

Xusheng Xiao

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Research Interests

My research interests span the areas of **software engineering** and **computer security**, with the emphasis on **AI-enhanced software and system analysis approaches** that *synergistically combine software analysis and artificial intelligence to improve the reliability and the security of software and computer systems*: (1) I has substantial experiences in developing *provenance analysis on system audit logs for attack detection and investigation*. My security solution built based on his security research won Grand Prix award in the Town Life and Society Innovation Category at CEATEC Award 2016, and is integrated into a security product at NEC; (2) I has substantial experiences in *static verification, software testing, and machine learning*. My developed program analysis techniques have been evaluated on tens of thousands of real-world software applications and discovered numerous applications with potentially harmful behaviors. In particular, my static analysis tool in mobile security received a US patent and was deployed at TouchDevelop of Microsoft Research; (3) I also develops *novel textual analysis techniques that improve software security by analyzing natural language documents*, including use cases, API documents, GUI text, app descriptions and privacy policies. I have a proven track record of collaborating with industry partners to produce **practical and impactful research that was integrated to released products**. These collaborations have resulted in **6 US patents**.

Education

- 2009–2014 **Ph.D. in Computer Science**, North Carolina State University
Visiting Student, University of Illinois at Urbana-Champaign (2013–2014)
- 2009–2011 **M.S. in Computer Science**, North Carolina State University
- 2003–2007 **B.E. in Software Engineering**, Chongqing University

Professional Experience

- 8/2022–NOW **Associate Professor**, Arizona State University (ASU), USA
- 2/2017–8/2022 **Assistant Professor**, Case Western Reserve University (CWRU), USA
- 2014–2/2017 **Researcher**, NEC Labs America, USA
- Summer 2013 **Research Intern**, Microsoft Research Redmond, USA
- Summer 2012 **Research Intern**, NEC Labs America, USA
- Fall 2011 **Research Intern**, Microsoft Research Asia, China
- Summer 2011 **Research Intern**, Microsoft Research Redmond, USA
- Summer 2010 **Research Intern**, IBM T.J. Watson Research Center, USA
- 2007–2009 **Software Developer**, ThoughtWorks, China

Honors and Awards

- 2022 Environmental Science & Technology (ES&T) Best Paper Award
- 2021 National Science Foundation (NSF) CAREER Award
- 2021 Case School of Engineering Research Award, Case Western Reserve University
- 2018 Top 10 Finalist for CSAW Best Applied Security Research Paper Award [C21]

- 2018 Samsung GRO Award
- 2018 National Science Foundation (NSF) CRII Award
- 2016 Grand Prix in the Town Life and Society Innovation Category, CEATEC Award, Japan
 - Award Link: http://www.ceatec.com/en/award/award01_02.htm#awtown
 - One of the Five Category Awards Selected from 648 Exhibiting Companies (e.g., Epson, Panasonic, Mitsubishi Electric, Toyota)
 - Press: http://jpn.nec.com/press/201610/20161005_06.html
- 2015 Top 10 Finalist for CSAW Best Applied Security Research Paper Award [C11]
- 2012 International Conference on Software Engineering (ICSE) Student Research Competition (SRC) Best Project Representing an Innovative Use of Microsoft Technology [W1, C1]
- 2011 Microsoft Research Asia Excellent Summer Internship Award
- 2011 Best Project Representing an Innovative Use of Microsoft Technology in ICSE SRC [W1, C1]
- 2011 Finalist for the Fifth Annual National Security Innovation Competition (NSIC), USA

Publications

- **DBLP:** <https://dblp.org/pid/13/9656.html>
- **Google Scholar:** <https://scholar.google.com/citations?user=qVx6V7UAAAAJ>
 - **Google Scholar Citations: 4000+**
- **Publication Legend**
 - (*) Corresponding Author
 - **Bold Font:** Ph.D. Students (ASU or CWRU) for whom Dr. Xiao is the primary advisor
 - ***Bold Italic Font:*** Ph.D. Student, researcher, or intern for whom Dr. Xiao is a co-advisor or has significant mentoring responsibility
 - Underline Font: Master's Student for whom Dr. Xiao is the primary advisor or a co-advisor
 - (#) Undergraduate Student
 - (+) Equal Contributions (if not equal include % of participation)

Refereed Conference Papers

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|-------------|-------|---|
| NDSS'25 | [C54] | Shang Ma, <i>Chaoran Chen</i>, Shao Yang , Shifu Hou, Toby Jia-Jun Li, Xusheng Xiao*, and Yanfang (Fanny) Ye*. Careful About What App Promotion Ads Recommend! Detect and Explain Malware Promotion via App Promotion Graph. <i>Major Revision for the Network and Distributed System Security Symposium (NDSS)</i> , 2025. |
| ASE'25 | [C53] | Yuxi Huang, Liangyi Huang , and Xusheng Xiao*. LLM-Powered Smart Contract Synthesis from Legal Financial Agreements. <i>Under Review for the IEEE/ACM Automated Software Engineering Conference (ASE)</i> , 2025. |
| ICSE'25 | [C52] | Zichen Liu, Shao Yang , and Xusheng Xiao*. AppBDS: LLM-Powered Description Synthesis for Sensitive Behaviors in Mobile Apps. <i>In Preparation for the International Conference on Software Engineering (ICSE)</i> , 2025. |
| Security'25 | [C51] | Liangyi Huang , Ding Li, Yanfang (Fanny) Ye, and Xusheng Xiao*. Revealing Hidden Behaviors and Relationships from Cyber Threats Intelligence via LLM-Powered Knowledge Graph Construction. <i>In Preparation for the USENIX Security Symposium (USENIX Security)</i> , 2025. |

