

## VITA

### BHARAT BHARGAVA

#### EDUCATION

- 1966 B.S. Mathematics (Honors), Punjab University  
1969 B.E. Elec. Comm. Eng. (Distinction), Indian Institute of Science, Bangalore  
1974 MS and Ph.D., Electrical and Computer Engineering, Purdue University  
1971-73 Thirty credit hours toward M.S. in Industrial Administration, Purdue University

#### PROFESSIONAL EXPERIENCE

- 1973-76 Research Associate (Regenstrief Institute), Department of Medicine, Indiana University  
1976-78 Assistant Professor, Cleveland State University  
1978-summer Visiting Faculty, Stanford University  
1978-84 Assistant Professor, University of Pittsburgh  
1984-88 Associate Professor, Purdue University  
1988- Professor, Purdue University  
1991-2011 Summer & Visiting Professor, ETH-Zurich, EPFL-Lausanne, Univ of Bern

#### HONORS AND AWARDS

1. Best Research Paper Award, IEEE Data Engineering Conference, 1988.
2. Fellow of Institute of Electrical and Electronics Engineers (IEEE).
3. Meritorious Service Certificate from IEEE Computer Society.
4. Fellow of Institution of Electronics and Telecommunications Engineers (IETE).
5. Outstanding Instructor Award (Purdue ACM Student Chapter), 1996 and 1998
6. Golden Core Member of IEEE Computer Society.
7. Technical Achievement Award from IEEE Computer Society, 1999.
8. Inducted in The Book of Great Teachers at Purdue, 2003.
9. Seed for Success award by Provost at Purdue, 2005.
10. Co-best paper award in Secure Knowledge Management Conference, Buffalo, 2005
11. Graduate mentoring award (2009) and Engagement award (2011) by College of Science and Computer Science department
12. Best paper award in International Conference on Advances in Computing and Communication – (ICACC), 2011, India

**PATENT:** Method and System for Providing Cellular Assisted Secure Communication of a Plurality of Ad hoc Devices (With Motorola), US7817986 B2

[http://www.cs.purdue.edu/news/10-31-11\\_Bhargava.html](http://www.cs.purdue.edu/news/10-31-11_Bhargava.html)

**Graduated Students** (Recent Selected): Ahsan Habib ( Siemens), Yuhui Zhang ( Microsoft), Yi Lu ( Microsoft), Mohamed Hefeeda ( Simon Fraser), Weichao Wang ( UNCC), Yu Zhang ( Google), Amit Sirsat ( Apple), Nwokedi idika ( MIT Lincoln Lab)

#### **Student Awards:**

Evaggelia Pitoura: Best paper award in IEEE Data Engineering Conference, Melli

Annamalai: Graduate Research Fellowship from NASA, Todd Burgette: Intel Outstanding

Undergraduate Work in Application Research, Pelin Angin, Best TA award, Purdue.

#### **Related Publications:**

1. Mehdi Azarmi, Bharat Bhargava, Pelin Angin, Rohit Ranchal, Norman Ahmed, Asher Sinclair, Mark Linderman, Lotfi Ben Othman An End-to-End Security Auditing Approach for Service Oriented Architectures, IEEE Symposium on Reliable Distributed Systems, Irvine, Ca, Oct, 2012
2. B. Bhargava, N. Singh, A. Sinclair. "Privacy in Cloud Computing Through Identity Management," In Proceedings of International Conference on Advances in Computing and Communication ICACC-11, April, 2011, India ( Best paper award)
3. P. Angin, B. Bhargava. "Real-time Mobile-Cloud Computing for Context-Aware Blind Navigation," International Journal of Next Generation Computing, Vol 2, No 2, 2011.
4. N. Idika and B. Bhargava, "Extending Attack Graph-based Security Metrics and Aggregating Their Application", IEEE Transactions on Dependable and Secure Computing, Vol.9, No. 1, 2012
5. W. Wang, B. Bhargava, "Defending against Collaborative Packet Drop Attacks on MANET", in Proceedings of IEEE Symposium on Reliable Distributed System (SRDS) workshop on Dependable Network Computing and Mobile Systems, Sept., 2009, Buffalo

