Witawas (Witty) Srisa-an

School of Computing
University of Nebraska-Lincoln
267 Avery Hall
Lincoln, NE 68588-0115

Office: (402) 472-5004
Fax: (402) 472-7767
witawas@unl.edu
http://www.cse.unl.edu/~witty

1 Areas of Interest

My research interests are in the areas of programming languages, systems, software engineering, and cybersecurity. My research focus lies at the intersection between programming languages, language runtimes, and operating systems. Specifically, my work attempts to improve the overall performance, dependability, and security of modern software systems through optimizations of runtime systems such as garbage collectors and dynamic compilers and collaborations between operating systems and language runtime systems. As such, we employ various techniques ranging from static program analyses through low-overhead runtime analyses to generate necessary information to improve dependability and security of today's software. My recent research efforts also leverage the observability and controllability of virtual machines to assist with testing and debugging concurrent systems.

I also make our research tools and artifacts publicly available for other researchers and practitioners to use. Our latest tool is JITANA, a hybrid program analysis framework for Android. Since its release in the summer of 2017, researchers and practitioners have used it to effectively and efficiently tackle challenging dependability and security problems including detecting colluding malware, performing real-time security vetting, determining semantic equivalency between original and obfuscated programs, detecting faults due to Android platform incompatibility, and generating program structure information that can be used by machine-learning-based malware detectors.

I have been members of **IEEE Computer Society** and **ACM** since 1999.

2 Education

B.S.	Science and Technology in Context, Illinois Institute of Technology (1996).
M.S.	Computer Science, Illinois Institute of Technology (1998).
Ph.D.	Computer Science, Illinois Institute of Technology (2002).

3 Experience

08/2021 —	Professor, School of Computing, University of Nebraska, Lincoln, NE.
8/2023 —	Director, School of Computing, University of Nebraska, Lincoln, NE.
10/2021 - 7/2023	Senior Associate Director, School of Computing, University of Nebraska, Lincoln, NE.
05/2019 - 09/2019	CSE Interim Department Chair, Computer Science and Engineering, University of Nebraska, Lincoln, NE.
07/2018 - 09/2021	CSE Vice-chair, Computer Science and Engineering, University of Nebraska, Lincoln, NE.
08/2008 - 08/2021	Associate Professor, Computer Science and Engineering, University of Nebraska, Lincoln, NE.

08/2002 - 07/2008	Assistant Professor, Computer Science and Engineering, University of Nebraska, Lincoln, NE.
08/2001 - 07/2002	Researcher, Electrical and Computer Engineering, Iowa State University, Ames, IA.
08/1999 - 12/2001	Instructor, Computer Science, Illinois Institute of Technology, Chicago, IL.

4 Awards, Fellowships, and Recognition

08/2023	"Academic Leadership Program Fellow," Big Ten Academic Alliance (BTAA).
5/2022	"Faculty Fellows for Student Success," Office of Executive Vice Chancellor, University of Nebraska-Lincoln.
12/2021	"FLAIR (Faculty Leadership in Academia: From Inspiration to Reality) Fellow," Office of Executive Vice Chancellor, University of Nebraska-Lincoln.
11/2020	"Research Excellence Recognition," College of Engineering, University of Nebraska-Lincoln.
05/2020	"Department Recognition Award," Computer Science and Engineering, University of Nebraska-Lincoln.
04/2020	"Faculty Service Award," College of Engineering, University of Nebraska-Lincoln.
05/2018	"Holling Family Distinguished Senior Faculty Teaching Award," College of Engineering, University of Nebraska-Lincoln.
05/2008	"Students' Choice Outstanding Teaching for Upper-Undergraduate Division Courses," Computer Science and Engineering, University of Nebraska-Lincoln.
05/2006	"Henry Y. Kleinkauf Family Distinguished New Faculty Teaching Award," College of Engineering, University of Nebraska-Lincoln.
05/2005	"Students' Choice Outstanding Teaching for Upper-Undergraduate Division Courses," Computer Science and Engineering, University of Nebraska-Lincoln.
05/2004	"Students' Choice Outstanding Teaching for Upper-Undergraduate Division Courses," Computer Science and Engineering, University of Nebraska-Lincoln.
05/2003	"Students' Choice Outstanding Teaching for Upper-Undergraduate Division Courses," Computer Science and Engineering, University of Nebraska-Lincoln.
08/1999 - 05/2000	Graduate Dean's Scholarship, Illinois Institute of Technology.

5 Grants

"Retaining Computing Students through Holistic Redesign of the First-Year Courses", Center for Transformative Teaching, University of Nebraska-Lincoln, 6/1/2022 - 5/31/2025, $60,000. PI: W. Srisa-an.

"CNS Core: Small: Efficient Interoperability Testing of Heterogeneous Network Protocol Implementations," National Science Foundation, grant number CNS-2135539, 10/1/2021 - 9/30/2024, $499,998. Lead-PI: Lisong Xu (Co-PI: W. Srisa-an).

"Cybersecurity Manufacturing Innovation Institute," Department of Energy (subcontract from U of Texas at San An-

tonio), grant number 1000003900, 12/1/2020 - 2/29/2024, $695,000 (including $300,000 cost-sharing from UNL). Lead-PI: W. Srisa-an (Co-PIs: Y. Qian and M. Riley).

"NSA/CMU Science of Security Lablet Scalability and Usability," NSA (subcontract from Carnegie Mellon University), 7/1/2013 - 8/31/2017, $185,000. Lead-PI: W. Srisa-an (Co-PI: M. Dwyer).

"Vetting for Malices in Android Platforms," DARPA (subcontract from Iowa State University), 12/12/2013 - 03/31/2016, $630,000. Lead-PI: W. Srisa-an (Co-PI: G. Rothermel).

"Dependable Military Software Systems," Air-Force Office of Scientific Research, grant number FA9550-09-1-0129, 9/1/2010 - 8/31/2014, $4,200,000. (my portion is $500,000). Lead-PI: G. Rothermel (Co-PIs: M. Cohen, M. Dwyer, S. Elbaum, A. Sarma, and W. Srisa-an).

"CSR–PDOS: Memory Efficient Garbage Collection Framework for Java Server Applications," National Science Foundation, grant number CNS-0720757, 9/1/2007 - 8/31/2011, $306,000. PI: W. Srisa-an.

"Building a Scalable and Adaptive Garbage Collectors for Server Systems," National Science Foundation, grant number CNS-0411043, 8/1/2004 - 7/31/2008, $288,500. Lead-PI: W. Srisa-an (Co-PIs: S. Elbaum and M. Dwyer).

"Building a State-of-the-Art Embedded Systems and Sensor Networks Laboratory at University of Nebraska-Lincoln," Microsoft Corporation, 7/1/2004 - 6/30/2006, $60,000. PI: W. Srisa-an.

"Building Embedded Systems and Sensor Networks Laboratory," Center for Science, Mathematics and Computer Education, University of Nebraska-Lincoln, 5/15/2004 - 6/30/2004, $10,000. PI: W. Srisa-an.

"Hardware Support for Garbage Collection," Layman's Award from Vice Chancellor of Research Office-University of Nebraska-Lincoln, July 2005 to June 2006, $10,000. PI: W. Srisa-an.

"Intelligent Garbage Collector for Server Systems," Layman's Award from Vice Chancellor of Research Office-University of Nebraska-Lincoln, July 2003 to June 2004, $8,600. PI: W. Srisa-an.

6 Publicly Available Software

- TRAVIS: A Dynamic Trace Visualizer for Android. Available from: `https://github.com/ytsutano/jitana/tree/master/tools/jitana-travis`.
- TZSLICER: A Dynamic Program Slicing Framework for Hardware Isolation. Available from: `https://github.com/hwsel/tzslicer`.
- JITANA: A Hybrid Program Analysis Framework for Android. Available from: `http://cse.unl.edu/~ytsutano/jitana`.

