

CURRICULUM VITAE

Dinghao Wu

Contact Information

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Research Interests

I do research on software systems, including software security, software protection, software analysis and verification, information and software assurance, programming languages, and software engineering.

Education

Princeton University, Ph.D., Computer Science, 2005.

Ph.D. Dissertation: *Interfacing Compilers, Proof Checkers, and Proofs for Foundational Proof-Carrying Code*. (Advisor: Andrew W. Appel)

Princeton University, M.A., Computer Science, 2002.

Nanjing University, M.E., Computer Software and Theory, 1999.

Thesis: *A State-Space Based Approach to the Specification and Verification of Hybrid Systems and Its Axiomatic Basis*. (Advisor: Jian Lü)

Nanjing University of Chemical Technology, B.E., Chemical Engineering, 1996.

Thesis: *Numerical Simulation of Free Turbulent Jets*. (Advisor: Daiqing Zhao)

Appointments

EPFL (École Polytechnique Fédérale de Lausanne), Lausanne, Switzerland.

Visiting Professor, 2018–present.

College of Information Sciences & Technology, Pennsylvania State University, University Park.

Associate Professor, 2017–present;

PNC Technologies Career Development Professorship, 2017–2020;

Institute for CyberScience (ICS) Faculty Associate, 2017–present;

Assistant Professor, 2012–2017;

Senior Lecturer and Research Scientist, 2009–2012.

Center for Software Excellence (Test Effectiveness Team and Program Analysis Team) & Windows Azure Division, Microsoft Corporation. Redmond, WA. Research engineer, 2005–2009.

Princeton University, Princeton, NJ. Research and teaching assistant, 2000–2005.

Microsoft Research, Redmond, WA. Research intern in the Software Productivity Tools (SPT) group, summers 2003, 2004.

Nanjing University, Nanjing, China. Research and teaching assistant, 1996–1999.

Research Grants

1. *Software Cruising for System Security*, Dinghao Wu (PI) and Peng Liu, National Science Foundation (NSF) CNS-1223710, \$499,745, 2012–2016.
2. *Towards Secure Lean Software*, Dinghao Wu (PI) and Peng Liu, Office of Naval Research (ONR) N00014-13-1-0175, \$423,520, 2013–2017.
3. *Towards Obfuscation-Resilient Software Plagiarism Detection*, Sencun Zhu, Dinghao Wu (Co-PI), and Peng Liu, National Science Foundation (NSF) CCF-1320605, \$500,000, 2013–2017.
4. *Greater Philadelphia Innovation Cluster for Energy Efficient Buildings (GPIC)*, Henry C. Foley (PI, 2011-2013), Martha Krebs (PI, 2013-2016), Chimay J. Anumba, John Messner, William P. Bahnfleth, Ali M. Memari, Richard G. Mistrick, Kevin W. Houser, Jelena Srebric, Stephen J. Treado, David R. Riley, Jeffrey Brownson, Seth A. Blumsack, Ralph A. Oliva, John Yen, Daniel E. Willis, Brian A. Orland, Mallika Bose, Stuart P. Echols, Andrew N. Kleit, Arvind Rangaswamy, Martin J. Sliwinski, James Freihaut, Paul M. Hallacher, Dinghao Wu (Co-PI), Robert M. Leicht. U.S. Department of Energy (DOE), National Energy Technology Laboratory (NETL), DE-EE0004261, \$129 million, 2011–2016. (The project was later renamed as the Energy Efficient Buildings Hub (EEB Hub), and then the Consortium for Building Energy Innovation (CBEI). Wu is assigned with 4% credit.)
5. *A Model Checking Approach to Counter-acting of the Dynamics of Infection Propagation over Networks*, Dinghao Wu (PI), Vasant Honavar, and John Yen, College of Information Sciences and Technology, Penn State University, \$9,499.00, 2014–2015.
6. *An Intelligent Adaptive Network Defense Architecture*, Dinghao Wu (PI), The Penn State Fund for Innovation. \$73,556.00, 2015–2016.
7. *Secure Lean Binary Code*, Dinghao Wu (PI) and Peng Liu, Office of Naval Research (ONR) N00014-16-1-2265, \$504,930, 2016–2019.
8. *Reverse Engineering Based Software Diversification for Cyber Fault Tolerance*, Dinghao Wu (PI), Office of Naval Research (ONR) N00014-16-1-2912, \$509,378, 2016–2019.
9. *CAREER: Advanced Trace-oriented Binary Code Analysis*, Dinghao Wu (PI), National Science Foundation (NSF) CNS-1652790, \$494,703, 2017–2022.
10. *A New Direction for Software Reverse Engineering and Binary Code Retrofitting*, Dinghao Wu (PI), Office of Naval Research (ONR) N00014-17-1-2894, \$3,568,941, 2017–2022.

Awards and Honors

NSF CAREER Award, 2017.
PNC Technologies Career Development Professorship, 2017–2020.
Top 10 finalists in CSAW 2017 Applied Research Competition, 2017.
George J. McMurtry Junior Faculty Excellence in Teaching and Learning Award, 2016.
Junior Faculty Excellence in Research Award, Penn State University, 2014.
Distinguished paper award nomination, FSE 2014.
Distinguished Graduate Student Award, Nanjing University, 1998.
Distinguished Student Award, Nanjing University of Chemical Technology, 1995.
Award for Excellence in Organizing Student Activities, Nanjing University of Chemical Technology, 1993, 94, 95.
Honorable Mention, National Mathematical Contest in Modeling (MCM), Chinese Society for Industrial and Applied Mathematics, 1994.
University Scholarship, Nanjing University of Chemical Technology, 1992–1996.

Awards to Advisees

Shuai Wang, The College of IST Circle of Ph.D. Research Distinction Award, February 2018.
Dongpeng Xu, The College of IST Circle of Ph.D. Research Distinction Award, February 2018.
Dongpeng Xu and Jiang Ming, Top 10 finalists in CSAW 2017 Applied Research Competition, 2017.
Xiao Liu and Brett Holden, Best Paper Award, International Conference on Software Security and Assurance, July 2017.
Xiao Liu, Bronze Medal, ACM Graduate Student Research Competition, PLDI'17, Barcelona, Spain, June 2017.
Lannan Luo and Jiang Ming, Distinguished paper award nomination, FSE 2014.
Yufei Jiang, Robert W. Graham Endowed Graduate Fellowship, Pennsylvania State University, 2011.
Jiang Ming, Jordan H. Rednor Graduate Fellowship, Pennsylvania State University, 2011.