#### **Other Publications**

6. K. Kumar, J. Liu, Y Lu, B. Bhargava, A Survey of Computation Offloading for Mobile Systems, ACM Springer Mobile Networks and Applications (*MONET*) Journal, special issue on Mobile computing, April, 2012
7. P. Angin, B. Bhargava, R. Ranchal, N. Singh, L. Lilien, L. Othmane, M. Linderman. "An Entity-Centric Approach for Privacy and Identity Management in Cloud Computing," in Proceedings of 29th IEEE Symposium on Reliable Distributed System (SRDS), Nov 2010
8. S. Dhurandher, I. Woungang, A. Gupta, B. Bhargava. E2SIW: An Energy Efficient Scheme Immune to Wormhole Attacks in Wireless Ad Hoc Networks. To appear in the 26th IEEE International Conference on Advanced Information Networking and Applications (AINA-2012), Fukuoka, Japan, March 26-29, 2012.
9. R. Fernando, B. Bhargava, Private Anonymous Messaging, 5th IEEE International Workshop on Dependable Network Computing and Mobile Systems (DNCMS 2012) in conjunction with IEEE Symposium on Reliable Distributed Systems, Irvine Ca., Oct., 2012
10. W. Wang, B. Bhargava, Y. Lu, and X. Wu. "Defending against Wormhole Attacks in Mobile Ad Hoc Networks", *Wiley Journal on Wireless Communications and Mobile Computing*, pp. 483-503, 2006.

#### **Synergistic Activities**

PI has created the course Cloud System for Blind and Hearing impaired in CS department and through this, involved 30 graduate students in various experiments and research activity. He supported one African American and one American Indian student and three women with financial support. He prepared tutorial notes that are available on his web site and presented the research in various universities.

**Collaborators:** Leszek Lilien at Western Michigan University, Weichao Wang at UNCC, Aidong Zhang at Buffalo, John Riedl at Minnesota, Saraju Mohanty at Univ of North Texas, Mark Linderman at Air Force lab, Myong Kang at Naval research Lab, Lotfi Ben Othmane at TU Netherland, Issac Woungang, Ryrsen Univ, Canada, Torsten Braun, Univ of Bern.

# Ananth Grama

Professor and University Faculty Scholar  
Department of Computer Science  
Purdue University  
West Lafayette, IN 47907  
(765) 494-6964; ayg@cs.purdue.edu

## Education

Ph.D. in Computer Sciences, University of Minnesota, Minneapolis, May 1996.

## Professional Experience

- Professor, Department of Computer Science, Purdue University, Aug. 2006 – present.
- Associate Professor, Department of Computer Science, Purdue University, Aug. 2001 – Aug. 2006.
- Assistant Professor, Department of Computer Science, Purdue University, Aug. 1996 – Aug. 2001.

## Awards and Honors

- Purdue University Scholar (2002-07).
- Purdue University School of Science Outstanding Teacher Award (2002).
- National Science Foundation CAREER Award, 1998–2002.
- Purdue University School of Science Outstanding Assistant Professor, 1999.
- Nominated for the Best Student Paper Award at the Supercomputing Conference, 1996.
- Doctoral Dissertation Fellowship, Graduate School of the University of Minnesota, 1995-96.
- Doctoral Dissertation Award, Department of Computer Science, University of Minnesota, in recognition of the research work published in the paper “Scalable Load Balancing Techniques for Parallel Computers”.
- Vice-Chancellors Gold Medal for best overall grades among all engineering majors of the university, University of Roorkee (now Indian Institute of Technology, IIT), Roorkee, India, June 1989.
- Vice-Chancellors Gold Medal for best engineering design project titled “Load Balancing in LANs”, University of Roorkee, (now Indian Institute of Technology, IIT) Roorkee, India, June 1989.