7 Publications

Note: [1], [2], [3], and [4]denote co-authorship with UNL undergraduate, M.S., Ph.D., and postdoc, respectively. [5] denotes female graduate students/postdoctoral researchers with whom I have worked.

7.1 Peer-Reviewed Research Conference Publications

C54. T. Fang[3], W. Srisa-an, and L. Xu. Efficient Verification of Timing-Related Network Functions in High-Speed Hardware. In *Proceedings of International Conference on Computer Communications (INFOCOM)*, pages 1–8, New York City, New York, USA, May 2023. IEEE [acceptance rate: 19%]

C53. T. Fang[3], W. Srisa-an, L. Xu, and J. Patel. Exploration and Evaluation of the Architectural Design Space of Bandwidth Estimation in ProgHW/SW-based Clouds. In *Proceedings of International Conference on Passive and Active Measurement (PAM)*, pages 1–8, Virtual, March 2023. IMdea [acceptance rate: N/A]

C52. B. V. R. e Silva[2], C. Stevens[3], N. Mansoor[3], W. Srisa-an, T. Yu, and H. Bagheri. SAINTDroid: Scalable, Automated Incompatibility Detection for Android. In *International Conference on Dependable Systems and Networks, DSN*, pages 567–579, Baltimore, MD, USA, June 2022. IEEE/IFIP [acceptance rate: 19%]

C51. S. Bachala[3], Y. Tsutano[3], W. Srisa-an, G. Rothermel, J. Dinh[1], and Y. Hu[2]. ReHAna: An Efficient Program Analysis Framework To Uncover Reflective Code in Android. In *Proceedings of EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (MobiQuitous)*, Beppu, Japan, November 2021. Springer [acceptance rate: N/A]

C50. Z. Hu[2,5], B. V. R. E. Silva[2], H. Bagheri, W. Srisa-an, G. Rothermel, and J. Dinh[1]. SEMEO: A Semantic Equivalence Analysis Framework for Obfuscated Android Applications. In *Proceedings of EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (MobiQuitous)*, Beppu, Japan, November 2021. Springer [acceptance rate: N/A]

C49. T. Fang[3], L. Xu, and W. Srisa-an. Automated Field-based Decomposition to Accelerate Model Checking FPGA-based TCP/IP. In *Proceedings of International Conference on Communications (ICC)*, pages 1–6, Dublin, Ireland, June 2020. IEEE [acceptance rate: N/A]

C48. Z. Li[3], J. Sun[2], Q. Yan, W. Srisa-an, and Y. Tsutano[3]. Obfusifier: Obfuscation-Resistant Android Malware Detection System. In *Proceedings of International Conference on Security and Privacy in Communication Networks (SecureComm)*, volume 304, pages 214–234, Orlando, FL, USA, October 2019. Springer [acceptance rate: 33%]

C47. M. Alhanahnah[3], Q. Yan, H. Bagheri, H. Zhou, Y. Tsutano[3], W. Srisa-an, and X. Luo. Detecting Vulnerable Android Inter-App Communication in Dynamically Loaded Code. In *Proceedings of International Conference on Computer Communications (INFOCOM)*, pages 550–558, Paris, France, April 2019. IEEE [acceptance rate: 20%]

C46. Z. Yan[4], H. Jiang, W. Srisa-an, S. C. Seth, and Y. Tan[,5]. Leverage Redundancy in Hardware Transactional Memory to Improve Cache Reliability. In *Proceedings of International Conference on Parallel Processing (ICPP)*, pages 60:1–60:10, Eugene, OR, USA, August 2018. ACM [acceptance rate: 29%]

C45. Z. Li[3], J. Sun[1], Q. Yan, W. Srisa-an, and S. Bachala[3]. GranDroid: Graph-Based Detection of Malicious Network Behaviors in Android Applications. In *Proceedings of 14th International Conference on Security and Privacy in Communication Networks (SecureComm)*, volume 254, pages 264–280, Singapore, August 2018. Springer [acceptance rate: 29%]

C44. M. Ye[3,5], J. Sherman[2], W. Srisa-an, and S. Wei. TZSlicer: Security-aware Dynamic Program Slicing for Hardware Isolation. In *Proceedings of International Symposium on Hardware Oriented Security and Trust (HOST)*, pages 17–24, Washington, DC, April 2018. IEEE [acceptance rate: 20%]

C43. K. Suo, J. Rao, H. Jiang, and W. Srisa-an. Characterizing and Optimizing HotSpot Parallel Garbage Collection on Multicore Systems. In *Proceedings of European Conference on Computer Systems (EuroSys)*, pages 35:1–35:15, Porto, Portugal, April 2018. ACM [acceptance rate: 16%]

C42. L. Sun[2], X. Wei, J. Zhang, L. He, P. S. Yu, and W. Srisa-an. Contaminant Removal for Android Malware Detection Systems. In *Proceedings of International Conference on Big Data (BigData)*, pages 1053–1062, Boston, MA, December 2017. IEEE [acceptance rate: 18%]

C41. L. Sun[2], Y. Wang, B. Cao, P. S. Yu, W. Srisa-an, and A. D. Leow. Sequential Keystroke Behavioral Biometrics for Mobile User Identification via Multi-view Deep Learning. In *Proceedings of European Conference on Machine Learning and Knowledge Discovery in Databases (ECML-PKDD)*, volume 10536 of *Lecture Notes in Computer Science*, pages 228–240, Skopje, Macedonia, September 2017. Springer [acceptance rate: 29%]

C40. Y. Tsutano[3], S. Bachala[3], W. Srisa-an, G. Rothermel, and J. Dinh[1]. An Efficient, Robust, and Scalable Approach for Analyzing Interacting Android Apps. In *Proceedings of International Conference on Software Engineering (ICSE)*, pages 324–334, Buenos Aires, Argentina, May 2017. IEEE [acceptance rate: 16%]

C39. Y. Tan[4,5], J. Wen, Z. Yan[4], H. Jiang, W. Srisa-an, B. Wang, and H. Luo. FGDEFRAG: A Fine-Grained Defragmentation Approach to Improve Restore Performance. In *Proceedings of International Conference on Massive Storage Systems and Technology (MSST)*, pages 1–10, Santa Clara, CA, May 2017. IEEE [acceptance rate: 33%]

C38. J. Qian[3], H. Jiang, W. Srisa-an, S. C. Seth, S. Skelton, and J. Moore. Energy-efficient I/O Thread Schedulers for NVMe SSDs on NUMA. In *Proceedings of International Symposium on Cluster, Cloud and Grid Computing (CCGRID)*, pages 569–578, Madrid, Spain, May 2017. IEEE / ACM [acceptance rate: 23%]

C37. S. Rattanasuksun[3], T. Yu, W. Srisa-an, and G. Rothermel. RRF: A Race Reproduction Framework for Use in Debugging Process-Level Races. In *Proceedings of International Symposium on Software Reliability Engineering (ISSRE)*, pages 162–172, Ottawa, Canada, October 2016. IEEE [acceptance rate: 35%]

C36. L. Sun[2], Z. Li[3], Q. Yan, W. Srisa-an, and Y. Pan. SigPID: Significant Permission Identification for Android Malware Detection. In *Proceedings of International Conference on Malicious and Unwanted Software (MALWARE)*, pages 59–66, Fajardo, PR, USA, October 2016. IEEE [acceptance rate: 32%]

C35. Z. Li[3], L. Sun[2], Q. Yan, W. Srisa-an, and Z. Chen. DroidClassifier: Efficient Adaptive Mining of Application-Layer Header for Classifying Android Malware. In *Proceedings of International Conference on Security and Privacy in Communication Networks (SecureComm)*, volume 198, pages 597–616, Guangzhou, China, October 2016. Springer [acceptance rate: 22%]