Teaching

- Instructor, College of Information Sciences and Technology, Pennsylvania State University.
 - Security and Privacy in Emerging Platforms (IST 597B: Fall 2015, Spring 2017)
 - Software Security and Analysis (IST 597A: Spring 2015)
 - Programming Languages (IST 402: Spring 2014)
 - Information Security (SRA 221: Fall 2010, Fall 2011, Spring 2012, Spring 2013, Fall 2013)
 - Network Security (IST 451, online MPS and residence: Spring 2010, Spring 2011, Fall 2011, Fall 2012, Spring 2014, Fall 2014, Spring 2016, Fall 2016)
 - Discrete Mathematics (IST 230: Fall 2010)
 - Networking and Telecommunications (IST 220: Spring 2011, Spring 2012)
- New Courses Developed and Taught, Pennsylvania State University.

- IST 597A: Software Security and Analysis
- IST 597B: Security and Privacy in Emerging Platforms
- IST 402: Programming Languages
- New Course Proposals Developed or Co-developed, Pennsylvania State University.
 - IST 543: Foundations of Software Security
 - CYBER 366: Malware Analytics
 - DS 120: Scripting for Data Sciences
- New Programs Co-Developed, Pennsylvania State University.
 - Cybersecurity Analytics and Operations
 - Data Sciences
- Guest Lecturer, College of Information Sciences and Technology, The Pennsylvania State University.
 - IST 220: Networking and Telecommunications (Fall 2012)
 - IST 110: Information, People, and Technology (Fall 2012)
 - CMPSC 443: Introduction to Computer Security (Spring 2011)
 - IST 451: Network Security (Spring 2010)
 - IST 110S: Information, People and Technology (Fall 2010)
- Volunteer Teacher, Princeton Chinese Language School.
 - Teaching children the game of Go (Wei-Qi) (Fall 2002)
- Assistant in Instruction, Department of Computer Science, Princeton University.
 - COS 111: Computers and Computing (Spring 2002)
 - COS 109: Computers in Our World (Fall 2001)
- Advisor for Summer Programming Experience (SPE) program, Department of Computer Science, Princeton University.
 - Advising a freshman programming project (Summer 2001)
- Teaching Assistant, Department of Computer Science, Nanjing University.
 - UNIX and C (Spring 1997)

Service

- Peer Review of Grant Proposals
National Science Foundation (NSF), Secure and Trustworthy Cyberspace (SaTC) Program, Panelist. (2015–2016).
National Science Foundation (NSF), CISE CCF SHF, Panelist. (2014).

- Lions Center Lunch Seminar Organizer (2010–2013)
I initiated and organized the Lions Center Seminar Series from Spring 2010 to 2013. There were about 50 research seminars with an average attendance of about 30 participants for each seminar. Speakers include faculty, researchers, and students from and outside of Penn State University. Some speakers are international researchers.
- Faculty Honors Adviser, IST/PSU (2012–present)
- Schreyer Honors Scholar Advisor
Matthew Kennedy (2016–), Alejandro Villalba (2016–), Ryan Kohler (2015–), Daniel Servich (2014–15), Brett Holden (2013–15).
- Schreyer Honors Thesis Advisor
Brett Holden (2013–15).
- Internship Advisor
Wei Le, Center for Software Excellence, Microsoft (2006).
- Summer Program Advisor
Thais Melo (2001), Summer Programming Experience (SPE) program, Princeton University.
- IST Ph.D. Candidacy Examination Committee
Chu Huang (2010), Ryan Kaulakis (2010), Chu Huang (2011), Sushama Karumanchi (2011), Bin Zhao (2011), Changkun Zhao (2011), Xiaoyan Sun (2012), Stephen Carmen (2012), Siqiong He (2013), Jun Xu (2014), Yu Pu (2014), Dafang He (2015), Pena Joslenne (2016), Zhu Haining (2016), Zhuomin Zhang (2017), Agnese Chiatti (2017), Scott Pezanowski (2017), Xianfeng Tang (2017), Guanjie Huang (2017).
- Master's Thesis Committee
Chu Huang (May 2011. Co-advised with Sencun Zhu), Ke Dang (August 2011), Jung-woo Sohn (2011–12), Qi Fang (2011–12), Shandan Zhou (2012), Stephen Carmen (2013), Nan Yu (Chair, 2014), Yinan Wan (2014), Gaoyao Xiao (2015), Matthew Tentilucci (2015), Pinyao Guo (2015), Vishal More (2015), Can Zhang (Chair, 2016), Xiao Liu (Chair, 2016), Yan Wang (Chair, 2015–2017), Pengwei Lan (Chair, 2013–2017), Tyler Frederick (2017), Lawrence Wu (Chair, 2016–Present), Tao Zhang (2017–Present).
- Ph.D. Comprehensive Exam Committee
Eun Yeong Ahn (2011), Smitha Sundareswaran (2011), Bing Liu (2011), Jung-woo Sohn (2011), Hau-Wen Chang (2012), Chu Huang (2012), Wei Ding (2012), Seong Jo Kim (2012), Sushama Karumanchi (2013), Praveen Yedlapalli (2014), Xiao Yuan (2014), Xiaoyao Sun (2014), Issa Ramaji (2014), Yi Yang (2015), Gaoyao Xiao (2015), Yufei Jiang (Chair, 2015), Jiang Ming (Chair, 2015–16), Pei Wang (Chair, 2016), Shuai Wang (Chair, 2016), Dongpeng Xu (Chair, 2016), Li Wang (Chair, 2016), Jagadish Kotra (2016), Priya Anand (2016).
- Ph.D. Thesis Committee
Eun Yeong Ahn (2011–12), Smitha Sundareswaran (2011–14), Bing Liu (2011–15), Jung-woo Sohn (2011–13), Hau-Wen Chang (2012–14), Chu Huang (2012–15), Wei Ding (2012–14), Seong Jo Kim (2012–14), Sushama Karumanchi (2013–16), Praveen Yedlapalli (2014–15), Xiao Yuan (2014–16), Xiaoyao Sun (2014–16), Issa Ramaji (2014–16), Yi Yang (2015–17),

Gaoyao Xiao (2015–), Yufei Jiang (Chair, 2015–17), Jiang Ming (Chair, 2015–16), Diana Guttman (2015–), Pei Wang (Chair, 2016–), Shuai Wang (Chair, 2016–), Dongpeng Xu (Chair, 2016–), Li Wang (Chair, 2016–), Jagadish Kotra (2016–17), Priya Anand (2016–), Narges Shahidi (2016–).

- Program Committee

The ACM Conference on Computer and Communications Security (CCS 2018).

The 5th Annual Hot Topics in the Science of Security Symposium (HoTSoS 2018)

The IEEE International Conference on Software Quality, Reliability and Security (QRS 2018).