## Five Most-Related Publications

1. Bogdan Carbutar, Murali Krishna Ramanathan, Mehmet Koyuturk, Suresh Jagannathan, Ananth Grama. Optimal Tag Coverage and Tag Report Elimination, in RFID Systems: Research Trends and Challenges, Wiley Series in Wireless Communications and Mobile Computing. Editors M. Bolic, D. Simplot-Ryl, I. Stojmenovic, 2010.
2. Bogdan Carbutar, Murali Krishna Ramanathan, Mehmet Koyuturk, Suresh Jagannathan, Ananth Grama, Efficient tag detection in RFID systems. *Journal of Parallel Distributed Computing*, 69(2): 180-196, 2009.
3. Asad Awan, Suresh Jagannathan, and Ananth Grama, Macroprogramming Heterogeneous Sensor Networks Using COSMOS, EUROSYS/ ACM SIGOPS Operating Systems Review Volume 41 Issue 3, June 2007.
4. Asad Awan, Ahmed Sameh, Suresh Jagannathan, and Ananth Grama, Building Verifiable Sensing Applications Through Temporal Logic Specification, Proceedings of 6th International Conference on Computational Science (ICCS) 2007, Beijing, China.
5. Bogdan Carbutar, Ananth Grama, Jan Vitek, and Octavian Carbutar, Coverage Problems and Redundancy Elimination in Sensor Networks, *ACM Transactions on Sensor Networks*, Volume 2, Issue 1, February 2006.

## Five Other Significant Publications

1. Introduction to Parallel Computing, Ananth Grama, Anshul Gupta, George Karypis, and Vipin Kumar, Addison Wesley, 2003 (ISBN: 0-201-64865-2)  
<http://www.aw.com/catalog/academic/product/1,4096,0201648652,00.html>
2. Ronaldo Ferreira, Murali Krishna Ramanathan, Suresh Jagannathan, and Ananth Grama, Randomized Protocols for Duplicate Elimination in Peer-to-Peer Storage Systems, *IEEE Trans. Parallel and Distributed Systems*, Volume 18, Number 5, pages 686-696, May 2007.
3. Muralikrishna Ramanathan, Ronaldo Ferreira, Suresh Jagannathan, Ananth Grama, and Wojciech Szpankowski, Randomized Leader Election, *Distributed Computing* Volume 19, Number 5-6, pages 403-418, April 2007.
4. Jie Chi, Mehmet Koyuturk, and Ananth Grama, Conquest: A Coarse-Grained Algorithm for Constructing Summaries of Distributed Discrete Datasets, *Algorithmica*, 45(3), 377-401, 2006.
5. Mehmet Koyuturk, Ananth Grama, and Naren Ramakrishnan, Non-orthogonal Decomposition of Binary Matrices for Bounded-Error Data Compression and Analysis, *ACM Transactions on Mathematical Software*, 32(1), 2006.

## Recent Professional Services

- Editorial Boards: Parallel Computing, IEEE Trans. Parallel and Dist. Comput.
- Education Chair, IEEE Technical Committee on Parallel Processing.
- Algorithms and Applications Chair, International Conf. Parallel Processing, 2004.
- Program Committee Member, PPOPP 2005, SIAM DM 2005, HIPC 2005, IPDPS 2005, PDCS 2005, IEEE ICDM 2005, and many others.
- Review panels for NSF, NIH, NASA.

## List of Recent Collaborators

S. Subramaniam, UC-San Diego, P. Vashishtha, R. Kalia, A. Nakano (USC), W. Goddard, M. Otriz (CalTech), G. Karypis, V. Kumar, University of Minnesota, A. Gupta, IBM TJ Watson Research Center, V. Sarin, Texas A & M University, N. Ramakrishnan, Virginia Tech, C. Hoffmann, Z. Li, E. Sacks, A. Sameh, W. Szpankowski, Purdue.