C34. J. Qian[3], W. Srisa-an, S. C. Seth, H. Jiang, D. Li, and P. Yi. Exploiting FIFO scheduler to improve parallel garbage collection performance. In *Proceedings of International Conference on Virtual Execution Environments (VEE)*, pages 109–121, Atlanta, GA, USA, April 2016. ACM [acceptance rate: 34%]

C33. J. Qian[3], W. Srisa-an, D. Li[3], H. Jiang, S. Seth, and Y. Yong. SmartStealing: Analysis and Optimization of Work Stealing in Parallel Garbage Collection for Java VM. In *Proceedings of International Conference on Principles and Practice of Programming in Java (PPPJ)*, pages 170–181, Melbourne, FL, USA, August 2015. ACM [acceptance rate: N/A]

C32. T. Yu[3,5], W. Srisa-an, and G. Rothermel. SimRT: An Automated Framework to Support Regression Testing for Data Races. In *Proceedings of International Conference on Software Engineering*, pages 48–59, Hyderabad, India, June 2014. ACM [acceptance rate: 20%]

C31. T. Yu[3,5], W. Srisa-an, M. Cohen, and G. Rothermel. SimLatte: A Framework to Support Testing for Worst-Case Interrupt Latencies in Embedded Software. In *Proceedings of International Conference on Software Testing, Verification, and Validation (ICST)*, pages 313–322, Cleveland, OH, USA, April 2014. IEEE [acceptance rate: 28%]

C30. T. Yu[3,5], W. Srisa-an, and G. Rothermel. An Empirical Comparison of the Fault-Detection Capabilities of Internal Oracles. In *Proceedings of International Symposium on Software Reliability Engineering (ISSRE)*, pages 11–20, Pasadena, CA, November 2013. IEEE [acceptance rate: 35%]

C29. T. Yu[3,5], W. Srisa-an, and G. Rothermel. SimRacer: An Automated Framework to Support Testing for Process-level Races. In *Proceedings of International Symposium on Software Testing and Analysis (ISSTA)*, pages 167–177, Lugano, Switzerland, July 2013. ACM [acceptance rate: 26%]

C28. T. Yu[3,5], W. Srisa-an, and G. Rothermel. SimTester: A Controllable and Observable Testing Framework for Embedded Systems. In *Proceedings of International Conference on Virtual Execution Environments*, pages 51–62, London, England, UK, March 2012. ACM [acceptance rate: 32%]

C27. D. Li[3], W. Srisa-an, and M. B. Dwyer. SOS: Saving Time in Dynamic Race Detection with Stationary Analysis. In *Proceedings of Conference on Object-Oriented Programming, Systems, Languages, and Applications, OOPSLA*, pages 35–50, Portland, OR, USA, October 2011. ACM [acceptance rate: 35%]

C26. T. Yu[2,5], A. Sung[4,5], W. Srisa-an, and G. Rothermel. Using Property-Based Oracles when Testing Embedded System Applications. In *Proceedings of International Conference on Software Testing, Verification and Validation (ICST)*, pages 100–109, Berlin, Germany, March 2011. IEEE [acceptance rate: 21%]

C25. D. Li[3]and W. Srisa-an. Quarantine: A Framework to Mitigate Memory Errors in JNI Applications. In *Proceedings of International Conference on Principles and Practice of Programming in Java (PPPJ)*, pages 1–10, Kongens Lyngby, Denmark, August 2011. ACM [acceptance rate: 38%]

C24. A. Sung[4,5], W. Srisa-an, G. Rothermel, and T. Yu[2]. Testing Inter-layer and Inter-task Interactions in RTES Applications. In *Proceedings of Asia Pacific Software Engineering Conference (APSEC)*, pages 260–269, Sydney, Australia, December 2010. IEEE [acceptance rate: N/A]

C23. W. Srisa-an, M. B. Cohen, Y. Shang[2,5], and M. Soundararaj[2,5]. A Self-adjusting Code Cache Manager to Balance Start-up Time and Memory Usage. In *Proceedings of International Symposium on Code Generation and Optimization (CGO)*, pages 82–91, Toronto, Ontario, Canada, April 2010. ACM [acceptance rate: 35%]

C22. X. Guan[3], W. Srisa-an, and C. Jia[2]. Investigating the Effects of Using Different Nursery Sizing Policies on Performance. In *Proceedings of International Symposium on Memory Management (ISMM)*, pages 59–68, Dublin, Ireland, June 2009. ACM [acceptance rate: 40%]

C21. F. Xian[3], W. Srisa-an, and H. Jiang. Contention-Aware Scheduler: Unlocking Execution Parallelism in Multithreaded Java Programs. In *Proceedings of Conference on Object-Oriented Programming Systems Languages and Applications (OOPSLA)*, pages 163–180, Nashville, TN, USA, October 2008. ACM [acceptance rate: 28%]

C20. F. Xian[3], W. Srisa-an, and H. Jiang. Allocation-phase Aware Thread Scheduling Policies to Improve Garbage Collection Performance. In *Proceedings of International Symposium on Memory Management (ISMM)*, pages 79–90, Montreal, Quebec, Canada, October 2007. ACM [acceptance rate: 33%]

C19. F. Xian[3], W. Srisa-an, and H. Jiang. MicroPhase: An Approach to Proactively Invoking Garbage Collection. In *Proceedings of the International Conference on Object-Oriented Programming Systems, Languages, and Applications (OOPSLA)*, pages 77–96, Montreal, Canada, October 2007. ACM [acceptance rate: 21%]

C18. F. Xian[3], W. Srisa-an, C. Jia[2], and H. Jiang. AS-GC: An Efficient Generational Garbage Collector for Java Application Servers. In *Proceedings of European Conference on Object-Oriented Programming (ECOOP)*, pages 126–150, Berlin, Germany, July 2007. Springer [acceptance rate: 16%]

C17. F. Xian[3], W. Srisa-an, and H. Jiang. Evaluating Hardware Support for Reference Counting Using Software Configurable Processors. In *Proceedings of International Conference on Application Specific Systems, Architectures, and Processors (ASAP)*, pages 297–302, Steamboat Springs, CO, USA, September 2006. IEEE [acceptance rate: 25%]

C16. F. Xian[3], W. Srisa-an, and H. Jiang. Investigating the Throughput Degradation Behavior of Java Application Servers: A View from Inside the Virtual Machine. In *Proceedings of International Conference on Principles and Practices of Programming in Java (PPPJ)*, pages 40–49, Mannheim, Germany, August 2006. ACM [acceptance rate: 38%]

C15. M. Cohen, S. B. Kooi[2], and W. Srisa-an. Clustering the Heap in Multi-Threaded Applications for Improved Garbage Collection Performance. In *Proceedings of Conference on Genetic and Evolutionary Computation (GECCO)*, pages 1901–1908, Seattle, Washington, USA, July 2006. ACM [acceptance rate: 40%]

C14. W. Srisa-an, M. Oey[2], and S. Elbaum. Garbage Collection in the Presence of Remote Objects: An Empirical Study. In *Proceedings of International Symposium on Distributed Objects and Applications (DOA)*, pages 1065–1082, Agia Napa, Cyprus, November 2005. Springer [acceptance rate: 25%]

C13. D. Anthony[1], M. Leung[1], and W. Srisa-an. To JIT or not to JIT: The Effect of Code-Pitching on the Performance of .NET Framework. In *Proceedings of International Conference on .NET Technologies*, pages 165–173, Plzen, Czech Republic, June 2005 [acceptance rate: N/A]

C12. P. Griffin, W. Srisa-An, and J. M. Chang. An Energy Efficient Garbage Collector for Java Embedded Devices. In *Proceedings of Conference on Languages, Compilers, and Tools for Embedded Systems (LCTES)*, pages 230–238, Chicago, IL, USA, June 2005. ACM [acceptance rate: 26%]