The 14th EAI International Conference on Security and Privacy in Communication Networks (SecureComm 2018)

The ACM Conference on Computer and Communications Security (CCS 2017).

The 2017 Workshop on Forming an Ecosystem Around Software Transformation (FEAST), Co-chair.

The 2017 IEEE International Conference on Software Quality, Reliability and Security (QRS 2017).

The 13th EAI International Conference on Security and Privacy in Communication Networks (SecureComm 2017)

The 2016 IEEE International Conference on Software Quality, Reliability and Security (QRS 2016).

The 38th International Conference on Software Engineering (ICSE 2016), Software Engineering in Practice (SEIP) Track.

The 9th IEEE International Conference on Social Computing and Networking (SocialCom 2016).

The 8th IEEE International Conference on Social Computing and Networking (SocialCom 2015).

The 2015 IEEE International Conference on Software Quality, Reliability and Security (QRS 2015).

The 10th International Conference on Evaluation of Novel Approaches to Software Engineering (ENASE 2015).

The Third ASE International Conference on Cyber Security (CyberSecurity 2014).

The 7th IEEE International Conference on Social Computing and Networking (SocialCom 2014).

The Sixth ASE International Conference on Social Computing (SocialCom - Stanford).

SocialCom 2013: ASE/IEEE International Conference on Social Computing.

PASSAT 2013: ASE/IEEE International Conference on Privacy, Security, Risk and Trust.

CATS 2013: The 19th Computing: the Australasian Theory Symposium.

SocInfo 2012: ASE/IEEE International Conference on Social Informatics.

SocialCom 2012: IEEE International Conference on Social Computing.

- Reviewer for Conferences and Journals

Journal of Systems and Software (2017).

IEEE Transactions on Dependable and Secure Computing (2017).

Elsevier Computers & Security (COSE) (2017).

ACM Transactions on Privacy and Security (TOPS) (2016).

Electronics and Telecommunications Research Institute (ETRI) Journal (2016).

- Elsevier Computers & Security (COSE) (2016).
- IEEE Transactions on Information Forensics & Security (TIFS) (2016).
- IEEE Transactions on Software Engineering (TSE) (2016).
- Electronics and Telecommunications Research Institute (ETRI) Journal (2015).
- Frontiers of Computer Science, Springer (2015).
- IEEE Transactions on Dependable and Secure Computing (2015).
- IEEE Transactions on Reliability (2015).
- IEEE Transactions on Software Engineering (2015).
- Journal of Applied Logic, Elsevier (2015).
- Journal of Computer Science and Technology, Springer (2015).
- Springer Journal of Language Resources and Evaluation (2015).
- Applied Mathematical Sciences (2014).
- The Fifth ACM Conference on Data and Application Security and Privacy (CODASPY) (2014).
- Journal of Systems and Software, Elsevier (2013).
- Journal of Computer Science and Technology, Springer (2013).
- Journal of Information Processing Systems (JIPS), 2011.
- IEEE Transactions on Parallel and Distributed Systems (TPDS).
- International Conference on Information Systems 2011 (ICIS).
- ACM Transactions on Programming Languages and Systems (TOPLAS).
- The 6th International Conference on Security and Privacy in Communication Networks (SecureComm 2010).
- iConference 2010.
- IEEE Symposium on Security and Privacy (Oakland 2010).
- The 28th International Conference on Software Engineering (ICSE 2006).
- Service to the University: College Committees
 - Masters Advisory Committee (2018–Present).
 - Awards Committee (Chair, 2018–Present).
 - Virtual Labs Committee (2017–Present).
 - Faculty Annual Review Committee (2017–2018)
 - CYBER 366 Malware Analytics Course Committee, Chair, (2017–Present).
 - Human Centered Design Faculty Search Committee (2017–2018).
 - Security & Privacy Faculty Search Committee (2016–2017).
 - IST 451 Network Security Course Committee, Chair, (2011–Present).
 - SRA 221 Overview of Information Security Course Committee (2010–Present).
 - IST Awards Committee (2016–2017).
 - Security & Privacy Faculty Search Committee (2016–2017).
 - Ph.D. Student Candidacy Exam Committee (2010–2018).
 - Cybersecurity Program Committee (2016).
 - TA/LA Task Force (2016).
 - Information and Cyber Security (ICS) Option curriculum review Task Force, Member. (2015–2016).
 - Data Analytics Task Force (2014–2015).
 - MYFT Search Committee (2014–2015).
 - (Recruited 2 MYFT faculty) Graduate Recruiting Committee (2012–2014).

IST 140/240/311 Course Committee (2010–2014).
IST 451 Network Security Course Committee (2010–2011).

- Service to the University: University Committees
University Graduate Council Subcommittee on New and Revised Programs and Courses, Representative. (2015–2017).
University Graduate Council, Representative. (2014–2015).
- Assistance to Student Organizations
Advisor for Student Organizations, Reading Enlightening and Delighting (READ) Club, Advisor. (2015).

Membership

- USENIX Association (2015–Present).
- ACM (2004–2007, 2010–Present).
- IEEE (2004–2007, 2010–Present).
IEEE Computer Society (2004–2007, 2010–Present);
IEEE Reliability Society (Since 2015).

Invited Talks and Seminars

- “Advanced Semantics Based Binary Code Similarity Comparison Methods.” Institute of Software, Chinese Academy of Science, August 10, 2017.
- “Advanced Semantics Based Binary Code Similarity Comparison Methods.” Tsinghua University and InForSec Forum, August 9, 2017.
- “CacheD: Identifying Cache-Based Timing Channels in Production Software.” Tsinghua University and InForSec Forum, August 9, 2017.
- “Advanced Semantics Based Binary Code Similarity Comparison Methods.” Institute of Information Engineering, Chinese Academy of Science, August 8, 2017.
- “Advanced Semantics Based Binary Code Similarity Comparison Methods.” Peking University, August 7, 2017.
- “Uroboros: Reassembleable Disassembling.” Dagstuhl Seminar 17281: Malware Analysis: From Large-Scale Data Triage to Targeted Attack Recognition, Dagstuhl, Germany, July 14, 2017.
- “Advanced Semantics Based Binary Code Similarity Comparison Methods.” Dagstuhl Seminar 17281: Malware Analysis: From Large-Scale Data Triage to Targeted Attack Recognition, Dagstuhl, Germany, July 14, 2017.
- “Software Customization and Bloatware Mitigation Based on Static Analysis.” Invited Talk at DOD Cyber Community of Interest (CoI), Office of Naval Research (ONR), September 28, 2016.