## Graduate Advisor

Prof. Vipin Kumar, University of Minnesota.

## Current and Recent Advisees

Post-Doctoral Researchers: Dr. Sagar Pandit, Dr. Mehmet Koyuturk (both current), Dr. Eric Polizzi (now an Asst. Professor at UMass-Amherst)

Ph.D. Students: Ronaldo Ferreira, Ramanathan Muralikrishna, Asad Awan, Metin Aktulga, Jayesh Pandey.

## **Suresh Jagannathan**

Department of Computer Sciences  
Purdue University  
West Lafayette, IN 47907  
(765) 494-0971; suresh@cs.purdue.edu

**December 6, 2011**

### **Professional Preparation**

SUNY Stony Brook, New York, BS 1982

Massachusetts Institute of Technology, Cambridge, MA, M.S. Computer Science, 1985

Massachusetts Institute of Technology, Cambridge, MA, Ph.D. Computer Science, 1989

### **Appointments**

2007- Professor, Computer Sciences, Purdue University, West Lafayette, Indiana

2009-2010 Visiting Scholar, Computing Laboratory, Cambridge University, Cambridge, United Kingdom

2002-2007 Associate Professor, Computer Sciences, Purdue University, West Lafayette, Indiana

2001-2002 Senior Director, Storage Networks, Princeton, NJ

1995-2001 Senior Research Scientist, NEC Research Institute, Princeton, NJ

1990-1995 Research Scientist, NEC Research Institute, Princeton, NJ

1989-1990 Research Faculty, Yale University, New Haven, CT

### **Awards and Honors**

1. Purdue University Faculty Scholar (2007-2012)

### **Five Publications Related to Proposed Work**

1. Botincan, M., Dodds, M., Jagannathan, S., Resource Sensitive Synchronization Inference by Abduction, ACM Symposium on Principles of Programming Languages, January 2012.

2. Ziarek, L., Tiwary, S., Jagannathan, S., Isolating Determinism in Multithreaded Programs, International Conference on Runtime Verification, Sept. 2011.

3. Ziarek, L., Sivaramakrishna, K., Jagannathan, S., Composable Asynchronous Events, ACM Conference on Programming Language Design and Implementation, pp. 628-639, June 2011.

4. Sevcik, J., Vafedias, V., Zappa-Nardelli, F., Jagannathan, S., Sewell, P., Relaxed Memory Concurrency and Verified Compilation, ACM Symposium on Principles of Programming Languages, pp. 43-54, January 2011.

5. Dodds, M., Jagannathan, S., Parkinson, M., Modular Reasoning for Deterministic Parallelism, ACM Symposium on Principles of Programming Languages, pp. 258-270, January 2011.

### **Five Other Publications**

1. Navabi, A., Zhang, X., Jagannathan, S., Dependence Analysis for Safe Futures, *Science of Computer Programming*, (to appear)
2. Weeratunge, D., Zhang, X., Jagannathan, S., Accentuating the Positive: Atomicity Inference and Enforcement Using Correct Executions, *ACM Conference on Object-Oriented Programming, Systems, and Languages*, pages 19-34, October 2011.
3. Ziarek, L., Jagannathan, S., Lightweight Checkpointing for Concurrent ML, *Journal of Functional Programming*, 20(2), pp. 137-173, March 2010.
4. Ziarek, L., Sivaramakrishna, K., Jagannathan, S., Partial Memoization of Concurrency and Computation, *ACM International Conference on Functional Programming (ICFP)*, pp. 161-172, 2009.
5. Hoffman, K., Eugster, P., Jagannathan, S., Semantics-Aware Trace Analysis, *ACM Conference on Programming Language Design and Implementation*, pp. 453-464, 2009.