C11. W. Huang, Y. Qian, W. Srisa-an, and J. M. Chang. Object Allocation and Memory Contention Study of Java Multithreaded Application. In *Proceedings of International Performance, Computing, and Communications Conference (IPCCC)*, pages 375–382, Phoenix, Arizona, USA, April 2004. IEEE [acceptance rate: 28%]

C10. W. Huang, W. Srisa-an, and J. M. Chang. Dynamic Pretenuring Schemes for Generational Garbage Collection. In *Proceedings of International Symposium on Performance Analysis of Systems and Software (ISPASS)*, pages 133–140, Austin, TX, March 2004. IEEE [acceptance rate: 35%]

C9. W. Srisa-an, C. D. Lo, and J. M. Chang. Performance Enhancements to the Active Memory System. In *Proceedings of International Conference on Computer Design (ICCD)*, pages 249–256, Frieburg, Germany, September 2002. IEEE [acceptance rate: 34%]

C8. C. D. Lo, W. Srisa-an, and J. M. Chang. A Multithreaded Concurrent Garbage Collector Parallelizing the New Instruction in Java. In *Proceedings of International Parallel and Distributed Processing Symposium (IPDPS)*, Fort Lauderdale, FL, USA, April 2002. IEEE [acceptance rate: 38%]

C7. Y. Qian, W. Srisa-an, T. Skotiniotis, and J. M. Chang. Java Virtual Machine Timing Probes: A Study of Object Lifespan and Garbage Collection. In *Proceedings of International Performance Computing and Communication Conference (IPCCC)*, pages 73–80, Phoenix Arizona, USA, April 2001. IEEE [acceptance rate: N/A]

C6. Y. Qian, W. Srisa-an, T. Skotiniotis, and J. M. Chang. A Cycle-accurate Per-thread Timer for Linux Operating System. In *Proceedings of International Symposium on Performance Analysis of Systems and Software (ISPASS)*, pages 38–44, Tucson, Arizona, USA, November 2001. IEEE [acceptance rate: N/A]

C5. J. M. Chang, W. Srisa-an, and C.-T. D. Lo. Architectural Support for Dynamic Memory Management. In *Proceedings of International Conference on Computer Design (ICCD)*, pages 99–104, Austin, TX, USA, September 2000. IEEE [acceptance rate: N/A]

C4. W. Srisa-an, C.-T. D. Lo, and J. M. Chang. Scalable Hardware-algorithm for Mark-Sweep Garbage Collection. In *Proceedings of Euromicro Conference on Digital System Design*, pages 274–279, Maastricht Netherlands, September 2000. IEEE [acceptance rate: 32%]

C3. C. D. Lo, W. Srisa-an, and J. M. Chang. Page Replacement Performance in Garbage Collection Systems. In *Proceedings of International Conference on Parallel and Distributed Computing Systems (PDCS)*, pages 374–379, Las Vegas, Nevada, USA, August 2000 [acceptance rate: N/A]

C2. W. Srisa-an, C.-T. Lo, and J. M. Chang. Do Generational Schemes Improve the Garbage Collection Efficiency. In *Proceedings of International Symposium on Performance Analysis of Systems and Software (ISPASS)*, pages 58–63, Austin, TX, USA, April 2000. IEEE [acceptance rate: N/A]

C1. C. D. Lo, W. Srisa-an, and J. M. Chang. A Quantitative Simulator for Dynamic Memory Managers. In *Proceedings of International Symposium on Performance Analysis of Systems and Software (ISPASS)*, pages 64–69, Austin, Texas, USA, April 2000. IEEE [acceptance rate: N/A]

7.2 Peer-Reviewed Journal Publications

J26. F. Cleary, W. Srisa-An, D. C. Henshall, and S. Balasubramaniam. Emerging AI Technologies Inspiring the Next Generation of E-Textiles. *IEEE Access*, 11:56494–56508, 2023 [impact factor: 3.48]

J25. F. Cleary, W. Srisa-an, B. Gil, J. Kesavan, T. Engel, D. C. Henshall, and S. Balasubramaniam. Wearable μBrain: Fabric Based-Spiking Neural Network. *IEEE Sensors Journal*, 22, November 2022 [impact factor: 4.33]

J24. M. S. Islam, S. Ivanov, H. Awan, J. Drohan, S. Balasubramaniam, L. Coffey, S. Kidambi, and W. Srisa-an. Using Deep Learning to Detect Digitally Encoded DNA Trigger for Trojan Malware in Bio-Cyber Attacks. *Nature: Scientific Report*, 12, June 2022 [impact factor: 5.51]

J23. Y. Tan, C. Xu, J. Xie, Z. Yan, H. Jiang, W. Srisa-an, X. Chen, and D. Liu. Improving the Performance of Deduplicatation-based Storage Cache via Content-Driven Cache Management Methods. *IEEE Transactions on Parallel and Distributed Systems*, 32(1):214–228, 2021. IEEE [impact factor: 3.97]

J22. L. Sun, B. Cao, J. Wang, W. Srisa-an, P. Yu, A. D. Leow, and S. Checkoway. KOLLECTOR: Detecting Fraudulent Activities on Mobile Devices Using Deep Learning. *IEEE Transactions on Mobile Computing*, 20(4):1465–1476, 2021. IEEE [impact factor: 4.10]

J21. M. Alhanahnah[3], Q. Yan, H. Bagheri, H. Zhou, Y. Tsutano[3], W. Srisa-An, and X. Luo. DINA: Detecting Hidden Android Inter-App Communication in Dynamic Loaded Code. *IEEE Transactions on Information Forensics and Security*, 15:2782–2797, 2020. IEEE [impact factor: 4.33]

J20. Y. Tan, B. Wang, Z. Yan, W. Srisa-an, X. Chen, and D. Liu. APMigration: Improving Performance of Hybrid Memory Performance via An Adaptive Page Migration Method. *IEEE Transactions on Parallel and Distributed Systems*, 31(2):266–278, 2020. IEEE [impact factor: 3.97]

J19. Y. Tsutano[3], S. Bachala[3], W. Srisa-an, G. Rothermel, and J. Dinh[1]. Jitana: A Modern Hybrid Program Analysis Framework for Android Platforms. *Journal of Computer Languages*, 52(55-71), June 2019. Elsevier [impact factor: 1.78]

J18. Y. Tan[4,5], B. Wang, J. Wen, Z. Yan[4], H. Jiang, and W. Srisa-an. Improving Restore Performance in Deduplication-Based Backup Systems via a Fine-Grained Defragmentation Approach. *IEEE Transactions on Parallel and Distributed Systems*, 29(10):2254–2267, 2018. IEEE [impact factor: 3.97]

J17. T. Yu, W. Srisa-an, M. B. Cohen, and G. Rothermel. A Hybrid Approach to Testing for Nonfunctional Faults in Embedded Systems Using Genetic Algorithms. *Software Testing Verification Reliability*, 28(7), 2018. Wiley [impact factor: 1.556]

J16. J. Li, L. Sun[2], Q. Yan, Z. Li[3], W. Srisa-an, and H. Ye. Significant Permission Identification for Machine-Learning-Based Android Malware Detection. *IEEE Transactions on Industrial Informatics*, 14(7):3216–3225, 2018. IEEE [impact factor: 5.34]

J15. T. Yu, W. Srisa-an, and G. Rothermel. SIMEXplorer: An Automated Framework to Support Testing for System-Level Race Conditions. *Software Testing, Verification and Reliability*, 27(4-5), 2017. Wiley [impact factor: 1.56]

J14. T. Yu[3,5], A. Sung[4,5], W. Srisa-an, and G. Rothermel. An Approach to Testing Commercial Embedded Systems. *Journal of Systems and Software*, 88:207–230, 2014. Elsevier Science [impact factor: 2.56]