- “Semantics-based Binary Diffing and Code Block Semantics Memoization with Application to Malware Detection.” Invited Talk at FireEye, August 9, 2016.
- “Obfuscation-resilient Software Plagiarism and Mobile App Repackaging Detection.” Invited Talk at Samsung Research America, August 8, 2016.
- “Systematic Program Semantics Based Opaque Predicate Detection.” Invited Talk at Baidu XLab, August 8, 2016.
- “Towards Obfuscation-Resilient Software Plagiarism Detection.” Invited Talk at Institute of Information Engineering, Chinese Academy of Sciences, Beijing, July 30, 2015.
- “Pipelined Symbolic Taint Analysis.” Colloquium Talk at Department of Computer Science, University of Texas at Dallas, April 3, 2015.
- “Lock-free Concurrent Security Monitoring.” Institute of Information Engineering, Chinese Academy of Sciences, Beijing, December 12, 2013.
- “Lock-free Concurrent Security Monitoring.” Colloquium Talk at Department of Computer Science and Engineering, Lehigh University, April 23, 2013.
- “Lightweight Concurrent Heap Buffer Overflow Detection.” Lions Center Seminar, The Pennsylvania State University. February 9, 2010.
- “Data Center Energy Optimization: Opportunities and Challenges.” Smart Building Meeting. The Pennsylvania State University. November 11, 2009.
- “Software Correctness, Verification, and Proofs in the Real World,” Department of Computer Science, University of Houston, April 12, 2007.
- “Software Correctness, Verification, and Mathematical Proofs in the Real World,” Department of Computer Science, Drexel University, April 9, 2007.
- “Software Correctness, Verification, and Mathematical Proofs,” Department of Electrical Engineering & Computer Science, University of Kansas, March 12, 2007.
- “Software Correctness, Verification, and Mathematical Proofs,” Department of Software and Information Systems, University of North Carolina, Charlotte, March 1, 2007.
- “Verification via Proof-Carrying Code and Model Checking,” Center for Software Excellence, Microsoft Corporation. May 19, 2005.
- “Verification via Proof-Carrying Code and Model Checking,” NEC Labs, Princeton, NJ. April 22, 2005.
- “Interfacing Compilers, Proof Checkers, and Proofs for Foundational Proof-Carrying Code,” Department of Computer Science and Engineering, Texas A&M University. May 9, 2005.
- “Interfacing Compilers, Proof Checkers, and Proofs for Foundational Proof-Carrying Code,” Department of Computer Science, University of Massachusetts Amherst (UMASS). February 22, 2005.

- “Interfacing Compilers, Proof Checkers, and Proofs for Foundational Proof-Carrying Code,” Department of Computer Science, Northwestern University. February 14, 2005.
- “Precise Race Detection Using Sequential Program Analysis and Model Checking.” TACL Seminar: Tool and Algorithms for Compilers and Languages, Department of Computer Science, Princeton University. October 3, 2003.

Posters

- Wang, S., Wang, P., Wu, D. (Presenter), (January 2017). “Reassembleable Disassembling,” NSF Secure and Trustworthy Cyberspace (SaTC) Program PI Meeting, NSF, Arlington, VA.
- Wang, S., Wang, P., Ming, J., Jiang, Y., Wu, D. (Presenter), (January 2017). “Translingual Obfuscation,” NSF Secure and Trustworthy Cyberspace (SaTC) Program PI Meeting, NSF, Arlington, VA.
- Ming, J., Wu, D. (Presenter), Xiao, G., Wang, J., Liu, P., (January 2015). “Pipelined Symbolic Taint Analysis,” NSF Secure and Trustworthy Cyberspace (SaTC) Program PI Meeting, NSF, Arlington, VA.
- Luo, L., Ming, J., Wu, D. (Presenter), Liu, P., Zhu, S., (January 2015). “Semantics-Based Obfuscation-Resilient Binary Code Similarity Comparison with Applications to Software Plagiarism Detection,” NSF Secure and Trustworthy Cyberspace (SaTC) Program PI Meeting, NSF, Arlington, VA.
- Jiang, Y. (Co-Presenter), Yu, N. (Co-Presenter), Ming, J., Luo, L., Zhou, C., Lee, S., Jallow, A., Mitra, P., Yen, J., Leicht, R. M., Messner, J., Wu, D., (April 16, 2013). “Building Information Modeling (BIM) Data Hub,” EEB Hub Graduate Student Poster Session, The Energy Efficient Buildings (EEB) Hub, U.S. DOE, University Park, PA, Invited.
- Jiang, Y. (Co-Presenter), Yu, N. (Co-Presenter), Ming, J., Luo, L., Zhou, C., Lee, S., Jallow, A., Mitra, P., Yen, J., Leicht, R. M., Messner, J., Wu, D., (March 20, 2013). “Building Information Modeling (BIM) Data Hub,” Building syEnergy Conference, The Energy Efficient Buildings (EEB) Hub, U.S. DOE, Navy Yard, Philadelphia, PA, Invited.
- Yen, J. (Presenter), Caragea, C., Kim, H.-W., Mitra, P., Giles, C. L., Tapia, A. H., Jansen, B. J., Wu, D., Jaiswal, A., Traylor, G., Maslowski, A., Tchouakeu, L.-M. N., (September 2010). “EMERSE: Enhanced Messaging for the Emergency Response Sector,” The EERI-NSF Haiti RAPIDs and Research Needs Workshop, The Earthquake Engineering Research Institute (EERI) and the National Science Foundation (NSF), Arlington, VA, Invited.
- Wu, D. (Co-Presenter), Li, L., (April 2, 2010). “Developing Advanced Computational Techniques for Complex Multiphase and Multicomponent Reactive Transport Simulations at Large Spatial and Time Scales,” PSIEE-NETL (National Energy Technology Laboratory, Department of Energy) Joined Workshop, University Park, PA, Invited.