### Synergistic Activities

1. **Software:** *MLton: A Whole-Program Optimizing Compiler for Standard ML*, available from [www.mlton.org](http://www.mlton.org).
2. **Editorial Boards:** *International Journal of Parallel Programming*; *Advances in Software Engineering*; *Computer Languages*; *Systems & Structures*.
3. **Program committee membership (last 5 years):** *European Symposium on Programming*, 2012, 2013; *Workshop on Deterministic Parallelism*, 2012; *Workshop on Systems for Future Multicore Architectures*, 2012; *ACM Symposium on Principles of Programming Languages*, 2012; *ACM Workshop on Program Analysis for Software Tools and Engineering*, 2011; *ACM International Conference on Functional Programming*, 2006, 2011; *ACM Conference on Programming Language Design and Implementation*, 2011; *IEEE Symposium on Reliable Distributed Systems*, 2011; *ACM Conference on Object-Oriented Programming, Systems, and Languages*, 2009; *Static Analysis Symposium*, 2009, 2012; *IEEE International Conference on Parallel and Distributed Systems*, 2008; *ACM Workshop on Declarative Aspects of Multicore Programming*, 2007, 2008; *Asian Symposium on Programming Languages*, 2007; *ACM Workshop on Transactions*, 2006, 2007, 2011;
4. **Journal refereeing:** *Journal of the ACM*, *ACM Transactions on Programming Languages and Systems*, *Science of Computer Programming*

**Collaborators/co-editors** (last four years): **Peter Sewell**, **Jaroslav Sevcik**, **Mike Dodds**, **Matko Botnican**, Cambridge; **Matthew Parkinson**, Microsoft Research, Cambridge; **Francesco Zappa Nardelli**, INRIA, Paris; **Jan Vitek**, **Ananth Grama**, **Xiang Zhang**, Purdue University; **Koushik Sen**, UC Berkeley; **Adam Welc**, Adobe.

**Graduate Advisors:** Rishiyur Nikhil (MIT); David Gelernter (Yale)

**Thesis Advisor and Postgraduate-Scholar Sponsor:** Lukasz Ziarek, Purdue University, PhD 2011; Armand Navabi, Purdue University, PhD 2011; Nicholas Kidd, Purdue University, Post-Doc 9/09-2/11; Muralikrishna Ramanathan, Purdue University, PhD 2008 (co-advisor with Ananth Grama); Deepak Rao Bobbarjung, Purdue University, PhD 2007; Adam Welc, Purdue University, PhD 2006 (co-advisor with Antony Hosking); Ronaldo Ferreria, PhD 2006 (co-advisor with Ananth Grama); TS Mohan, Indian Institute of Science, Phd 1994; Pradeep Varma, Yale University, IBM Research, PhD 1994; James Philbin, Yale University, PhD 1993

## Yung-Hsiang Lu

Associate Professor, Electrical and Computer Engineering and (Courtesy) Computer Science  
Purdue University, West Lafayette, Indiana 47907-2035

Address: EE Building, 465 Northwestern Avenue, West Lafayette, Indiana 47907-2035

Telephone: 765-494-2668 Email: yunglu@purdue.edu

URL: <https://engineering.purdue.edu/~yunglu/>

### Education:

Stanford University	Electrical Engineering	Ph.D.	2002
Stanford University	Electrical Engineering	M.S.	1997
National Taiwan University	Electrical Engineering	B.S.	1992

### Appointments:

2011, Visiting Associate Professor, Computer Science, National University of Singapore.

2008 - Present, Associate Professor, Electrical and Computer Engineering, Purdue University.

2002 - 2008, Assistant Professor, Electrical and Computer Engineering, Purdue University.

### Awards:

2008 ACM, Senior Member. IEEE, Senior Member.

2008 Purdue *Class of 1922 Helping Students Learn Award* for the innovative work, "Development and Deployment of the Directed Problem Solving (DPS) Course Format." Recipients: Cordelia M. Brown, Yung-Hsiang Lu, and David G. Meyer.