- ICSE'24 [C50] **Haodong Li, Guosheng Xu, Liu Wang**, Xusheng Xiao, Guoai Xu, and Haoyu Wang. MalCertain: Enhancing Deep Neural Network Based Android Malware Detection by Tackling Prediction Uncertainty *In Proceedings of the International Conference on Software Engineering (ICSE)*, 2024.
- NDSS'24 [C49] **Shaofei Li, Feng Dong**, Ding Li, Xusheng Xiao, Haoyu Wang, **Fei Shao**, Jiedong Chen, Yao Guo, and Xiangqun Chen. NODLINK: An Online System for Fine-Grained APT Attack Detection and Investigation. *In Proceedings of the Network and Distributed System Security Symposium (NDSS)*, 2024.
- COLM'24 [C48] **Liangyi Huang** and Xusheng Xiao*. CTIKG: LLM-Powered Knowledge Graph Construction from Cyber Threat Intelligence. *In Proceedings of the First Conference on Language Modeling (COLM)*, 2024.
- ECML PKDD'24 [C47] Zhongyu Ouyang, Chunhui Zhang, Shifu Hou, Shang Ma, Chaoran Chen, Toby Li, Xusheng Xiao, Chuxu Zhang, and Yanfang Ye. Completing the App Promotion Graph with Symbolic Prompting. *In Proceedings of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD)*, 2024.
- ICSME'24 [C46] **Pengcheng Fang**, Peng Gao, Yun Peng, Qingzhao Zhang, Tao Xie, Dawn Song, Prateek Mittal, Sanjeev Kulkarni, Zhuotao Liu, and Xusheng Xiao*. vFix: Facilitating Software Maintenance of Smart Contracts via Automatically Fixing Vulnerabilities. *In Proceedings of the IEEE International Conference on Software Maintenance and Evolution (ICSME)*, 2024.
- CCS'23 [C45] **Feng Dong**, Shaofei Li, Peng Jiang, Ding Li, Haoyu Wang, **Liangyi Huang**, Xusheng Xiao*, Jiedong Chen, Xiapu Luo, Yao Guo, and Xiangqun Chen. Are we there yet? An Industrial Viewpoint on Provenance-based Endpoint Detection and Response Tools. *In Proceedings of the ACM Conference on Computer and Communications Security (CCS)*, 2023.
- ASE'23 [C44] **Shi Meng, Liu Wang**, Shenao Wang, Kailong Wang, Xusheng Xiao, Guangdong Bai, and Haoyu Wang. WeMinT: Tainting Sensitive Data Leaks in WeChat Mini-Programs. *In Proceedings of the IEEE/ACM Automated Software Engineering Conference (ASE)*, 2023.
- Security'23 [C43] **Feng Dong**, Liu Wang, Xu Nie, **Fei Shao**, Haoyu Wang, Ding Li, Xiapu Luo, and Xusheng Xiao*. DISTDET: A Cost-Effective Distributed Cyber Threat Detection System. *In Proceedings of the USENIX Security Symposium (USENIX Security)*, 2023.
- Security'23 [C42] Zhaohan Xi, Tianyu Du, Changjiang Li, Ren Pang, Shouling Ji, Xiapu Luo, Xusheng Xiao, Fenglong Ma, and Ting Wang. On the Security Risks of Knowledge Graph Reasoning. *In Proceedings of the USENIX Security Symposium (USENIX Security)*, 2023.
- ISSTA'23 [C41] **Pengcheng Fang**, Zhenhua Zou, Xusheng Xiao*, and Zhuotao Liu. iSyn: Semi-Automated Smart Contract Synthesis from Legal Financial Agreements. *In Proceedings of the ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA)*, 2023.
- ICSE'22 [C40] **Changlin Liu**, Hanlin Wang, Tianming Liu, Diandian Gu, Yun Ma, Haoyu Wang, and Xusheng Xiao*. Promal: Precise Window Transition Graphs for Android via Synergy of Program Analysis and Machine Learning. *In Proceedings of the International Conference on Software Engineering (ICSE)*, 2022.
- ICSE'22 [C39] **Shao Yang, Yuehan Wang**[#], Yuan Yao, Haoyu Wang, Yanfang (Fanny) Ye, and Xusheng Xiao*. DescribeCtx: Context-Aware Description Synthesis for Sensitive Behaviors in Mobile Apps. *In Proceedings of the International Conference on Software Engineering (ICSE)*, 2022.
- IEEE S&P'22 [C38] **Zhiqiang Xu, Pengcheng Fang, Changlin Liu**, Xusheng Xiao*, Yu Wen*, and Dan Meng. Graph Summarization on System Audit Logs for Attack Investigation. *In Proceedings of the IEEE Symposium on Security and Privacy (IEEE S&P)*, 2022.