Presentations

- Wu, D., (October 28, 2016). “A New Direction for Reverse Engineering,” The 2016 Workshop on Forming an Ecosystem Around Software Transformation (FEAST 2016), ONR, Vienna, Austria.
- Wu, D., (October 28, 2016). “Software Customization and Bloatware Mitigation Based on Static Analysis,” The 2016 Workshop on Forming an Ecosystem Around Software Transformation (FEAST 2016), ONR, Vienna, Austria.
- Wu, D., (November 4, 2014). “Program Logic Based Software Plagiarism Detection,” The 25th IEEE International Symposium on Software Reliability Engineering (ISSRE 2014), IEEE, Naples, Italy.
- Wu, D., (September 19, 2014). “PiE: Programming in Eliza,” The 29th IEEE/ACM International Conference on Automated Software Engineering (ASE 2014), IEEE/ACM, Vasteras, Sweden.
- Wu, D., (May 15, 2013). “BIM Data Hub,” Building Energy Informatics Summit, The Energy Efficient Buildings (EEB) Hub, U.S. DOE, Navy Yard, Philadelphia, PA, Invited.
- Wu, D., (May 18, 2011). “Concurrent Security Monitoring Using Semi-synchronized and Lock-free Algorithms,” PSU-PKU Joint Workshop on Energy Efficient Computing and Applications, Beijing, China, Invited.
- Wu, D., (May 18, 2011). “Cloud Computing Security and Privacy,” PSU-PKU Joint Workshop on Smart Health and Wellbeing, Beijing, China, Invited.
- Wu, D., (March 22, 2011). “EMERSE in Cloud,” Microsoft Campus Visit to Penn State (Research Track), University Park, PA.
- Wu, D., (August 23, 2010). “Cruiser: Concurrent Buffer Overflow Monitoring Using Lock-free Data Structures,” DOD MURI Project Meeting on Cyber Situation Awareness, DOD, UC Santa Barbara.
- Qadeer, S., Wu, D., (2004). “KISS: Keep It Simple and Sequential,” Technical Review by Bill Gates, Microsoft Corporation, Redmond, WA. The BillG Review was the highest level technical review at Microsoft. Shaz Qadeer (presenter), Dinghao Wu (intern).
- Wu, D., (August 2003). “Foundational Proof Checkers with Small Witnesses,” The Fifth ACM-SIGPLAN International Conference on Principles and Practice of Declarative Programming (PPDP 2003), ACM, Uppsala, Sweden.

Current Postdoctoral Researchers

- Francisco Rocha
- Yuyan Bao
- Xiangkun Jia

Current Students

Undergraduate students

- Christian Donnelly (Schreyer Honors College student)
- Daniella F. Callaghan (Schreyer Honors College student, Info Sciences and Tech major)
- Carson Mcleod Brown (Schreyer Honors College student, Security Risk Analysis major)
- Justin Wu (Cybersecurity)

M.S. students

- Yu Li

Ph.D. students

- Xiaoting Li (Ph.D.)
- Rupesh Prajapati (Ph.D.)
- David Foley (Ph.D.)
- Yu Fu (Ph.D.)
- Li Wang (Ph.D.)
- Xiao Liu (Ph.D.)
- Qinkun Bao (Ph.D.)
- Neeraj Karamchandani (Ph.D.)
- Zihao Wang (Ph.D.)
- Jinquan Zhang (Ph.D.)

Former Students

- Chu Huang (M.S., 2011). Thesis: Towards Trusted Computational Services: Result Verification Schemes for MapReduce. Co-advised with Sencun Zhu. Continued Ph.D. study at Penn State University.
- Nan Yu (M.S., 2014). Thesis: Information Interoperability Between Building Information Modeling Authoring Tools and Simulation Tools to Support Energy Efficient Building Design. Software Engineer, IBM Watson Group.
- Brett Holden (B.S., 2015). Schreyer Honors Scholar Honors Thesis: Eliza for Access Control Lists. Continued graduate study at Virginia Commonwealth University.
- Can Zhang (M.S., 2016). Thesis: A Model Checking Approach to Countering the Dynamics of Infection Propagation Over Network. Software Engineer. Deloitte.

- Xiao Liu (M.S., 2016). Thesis: Programming in Eliza. Continued graduate study at Penn State University.
- Jiang Ming (Ph.D., 2016). Thesis: Pipelined Symbolic Taint Analysis. Tenure-Track Assistant Professor, University of Texas at Arlington.
- Pengwei Lan (M.S., 2017). Thesis: Lambda Obfuscation. Software Engineer, Deloitte.
- Yan Wang (M.S., 2017). Thesis: Obfuscation with Turing Machine. Software Engineer, Bloomberg.
- Yufei Jiang (Ph.D., 2017). Thesis: Program Analysis Based Bloatware Mitigation and Software Customization. Software Engineer, Microsoft.
- Lawrence Wu (B.S. and M.S., 2018) Thesis: Blockchain Smart Contracts in Megacity Logistics. Communications Analyst, Federal Reserve Board.
- Pei Wang (Ph.D., 2018) Thesis: Advanced Software Obfuscation Techniques and Applications. Senior Security Researcher, Baidu XLab.
- Dongpeng Xu (Ph.D., 2018) Thesis: Opaque Predicate: Attack and Defense in Obfuscated Binary Code. Assistant Professor, University of New Hampshire.
- Shuai Wang (Ph.D., 2018) Thesis: Advanced Reverse Engineering Techniques for Binary Code Security Retrofitting and Analysis. Assistant Professor, Hong Kong University of Science and Technology (HKUST). (Postdoc at ETH, 2018–19)

Technology Transferred or Adopted in the Field

- Dongpeng Xu, Jiang Ming, Yu Fu, and Dinghao Wu. “VMHunt: A Verifiable Approach to Partially-Virtualized Binary Code Simplification,” Open Source Release. (2018). URL: <https://github.com/s3team/VMHunt>.
- Dongpeng Xu, Jiang Ming, and Dinghao Wu. “Cryptographic Function Detection in Obfuscated Binaries via Bit-precise Symbolic Loop Mapping,” Open Source Release. (2017). URL: <https://github.com/s3team/CryptoHunt>.
- Zhou, C., Fu, Y., Lan, P., Jiang, Y., Yu, N., Wu, D. (Co-Developer), Yen, J., Messner, J., Leicht, R., “IFC Importer for OpenStudio,” Open Source Release, adopted by DOE Building Energy Simulation Platform OpenStudio. (2016). Software interoperability between BIM-Server and OpenStudio via automatic query generation.
- Ming, J., Xu, D., Wang, L., Wu, D. (Co-Developer), “LOOP: Logic-Oriented Opaque Predicate Detection in Obfuscated Binary Code,” Open Source Release. (2015). URL: <https://github.com/s3team/loop>.
- Wang, S., Wang, P., Wu, D. (Co-Developer), “Uroboros: Reassembleable Disassembling,” Open Source Software Release. (2015). Uroboros, a foundational tool for reverse engineering and binary retrofitting, is released at URL: <https://github.com/s3team/uroboros>. The work has been adopted by several labs and research groups, and generated quite a few buzzes

(see http://plato.ist.psu.edu/?page_id=472) on Twitter, GitHub, and Weibo after open source release. In particular, the method has been adopted and enhanced by the University of California Santa Barbara Shellphish team that won the 3rd place in the 2016 DARPA Cyber Grand Challenge (CGC) competition.