2005 Purdue ECE Chicago Alumni Award for Early Career Faculty.

2004 National Science Foundation, Career Award "A Unified Approach for Energy Management by Operating Systems".

### Significant Publications (among 101 papers and 3 book chapters):

1. Yung-Hsiang Lu, Qinru Qiu, Ali R. Butt, and Kirk W. Cameron, "End-to-End Energy Management", IEEE Computer, Vol. 44, No. 11, November 2011, pages 75-77.
2. Karthik Kumar and Yung-Hsiang Lu, "Energy Conservation for Image Retrieval on Mobile Systems", Transactions on Embedded Computing Systems, accepted.
3. Karthik Kumar, Jibang Liu, Yung-Hsiang Lu, and Bharat Bhargava, "A Survey of Computation Offloading for Mobile Systems", Mobile Networks and Applications, April 2012.
4. Jing Feng, Yung-Hsiang Lu, Byunghoo Jung, Dimitrios Peroulis, and Y. Charlie Hu, "Energy-Efficient Data Dissemination Using Beamforming in Wireless Sensor Networks", ACM Transactions on Sensor Networks, accepted.
5. Karthik Kumar and Yung-Hsiang Lu, "Cloud Computing for Mobile Users: Can Offloading Computation Save Energy?", IEEE Computer, Vol. 43, No. 4, April 2010, pages 51-56.

### Additional Publications:

1. Yamini Nimmagadda, Karthik Kumar and Yung-Hsiang Lu, "Adaptation of Multimedia Presentations for Different Display Sizes in the Presence of Preferences and Temporal Constraints", IEEE Transactions on Multimedia, Vol. 12, No. 7, November 2010, pages 650-664.
2. Nathaniel Pettis and Yung-Hsiang Lu, "A Homogeneous Architecture for Power Policy Integration in Operating Systems", IEEE Transactions on Computers, Vol. 58, No. 7, July 2009, pages 945-955.
3. Wei Zhang, Yung-Hsiang Lu, and Jianghai Hu, "Optimal Solutions to a Class of Power Management Problems in Mobile Robots", Automatica, Vol. 45, No. 4, April 2009, pages 989-996.
4. Changjiu Xian, Yung-Hsiang Lu, and Zhiyuan Li, "Dynamic Voltage Scaling for Multitasking Real-Time Systems with Uncertain Execution Time", IEEE Transactions on Computer-Aided Design of Integrated Circuits, Vol. 27, No. 8, August 2008, pages 1467-1478.

5. Douglas Herbert, Vinaitheerthan Sundaram, Yung-Hsiang Lu, Saurabh Bagchi , and Zhiyuan Li, "Adaptive Correctness Monitoring for Wireless Sensor Networks Using Hierarchical Distributed Run-Time Invariant Checking", ACM Transactions on Autonomous and Adaptive Systems, Vol. 2, No. 3, September 2007, Article No. 8, 23 pages.

#### **Professional Activities:**

- Chair, Green Multimedia Interest Group, IEEE Multimedia Communication Technical Committee. Co-Chair, Low Power Technical Committee of ACM SIGDA. Guest Editor, Special Issue on Adaptive Power Management for Energy and Temperature Aware Computing Systems, ACM Transactions on Design Automation of Electronic Systems. Associate Editor, ACM Transactions on Design Automation of Electronic Systems. Associate Editor, ACM Transactions on Embedded Computing Systems.
- Technical Program Committees: International Conference on Smart Grids and Green IT Systems 2012. International Symposium on Low Power Electronics and Design 2012. ACM Symposium on Applied Computing 2011. Student Forum ASP-DAC 2011. HotPower 2010. International Conference on Hardware-Software Codesign and System Synthesis 2010. International Symposium on Low Power Electronics and Design 2006-2010. IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing 2008. GLSVLSI 2008. International Conference on VLSI-SoC 2007. IFIP International Conference on Embedded And Ubiquitous Computing 2006. International Conference on Multimedia and Ubiquitous Engineering 2007. Workshop on Software Support on Portable Storage 2005. Design Automation Conference Ph.D. Forum 2004. International Conference on Embedded and Ubiquitous Computing 2004. Workshop on Power-Aware Real-Time Computing 2004. Workshop of Power-Aware Computing Systems 2003.

