

# Biographical Sketch for Paolo A.G. Sivilotti

Department of Computer Science and Engineering  
The Ohio State University  
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## Education

Ph.D. in Computer Science Dec 1997  
California Institute of Technology, Pasadena, CA  
Thesis: "A Method for the Specification, Composition, and Testing of Distributed Object Systems"  
Advisor: K. Mani Chandy

M.S. in Computer Science June 1993  
California Institute of Technology, Pasadena, CA

B.Sc.H. in Biochemistry and Computing and Information Science Apr 1991  
Queen's University, Kingston, Ontario, Canada

## Academic Appointments

Associate Professor Oct 2004 – present  
Department of Computer Science and Engineering  
The Ohio State University

Visiting Associate Professor Oct 2005 – June 2006  
Department of Computer Science and Engineering  
The University of Minnesota

Assistant Professor Sept 1998 – Sept 2004  
Department of Computer and Information Science  
The Ohio State University

Postdoctoral Scholar Jan 1998 – Sept 1998  
Computer Science Department  
California Institute of Technology

## Awards

CSE Department Award for Outstanding Teaching 2005

Best Paper Award at ICDCS '04 2004

Finalist for Best Paper Award at PDCS '02 2002

SBC Ameritech Faculty Fellow 2002-03

3<sup>rd</sup> Place ACM Graduate Student Research Competition 2001  
(International award won by advisee Scott Pike)

CIS Department Award for Outstanding Teaching 2000

Best Paper Award at CASCON '98 1998

IBM Computer Science Fellowship 1995-97

Best Paper Award at HPDC '96 1996

NSERC '67 Science and Engineering Fellowship Canadian equivalent of NSF graduate fellowship	1991-95
Prince of Wales Prize (Hon. Mention) second highest graduating GPA in Arts and Science	1991
Arts and Science Undergraduate Scholarship academic excellence and contribution to university community	1991

## Refereed Publications

(\*underlining indicates myself or my graduate/undergraduate student advisees)

Paolo A. G. Sivilotti and Matthew Lang, "Interfaces First (and Foremost) With Java", *Proceedings of the 41<sup>st</sup> Technical Symposium on Computer Science Education (SIGCSE 2010)*, to appear, Milwaukee, WI, March 10–13, 2010.

Matthew Lang and Paolo A. G. Sivilotti, "On the Impossibility of Maximal Scheduling for Strong Fairness with Interleaving", *Proceedings of the 29<sup>th</sup> International Conference on Distributed Computing Systems (ICDCS)*, Montreal, Canada, June 22–26, 2009.

Paolo A. G. Sivilotti and Stacey A. Laugel, "Scratching the Surface of Advanced Topics in Software Engineering: A Workshop Module for Middle School Students", *Proceedings of the 39<sup>th</sup> Technical Symposium on Computer Science Education (SIGCSE 2008)*, p. 291–295, Portland, OR, March 12–15, 2008.

Matthew Lang and Paolo A. G. Sivilotti, "A Distributed Maximal Scheduler for Strong Fairness", *Proceedings of the 21<sup>st</sup> International Symposium on Distributed Computing (DISC)*, p. 358–372, Lemesos, Cyprus, Sept 24–26, 2007.

Paolo A. G. Sivilotti and Scott M. Pike, "A Collection of Kinesthetic Learning Activities for a Course on Distributed Computing: ACM SIGACT News Distributed Computing Column 26" invited paper for *SIGACT News* column on Distributed Computing, 38(2), p. 56–74, June 2007.

Paolo A. G. Sivilotti and Scott M. Pike, "The Suitability of Kinesthetic Learning Activities for Teaching Distributed Algorithms", *Proceedings of the 38<sup>th</sup> Technical Symposium on Computer Science Education (SIGCSE 2007)*, p. 362–366, Covington, KY, March 7–10, 2007.

Nigamanth Sridhar, Jason O. Hallstrom, and Paolo A. G. Sivilotti, "Container-Based Component Deployment: A Case Study", *Proceedings of the 18<sup>th</sup> International Conference on Software Engineering and Knowledge Engineering (SEKE2006)*, p. 274–277, San Francisco, CA, July 5–7, 2006.

Zhijun Liu and Paolo A. G. Sivilotti, "The Impact of Laziness on the Performance of Snapshot Algorithms", *Proceedings of the 17<sup>th</sup> International Conference on Parallel and Distributed Computing and Systems (PDCS 2005)*, p. 307–313, Phoenix, AZ, Nov 14–16, 2005.

Brad T. Moore and Paolo A. G. Sivilotti, "Plausible Clocks with Bounded Inaccuracy", *Proceedings of the 19<sup>th</sup> International Symposium on Distributed Computing (DISC)*, p. 214–228, Cracow, Poland, Sept 26–29, 2005.