- Zeng, Q., Wu, D. (Co-Developer), Liu, P., “Cruiser: Concurrent Buffer Overflow Monitoring Using Lock-free Data Structures,” Open Source Software Release. (2014). Open source software release of Cruiser, a concurrent heap buffer overflow detector using lock-free data structure for synchronization. URL: <https://code.google.com/p/cruiser-psu/>.
- Zeng, Q., Xin, Z., Wu, D. (Co-Developer), Liu, P., Mao, B., “Tailored Application-specific System Call Tables,” Open Source Software Release. (2014). Open source software release: System call customization patch for Linux 2.6.32.59 and binary-based system call analysis code as IDA Pro plugins.
- Jiang, Y., Yu, N., Ming, J., Luo, L., Lee, S., Jallow, A., Wu, D. (Co-Developer), Yen, J., Messner, J., Leicht, R., “An Automated Computer Query Generation Method and System for Building Information Modeling (BIM),” Open Source Release, adopted by DOE EEB HUB. (2013). The BIM query generator is a prototype which bridges the gap between domain experts in the field of architectural engineering and technical professionals. The BIM query generator aims at the users who use BIMserver to query a subset of building information. Originally, the users have to write Java code to query. This not only requires the Java programming language background, but also deep knowledge about the BIM Server internal implementation. Our technology can generate the query code automatically according to the information exchange requirement provided by the users. One of the advantages is that we can generate different query codes according to the different requirements. This technology can help create an integrated eco-system around BIM Server with many tools and users.

Research Impacts in Society

- Technology adopted in the 2016 DARPA Cyber Grand Challenge. (2016). My Uroboros work has been adopted and enhanced by the UCSB Shellphish team to achieve low patching cost (on both code size and execution time), which has helped the team to win the 3rd place in the 2016 DARPA Cyber Grand Challenge (CGC) competition. Among the finalists, 2 teams (out of 7 teams) adopted this technology!
- Press. (2016). An Office of Naval Research (ONR) press release covered my work JRed on fighting software bloat. The press then was circulated in numerous online media.

Publications

* Student I supervise or supervised.

† Student supervised at the time the research was done.

1. “Large-scale Third-party Library Detection in Android Markets,” (Menghao Li, Pei Wang*, Wei Wang, Shuai Wang*, Dinghao Wu, Jian Liu, Rui Xue, Wei Huo, and Wei Zou.) *IEEE Transactions on Software Engineering (TSE)*, 2018. *Accepted*.

2. “VMHunt: A Verifiable Approach to Partially-Virtualized Binary Code Simplification,” (Dongpeng Xu*, Jiang Ming*, Yu Fu*, and Dinghao Wu.) In *Proceedings of the 25th ACM Conference on Computer and Communications Security (CCS 2018)*, Toronto, Canada from October 15–19, 2018. *Accepted*.
3. “RedDroid: Android Application Redundancy Customization Based on Static Analysis,” (Yufei Jiang*, Qinkun Bao*, Shuai Wang*, Xiao Liu*, and Dinghao Wu.) In *Proceedings of the 29th IEEE International Symposium on Software Reliability Engineering (ISSRE 2018)*, Memphis, TN, October 15-18, 2018. *Accepted*.
4. “Software Protection on the Go: A Large-Scale Empirical Study on Mobile App Obfuscation,” (Pei Wang*, Qinkun Bao*, Li Wang*, Shuai Wang*, Zhaofeng Chen, Tao Wei, and Dinghao Wu). In *Proceedings of the 40th International Conference on Software Engineering (ICSE 2018)*, Gothenburg, Sweden, May 27–June 3, 2018. (Acceptance rate: $105/502 = 20.9\%$)
5. “Protecting Million-User iOS Apps with Obfuscation: Motivations, Pitfalls, and Experience,” (Pei Wang*, Dinghao Wu, Zhaofeng Chen, and Tao Wei). In *Proceedings of the 40th International Conference on Software Engineering (ICSE 2018), Software Engineering in Practice (SEIP) Track*, Gothenburg, Sweden, May 27–June 3, 2018.
6. “From Natural Language to Programming Language,” (Xiao Liu* and Dinghao Wu). Book chapter in Steve Goschnick (Ed.), *Innovative Methods, User-Friendly Tools, Coding, and Design Approaches in People-Oriented Programming*. 2018.
7. “In-Memory Fuzzing for Binary Code Similarity Analysis,” (Shuai Wang* and Dinghao Wu). In *Proceedings of the 32nd IEEE/ACM International Conference on Automated Software Engineering (ASE 2017)*, Urbana Champaign, Illinois, USA, October 30–November 3, 2017. *Accepted*. (Acceptance rate $65/314=20.7\%$)
8. “Binary Code Retrofitting and Hardening Using SGX,” (Shuai Wang*, Wenhao Wang, Qinkun Bao*, Pei Wang*, XiaoFeng Wang, and Dinghao Wu). In *Proceedings of the Second Workshop on Forming an Ecosystem Around Software Transformation (FEAST 2017)*, co-located with CCS 2017, Dallas, USA, November 3, 2017. *Accepted*.
9. “Automated Synthesis of Access Control Lists,” (Xiao Liu*, Brett Holden*, and Dinghao Wu). In *Proceedings of the 3rd International Conference on Software Security and Assurance (ICSSA 2017)*, Altoona, Pennsylvania, USA, July 24-25, 2017. *Best Paper Award*.
10. “Lambda Obfuscation,” (Pengwei Lan*, Pei Wang*, Shuai Wang*, and Dinghao Wu). In *Proceedings of the 13th EAI International Conference on Security and Privacy in Communication Networks (SecureComm 2017)*, Niagara Falls, Canada, October 22-25, 2017. *Accepted*.
11. “Turing Obfuscation,” (Yan Wang*, Shuai Wang*, Pei Wang*, and Dinghao Wu). In *Proceedings of the 13th EAI International Conference on Security and Privacy in Communication Networks (SecureComm 2017)*, Niagara Falls, Canada, October 22-25, 2017. *Accepted*.
12. “SecControl: Bridging the Gap Between Security Tools and SDN Controllers,” (Li Wang* and Dinghao Wu). In *Workshop on Applications and Techniques in Cyber Security (ATCS), co-located with the 13th EAI International Conference on Security and Privacy in Communication Networks (SecureComm 2017)*, Niagara Falls, Canada, October 22-25, 2017. *Accepted*.