- Security'22 [C37] **Pengcheng Fang**⁺, Peng Gao⁺, **Changlin Liu**, Erman Ayday, Kangkook Jee, Ting Wang, Yanfang Ye, Zhuotao Liu, and Xusheng Xiao*. Back-Propagating System Dependency Impact for Attack Investigation. In *Proceedings of the USENIX Security Symposium (USENIX Security)*, 2022.
- SIGMETRICS [C36] Pengcheng Xia, Haoyu Wang, Weihang Su, Zhou Yu, Xiapu Luo, Chao Zhang, Xusheng Xiao, and Guoai Xu. Trade or Trick? Detecting and Characterizing Scam Tokens on Uniswap Decentralized Exchange. In *Proceedings of the ACM SIGMETRICS / IFIP Performance (SIGMETRICS)*, 2022.
- WWW'22 [C35] Guosheng Xu, Siyi Li, Hao Zhou, Shucen Liu, Yutian Tang, Li Li, Xiapu Luo, Xusheng Xiao, Guoai Xu, and Haoyu Wang. Lie to Me: Abusing the Mobile Content Sharing Service for Fun and Profit. In *Proceedings of the ACM Web Conference (WWW)*, 2022.
- ISSTA'21 [C34] **Fei Shao**, Rui Xu, Wasif Haque, Jingwei Xu, Ying Zhang, Wei Yang, Yanfang Ye, and Xusheng Xiao*. WebEvo: Taming Web Application Evolution via Detecting Semantic Structure Change. In *Proceedings of the ACM SIGSOFT International Symposium on Software Testing and Analysis (ISSTA)*, 2021.
- ICSE'21 [C33] **Yangyu Hu**, Haoyu Wang*, Tiantong Ji, Xusheng Xiao*, Xiapu Luo, Peng Gao, and Yao Guo. CHAMP: Characterizing Undesired App Behaviors from User Comments based on Market Policies. In *Proceedings of the International Conference on Software Engineering (ICSE)*, 2021.
- ICDE'21 [C32] Peng Gao, **Fei Shao**, Xiaoyuan Liu, Xusheng Xiao*, Zheng Qin, Fengyuan Xu, Prateek Mittal, Sanjeev Kulkarni, and Dawn Song*. Enabling Efficient Cyber Threat Hunting With Cyber Threat Intelligence. In *Proceedings of the IEEE International Conference on Data Engineering (ICDE)*, 2021.
- ICDE'20 [C31] **Jiaping Gui**, Ding Li*, Zhengzhang Chen, Junghwan Rhee, Xusheng Xiao*, Mu Zhang, Kangkook Jee, Zhichun Li, and Haifeng Chen. APTrace: A Responsive System for Agile Enterprise Level Causality Analysis. In *Proceedings of the IEEE International Conference on Data Engineering (ICDE), Industry and Application Track*, 2020.
- **Granted US Patent 10831750**
- ICDM'20 [C30] Yujie Fan, Yanfang Ye, Qian Peng, Jianfei Zhang, Yiming Zhang, Xusheng Xiao, Chuan Shi, Qi Xiong, Fudong Shao, and Liang Zhao. Metagraph Aggregated Heterogeneous Graph Neural Network for Illicit Traded Product Identification in Underground Market. In *Proceedings of the IEEE International Conference on Data Mining (ICDM)*, 2020.
- ICKG'20 [C29] Yiming Zhang, Yujie Fan, Shifu Hou, Yanfang Ye, Xusheng Xiao, Pan Li, Chuan Shi, Liang Zhao, and Shouhuai Xu. Cyber-guided Deep Neural Network for Malicious Repository Detection in GitHub. In *Proceedings of the IEEE International Conference on Knowledge Graph (ICKG)*, 2020.
- CCS'19 [C28] **Shengqu Xi**⁺, **Shao Yang**⁺, Xusheng Xiao*, Yuan Yao*, Yayuan Xiong, Fengyuan Xu, Haoyu Wang, Peng Gao, Zhuotao Liu, Feng Xu, and Jian Lu. DeepIntent : Deep Icon-Behavior Learning for Detecting Intention-Behavior Discrepancy in Mobile Apps. In *Proceedings of the ACM Conference on Computer and Communications Security (CCS)*, 2019.
- CCS'19 [C27] Zhuotao Liu*, **Yangxi Xiang**, Jian Shi, **Peng Gao**, Haoyu Wang, Xusheng Xiao*, Bihan Wen, and Yih-Chun Hu. HyperService: Interoperability and Programmability across Heterogeneous Blockchains. In *Proceedings of the ACM Conference on Computer and Communications Security (CCS)*, 2019.
- ICSE'19 [C26] Xusheng Xiao*, Xiaoyin Wang, Zhihao Cao, Hanlin Wang, **Peng Gao**. IconIntent: Automatic Identification of Sensitive UI Widgets based on Icon Classification for Android Apps. In *Proceedings of the International Conference on Software Engineering (ICSE)*, 2019.

- ASE'19 [C25] Zhilei Ren, **Changlin Liu**, Xusheng Xiao, He Jiang and Tao Xie. Root Cause Localization for Unreproducible Builds via Causality Analysis over System Call Tracing. *In Proceedings of the IEEE/ACM International Conference on Automated Software Engineering (ASE)*, 2019.
- ASE'19 [C24] Haoyu Wang, Hongxuan Liu, Xusheng Xiao, Guozhu Meng and Yao Guo. Characterizing Android App Signing Issues. *In Proceedings of the IEEE/ACM International Conference on Automated Software Engineering (ASE)*, 2019.
- ACSAC'19 [C23] **Jiaping Gui**, Xusheng Xiao*, Ding Li, Chung Hwan Kim, and Haifeng Chen. Progressive Processing of System Behavioral Query . *In Proceedings of the Annual Computer Security Applications Conference (ACSAC)*, 2019.
- **Granted US Patent 10885027**
- RTAS'19 [C22] **Xia Zhang**, Xusheng Xiao*, Liang He, Yun Ma, Yangyang Huang, Xuanzhe Liu, Wenyao Xu, Cong Liu. PIFA: An Intelligent Phase Identification and Frequency Adjustment Framework for Time-Sensitive Mobile Computing. *In Proceedings of the IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)*, 2019.
- Security'18 [C21] **Peng Gao**, Xusheng Xiao*, Ding Li, Zhichun Li, Kangkook Jee, Zhenyu Wu, Chung Hwan Kim, Sanjeev R. Kulkarni, Prateek Mittal. SAQL: A Stream-based Query System for Real-Time Abnormal System Behavior Detection. *In Proceedings of the USENIX Security Symposium (USENIX Security)*, 2018.
- **Top ten finalists for CSAW Best Applied Research Paper Award**
- **Granted US Patent 10909242**
- ATC'18 [C20] **Peng Gao**, Xusheng Xiao*, Zhichun Li, Kangkook Jee, Fengyuan Xu, Sanjeev R. Kulkarni, Prateek Mittal. AIQL: Enabling Efficient Attack Investigation from System Monitoring Data. *In Proceedings of the USENIX Annual Technical Conference (USENIX ATC)*, 2018.
- **Integrated in the NEC Corporation's Automated Security Intelligence solution, which won the 1st place in the 2016 CEATEC Town Life and Society Innovation Award and was commercialized.**
- **Granted US Patent 10860582**
- CCS'18 [C19] **Yutao Tang**, Ding Li, Zhichun Li*, Mu Zhang, Kangkook Jee, Xusheng Xiao*, Zhenyu Wu, Junghwan Rhee, Fengyuan Xu, and Qun Li. NodeMerge: Template Based Efficient Data Reduction For Big-Data Causality Analysis. *In Proceedings of the 23rd ACM Conference on Computer and Communications Security (CCS)*, 2018.
- DSN'18 [C18] **Angello Astorga**, Siwakorn Srisakaokul, Xusheng Xiao*, and Tao Xie*. PreInfer: Automatic Inference of Preconditions via Symbolic Analysis. *In Proceedings of the 48th IEEE/IFIP International Conference on Dependable Systems and Networks (DSN)*, 2018.
- ICSE'18 JF [C17] Patrick Morrison, Rahul Pandita, Xusheng Xiao*, Ram Chillarege, and Laurie Williams*. Are Vulnerabilities Discovered and Resolved Like Other Defects? *In Proceedings of the International Conference on Software Engineering (ICSE), Journal First Paper*, 2018.
- SEC'17 [C16] Zheng Dong, Yuchuan Liu, Husheng Zhou, Xusheng Xiao, Yu Gu, Lingming Zhang and Cong Liu. An Energy-efficient Offloading Framework with Predictable Temporal Correctness. *In Proceedings of ACM/IEEE Symposium on Edge Computing (SEC)*, 2017.
- HotSoS'17 [C15] Dengfeng Li, Wing Lam, Wei Yang, Zhengkai Wu, Xusheng Xiao, and Tao Xie. Towards Privacy-Preserving Mobile Apps: A Balancing Act. *In Proceedings of the Symposium and Bootcamp on the Science of Security (HotSoS)*, 2017.
- VLDB'16 [C14] **Bo Zong**, Xusheng Xiao*, Zhichun Li, Zhenyu Wu, Zhiyun Qian, Xifeng Yan, Ambuj Singh, and Guofei Jiang. Behavior Query Discovery in Temporal Graphs. *In Proceedings of the 42nd International Conference on Very Large Data Bases (VLDB)*, 2016.

