jeff Carver, Lorin Hochstein, Jeffrey K. Hollingsworth, Forrest Shull, Marvin V. Zelkowitz. "Challenges in Measuring HPCS Learner Productivity in an Age of Ubiquitous Computing." *Workshop on Software Engineering for High Performance Computing Applications (SE-HPCS)*, ICSE, Edinburgh, Scotland. May 2004.

Jeff Carver, Sima Asgari, Victor R. Basili, Lorin Hochstein, Jeffrey K. Hollingsworth, Forrest Shull, Marvin V. Zelkowitz. "Studying Code Development for High Performance Computing: The HPCS Program." *Workshop on Software Engineering for High Performance Computing Applications (SE-HPCS)*, ICSE, Edinburgh, Scotland. May 2004.

Sima Asgari, Victor R. Basili, Patricia Costa, Paolo Donzelli, Lorin Hochstein, Mikael Lindvall, Ioana Rus, Forrest Shull, Roseanne Tvedt, Marvin V. Zelkowitz. "Empirical-based Estimation of the Effect on Software Dependability of a Technique for Architecture Conformance Verification." *Workshop on Architecting Dependable Systems*, ICSE, Edinburgh, Scotland. May 2004.

Lorin Hochstein, Mikael Lindvall. "Diagnosing Architectural Degeneration." *Proceedings of the 28th NASA/IEEE Software Engineering Workshop*, Greenbelt, MD. December 2003.

Technical reports

Lorin Hochstein, Victor R. Basili, "The ASC-Alliance projects: A Case Study of Large-Scale Parallel Scientific Code Development." University of Maryland Technical Report UMIACS-TR-2006-50, October 2006.

Victor Basili, Sima Asgari, Jeff Carver, Lorin Hochstein, Jeffrey K. Hollingsworth, Forrest Shull, Marv Zelkowitz. "A Pilot Study to Evaluate Development Effort for High Performance Computing." University of Maryland Technical Report CS-TR-4588. April 2004.

Presentations, Invited Talks & Panels

Manufacturing Innovations 2011, May 2011. Panel discussion: "Digital Manufacturing: Transforming the Way America Builds".

HPC User Forum, Apr. 2010. Presented: "DARPA HPC-ISP PILOTS Final Results: Highlights for Two Pilot Studies"

The 2009 Workshop on Component-Based High Performance Computing, Nov. 2009. Panel discussion: "Open Questions in Software Engineering for High-Performance Computing Research"

CIS SIGHPC seminar at University of Delaware, Oct. 2005. Presented "Using Empirical Studies to Understand the Impact of Parallel Programming Model on Productivity."

Awards, Activities, and Membership in Professional Honor Societies

Society memberships

ACM: Association for Computing Machinery (2006 – 2009)
            Member of the Special Interest Group on Software Engineering
            (2006 – 2009)
IEEE: Institute of Electrical and Electronic Engineering, Inc. (1997 – present)
            Member of the Computer Society (1997 – present)

Member of the Society on Social Implications of Technology
(2006 – 2008)

ISERN: International Software Engineering Research Network (2007 – present)
Candidate

OIQ: Order of Engineers of Quebec (1999-2000)
Engineer in Training

Awards

- University of Nebraska – Lincoln, Computer Science & Engineering Students Choice Outstanding Teaching Award for Teaching of Lower Division Courses for 2006-2007 academic year
- Best Student Paper Award, SC'05
- Doctoral Research Scholarship, Quebec Science and Technology Research Fund (FQRNT), 2004
- Fraunhofer Graduate Research Assistantship, University of Maryland, 2002.
- Presidential University Graduate Fellowship, Boston University, 2000.
- British Association Medal for Great Distinction, McGill University, 1999.
- Outstanding Leadership Contribution Award, Electrical and Computer Engineering, McGill University, 1999.
- J.W. McConnell Award, McGill University, 1998.
- Canadian Marconi Scholarship, Marconi Canada, 1997.
- Gene H. Kruger Memorial Scholarship, Federation CJA, 1997.

Topics Taught at University of Nebraska-Lincoln

- Experimentation in Software Engineering / Software Technology Evaluation
- Human-Computer Interaction

Student Supervision

Padma Ashokkumar (M.S.)
Min Zhang (M.S.)

Professional service

Program chair

Workshop on Industrial Usage of Regional HPC Centers, April 2011.

Program committees

International Symposium on Empirical Software Engineering and Measurement (ESEM), short Papers track, September 2011.

Fourth International Workshop on Software Engineering for Computational Science and Engineering (SECSE'11), May 2011.

International Symposium on Empirical Software Engineering and Measurement (ESEM), September 2010.

Third International Workshop on Software Engineering for Computational Science and Engineering (SECSE'2010), May 2010.

International Symposium on Empirical Software Engineering and Measurement (ESEM), October 2009.

Second International Workshop on Software Engineering for Computational Science and Engineering (SE-CSE), May 2009.

International Symposium on Empirical Software Engineering and Measurement (ESEM), October 2008.

First International Workshop on Software Engineering for Computational Science & Engineering (SE-CSE), May 2008.

International Symposium on Empirical Software Engineering and Measurement (ESEM), short papers track, September 2007.

Session chair

International Symposium on Empirical Software Engineering and Measurement (ESEM), short papers, September 2011.

International Symposium on Empirical Software Engineering and Measurement (ESEM), October 2009.

Third International Workshop on Software Engineering for High Performance Computing Applications, May 2007.

Reviewer
- Information & Software Technology
- Journal of Organizational and End-User Computing
- IEEE/AIP Computing in Science & Engineering
- IEEE Software
- IEEE Transactions on Software Engineering
- The Journal of Empirical Software Engineering
- International Journal on Software Tools for Technology Transfer
- Software Quality Journal
- IET Software
- ACM SIGPLAN Workshop on Programming Languages and Analysis for Security, Ottawa, Canada, June 2006
- The Sixteenth International Conference on Software Engineering & Knowledge Engineering (SEKE'2004), Banff, Alberta, Canada, June 2004

University and Departmental Service

Committee assignments

University of Nebraska – Lincoln (2006 – 2008)
       Curriculum Committee (2006-2007, 2007-2008)
       Software Engineering Qualifying Exam Committee (2006-2007, 2007-2008)

Thesis committees

Andhy Koesnadar (MS)