13. “Semantics-Aware Machine Learning for Function Recognition in Binary Code,” (Shuai Wang*, Pei Wang*, and Dinghao Wu). In *Proceedings of the 33rd IEEE International Conference on Software Maintenance and Evolution (ICSME 2017)*, Shanghai, China, September 17-24, 2017. Accepted.
14. “Composite Software Diversification,” (Shuai Wang*, Pei Wang*, and Dinghao Wu). In *Proceedings of the 33rd IEEE International Conference on Software Maintenance and Evolution (ICSME 2017)*, Shanghai, China. September 17-24, 2017. Accepted.
15. “BinSim: Trace-based Semantic Binary Diffing via System Call Sliced Segment Equivalence Checking,” (Jiang Ming*, Dongpeng Xu*, Yufei Jiang*, and Dinghao Wu). In *Proceedings of the 26th USENIX Security Symposium*, Vancouver, BC, Canada, August 16-18, 2017. (Acceptance rate 85/522=16.3%)
USENIX Security Symposium is a top-tier security conference.
16. “CacheD: Identifying Cache-Based Timing Channels in Production Software,” (Shuai Wang*, Pei Wang*, Xiao Liu*, Danfeng Zhang, and Dinghao Wu). In *Proceedings of the 26th USENIX Security Symposium*, Vancouver, BC, Canada, August 16-18, 2017. (Acceptance rate 85/522=16.3%)
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17. “A Lightweight Framework for Regex Verification,” Xiao Liu and Dinghao Wu (advisor). *Bronze Medal, the ACM Graduate Student Research Competition at PLDI’17*, Barcelona, Spain. June 2017.
18. “Cryptographic Function Detection in Obfuscated Binaries via Bit-precise Symbolic Loop Mapping,” (Dongpeng Xu*, Jiang Ming*, and Dinghao Wu). In *Proceedings of the 38th IEEE Symposium on Security and Privacy (IEEE S&P 2017)*, San Jose, CA, May 22-24, 2017. (Acceptance rate: 60/450=13.3%)
IEEE S&P is a top-tier security conference.
19. “LibD: Scalable and Precise Third-party Library Detection in Android Markets,” (Menghao Li, Wei Wang, Pei Wang*, Shuai Wang*, Dinghao Wu, Jian Liu, Rui Xue, and Wei Huo). In *Proceedings of the 39th ACM/IEEE International Conference on Software Engineering (ICSE 2017)*, Buenos Aires, Argentina, May 20-28, 2017. (Acceptance rate: 16.4%)
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ICSE is a top-tier software engineering conference.
21. “Semantics-Based Obfuscation-Resilient Binary Code Similarity Comparison with Applications to Software and Algorithm Plagiarism Detection,” (Lannan Luo[†], Jiang Ming*, Dinghao Wu, Peng Liu, and Sencun Zhu). *IEEE Transactions on Software Engineering (TSE)*, 43(12), December 2017.
IEEE TSE is a premier venue in software engineering.

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oization,” (Jiang Ming*, Dongpeng Xu*, and Dinghao Wu). *Journal of Computer Virology
and Hacking Techniques*, 13(3), August 2017. (First online May 17, 2016).
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tions,” (Jiang Ming*, Zhi Xin, Pengwei Lan*, Dinghao Wu, Peng Liu, and Bing Mao). *Journal
of Computer Virology and Hacking Techniques*, 13(3), August 2017. (First online May 31,
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24. “Natural Shell: An Assistant for End-user Scripting,” by Xiao Liu*, Yufei Jiang*, Lawrence
Wu*, and Dinghao Wu. *International Journal of People-Oriented Programming (IJPOP)*,
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25. “StraightTaint: Decoupled Offline Symbolic Taint Analysis,” (Jiang Ming*, Dinghao Wu, Jun
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26. “Software Plagiarism Detection: A Survey,” (Zhenzhou Tian, Ting Liu, Qinghua Zheng, Feifei
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27. “BinCFP: Efficient Multi-threaded Binary Code Control Flow Profiling,” (Jiang Ming* and
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Sencun Zhu). *IEEE Transactions on Reliability*, 65(4), December 2016.
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ceptance rate: $58/259 = 22.4\%$)

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37. “Program-object Level Data Flow Analysis with Applications to Data Leakage and Contamination Forensics,” (Gaoyao Xiao, Jun Wang, Peng Liu, Jiang Ming*, and Dinghao Wu). In *Proceedings of the 6th ACM Conference on Data and Application Security and Privacy (CODASPY 2016)*, New Orleans, LA, March 9–11, 2016.
38. “Feature-based Software Customization: Preliminary Analysis, Formalization, and Methods,” (Yufei Jiang*, Can Zhang*, Dinghao Wu, and Peng Liu). In *Proceedings of the 17th IEEE High Assurance Systems Engineering Symposium (HASE 2016)*, Orlando, FL, January 7–9, 2016.
39. “Automatic Building Information Model Query Generation,” (Yufei Jiang*, Nan Yu*, Jiang Ming*, Sanghoon Lee, Jason DeGraw, John Yen, John I. Messner, and Dinghao Wu). *Journal of Information Technology in Construction (ITCon)*, Vol. 20, pp. 518–535, 2015.
40. “LOOP: Logic-Oriented Opaque Predicate Detection in Obfuscated Binary Code,” (Jiang Ming*, Dongpeng Xu*, Li Wang*, and Dinghao Wu). In *Proceedings of the 22nd ACM Conference on Computer and Communications Security (CCS 2015)*, Denver, Colorado, USA, October 12–16, 2015. (Acceptance rate: $128/646 = 19.8\%$)
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41. “Reassembleable Disassembling,” (Shuai Wang*, Pei Wang*, and Dinghao Wu). In *Proceedings of the 24th USENIX Security Symposium*, Washington, D.C., August 12–14, 2015. (Acceptance rate: $67/426 = 15.7\%$)
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42. “TaintPipe: Pipelined Symbolic Taint Analysis,” (Jiang Ming*, Dinghao Wu, Gaoyao Xiao, Jun Wang, and Peng Liu). In *Proceedings of the 24th USENIX Security Symposium*, Washington, D.C., August 12–14, 2015. (Acceptance rate: $67/426 = 15.7\%$)
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43. “A Preliminary Analysis and Case Study of Feature-based Software Customization (Extended Abstract),” (Yufei Jiang*, Can Zhang*, Dinghao Wu, and Peng Liu). In *Proceedings of the 2015 IEEE International Conference on Software Quality, Reliability and Security (QRS 2015)*, Vancouver, Canada, August 3–5, 2015.
44. “Replacement Attacks: Automatically Impeding Behavior-based Malware Specifications,” (Jiang Ming*, Zhi Xin, Pengwei Lan*, Dinghao Wu, Peng Liu, and Bing Mao). In *Proceedings of the 13th International Conference on Applied Cryptography and Network Security (ACNS 2015)*, New York, June 2–5, 2015.
45. “Risk Assessment of Buffer “Heartbleed” Over-read Vulnerabilities,” (Jun Wang, Mingyi Zhao, Qiang Zeng, Dinghao Wu, and Peng Liu). In *Proceedings of the 45th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2015)*, Rio de Janeiro, Brazil, June 22–25, 2015. (Acceptance rate: $50/227 = 22.0\%$)
46. “Memoized Semantics-Based Binary Diffing with Application to Malware Lineage Inference,” (Jiang Ming*, Dongpeng Xu*, and Dinghao Wu). In *Proceedings of the 30th IFIP SEC 2015 International Information Security and Privacy Conference (IFIP SEC 2015)*, Hamburg, Germany, May 26–28, 2015.
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49. “Semantics-Based Obfuscation-Resilient Binary Code Similarity Comparison with Applications to Software Plagiarism Detection,” (Lannan Luo[†], Jiang Ming*, Dinghao Wu, Peng Liu, and Sencun Zhu). In *Proceedings of the 22nd ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2014)*, Hong Kong, China, November 16–22, 2014. (Distinguished Paper Award Nomination, acceptance rate: $61/273 = 22.3\%$)
FSE is a top-tier software engineering conference.
50. “Program Logic Based Software Plagiarism Detection,” (Fangfang Zhang, Dinghao Wu, Peng Liu, and Sencun Zhu). In *Proceedings of the 25th IEEE International Symposium on Software Reliability Engineering (ISSRE 2014)*, Naples, Italy, November 3–6, 2014. (Acceptance rate: $31/124 = 25.0\%$)
51. “Uncovering the Dilemmas on Antivirus Software Design in Modern Mobile Platforms,” (Heqing Huang, Kai Chen, Peng Liu, Sencun Zhu, and Dinghao Wu). In *Proceedings of the International Workshop on System Level Security of Smartphones (SLSS 2014)*, Beijing, China, September 23, 2014.