- CCS'16 [C13] **Zhang Xu**, Zhenyu Wu, Zhichun Li*, Kangkook Jee, Junghwan Rhee, Xusheng Xiao*, Fengyuan Xu, Haining Wang, and Guofei Jiang. High Fidelity Data Reduction for Big Data Security Dependency Analyses. *In Proceedings of the 23rd ACM Conference on Computer and Communications Security (CCS)*, 2016.
- ICSE Edu'16 [C12] Sihan Li, Xusheng Xiao*, Blake Bassett, Tao Xie*, and Nikolai Tillmann. Measuring Code Behavioral Similarity for Programming and Software Engineering Education. *In Proceedings of the 2016 International Conference on Software Engineering (ICSE), Education Track*, 2016.
- Security'15 [C11] **Jianjun Huang**, Zhichun Li*, Xusheng Xiao*, Zhenyu Wu, Kangjie Lu, Xiangyu Zhang, and Guofei Jiang. SUPOR: Precise and Scalable Sensitive User Input Detection for Android Apps. *In Proceedings of the 24th USENIX Security Symposium (USENIX Security)*, pages 977–992, 2015.
- Top ten finalists for CSAW Best Applied Research Paper Award
- Granted US Patent 9870485
- ICSE'15 [C10] **Wei Yang**, Xusheng Xiao*, Sihan Li, Benjamin Andow, William Enck, and Tao Xie*. AppContext: Differentiating Malicious and Benign Mobile App Behaviors Using Context. *In Proceedings of the 37th International Conference on Software Engineering (ICSE)*, pages 303–312, 2015.
- ISSTA'14 [C9] Xusheng Xiao, Gogul Balakrishnan, Franjo Ivancic, Naoto Maeda, Aarti Gupta, and Deepak Chhetri. ARC++: Effective Typestate and Lifetime Dependency Analysis. *In Proceedings of the 2014 International Symposium on Software Testing and Analysis (ISSTA)*, pages 116–126, 2014.
- ACSAC'14 [C8] John Slankas, Xusheng Xiao, Laurie Williams, and Tao Xie. Relation Extraction for Inferring Access Control Rules from Natural Language Artifacts. *In Proceedings of the 2014 Annual Computer Security Applications Conference (ACSAC)*, pages 366–375, 2014.
- ISSTA'13 [C7] Xusheng Xiao, Shi Han, Tao Xie, and Dongmei Zhang. Context-Sensitive Delta Inference for Identifying Workload-Dependent Performance Bottlenecks. *In Proceedings of the 2013 International Symposium on Software Testing and Analysis (ISSTA)*, pages 90–100, 2013.
- ASE'13 [C6] Xusheng Xiao, Sihan Li, Tao Xie, and Nikolai Tillmann. Characteristic Studies of Loop Problems for Structural Test Generation via Symbolic Execution. *In Proceedings of the 28th IEEE/ACM International Conference on Automated Software Engineering (ASE)*, pages 246–256, 2013.
- Security'13 [C5] Rahul Pandita, Xusheng Xiao, Wei Yang, William Enck, and Tao Xie. WHYPER: Towards Automating Risk Assessment of Mobile Applications. *In Proceedings of the 22nd USENIX Security Symposium (USENIX Security)*, pages 527–542, 2013.
- FSE'12 [C4] Xusheng Xiao, Amit Paradkar, Suresh Thummalapenta, and Tao Xie. Automated Extraction of Security Policies from Natural-Language Software Documents. *In Proceedings of the 20th ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE)*, pages 12:1–12:11, 2012.
- ASE'12 [C3] Xusheng Xiao, Nikolai Tillmann, Manuel Fahndrich, Jonathan de Halleux, and Michal Moskal. User-Aware Privacy Control via Static-Information-Flow Analysis. *In Proceedings of the 24th IEEE/ACM International Conference on Automated Software Engineering (ASE)*, pages 80–89, 2012.
- Deployed in TouchDevelop (www.touchdevelop.com), Microsoft Research
- Granted US Patent 9104528
- Invited for journal submission

- ICSE'12 [C2] Rahul Pandita, Xusheng Xiao, Hao Zhong, Tao Xie, Stephen Oneyz and Amit Paradkar. Inferring Method Specifications from Natural Language API Descriptions. *In Proceedings of the 34th International Conference on Software Engineering (ICSE)*, pages 815–825, 2012.
- ICSE'11 [C1] Xusheng Xiao, Tao Xie, Nikolai Tillmann, and Jonathan de Halleux. Precise Identification of Problems for Structural Test Generation. *In Proceedings of the 33rd International Conference on Software Engineering (ICSE)*, pages 611–620, 2011.