Gregory T. Buehrer, Bruce W. Weide, and Paolo A. G. Sivilotti, "Using Parse Tree Validation to Prevent SQL Injection Attacks", *Proceedings of the 5<sup>th</sup> International Workshop on Software Engineering and Middleware (SEM)*, held at Joint ESEC/FSE, ACM, p. 106–113, Lisbon, Portugal, Sept 5–6, 2005.

Santosh Kumar, Bruce W. Weide, Paolo A. G. Sivilotti, Nigamanth Sridhar, Jason O. Hallstrom, and Scott M. Pike, "Encapsulating Concurrency as an Approach to Unification", *Proceedings of*

*the Workshop on Specification and Verification of Component-Based Systems (SAVCBS)*, held at SIGSOFT 04/FSE-12, p. 10–17, ACM, Newport Beach, CA, Oct 31–Nov 1, 2004.

Christopher Bohn, Paolo A. G. Sivilotti, and Bruce W. Weide, "Designing the Control of a UAV Fleet with Model Checking", *Theory and Algorithms for Cooperative Systems, Series on Computers and Operations Research*, vol 4, Ed. Don Grundel, Robert Murphey, and Panos M. Pardalos, World Scientific, chapter 2, p. 27–44, Fall 2004.

Jason O. Hallstrom, Nigamanth Sridhar, Paolo A. G. Sivilotti, Anish Arora, William M. Leal: "A Container-Based Approach to Object-Oriented Product Lines", in *Journal of Object Technology*, vol. 3, no. 4, p. 161–175, April 2004.

Scott Pike and Paolo A. G. Sivilotti, "Dining Philosophers with Crash Locality 1", *Proceedings of the 24th International Conference on Distributed Computing Systems (ICDCS 2004)*, p. 22–29, IEEE, Tokyo, Japan, March 23–26, 2004.

**(Best Paper Award)**

Paolo A. G. Sivilotti and Bruce W. Weide, "Research, Teaching, and Service: The Miniconference as a Model for CS Graduate Seminar Courses", *Proceedings of the 35th SIGCSE Technical Symposium on Computer Science Education (SIGCSE 2004)*, p. 487–491, ACM, Norfolk, VA, March 3–7, 2004.

Christopher A. Bohn, Paolo A. G. Sivilotti, and Bruce W. Weide, "Using Model Checking to Find a Hidden Evader", *Proceedings of the Workshop on Agent/Swarm Programming (WASP '03)*, p. 1–7, Cleveland, OH, October 3–4, 2003.

Nuh Aydin and Paolo A. G. Sivilotti, "Remote Belief: Preserving Volition for Loosely Coupled Processes", *Proceedings of the 23<sup>rd</sup> International Conference on Distributed Computing Systems (ICDCS 2003)*, p. 434–440, Providence, RI, May 19–22, 2003.

Paolo A. G. Sivilotti and Murat Demirbas, "Introducing Middle School Girls to Fault Tolerant Computing", *Proceedings of the Technical Symposium on Computer Science Education (SIGCSE 2003)*, p. 327–331, Reno, NV, Feb 19–23, 2003.

Nigamanth Sridhar and Paolo A. G. Sivilotti, "Lazy Snapshots", *Proceedings of the 14<sup>th</sup> International Conference on Parallel and Distributed Computing and Systems (PDCS 2002)*, p. 96–101, Cambridge, MA, Nov 4–6, 2002.

**(Finalist for Best Paper Award)**

Ayesha Mascarenhas and Paolo A. G. Sivilotti. "A Paradigm for Component-Based Software Development in a Distributed Environment", *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA '02)*, p. 1378–1384, Las Vegas, NV, June 24–27, 2002.

Ramesh Jagannathan and Paolo A. G. Sivilotti, "Increasing Client-Side Confidence in Remote Component Implementations", *Proceedings of the Joint 8<sup>th</sup> European Software Engineering Conference (ESEC) and the 9<sup>th</sup> ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE-9)*, p. 52–61, Vienna, Austria, Sept 12–14, 2001.

Prakash Krishnamurthy and Paolo A. G. Sivilotti. "The Specification and Testing of Quantified Progress Properties in Distributed Systems", *Proceedings of the 23<sup>rd</sup> International Conference on Software Engineering (ICSE 2001)*, p. 201–210, Toronto, Canada, May 16–19, 2001.

Prakash Krishnamurthy and Paolo A. G. Sivilotti. "Object Protocols for Distributed Systems", Presented at the 2<sup>nd</sup> Joint Workshop on Formal Specification of Computer-Based Systems, held in conjunction with the 8<sup>th</sup> IEEE International Conference on the Engineering of Computer Based Systems (ECBS '01), Washington, DC, April 20, 2001.