52. “PiE: Programming in Eliza,” (Xiao Liu* and Dinghao Wu). In *Proceedings of the 29th IEEE/ACM International Conference on Automated Software Engineering (ASE 2014)*, pages 695-700. New Ideas Papers. Vasteras, Sweden, September 15–19, 2014. (Acceptance rate: $82/337 = 24.3\%$)
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53. “ViewDroid: Towards Obfuscation-Resilient Mobile Application Repackaging Detection,” (Fangfang Zhang, Heqing Huang, Sencun Zhu, Dinghao Wu, and Peng Liu). In *Proceedings of the 7th ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec 2014)*, Oxford, United Kingdom, July 23–25, 2014. (Acceptance rate: $14/96 = 14.6\%$)
54. “A Framework for Integrating Change Management with Building Information Modeling,” (Fangxiao Liu, Abdou Karim Jallow, Chimay J. Anumba, and Dinghao Wu). In *Proceedings of the 15th International Conference on Computing in Civil and Building Engineering (ICCCBE 2014)*, Orlando, FL, June 23–25, 2014.
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56. “Software Cruising: A New Technology for Building Concurrent Software Monitor,” (Dinghao Wu, Peng Liu, Qiang Zeng, and Donghai Tian). In Sushil Jajodia, Krishna Kant, Pierangela Samarati, Anoop Singhal, Vipin Swarup, and Cliff Wang (Eds.), *Secure Cloud Computing, Advances in Information Security Series*, Springer, 2014.
57. “Building Knowledge Modeling: Integrating Knowledge in BIM,” (Fangxiao Liu, Abdou K. Jallow, Chimay J. Anumba, and Dinghao Wu). In *Proceedings of the 30th International Conference on Applications of IT in the AEC Industry (CIB W78 2013)*, Beijing, China, October 9–12, 2013.
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ISSTA is the leading research symposium in software testing and analysis.
63. “BIM Server Requirements to Support the Energy Efficient Building Lifecycle,” (Yufei Jiang*, Jiang Ming*, Dinghao Wu, John Yen, Prasenjit Mitra, John I. Messner, and Robert Leicht), In *Proceedings of the 2012 ASCE International Conference on Computing in Civil Engineering (ASCE 2012)*, Special Session on *BIM Computer Science Fundamentals*, Clearwater Beach, FL, June 17–20, 2012.
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65. “Kruiser: Semi-synchronized Non-blocking Concurrent Kernel Heap Buffer Overflow Monitoring,” (Donghai Tian, Qiang Zeng, Dinghao Wu, Peng Liu, and Changzhen Hu), In *Proceedings of the 19th Network and Distributed System Security Symposium (NDSS 2012)*, San Diego, California, February 5–8, 2012. (Acceptance rate: $46/258 = 17.8\%$)
NDSS is a top-tier conference in security.
66. “Identifying Leaders in an Online Cancer Survivor Community,” (Kang Zhao, Baojun Qiu, Cornelia Caragea, Dinghao Wu, Prasenjit Mitra, John Yen, Greta E. Greer, and Kenneth Portier), In *Proceedings of the 21st Annual Workshop on Information Technologies and Systems (WITS 2011)*, Shanghai, China, December 3–4, 2011.
67. “Get Online Support, Feel Better—Sentiment Analysis and Dynamics in an Online Cancer Survivor Community,” (Baojun Qiu, Kang Zhao, Prasenjit Mitra, Dinghao Wu, Cornelia Caragea, John Yen, Greta E. Greer, and Kenneth Portier), In *Proceedings of the Third IEEE International Conference on Social Computing (SocialCom 2011)*, Boston, USA, October 9–11, 2011. (Acceptance rate: 9.8%)
SocialCom is a top conference in social computing.
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69. “Cruiser: Concurrent Buffer Overflow Monitoring Using Lock-free Data Structures,” (Qiang Zeng, Dinghao Wu, and Peng Liu), In *Proceedings of the 2011 ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2011)*, pages 367–377, San Jose, CA, USA, June 4–8, 2011. (Acceptance rate: $55/236 = 23.0\%$)
PLDI is one of the top 2 conferences in programming languages.
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(2005–2009 in industry; see the patents section)

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(The KISS project was started in Summer 2003 and reviewed by Bill Gates in Summer 2004. This is the first work on analyzing concurrent software with sequential analysis and is credit with introducing the “sequentialization” technique.

PLDI is one of the top 2 conferences in programming languages.)

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77. (in Chinese) “Researches on Software Interoperability,” (Junhua Ding, Huan Dong, Dinghao Wu, and Jian Lü), *Computer Research and Development*, **35**(7):577–583, 1998.

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79. “Two-Dimensional Dealiasing of Doppler Velocities,” (Guoqing Liu, Wenzhong Ge, Xueru Zhang, Dinghao Wu, and Ji Zhou), In *Proceedings of the Twenty-seventh International Conference on Radar Meteorology*, American Meteorological Society. Vail, Colorado, October 9–13, 1995.

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