Refereed Journal Articles & Book Chapters

- TSE'23 [J12] Le Yu, Haoyu Wang, Xiapu Luo, Tao Zhang, Kang Liu, Jiachi Chen, Hao Zhou, Yutian Tang, and Xusheng Xiao. Towards Automatically Localizing Function Errors in Mobile Apps with User Reviews. *IEEE Transactions on Software Engineering (TSE)*, 49(4): 1464-1486, 2023.
- SciChina'23 [J11] **Yi Liu**, Yun Ma, Xusheng Xiao*, Tao Xie, and Xuanzhe Liu. LegoDroid : Flexible Android Apps Decomposition and Instant Installation. *Science China Information Sciences*, 66 (4), 1–19, 2023.
- TDSC'22 [J10] Zhuotao Liu, **Yangxi Xiang**, Jian Shi, Peng Gao, Haoyu Wang, Xusheng Xiao*, Bihan Wen, Qi Li, and Yih-Chun Hu. Making Web 3.0 Connected. *IEEE Transactions on Dependable and Secure Computing (TDSC)*, 19(5): 2965-2981, 2022.
- Environment'21 [J9] Shifa Zhong, Kai Zhang, Majid Bagheri, Joel G. Burken, April Gu, Baikun Li, Xingmao Ma, Babetta L. Marrone, Zhiyong Jason Ren, Joshua Schrier, Wei Shi, Haoyue Tan, Tianbao Wang, Xu Wang, Bryan M. Wong, Xusheng Xiao, Xiong Yu, Jun-Jie Zhu, and Huichun Zhang. Machine learning: New ideas and tools in Environmental Science and Engineering. *Environment Science & Technology*, 55(19): 12741-12754, 2021.
- **2021 ES&T Best Paper Award**
- JCST'19 [J8] **Shengqu Xi**, Yuan Yao, Xusheng Xiao, Feng Xu, and Jian Lu. Bug Triaging Based on Tossing Sequence Modeling. *Journal of Computer Science and Technology (JCST)*, 2019.
- EMSE'17 [J7] Patrick Morrison, Rahul Pandita, Xusheng Xiao*, Ram Chillarege, and Laurie Williams. Are Vulnerabilities Discovered and Resolved Like Other Defects? *Empirical Software Engineering Journal (EMSE)*, 23(3): 1383–1421, 2017.
- **Accepted to the 2018 International Conference on Software Engineering (ICSE) as a Journal-First Paper.**
- JCST'16 [J6] Xusheng Xiao*, Jian-Guang Lou, Shan Lu, David C. Shepherd, Xin Peng, and Qianxiang Wang. Roundtable: Research Opportunities and Challenges for Large-Scale Software Systems. *Journal of Computer Science and Technology (JCST)*, 31(5): 851–860, 2016.
- Sci China'16 [J5] Qing Gao, Xusheng Xiao*, Jun Li, Yingfei Xiong, Kunal Taneja, Dan Hao, Lu Zhang, and Tao Xie. High-Confidence Software Evolution. *Science China Information Sciences*, 59(7): 071101:1-071101:19, 2016.
- JCS'16 [J4] Wei Yang, Xusheng Xiao, Dengfeng Li, Huoran Li, Xuanzhe Liu, Haoyu Wang, Yao Guo, and Tao Xie. Security Analytics for Mobile Apps: Achievements and Challenges. *Journal of Cyber Security (in Chinese)*, 1(2): 1–14, 2016.
- ASEJ'15 [J3] Xusheng Xiao*, Nikolai Tillmann, Manuel Fahndrich, Jonathan de Halleux, Michal Moskal, and Tao Xie. User-Aware Privacy Control via Extended Static-Information-Flow Analysis. *Automated Software Engineering Journal (ASEJ)*, 22(3): 333–366, 2015.
- JCST'14 [J2] Tao Xie, Lu Zhang, Xusheng Xiao, Yingfei Xiong, and Dan Hao. Cooperative Software Testing and Analysis: Advances and Challenges. *Journal of Computer Science and Technology (JCST)*, 29(4): 713–723, 2014.
- Adv. Com.'12 [J1] Xusheng Xiao, Suresh Thummalapenta, and Tao Xie. Advances on Improving Automation in Developer Testing. *In Advances in Computers, Burlington: Academic Press*, 85: 165-212, 2012.

Refereed Workshop, Demonstration, Tutorial Papers

- CIKM Demo'22 [W12] **Liangyi Huang**, Sophia Hall, **Fei Shao**, Arafath Nihar, Vipin Chaudhary, Yinghui Wu, Roger French, and Xusheng Xiao*. System-Auditing, Data Analysis and Characteristics of Cyber Attacks for Big Data Systems. *In Proceedings of the Conference on Information and Knowledge Management (CIKM)*, Demonstrations Track, 2022.
- ICDE Demo'21 [W11] Peng Gao, **Fei Shao**, Xiaoyuan Liu, Xusheng Xiao, Haoyuan Liu, Zheng Qin, Fengyuan Xu, Prateek Mittal, Sanjeev Kulkarni, and Dawn Song. A System for Efficiently Hunting for Cyber Threats in Computer Systems Using Threat Intelligence. *In Proceedings of the IEEE International Conference on Data Engineering (ICDE)*, Demonstrations Track, 2021.
- ICSE Demo'20 [W10] **Jian Liu**, Xusheng Xiao*, Lihua Xu, Liang Dou, and Andy Podgurski. DroidMutator: An Effective Mutation Analysis Tool for Android Applications. *In Proceedings of the 33rd International Conference on Software Engineering (ICSE)*, Demonstrations Track, 2020.
- ICDE Demo'20 [W9] **Peng Gao**, Xusheng Xiao*, Ding Li, Kangkook Jee, Haifeng Chen, Sanjeev R. Kulkarni, and Prateek Mittal. Querying Streaming System Monitoring Data for Enterprise System Anomaly Detection. *In Proceedings of the IEEE International Conference on Data Engineering (ICDE)*, Demonstrations Track 2020.
- VLDB Demo'19 [W8] **Peng Gao**, Xusheng Xiao*, Zhichun Li, Kangkook Jee, Fengyuan Xu, Sanjeev R. Kulkarni, Prateek Mittal. A Query System for Efficiently Investigating Complex Attack Behaviors for Enterprise Security. *In Proceedings of the International Conference on Very Large Data Bases (VLDB)*, 2019.
- HotMobile'19 [W7] Yun Ma, Yangyang Huang, Ziniu Hu, Xusheng Xiao*, Xuanzhe Liu. Paladin: Automated Generation of Reproducible Test Cases for Android Apps. *In Proceedings of the Workshop on Mobile Computing Systems and Applications (HotMobile)*, 2019.
- FSE Demo'17 [W6] Yujie Yuan, Lihua Xu, Xusheng Xiao*, Andy Podgurski, Huibiao Zhu. RunDroid: Recovering Execution Call Graph for Android Applications. *In Proceedings of the 11th joint meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE)*, Demonstrations Track, 2017.
- HotSoS'17 [W5] Xusheng Xiao*. Tutorial: System Monitoring for Security. *The 4th Annual Hot Topics in the Science of Security Symposium and Bootcamp (HotSoS)*, 2017.
- HotSoS'17 [W4] Dengfeng Li, Wing Lam, Wei Yang, Zhengkai Wu, Xusheng Xiao, Tao Xie. Towards Privacy-Preserving Mobile Apps: A Balancing Act. *The 4th Annual Hot Topics in the Science of Security Symposium and Bootcamp (HotSoS)*, 2017.
- HotSoS'14 [W3] Wei Yang, Xusheng Xiao, Rahul Pandita, William Enck, and Tao Xie. Improving Mobile Application Security via Bridging User Expectations and Application Behaviors. *The 1st Annual Hot Topics in the Science of Security Symposium and Bootcamp (HotSoS)*, 2014.
- ICSE SRC'11 [W2] Xusheng Xiao. Problem Identification for Structural Test Generation: First Step Towards Cooperative Developer Testing. *ACM Student Research Competition (SRC) at ICSE 2011*.
- **Best Project Representing an Innovative Use of Microsoft Technology in ACM SRC Grand Final 2012**
- ICSE Demo'11 [W1] Xusheng Xiao, Tao Xie, Nikolai Tillmann, and Jonathan de Halleux. Covana: Precise Identification of Problems in Pex. *In Proceedings of the 33rd International Conference on Software Engineering (ICSE)*, Demonstrations Track, pages 1004-1006, 2011.