Paolo A. G. Sivilotti, Scott Pike, and Nigamanth Sridhar. "A New Distributed Resource-Allocation Algorithm with Optimal Failure Locality", *Proceedings of the 12<sup>th</sup> International Conference on Parallel and Distributed Computing and Systems (PDCS 2000)*, vol. 2, p. 524–529, Las Vegas, NV, Nov 6–9, 2000.

Charles P. Giles and Paolo A. G. Sivilotti. "A Tool for Testing Liveness in Distributed Object Systems", *Proceedings of the 34<sup>th</sup> International Conference on Technology of Object-Oriented Languages and Systems (TOOLS USA 2000)*, p. 319–328, Santa Barbara, CA, July 31–Aug 3, 2000.

Paolo A. G. Sivilotti and Charles P. Giles. "The Specification of Distributed Objects: Liveness and Locality", *Proceedings of CASCON '99*, p. 150–160, Toronto, Canada, Nov 8–11, 1999.

Paolo A. G. Sivilotti. "Specifying and Testing the Progress Properties of Distributed Components", *Proceedings of the Workshop on Testing Distributed Component-Based Systems, held at the 21<sup>st</sup> International Conference on Software Engineering (ICSE '99)*, Los Angeles, CA, May 19, 1999.

Paolo A. G. Sivilotti. "A Class of Synchronization Systems that Permit the Use of Large Atomic Blocks", *Proceedings of CASCON '98*, p. 26–39, Toronto, Canada, Nov 30–Dec 3, 1998.

**(Best Paper Award)**

K. Mani Chandy, Paolo A. G. Sivilotti, and Joseph R. Kiniry. "A Cottage Industry of Software Publishing: Implications for Theories of Composition", *Proceedings of the 3<sup>rd</sup> International Workshop on Formal Methods for Parallel Programming: Theory and Applications (FMPPTA '98)*, Orlando, FL, April 3, 1998. (Also available as LNCS #1388, p. 890–899.)

K. Mani Chandy, Adam Rifkin, Paolo A. G. Sivilotti, et al. "A World-Wide Distributed System Using Java and the Internet", *Proceedings of the 5<sup>th</sup> IEEE International Symposium on High Performance Distributed Computing (HPDC '96)*, p. 11–18, Syracuse, NY, Aug 9–11, 1996.

**(Best Paper Award)**

Paolo A. G. Sivilotti and K. Mani Chandy. "Toward High Confidence Distributed Systems with Java: Reliable Thread Libraries", *Proceedings of the 11<sup>th</sup> International Conference on Systems Engineering (ICSE '96)*, p. 194–199, Las Vegas, NV, July 9–11, 1996.

Paolo A. G. Sivilotti. "A Verified Integration of Parallel Programming Paradigms in CC++", *Proceedings of the 8<sup>th</sup> IEEE International Parallel Processing Symposium (IPPS '94)*, p. 44–50, Cancun, Mexico, April 26–29, 1994.

## **Grants Funded**

NSF Cyber-Physical Systems: "CPS: Autonomous Driving in Mixed-Traffic Urban Environments". Co-PI (\$1,499,883), September 1, 2009 – August 31, 2012

Ohio Department of Transportation: "Development and Integration of ODOT Geological Hazard Management System (GHMS): Subcontract for Remediation Cost Estimation", PI (\$33,522), July 1, 2008 – June 30, 2009.

Ohio Department of Transportation: "Addendum to Remediation Cost Database and Application", Co-PI (\$103,434, plus \$6,482 supplement), Nov 1, 2005 – June 30, 2007.

Ohio Department of Transportation: "Remediation Cost Database and Application", Co-PI (\$84,879), March 1, 2004 – June 30, 2005.

SBC Ameritech, Faculty Research Grant: "Distributed Software Components: Next-Generation Telecommunication Services." PI (\$22,489), July 1, 2002 – June 30, 2003.

Lucent Technologies, Inc.: “Applied Software Engineering for Engineers and Scientists”. Co-PI (\$115,963), October 1, 2000 – September 30, 2001.

Lucent Technologies, Inc.: “Lucent Technologies Applied Software Engineering Fellowships.” Co-PI (\$27,000), October 1, 2000 – September 30, 2001.

NSF Information Technology Research: “ITR/SW: Principles of Distributed Component-Based Software”. Co-PI (\$499,809), October 1, 2000 – September 30, 2002

Ohio Board of Regents Doctoral Enhancement Initiative: “Dependent Types for High-Confidence Distributed Systems”. PI (\$88,234), September 1, 2000 – October 30, 2002.