#### **Project Sponsors:**

National Science Foundation Career CNS-0347466, IIS-0329061. CCF-0541267, CNS-0509394, CNS-0716271, CNS-0751101, CNS-0722212, CNS-0721873, CNS-0855098, CNS 0958487, Intel. HP.

#### **Collaborators and Affiliations:**

Collaborators: Lila Albin, Jan Allebach, Saurabh Bagchi, Mireille Boutin, Cordelia Brown, Mary Comer, Edward J. Delp, Y. Charlie Hu, Mark C. Johnson, Byunghoo Jung, Cheng-Kok Koh, James Krogmeier, C.S. George Lee, Zhiyuan Li, David Love, Samuel Midkiff, Vijay Pai, Dimitrios Peroulis, TN Vijaykumar, Qinru Qiu, Ali R. Butt, and Kirk W. Cameron.

Graduate and Postdoctoral Adviser: Giovanni De Micheli, Stanford University (now at EPFL Switzerland). Graduate Associate Adviser: Dawson Engler, Stanford University.

**Supervised Graduate Students:** Jing (Jackie) Feng (Ph.D. 2012), Karthik Kumar (Ph.D. 2011), Yamini Nimmagadda (Ph.D. 2010), Changjiu Xian (Ph.D. 2008), Nathaniel Eddie Pettis (Ph.D. 2008) Yongguo Mei (Ph.D. 2007) Le Cai (Ph.D. 2006), Douglas Herbert (MS. 2007), Jeffrey Brateman (MS. 2006).

**Supervised Undergraduate Students:** Daniel Fuesz, Hetong Li, Fan Zan, William Granger, Jared T Kuhn, Liqun Tracy Yang, Mike Wolfer, Seraj Dosenbach, Penelope Daphne Tsatsoulis, David Thomas, David Canada, Karl Herb, Josh Speciale, John Kimani, Shantanu Gautam, Gabi Sarkis, Evan Zelkowitz, Jeff Josiah, Ankur Jain, and Harikrishna Patel.

**Current Students:** (doctoral) Xiao Wang and Jianxin Sun, (MS) Udayan Umapathi, (undergraduate) Armando Ramirez and Wenyi Chen.



**Xiangyu Zhang**  
Purdue University  
Department of Computer Science

## RESEARCH INTERESTS

Program analyses with the emphasis on scalable and advanced techniques and tools on software reliability, program tracing and profiling, data validation, security, and parallelizing compilers.

## EDUCATION

**Ph.D.** in Computer Science, University of Arizona, September 2006.

**M.S.** in Computer Science, University of Science and Technology of China, July 2000.

**B.S.** in Computer Science, University of Science and Technology of China, July 1998.

## PROFESSIONAL EXPERIENCE

**Assitant Professor**, Dept. of Computer Science, Purdue University, 2006-present.

## AWARDS AND HONORS

- **2009 NSF Career Award**, “Scalable Dynamic Program Reasoning”.
- **2006 ACM SIGPLAN Doctoral Dissertation Award**, “Fault Location via Precise Dynamic Slicing,” 2006.
- **ACM SIGSOFT Distinguished Paper Award**, “Precise Dynamic Slicing Algorithms,” *International Conference on Software Engineering*, May 2003, Portland, Oregon.