Patents

Patents can be found at <https://patents.google.com/?inventor=Xusheng+Xiao>

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| Granted | [P10] | Ding Li, Xusheng Xiao, Zhichun L, Guofei Jiang, and Peng Gao. System and method for detecting security risks in a computer system. 2021. US Patent 10909242. |
| Granted | [P9] | Xusheng Xiao, Zhichun L, Mu Zhang, Guofei Jiang, and Jiaping Gui. Progressive processing for querying system behavior. 2021. US Patent 10885027. |
| Granted | [P8] | Xusheng Xiao, Zhichun Li, Fengyuan Xu, Peng Gao, and Guofei Jiang. Risky Behavior Query Construction and Execution. 2020. US Patent 10860582. |
| Granted | [P7] | Xusheng Xiao, Zhichun Li, Mu Zhang, Guofei Jiang, Jiaping Gui, and Ding Li. Security Monitoring with Progressive Behavioral Query Language Database. 2020. US Patent 10831750. |
| Granted | [P6] | Zhichun Li, Xusheng Xiao, Zhenyu Wu, Jianjun Huang, Guofei Jiang. System and Method for Detecting Sensitive User Input Leakages in Software Applications. 2018. US Patent 9870485. |
| Granted | [P5] | Xusheng Xiao, Nikolai Tillmann, Manuel Fahndrich, Jonathan de Halleux, and Michal Moskal. Controlling the Release of Private Information Using Static Flow Analysis. 2015. US Patent 9104528. |
| Submitted | [P4] | Zhichun Li, Xusheng Xiao, Zhenyu Wu, Bo Zong, and Guofei Jiang. Method and System for Behavior Query Construction in Temporal Graphs using Discriminative Sub-trace Mining. US 20160125094 A1. |
| Submitted | [P3] | Aarti Gupta, Gogul Balakrishnan, Franjo Ivancic, and Xusheng Xiao. Effective Lifetime Dependency Analysis and Typestate Analysis. US 20140289712 A1. |
| Submitted | [P2] | Zhenyu Wu, Zhang Xu, Zhichun Li, Xusheng Xiao, Kangkook Jee, Junghwan Rhee, Guofei Jiang, and Fengyuan Xu. High Fidelity Data Reduction for System Dependency Analysis. |
| Submitted | [P1] | Xusheng Xiao, Zhichun Li, Zhenyu Wu, Fengyuan Xu, and Guofei Jiang. Scalable Data Stream Management System for Monitoring System Activities. |

Invited Talks

- 2024 Cyber Threat Investigation via Causality Modeling in Audit Logging, **Distinguished Seminar**, Department of Electrical Engineering and Computer Science, University of Arkansas.
- 2023 Enhancing Mobile App Security via Contextual Integrity and User Awareness, **Distinguished Seminar**, Department of Computer Science, Indiana University Bloomington, Virtual.
- 2022 Enhancing Mobile App Security via Contextual Integrity and User Awareness, Department of Electrical Engineering and Computer Science, Syracuse University, Virtual.
- 2021 HyperService: Interoperability and Programmability across Heterogeneous Blockchains, International Conference on Blockchain and Trustworthy Systems (BlockSys), Virtual.
- 2020 HyperService: Interoperability and Programmability across Heterogeneous Blockchains, Departmental Seminar, Department of Computer and Data Sciences, Case Western Reserve University, USA.
- 2019 HyperService: Interoperability and Programmability across Heterogeneous Blockchains, Peking University, China.
- 2019 HyperService: Interoperability and Programmability across Heterogeneous Blockchains, Blockland Solutions, USA.
- 2019 HyperService: Interoperability and Programmability across Heterogeneous Blockchains, IEEE Cleveland Section, USA.
- 2019 Improving Mobile App Security via Synergy of Program Analysis and Machine Learning, Department of Civil Engineering, Xiamen University, China.

- 2019 Improving Mobile App Security via Synergy of Program Analysis and Machine Learning, Department of Civil Engineering, Case Western Reserve University, USA.
- 2018 Improving Mobile App Security via Analyzing Structured and Unstructured Artifacts, Nanjing University, China.
- 2018 Improving Mobile App Security via Analyzing Structured and Unstructured Artifacts, East China Normal University, China.
- 2018 Enabling Effective and Efficient APT Defenses via Querying System Monitoring Data, Palo Alto Networks, USA.
- 2018 Enabling Effective and Efficient APT Defenses via Querying System Monitoring Data, RSA Labs, USA.
- 2018 Improving Mobile App Security via Analyzing Structured and Unstructured Artifacts, Southern University of Science and Technology, China.
- 2017 Boosting System Security via Big Data Analytics. IEEE Big Data Congress. China.
- 2014 Cooperative Testing and Analysis via Informed Decision Making.
 - Fujitsu Laboratories of America, Inc., Sunnyvale, USA, Nov. 2013.
 - NEC Labs America, USA, Mar. 2014.
 - Microsoft Research Redmond, USA, Mar. 2014.
- 2014 WHYPER: Towards Automating Risk Assessment of Mobile Applications, Google Research, Mountain View, USA.
- 2013 Cooperative Testing and Analysis via Informed Decision Making. Midwest Verification Day (MVD), University of Illinois at Chicago, USA.
- 2013 WHYPER: Towards Automating Risk Assessment of Mobile Applications. Microsoft Research Redmond, USA.
- 2011 Construction and Validation of Access Control Policies via Natural Language Processing and Policy Verification. Association of Graduates, United States Air Force Academy, Colorado, USA.
- 2011 Precise Identification of Problems for Structural Test Generation. Microsoft Research Redmond, USA.
- 2011 Automatic Construction and Validation of Access Control Policies from Natural-Language Documents. National Institute of Standards and Technology (NIST), USA.