J13. T. Yu[3,5], A. Sung[4,5], W. Srisa-an, and G. Rothermel. Sim-O/C: An Observable and Controllable Testing Framework for Elusive Faults. *Intel Technology Journal*, 17(2):178 – 197, 2013. Intel [impact factor: 0.55]

J12. F. Xian[3], W. Srisa-an, and H. Jiang. Garbage Collection: Java Application Servers' Achilles Heel. *Science of Computer Programming*, 72(203), 2009. Elsevier Science [impact factor: 0.74]

J11. D. J. Anthony[1], W. Srisa-an, and M. Leung[1]. An Empirical Study of the Code Pitching Mechanism in the .NET Framework. *Journal of Object Technology*, 5(3):107–127, 2006. AITO [impact factor: 1.10]

J10. W. Srisa-an and M. Oey[2]. Remote Objects: The Next Garbage Collection Challenge. *Journal of Object Technology*, 4(4):154–172, 2005. AITO [impact factor: 1.10]

J9. C. D. Lo, W. Srisa-an, and J. M. Chang. The Design and Analysis of a Quantitative Simulator for Dynamic Memory Management. *Journal of Systems and Software*, 72(3):443–453, 2004. Elsevier Science [impact factor: 2.56]

J8. W. Srisa-an, C. D. Lo, and J. M. Chang. Active Memory Processor: a Hardware Garbage Collector for Real-time Java Embedded Devices. *IEEE Transactions on Mobile Computing*, 2(2):89–101, 2003. IEEE [impact factor: 4.10]

J7. W. Srisa-an, C. D. Lo, and J. M. Chang. Object Resizing and Reclamation Through the Use of Hardware Bitmaps. *Journal of Microprocessors and Microsystems*, 25(9-10):459–467, 2002. Elsevier Science [impact factor: 1.05]

J6. W. Srisa-an, C. D. Lo, and J. M. Chang. A Performance Perspective on the Active Memory System. *Journal of Microprocessors and Microsystems*, 26(9-10):421–432, 2002. Elsevier Science [impact factor: 1.05]

J5. J. M. Chang, W. Srisa-an, C. D. Lo, and E. F. Gehringer. DMMX: Dynamic Memory Management Extensions. *Journal of Systems and Software*, 63(3):187–199, 2002. Elsevier Science [impact factor: 2.56]

J4. C. D. Lo, W. Srisa-an, and J. M. Chang. Performance Analysis on the Generalized Buddy System. *Computers and Digital Techniques Journal*, 48(4):167–175, 2001. IEE [impact factor: 0.64]

J3. J. M. Chang, W. H. Lee, and W. Srisa-an. A Study of the Allocation Behavior of C++ Programs. *Journal of Systems and Software*, 57(2):107–118, 2001. Elsevier Science [impact factor: 2.56]

J2. C. D. Lo, W. Srisa-an, and J. M. Chang. A Study of Page Replacement Performance in Garbage Collection Heap. *Journal of Systems and Software*, 58(3):235–245, 2001. Elsevier Science [impact factor: 2.56]

J1. W. Srisa-an, C. D. Lo, and J. M. Chang. A Hardware Implementation of Realloc Function. *Integration, The VLSI Journal*, 28(2):173–184, 2000. Elsevier Science [impact factor: 0.91]

7.3 Peer-Reviewed Teaching Conference Publications

T3. W. Srisa-an and M. Oey[2]. Experience from Teaching Performance Analysis of Object-Oriented Systems. In *Experience from Teaching Performance Analysis of Object-Oriented Systems*, Indianapolis, IN, USA, October 2005. ASEE/IEEE [acceptance rate: N/A]

T2. C. D. Lo, W. Srisa-an, and J. M. Chang. Teaching Experiences in Unix System Programming. In *Proceedings of International Conference on Engineering Education (ICEE)*, Taipei, Taiwan, August 2000. IEEE [acceptance rate: N/A]

T1. W. Srisa-an, C. D. Lo, and J. M. Chang. Teaching Client-Server Application Development through Open-Source Software. In *Proceedings of International Conference on Engineering Education (ICEE)*, Taipei, Taiwan, August 2000. IEEE [acceptance rate: N/A]

7.4 Workshop, Short Contribution, and Miscellaneous Publications

W10. M. Ye[3,5], M. B. Cohen, W. Srisa-an, and S. Wei. EvoIsolator: Evolving Program Slices for Hardware Isolation Based Security. In *International Symposium on Search-Based Software Engineering: Hot Off The Press Track (SSBSE)*, pages 377–382, Montpellier, France, August 2018. Springer

W9. J. Qian[3], D. Li[3], W. Srisa-an, H. Jiang, and S. C. Seth. Factors Affecting Scalability of Multithreaded Java Applications on Manycore Systems. In *Proceedings of International Symposium on Performance Analysis of Systems and Software (ISPASS)*, pages 167–168, Philadelphia, PA, USA, March 2015. IEEE

W8. F. Xian[3], W. Srisa-an, and H. Jiang. Service Oriented Garbage Collection: Improving Performance and Robustness of Application Servers. In *Companion to the 21th Annual ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA)*, pages 661–662, Portland, Oregon, USA, October 2006. ACM

W7. M. Oey[2], W. Srisa-an, and S. Elbaum. Remote Objects: The Next Garbage Collection Challenge. In *Proceedings of Workshop on Managed Runtime Environments (MRE)*, San Jose, CA, USA, March 2005.

W6. W. Srisa-an, C. D. Lo, and J. M. Chang. A Performance Analysis of the Active Memory Module (AMM). In *Proceedings of International Conference on Computer Design (ICCD)*, pages 493–496, Austin, TX, USA, September 2001. IEEE

W5. W. Srisa-an, C. D. Lo, and J. M. Chang. Active Memory: Garbage-Collected Memory for Embedded Systems. In *Proceedings of Annual Workshop on Hardware Support for Objects and Microarchitectures for Java*, pages 11–15, Austin, TX, USA, September 2000.

W4. J. M. Chang, W. Srisa-an, C. D. Lo, and E. F. Gehringer. Hardware Support for Memory Management. In *Notes of ISCA Workshop on Solving the Memory Wall Problem*, Vancouver, B.C., Canada, June 2000.

W3. J. M. Chang, W. Srisa-an, and C. D. Lo. DMMX: Dynamic Memory Management Extensions. In *Proceedings of ICCD Workshop on Hardware Support for Objects and Microarchitectures for Java*, pages 11–14, Austin, TX, USA, October 1999. IEEE

W2. J. M. Chang, W. Srisa-an, and C. D. Lo. OMeX: Object Management Extensions for Embedded Systems. In *Proceedings of International Workshop on Compiler and Architecture Support for Embedded Systems (CASES)*, Washington, DC, USA, October 1999.

W1. W. Srisa-an, C. D. Lo, and J. M. Chang. Hardware Implementation of Realloc Function. In *Proceedings of Annual Workshop on VLSI*, pages 106–222, Orlando, FL, USA, April 1999. IEEE

7.5 Magazine Articles

M3. C. D. Lo, W. Srisa-an, and J. M. Chang. Security Issues in Garbage Collection. *CrossTalk: the Journal of Defense Software Engineering*, 18(10), 2005. APAN [impact factor: 0.27]

M2. C. D. Lo, W. Srisa-an, and J. M. Chang. Who is Collecting your Java Garbage. *IT-Professional*, 5(2):44–50, 2003. IEEE [impact factor: 2.24]

M1. W. Srisa-an, C. D. Lo, and J. M. Chang. Putting Voice into Wireless Communications. *IEEE IT-Professional*, 4(1):70–72, 2002. IEEE [impact factor: 2.24]

7.6 Dissertation

- W. Srisa-an. Hardware Support for Automatic Dynamic Memory Management. *Ph.D. Thesis, Illinois Institute of Technology*, May 2002