## SELECTED PUBLICATIONS

- FSE W. N. Sumner and X. Zhang, “Memory Indexing: Canonicalizing Addresses Across Executions”, *the 18th ACM SIGSOFT Symposium on Foundations of Software*, New Mexico, 2010.
- ISSTA D. Weeratunge, X. Zhang, W. N. Sumner, and S. Jagannathan, “Analyzing Concurrency Bugs using Dual Slicing”, *International Symposium on Software Testing and Analysis*, Trento, Italy, 2010.
- ICSE N. Sumner, Y. Zheng, D. Weeratunge, and X. Zhang, “Precise Calling Context Encoding”, *the International Conference of Software Engineering*, Cape Town, South Africa, 2010.
- ASPLOS D. Weeratunge, X. Zhang and S. Jagannathan, “Analyzing Multicore Dumps to Facilitate Concurrency Bug Reproduction”, *the 15th International Conference on Architectural Support for Programming Languages and Operating Systems*, to appear, 2010.
- CGO Xiangyu Zhang, Armand Navabi, and Suresh Jagannathan, “Alchemist: A Transparent Dependence Distance Profiling Infrastructure”, *the 2009 International Symposium on Code Generation and Optimization*, pages 47-58, March 2009.
- PPOPP A. Navabi, X. Zhang, and Suresh Jagannathan, “Quasi-Static Scheduling for Safe Futures”, In *the 13th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, pages 23-32, 2008.
- PLDI B. Xin, N. Sumner, and X. Zhang, “Efficient Program Execution Indexing,” *ACM SIGPLAN Conference on Programming Language Design and Implementation*, Tucson, AZ June 2008.
- PLDI X. Zhang, S. Tallam, N. Gupta, and R. Gupta, “Towards Locating Execution Omission Errors,” *ACM SIGPLAN Conference on Programming Language Design and Implementation*, San Diego, June 2007.
- PLDI X. Zhang, N. Gupta, and R. Gupta, “Pruning Dynamic Slices with Confidence,” *ACM SIGPLAN Conference on Programming Language Design and Implementation*, pages 169-180, Ottawa, Canda, June 2006.

TACO/ X. Zhang and R. Gupta, "Whole Execution Traces and their Applications," *ACM Transactions on Architecture and Code Optimization*, 2(3):301-334, Sept. 2005 (also in *Proc. of MICRO'2004*).

## TEACHING EXPERIENCE

Spring and Fall 10, Instructor	<b>Purdue University</b> , West Lafayette, IN CS 510, <i>Software Engineering</i> .
Fall 09, Instructor	<b>Purdue University</b> , West Lafayette, IN CS 590, <i>Advanced Software Testing and Debugging</i> .
Spring 09, Instructor	<b>Purdue University</b> , West Lafayette, IN CS 352, <i>Compilers: Principles and Practice</i> .
Spring and Fall 08, Instructor	<b>Purdue University</b> , West Lafayette, IN CS 510, <i>Software Engineering</i> .
Fall 07, Instructor	<b>Purdue University</b> , West Lafayette, IN CS 590Z, <i>Software Defect Analysis</i> .
Spring 07, Instructor	<b>Purdue University</b> , West Lafayette, IN CS 590F, <i>Software Reliability</i> .

## SYNERGISTIC ACTIVITIES

- (PC member): *Object-Oriented Programming, Systems, Languages & Applications (OOPSLA)*, 2012.
- (PC member): *International Symposium on Software Testing and Analysis (ISSTA)*, 2012.
- (Workshop co-chair): *ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI)*, 2012.
- (ERC member): *ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI)*, 2012.
- (PC Chair): *Workshop on Dynamic Program Analysis (WODA)*, 2011;

## RECENT COLLABORATORS

Bharat Bhargava (Purdue University), Neelam Gupta (Univ. of Arizona), Rajiv Gupta (Univ. of Arizona), Jiawei Han (UIUC), Suresh Jagannathan (Purdue University), Chao Liu (Yahoo), Robert O'Callahan (Novell, previously IBM T.J.Watson), Sunil Prabahakar (Purdue University), Dongyan Xu (Purdue University), Jun Yang (Univ. of Pittsburgh), Xiang Zhang (Purdue University), and Youtao Zhang (Univ. of Pittsburgh).