Students

Current PhD Students

- 2020 – NOW **Liangyi Huang**, ASU, expected 2025 [C45, W12, C48, C51]
 - Topic: Enhancing Cyber Threat Investigation through Cyber Threat Intelligence
- 2019 – NOW **Fei Shao**, CWRU, expected 2025 [C34, C32, W11, W12, C43, C49]
 - Topic: Detecting Semantic Structure Changes for Web Application Evolution
 - Topic: Dependency Graph Query for Cyber Attack Investigation on System Audit Logs
 - ICSE Student Research Competition 2021, poster presentation
- 2020 – NOW **Changlin Liu**, CWRU, expected 2024 [C25, C38, C37, C40]
 - Topic: Improving Automated Testing for Smartphone Apps via Synergy of Program Analysis and Machine Learning
 - Topic: Mining Open-Source Threat Intelligence for Attack Investigation
 - ICSE Student Research Competition 2021, poster presentation

- CWRU Institute for Smart, Secure and Connected Systems (ISSACS) Student Fellowship
- 2022 – NOW **Shang Ma**, Notre Dame, co-advised with Yanfang (Fanny) Ye, expected 2027 [C54]
- Topic: Mobile Ad Promotion Network Study
- 2023 – NOW **Yuxi Huang**, ASU, expected 2028
- 2023 – NOW **Zichen Liu**, ASU, expected 2028

Graduated PhD Students

- 2018 – 2023 **Pengcheng Fang**, CWRU [C38, C37, C41, C46]
- Topic: A Systematic Framework to Automatically Secure, Test, and Utilize Smart Contracts
- 2018 – 2023 **Yang Shao**, CWRU [C28, C39]
- Topic: Enhancing Smartphone App Security through Contextual Integrity and User Awareness
- ASE Student Research Competition 2019, poster presentation

Master Students

- 2023 – NOW **Rachel Guzman**, ASU
- Thesis: x86 Instruction Set Architecture (ISA) Correctness and Its Security Consequences
- 2023 **Viraj Thakkar**, ASU, co-advised with Zhichao Cao
- Thesis: Optimizing Consistency and Performance Trade-off in Distributed Log-Structured Merge-Tree-based Key-Value Stores
- 2021 – 2022 **Sophia Hall**, CWRU [W12]
- Thesis: System-Auditing, Data Analysis and Characteristics of Cyber Attacks for Big Data Systems
- 2021 – 2022 **Zhou Yang**, CWRU
- Thesis: Detecting Software Crashes due to Third-party Libraries
- 2018 – 2022 **Hanlin Wang**, CWRU [C26, C40]
- Thesis: Automatic Identification of Sensitive UI Widgets based on Icon Classification for Android Apps
- 2017 – 2018 **Pengcheng Fang**, CWRU
- Thesis: RepTracker: Towards Automatic Attack Investigation
- 2018 – 2020 **Changlin Liu**, CWRU [C25]
- Thesis: Root Cause Localization For Unreproducible Builds
- 2018 – 2020 **Jian Shi**, CWRU [C27]
- Thesis: HyperService Language: A High-Level Programming Language for Cross-Chain Decentralized Applications
- 2018 – 2020 **Rui Xu**, CWRU [C34]
- Thesis: Taming Web Application Evolution via Semantic Change Detection
- 2018 – 2020 **Siyi Chen**, CWRU
- Thesis: Open-Source Cyber Threat Intelligence: Characterization and Classification
- 2018 – 2020 **Tiantong Ji**, CWRU [C33]
- Thesis: Detecting Market Policy Violations from User Comments for Android Apps
- 2019 – 2020 **Chongbin Tang**, Visiting Student from East China Normal University
- Thesis: Measuring User Credibility from User Comments for Android Apps
- 2018 – 2019 **Jing Sui**, CWRU

- Thesis: Sensitive Image Icon for Android Applications: Characterization and Classification
- 2018 **Junqi Ma** (co-advised with Andy Podgurski), CWRU
 - Thesis: Stitching Dynamic Call Graphs for Debugging Android Applications
- 2017 **Zhihao Cao**, CWRU [C26]
 - Thesis: Sensitive Text Icon Classification for Android Apps

Undergraduate Students

- 2023 **Ahmed Abdelrazek**, ASU, NSF REU
- 2023 **Yi Lang Liu**, ASU
- 2023 **Kimberly Gehrmann**, ASU, NSF REU
- 2023 **Shakib Ahmed**, ASU
- 2023 **Lilian Weng**, ASU, NSF REU
- 2023 **Baozan Yan**, ASU
- 2021 **Alexander Rambasek**, CWRU, NSF REU
- 2021 **Jacob Prusky**, CWRU, NSF REU
- 2021 **Xuanzhi Lin**, CWRU
- 2021 **Yuanyuan Huang**, University of Electronic Science and Technology , China [??]
- 2020 **Rishik Hombal**, CWRU, NSF REU
- 2020 **Tevin McDowell**, CWRU, NSF REU
- 2020 **Randolph Zhao**, CWRU
- 2020 **Yuehan Wang**, Nanjing University, China [C39]
- 2019 **Mei Wong**, CWRU, NSF REU
- 2017 – 2019 **Taylor Smith**, CWRU, Support of Undergraduate Research and Creative Endeavors (SOURCE) Fellowship

Intern Students mentored in NEC Labs

- 2016 – 2019 **Peng Gao**, Princeton University [C20, C21, C32, C28, C27, C33, C26, C37] , **Now Assistant Professor at Virginia Tech**
- 2016 **Yutao Tang**, College of William and Mary [C19]
- 2016 **Jiaping Gui**, University of Southern California [C23, C31]
- 2015 **Weiren Wang**, Georgia Institute of Technology
- 2015 **Kangjie Lu**, Georgia Institute of Technology
- 2015 **Gensheng Zhang**, University of Texas at Arlington
- 2014 **Bo Zong**, University of California, Santa Barbara [C14]
- 2014 **Jianjun Huang**, Purdue University [C11]
- 2014 – 2015 **Zhang Xu**, College of William and Mary [C13]