8 Invited Presentations, Tutorials, and Panel Participation

October 26, 2022	Panelist, "Leadership Opportunities in Higher Education", UNL FLAIR Program.
July 17, 2020	Panelist, "Building Computing Community through Service", BRAID Summit Virtual Panel.
April 11, 2012	Invited Presentation, "RaceDr: A Dynamic Race Detection and Repair Framework", Illinois Institute of Technology, Chicago, IL, USA.
November 18, 2008	Invited Presentation, "Context-Aware Kernels", Sun Microsystems Laboratories, Menlo Park, CA, USA.
October 11, 2008	Invited Presentation, "Context-Aware Kernels", Microsoft Research, Redmond, WA, USA.
April 11, 2007	Invited Presentation, "Building an Efficient Generational Garbage Collector for Java Application Servers", New England Programming Language Symposium, Bedford, MA, USA.
Dec 15-17, 2004	Panelist, "Future of Mobile Computing", International Computer Symposium, Taipei, Taiwan.
Nov 5-6, 2004	Invited Presentation, "Performance Analysis of O-O Systems", Microsoft SSCLI Workshop, Hyderabad, India.
Aug 3, 2004	Invited Presentation, "Rotor in Classroom", Rotor Tutorial at Microsoft Faculty Summit, Redmond, WA.
May 15-16, 2004	Invited Presentation, "Teaching with Rotor:Performance Analysis of O-O Systems", Microsoft SSCLI Workshop, Singapore.

9 Professional Services

9.1 Conference Organizations

- General Co-Chair, *IEEE International Conference on Dependable and Secure Computing (DSC)*, Tampa, FL, 2023.
- Member, Steering Committee, *International Workshop on Virtual Machines and Intermediate Languages (VMIL)*, Auckland, NZ, 2022.
- Member, Steering Committee, *International Workshop on Virtual Machines and Intermediate Languages (VMIL)*, Chicago, IL, 2021.
- Member, Steering Committee, *International Workshop on Virtual Machines and Intermediate Languages (VMIL)*, Virtual, 2020.
- Chair, Program Committee: Software Engineering Track, *The Annual ACM Southeast Conference (ACMSE)*, Tampa, FL, 2020.
- Chair, Program Committee: Software Engineering Track, *The Annual ACM Southeast Conference (ACMSE)*, Atlanta, GA, 2019.

- Member, Steering Committee, *International Workshop on Virtual Machines and Intermediate Languages (VMIL)*, Athens, Greece, 2019.
- Member, Steering Committee, *International Workshop on Virtual Machines and Intermediate Languages (VMIL)*, Boston , MA, 2018.
- Member, Steering Committee, *International Workshop on Virtual Machines and Intermediate Languages (VMIL)*, Vancouver, Canada, 2017.
- Co-chair, Technical Program Committee, *International Workshop on Virtual Machines and Intermediate Languages (VMIL)*, Amsterdam, NL, 2016.
- Co-chair, Local Arrangement, *International Conference on Automated Software Engineering (ASE)*, Lincoln, NE, 2015.
- Chair, Doctoral Symposium, *ACM SIGPLAN International Symposium on Memory Management (ISMM)*, Tucson, Arizona, USA, 2008.

9.2 Conference Memberships

- Member, Technical Program Committee, *International Conference on Software Engineering: Software Engineering in Society (ICSE-SEIS)*, Libon, Portugal, 2024.
- Member, Technical Program Committee, *EAI International Conference on Mobile and Ubiquitous Systems (MobiQuitous)*, Beppu, Japan, 2021.
- Member, External Review Committee, *ACM International Conference on Object-Oriented Programming, Systems, Languages, and Application (OOPSLA)*, Chicago, IL, 2020.
- Member, Technical Program Committee, *ACM SIGPLAN International Symposium on Memory Management (ISMM)*, Philadelphia, PA, 2018.
- Member, Technical Program Committee, *Hot Topics in the Science of Security (HotSoS)* Pittsburgh, PA, 2016.
- Member, Technical Program Committee, *European Conference on Object-Oriented Programming (ECOOP)*, 2016.
- Member, Technical Program Committee, *International Conference on Information Systems Security (ICISS)*, Kolkata, India, 2015.
- Member, Technical Program Committee, *International Conference on Information Systems Security (ICISS)*, Hyderabad, India, 2014.
- Member, Technical Program Committee, *ACM International Conference on Object-Oriented Programming, Systems, Languages, and Application (OOPSLA)*, Portland, OR, 2012.
- Member, Technical Review Committee, *ACM SIGPLAN International Symposium on Memory Management (ISMM)*, Beijing, China, 2012.
- Member, Technical Program Committee, *IEEE International Conference on Embedded Computing*, Dalian, China, 2009.

- Member, Technical Review Committee, *ACM SIGPLAN International Symposium on Memory Management (ISMM)*, Dublin, Ireland, 2009.
- Member, Technical Program Committee, *IEEE International Conference on Embedded Computing*, Beijing, China, 2008.
- Member, Technical Program Committee, *ACM SIGPLAN International Symposium on Memory Management (ISMM)*, Tucson, Arizona, USA, 2008.
- Member, Technical Program Committee, *International Conference on Principles and Practices of Programming in Java*, Lisbon, Portugal, 2007.
- Member, Technical Program Committee, *International Conference on .NET Technologies*, Plzen, Czech Republic, 2007.
- Member, Technical Program Committee, *IFIP International Conference on Embedded And Ubiquitous Computing*, Seoul, Korea, 2006.
- Member, Technical Program Committee, *International Conference on Principles and Practices of Programming in Java*, Mannheim, Germany, 2006.
- Member, Technical Program Committee, *International Conference on .NET Technologies*, Plzen, Czech Republic, 2006.
- Member, Technical Program Committee, *International Computer Symposium*, Taipei, Taiwan, 2004.

9.3 Reviewers

- Reviewer, *ACM Transactions on Privacy and Security*.
- Reviewer, *IEEE Open Access Journal*.
- Reviewer, *IEEE Transactions on Parallel and Distributed Systems*.
- Reviewer, *ACM Transactions on Embedded Computing Systems*.
- Reviewer, *Journal of System Architecture*.
- Reviewer, *Journal of Microprocessors and Microsystems*.
- Reviewer, *International Journal of Information and Software Technology*.
- Reviewer, *Design Automation and Test in Europe Conference*, 2006.
- Reviewer, *ACM SIGPLAN Conference on Languages, Compilers, and Tools for Embedded Systems*, 2004.
- Reviewer, *Information Sciences, An International Journal*.
- Reviewer, *Journal of Systems and Software*.
- Reviewer, *IEEE Transactions on Computer Systems* (special issue on "Advance Memory Architectures", 2001).

9.4 Review Panels

- NSF Proposal Review Panel for CNS in 2005.
- NSF Proposal Review Panel for CNS in 2006.
- NSF Proposal Review Panel for CNS in 2010.
- NSF Proposal Review Panel for SaTC in 2014.
- NSF Proposal Review Panel for CCF in 2016.
- NSF Proposal Review Panel for CCF in 2018.
- NSF Proposal Review Panel for CNS in 2019.
- NSF Proposal Review Panel for CCF in 2020.

10 University Services

Note that CSE = Department of Computer Science and Engineering, CoE = College of Engineering, CAS = College of Arts and Sciences

- Chair, SoC Professor of Practice Search Committee (2023).
- Member, CoE Senior Director of Engineering Student Services Search Committee (2022).
- Member, Raikes Professor of Practice Search Committee (2021-2022).
- Member, CoE-CIVE Transportation Engineering Faculty Search Committee (2021).
- Member, Raikes Assistant Director of Design Studio Search Committee (2020).
- Member, CoE-ECE Cybersecurity Faculty Search Committee (2020).
- Member, UNL School of Computing Planning Committee (2019).
- Interim-chair, Department of Computer Science and Engineering (2019).
- Chair, CSE Department Chair Search Committee (2019).
- Member, Facility and Space Committee (2002 - 2003, 2019 - 2020).
- Member, CSE Leadership team to form School of Computing (2019).
- Member, CoE Unified Computer Engineering Program Committee (2018 - present).
- Member, CoE CITL Committee (2018 - present).
- Vice-chair, Department of Computer Science and Engineering (2018 - present).
- Member, CAS Undergraduate Education Working Group (2018 - 2021).
- Member, Raikes Professor of Practice Search Committee (2018, 2019, 2020).
- Member, CSE Personnel Committee (2018 - present).