Ohio Supercomputer Center Start-up Grant: “Shared Memory Data-flow Driven Parallelization of Dynamic Programming Algorithms”. PI (10 Research Units), June 18 1999 – June 18, 2000.

OSU Seed Grant: “Using Formal Specifications to Test Components For Distributed Systems”. PI (\$20,000), January 1, 1999 – June 30, 2000.

## Invited Talks

“*Failure Locality in Partially Synchronous Systems*”, Medtronic, Minneapolis, Minnesota, June 12, 2006.

“*Plausible Clocks with Guaranteed Precision*”, University of Minnesota Software Engineering Center (UMSEC) Colloquium, Minneapolis, Minnesota, April 27, 2005.

“*Distributed Computing: Emerging Technologies and Continuing Challenges*”, Central Ohio Chapter of the ACM, Columbus, OH, March 22, 2002.

“*Optimum Failure Locality in Distributed Systems*”, Queen’s University, Kingston, Canada, May 22, 2001.

“*Distributing Software Components: An Easy Way to Make Things Hard*”, Lucent Colloquium Series: Academic and Industry Perspectives on Component-Based Software Engineering, Columbus, OH, Oct 10, 2000.

“*Components for Distributed Systems*”, University of Cincinnati, Cincinnati, OH, Nov 23, 1999.

“*Software Engineering and Distributed Systems*”, OSU IEEE Computer Society, Ohio State University, Columbus, OH, Nov 23, 1999.

## Graduate Student Advisees

Current: 1 UG Honors

Razvan Lupusoru (UG Honors)

Completed: 4 PhD, 7 Masters, 4 UG Honors thesis

Matthew Lang	(PhD, 2009)
Scott Pike	(PhD, 2004)
Chris Bohn	(PhD, 2004)
Nigamanth Sridhar	(PhD, 2004)
Brad Moore	(Master’s, 2005)
Hilary Pike	(Master’s, 2004)
Nuh Aydin	(Master’s, 2002)
Ayesha Mascarenhas	(Master’s, 2002)
Ramesh Jagannathan	(Master’s, 2001)
Prakash Krishnamurthy	(Master’s, 2001)

Charles Giles	(Master's, 2000)
Prabhjyot Chawla	(UG Honors, 2009)
Chad Sowald	(UG Honors, 2009)
Daniel Galron	(UG Honors, 2006)
Elizabeth Rosselot	(UG Honors, 2002)

## Courses Taught

- U CSE 459.23: *Programming in Java*  
Course coordinator (2006 – current), completely redesigned course (2006)
- U CSE 421: *Software Development in Java*  
Proposed and developed new course (2007), course coordinator (2007 – current).
- U CSE 560: *System Software: Design, Development, and Documentation*  
Course coordinator (1998 – current), “keystone” course in curriculum
- U/G CSE 763: *Introduction to Distributed Systems*  
Redesigned course (1999)
- U/G CSE/ECE 794R: *Applied Enterprise Distributed Computing for Engineers and Scientists*  
Proposed and developed new course
- U/G CSE 788.Y11: *Distributed Systems: Specification, Implementation and Testing*  
Developed new course
- U/G CSE 788.P11: *Model Checking*  
Developed new course
- U/G CSE 788.P11: *Logic and Model Checking for Software Systems*  
Developed new course (2008)
- G CSE 888.P11: *Components for Distributed Systems*  
Graduate seminar course

## Outreach Activities

### *Future Engineers' Summer Camp*

A week-long summer workshop on campus for girls entering 8<sup>th</sup> grade.  
Developed and ran the computer science module (see SIGCSE 2003 paper).

### *Camp Engineer (College of Engineering Minority Programs)*

A week-long summer workshop on campus for minority middle school students  
Developed and ran the computer science module (see SIGCSE 2008 paper).

### *Saturday Seminars & Honors Days*

Invited by Honors program to present computer science mini-classes to high school students and parents as part of program's effort to recruit top undergraduates.

### *Engineers in Motion Summer Camp*

A week-long summer workshop on campus for students in 10<sup>th</sup> and 11<sup>th</sup> grades.  
Developed and ran the computer science module.

### *Women in Engineering Summer Week*

A week-long summer workshop on campus for incoming freshmen women  
Adopted materials and ran the computer science module.



CSE Department Chair Advisory committee

Sept 2006 – Sept 2007

Sept 2001 – Sept 2005

Elected by dept faculty and appointed by chair to advise chair and liaise with faculty.

Other department committees (current and past):

Graduate Admissions, Faculty Search, Undergraduate Studies.

- Initiated and coordinated departmental lunchtime graduate student seminar series.
- Initiated and coordinated prospective graduate student visit and recruitment day.

Other student services (current and past):

Faculty advisor for ACM-W student group

July 2008 – current