High School Students

- 2019 – 2020 **Alan Han**, Solon High School, OH
 - Superior/Excellent Ratings at the Ohio Regional/State Science Fairs
 - First Prize in “Wasmer, Schroeder & Company Award” at Ohio State

Professional Activities

External Services

- Top Conferences in Computer Science Are Shown in Bold*
- PC Member **IEEE Symposium on Security and Privacy (IEEE S&P)**, 2025

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| PC Member | International Symposium on Software Testing and Analysis (ISSTA) , 2025 |
| PC Member | ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE) , 2025 |
| PC Member | International Conference on Software Engineering (ICSE) , 2025 |
| PC Member | Privacy Enhancing Technologies Symposium (IEEE PETS) , 2025 |
| PC Member | IEEE Symposium on Security and Privacy (IEEE S&P) , 2024 |
| PC Member | ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE) , 2024 |
| PC Member | International Conference on Automated Software Engineering (ASE) , 2024 |
| PC Member | International Symposium on Software Testing and Analysis (ISSTA) , 2024 |
| PC Member | Privacy Enhancing Technologies Symposium (IEEE PETS) , 2024 |
| PC Member | The Web Conference (WWW) , 2024 |
| PC Member | ACM SIGSOFT Symposium on the Foundations of Software Engineering (FSE) , Industry Track, 2024 |
| PC Member | IEEE Symposium on Security and Privacy (IEEE S&P) , 2023 |
| PC Member | ACM Conference on Computer and Communications Security (CCS) , 2023 |
| PC Member | International Conference on Automated Software Engineering (ASE) , 2023 |
| PC Member | ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE) , Industry Track, 2023 |
| PC Member | IEEE International Conference on Distributed Computing Systems (ICDCS) , 2023 |
| PC Member | IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER) , 2023 |
| PC Member | ACM Conference on Computer and Communications Security (CCS) , 2022 |
| PC Member | International Conference on Automated Software Engineering (ASE) , 2022 |
| PC Member | IEEE International Conference on Distributed Computing Systems (ICDCS) , 2022 |
| PC Member | International Conference on Software Testing, Verification and Validation (ICST) , 2022 |
| PC Member | International Conference on Software Testing, Verification and Validation (ICST) , Industrial Track, 2022 |
| PC Member | IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER) , 2022 |
| PC Member | USENIX Security Symposium , 2021 |
| PC Member | International Conference on Software Engineering (ICSE) , 2021 |
| PC Member | International Conference on Automated Software Engineering (ASE) , 2021 |
| PC Member | International Symposium on Software Testing and Analysis (ISSTA) , 2021 |
| PC Member | International Conference on Software Testing, Verification and Validation (ICST) , 2022 |
| PC Member | IEEE International Conference on Distributed Computing Systems (ICDCS) , 2021 |
| PC Member | ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE) , Industry Track, 2021 |

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| PC Member | ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE) , Ideas, Visions and Reflections Track (FSE-IVR), 2021 |
| Panelist | National Science Foundation (NSF) SHF, 2021 |
| PC Member | ACM Conference on Computer and Communications Security (CCS) , 2020 |
| PC Member | International Conference on Automated Software Engineering (ASE) , 2020 |
| PC Member | International Conference on Automated Software Engineering (ASE) , 2019 |
| PC Member | International Conference on Software Engineering (ICSE) , Artifacts Evaluation, 2019 |
| PC Member | The Thirteenth International Conference on Software Engineering Advances (ICSEA), 2019 |
| Expert Review | Natural Sciences and Engineering Research Council of Canada (NSERC) in the Canada - Germany 2 + 2 call on Advanced Manufacturing - Industry 4.0, 2018 |
| Organization Committee | The 1st Radical and Experiential Security Workshop (RESEC), 2018 |
| Panelist | National Science Foundation (NSF) SaTC, 2018 |
| PC Member | ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE) , Demo Track, 2018 |
| PC Member | The Thirteenth International Conference on Software Engineering Advances (ICSEA), 2018 |
| PC Member | Symposium and Bootcamp on the Science of Security (HotSoS), 2018 |
| Guest Editor | Journal of Computer Science and Technology (JCST) Special Section on Software Systems, 2016 |
| PC Member | International Conference on Software Engineering (ICSE) , Software Engineering in Practice (SEIP) Track, 2016 |
| PC Member | International Conference on Software Testing, Verification and Validation (ICST), Testing Tool Demo Track, 2016 |
| PC Member | International Conference on Software Engineering (ICSE) , Demo Track, 2015 |
| PC Member | International Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA) , Artifact Evaluation, 2014 |
| PC Member | International Symposium on Software Testing and Analysis (ISSTA) , Artifact Evaluation, 2014 |
| PC Member | International Workshop on Software and System Performance Testing, Debugging, and Analytics (PERTEA), 2014 |

Internal Services

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| Chair | Programming Languages, Compilers and OS for Emerging Architectures Faculty Search Chair, School of Computing and Augmented Intelligence, ASU, 2023-2024 |
| Member | Smart Data Engineering Faculty Search Committee, School of Computing and Augmented Intelligence, ASU, 2022-2023 |
| Member | Graduate Admission Committee, School of Computing and Augmented Intelligence, ASU, 2022-2023 |
| Chair | Colloquium/Distinguished Speaker Series, Department of Computer and Data Sciences, CWRU, 2021-2022 |
| Member | Colloquium/Distinguished Speaker Series, Department of Computer and Data Sciences, CWRU, 2020-2021 |
| Member | Graduate Program Affairs, Department of Computer and Data Sciences, CWRU, 2021 |

- Member Graduate Program Affairs, Department of Computer and Data Sciences, CWRU, 2020
- Member Department Chair Search Committee, Department of Electrical Engineering and Computer Science, CWRU, 2019
- Member Faculty Search Committee, Department of Electrical Engineering and Computer Science, CWRU, 2019
- Member Faculty Search Committee, Department of Electrical Engineering and Computer Science, CWRU, 2018
- Member Faculty Search Committee, Department of Electrical Engineering and Computer Science, CWRU, 2017