- Member, CoE Graduation with Distinction Committee (2007 - present).
- Member, UNL Faculty Senate (2016 - 2020).
- Member, Raikes Director of Design Studio Search Committee (2017).
- Member, CSE Advisory Committee (2012 - 2014).
- Chair, CSE Curriculum Committee (2011 - 2018).
- Member, CSE Curriculum Committee (2006 - 2010).
- Chair, CSE Curriculum CE Sub-committee (2009 - 2011).
- Member, CSE Graduate Admission Committee (2013-2014).
- Member, CoE Curriculum Committee (2012-2014).
- Member, CSE Lecturer Search Committee (2012).
- Chair, CSE Computer Engineering Faculty Search Committee (2012).
- Chair, CSE Computer Science Faculty Search Committee (2012).
- Chair, CSE Computer Engineering Curriculum Sub-Committee (2009 - 2011).
- Chair, CSE Computer Engineering Faculty Search Committee (2008 - 2009).
- Member, UNL ANDRILL Search Committee (2009).
- Panelist, UNL Institute of International Teaching Assistants (2007).
- Member, CSE Planning for Schorr Center Move (2007).
- Co-Chair, CSE Day (2005 - 2008).
- Member, CSE Graduate Committee (2005 - 2008).
- Co-Advisor, UNL ACM Local Chapter (2004 - 2008).
- Faculty Advisor, UNL .NET User Group, (2003 - 2005).
- Member, ACM Programming Contest Committee (2003 - 2006).
- Member, Industrial Advisory Panel Committee (2004).
- Member, CSE ABET Accreditation Committee (2004).
- Member, CSE Planning for Avery Move (2004).
- Chair, CSE Day (2004).
- Member, CSE Curriculum Committee (2003 - 2005).
- Member or Chair, CSE Qualifying Exam Committee—System Track (2002-2018).
- Member, CSE Priority Search Committee (2003 - 2004).
- Member, CSE Service Committee (2002 - 2004).

11 Post-doctoral Researchers

1. Ahyung Sung (2008-2010), at Samsung.
2. Zhichao Yan (2013-2015), at HP.

12 Graduate Students

Current

1. Matt Bennett, M.S. (expected graduation Fall 2023).
2. Nianhang Hu, M.S. (expected graduation Fall 2024).
3. Shakthi Bachala, Ph.D. (expected graduation Fall 2023).
4. Salome Perez Rosero, Ph.D. (expected graduation Spring 2024).
5. Tony Arslan, Ph.D. (expected graduation Spring 2025).
6. Tianqi Fang, Ph.D. (expected graduation Spring 2023).
7. Sarah Roscoe, Ph.D. (expected graduation Spring 2024).

Graduated Ph.D. Students

1. Zhiqiang Li, Ph.D. (Spring 2020), at A10 Networks.
   Dissertation: Advanced Techniques To Detect Complex Android Malware.
2. Supat Rattanasuksan, Ph.D. (Fall 2018), at Bangkok University.
   Dissertation: A Comprehensive Framework to Replicate Process-Level Concurrency Faults.
3. Junjie Qian, Ph.D. (Fall 2016), at Facebook.
   Coadvised with Sharad Seth and Hong Jiang.
   Dissertation: Scalability of Multi-threaded Applications on Many-Core Processors.
4. Tingting Yu, Ph.D. (Summer 2014), at U. of Connecticut.
   Coadvised with Gregg Rothermel.
   Dissertation: SIMEXPLORER: A Testing Framework to Detect Elusive Software Faults.
5. Du Li, Ph.D. (Summer 2012), at DeepSpeed.
   Coadvised with Matt Dwyer.
   Dissertation: RACEDR: Dynamic Data Race Detection and Healing.
6. Feng Xian, Ph.D. (Spring 2008), at Google.
   Coadvised with Hong Jiang.
   Dissertation: VM-aware Thread Scheduling Framework: Improving Efficiency of Java Runtime Environments.

Graduated M.S. Students

1. Jun Sun, M.S. (Summer 2021).
2. Yuanjiu Hu, M.S. (Spring 2020), at Amazon.

3. Zhen Hu, M.S. (Fall 2016), at Amazon.
4. James Sun , M.S. (Summer 2016), at Lehigh University.
5. Zhongyin Zhang, M.S. (Summer 2014), at Amazon.
6. Xueling Chen, M.S. (Summer 2010), at Intel.
7. Peng Du, M.S. (Fall 2010), at NVIDIA.
8. Yu Shang, M.S. (Spring 2009).
9. Chenghuan Jia, M.S. (Summer 2007), at NVIDIA.
10. Shiu Beng Kooi, M.S. (Summer 2006), at Netgear.
11. Mithuna Soundararaj, M.S. (Summer 2006), at Microsoft.
12. Mulyadi Oey, M.S. (Summer 2005), at Sugarsync.
13. Subhani Shaik, M.S. (Fall 2004).
14. Sita Tangirala, M.S. (Fall 2004).

13 M.S. and Ph.D. Committees Served

1. Bhuvana Gopal, Ph.D. Supervisory Committee Member, "Teaching Software Testing and DEVOPS in Undergraduate Software Engineering: A Comparison of Peer Instruction and POGIL", Spring 2022.
2. Niloofar Mansoor, Ph.D. Supervisory Committee Member, "Empirical Assessment of Program Comprehension Styles in Programming Language Paradigms", Fall 2021.
3. Clay Stevens, Ph.D. Supervisory Committee Member, "Improving Scalability for Formal Analysis through Automated Tightening of Analysis Bounds", Fall 2021.
4. Minh Vu, Ph.D. Supervisory Committee Member, "Network Protocol Implementation Testing and Verification under Packet Dynamics", Fall 2021.
5. Saravanan Raju, Ph.D. Supervisory Committee Member, "Right to Identity, Privacy, and Computing: Expanding Banking Services to Include Data Accounts", Spring 2020.
6. Kang Il Park, M.S. Supervisory Committee Member, "Analyzing Sentiment in Github Pull Requests", Spring 2020.
7. Minh Duc Vu, Ph.D. Supervisory Committee Member, "Network Protocol Implementation Testing and Verification under Packet Dynamics", Fall 2020.
8. Minh Duc Vu, Ph.D. Supervisory Committee Member, "Network Protocol Implementation Testing and Verification under Packet Dynamics", Fall 2020.
9. Nan Jiang, Ph.D. Supervisory Committee Member, "Power Efficient Virtual Reality Streaming", Fall 2020.

10. Mitch Gerrard, M.S. Supervisory Committee Member, "ALPACA: A Large Portfolio-based Alternating Conditional Analysis", Fall 2019.

11. Bruno Silva, M.S. Supervisory Committee Member, "GAINDroid: General Automated Incompatibility Notifier for Android Applications", Spring 2019.

12. Supat Rattanasuksan, Ph.D. Supervisory Committee Chair, "A Comprehensive Framework to Replicate Process-Level Concurrency Faults", Fall 2018.

13. David Anthony, Ph.D. Supervisory Committee Member, "Unmanned Aerial Vehicles for Unstructured Environmental Monitoring", Fall 2016.

14. Junjie Qian, Ph.D. Supervisory Committee Co-Chair, "Scalability of Multi-threaded Applications on Many-Core Processors", Fall 2016.

15. Yaodong Yang, Ph.D. Supervisory Committee Member, "The Optimization for The Virtual Machine Live Storage Migration", Summer 2016.

16. Adrian Lara, Ph.D. Supervisory Committee Member, "Using Software-Defined Networking to Improve Campus, Transport and Future Internet Architecture", Spring 2015.

17. Tingting Yu, Ph.D. Supervisory Committee Co-Chair, "SIMEXPLORER: A Testing Framework to Detect Elusive Software Faults", Summer 2014.

18. Du Li, Ph.D. Supervisory Committee Chair, "RACEDR: Dynamic Data Race Detection and Healing", Summer 2012.

19. Yongyuan Zhan, Ph.D. Supervisory Committee Member, "Context Aware Cache Management", Summer 2012.

20. Steven Becker, M.S. Supervisory Committee Member, "QoS in Multimedia Systems", Fall 2011.

21. Ala Qadi, Ph.D. Supervisory Committee Member, "Spatio-Temporal Scheduling", Fall 2008.

22. Feng Xian, Ph.D. Supervisory Committee Chair, "VM-aware Thread Scheduling Framework: Improving Efficiency of Java Runtime Environments", Summer 2008.

23. Yu Shang, M.S. Supervisory Advisor, "Search-Based Garbage Collection Optimizations", Spring 2009.

24. ChengHuan Jia, MS. Supervisory Advisor, "NMFLUX: Improving Degradation Behavior of Server Applications through Dynamic Nursery Resizing", Summer 2007.

25. Feng Xian, Ph.D. Supervisory Advisor, "A Family of Optimization Techniques to Improve Garbage Collection Performance in Server Applications", Spring 2008.

26. Xin Liu, Ph.D. Supervisory Committee Member, Mixed Real-Time and Non-Real-Time Systems, Spring 2006.

27. Mithuna Soundararaj, M.S. Supervisory Advisor, "A Self Adjusting Code-Cache Manager to Balance Start-Up Time and Memory Usage in Memory Constrained Environments", Summer 2006.

28. Shiu-Beng Kooi, M.S. Supervisory Advisor, "Clustering the Heap in Multi-Threaded Applications for Improved Garbage Collection", Summer 2006.

29. Sita M. Tangirala, M.S. Project Advisor, "Increasing Garbage Collection Parallelism through Thread Clustering", Fall 2004.

30. Subhani M. Shaik, M.S. Project Advisor, “RAMAL: Run-Time Application Monitoring at Architecture Level”, Fall 2004.

31. Venkata Praveen Reddy Guddeti, M.S. Supervisory Committee Member, “An Improved Restart Strategy for Randomized Backtrack Search”, Fall 2004.

32. Srikanth Anumalla, M.S. Project Committee Member, “Ground Water Monitoring using Smart Sensors”, Summer 2004.

33. Saravanan Raju, M.S. Project Committee Member, “QoS Aware Routing in Wireless Sensor Networks”, Summer 2004.

34. Sanhitha Seerapu, M.S. Project Committee Member, “A Data Mining System to Find Associations among Web Pages: Intelligent Web Caching”, Summer 2004.

35. Sarvani Kare, M.S. Project Committee Member, “Using Bidimensional Regression to Assess Face Similarity”, Summer 2004.

36. Sameera Kolan, M.S. Supervisory Committee Member, “Carving Module Test Cases from System Test Cases: An Application to Regression Testing”, Summer 2004.

37. Ashok Janardhanan, M.S. Project Committee Member, “Implementation of a Secure Group Communication Protocol in a Distributed Computing Platform”, Summer 2004.

38. Jeremy Glasser, M.S. Supervisory Committee Member, “Using Adaptive Agents to Create a Continuous Challenge in Computer Games”, Spring 2004.

39. Vanitha Subramani, M.S. Project Committee Member, “Analysis of Sexual Dimorphism in Human Face”, Fall 2003.

40. Smitha Kasinadhuni, M.S. Project Committee Member, “A Web-Based Course Evaluation System”, Fall 2003.

41. Chengxiao Wang, M.S. Supervisory Committee Member, “The Design, Implementation, and Evaluation of APS: Adaptive Proportional Share Scheduling”, Summer 2003.

42. Ala Qadi, M.S. (CE) Supervisory Committee Member, “DVSST: Design and Implementation of a Dynamic Voltage Scaling Algorithm for Sporadic Tasks“, Summer 2003.

43. Xiangjun Xue, M.S. Project Committee Member, “Java-Based Secure Mailing List System”, Summer 2003.

44. Chon-Ming Lee, M.S. Project Committee Member, “Implementing Rate-Based Execution in the Real Time Kernel MicroC/OS-II“, Fall 2002.

14 Courses Taught at UNL

- CSCE155A: Computer Science I (Summer 2022, Fall 2022, Spring 2023).
- CSCE220: Software Development for Smart Mobile Devices (Spring 2015, 2016, 2017, 2018).
- CSCE230: Computer Organization (Summer 2003, Spring 2017).
- CSCE231: Computer Systems Engineering (Fall 2017).

- CSCE322: Programming Language Concepts (Spring 2021, Spring 2022).
- CSCE351: Operating System Kernels (Fall 2002 to Fall 2007, Fall 2012 to Fall 2021, Spring 2019).
- CSCE461/861: Advanced Software Engineering (Fall 2018).
- CSCE489: Computer Engineering Senior Design (Fall Fall 2004, Fall 2007, Fall 2009, Spring 2015).
- CSCE488: Computer Engineering Professional Development (Spring 2004, Spring 2007, Spring 2009, Fall 2014).
- Raik284H: Computer Systems (Spring 2011, Spring 2012, Fall 2012, Fall 2013)
- CSCE101: Fundamentals of Computer Science (Fall42008, Fall 2009, Fall 2011).
- CSCE990: Advanced Runtime Systems (Spring 2008, Fall 2011).
- CSCE436/836: Embedded Systems Design and Implementation (Spring 2005 to Spring 2007).
- CSCE496/896: Performance Analysis of O-O Systems (Spring 2004, Fall 2005).
- CSCE430: Computer Architecture (Spring 2003, Spring 2008).

15 Undergraduate Research Activities

- "Intelligent Compiler for Cybersecurity Manufacturing", DoE, 8/1/2021-5/31/2023, Project Participants: Nathan Kolbas, Logan Hellbusch, and Viet Ninh.
- "Android Malware Analysis", DARPA, 6/1/2014-3/31/2016, $10,000. Project Participants: Jackson Dihn and Jun Sun.
- "OS Development for Embedded Devices", Honors Thesis, 2016-2017. Project Participants: Rebecca Horzewski and Eugene Kuznetsov.
- "Machine Learning-Based Android Malware Analysis", NSA 9/1/2015-5/15/2016, $4000. Project Participants: Lichao Sun.
- "Undergraduate Project: Creating Android Malware Suite", DARPA, 9/1/2014-5/15/2015, $5,000. Project Participants: Deverick Simpson, Bryce Fowler, Oscar Montoya, and Jackson Dihn.
- "Architectural Support of Performance Monitoring", NSF-REU, 6/1/2007, $6,000. Project Participant: Hayder Mohammad.
- "Building Scalable and Adaptive Garbage Collector for Server Systems", NSF-REU, 6/1/2005, $6,000. Project Participants: Jon Richardson and Brian Kaiser.
- "Implementing Simple Asynchronous Processor", (UCARE) University of Nebraska-Lincoln, 6/1/2003 - 5/31/2005. Project Participant: Boian Berberov.
- "Reconfigurability Issues in Sensor Networks", (UCARE) University of Nebraska-Lincoln, 6/1/2004 - 5/31/2005. Project Participant: Tyson Stewart.
- "Implementing Hardware Support for Memory Management in Java Systems", (UCARE) University of Nebraska-Lincoln, 6/1/2003 - 5/31/2005. Project Participant: David Anthony.