Jingshu Chen

Assistant Professor · Oakland University

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Research Interest

- Human centered Computing;
- Next-generation Software Development and Education in the era of AI.

Professional Experience

2022-Now	**Assistant Professor**, Oakland University
2016-2017	**ORISE Researcher**, Division of Imaging, Diag. and Software Reliability at U.S. Food and Drug Administration
2015-2016	**Research Associate**, Michigan State University
2013-2015	**Researcher**, French Institute for Research in Computer Science and Automation

Education

Michigan State University *Michigan, US*

Ph.D. in Computer Science *2008-2013*

- Advisor: Dr. Sandeep Kulkarni

Chinese Academy of Sciences *Beijing, China*

M.S. in Computer Science *2004-2007*

- Advisor: Dr. Xuebin Chi

Xiamen University *Xiamen, China*

B.E. in Software Engineering *2000-2004*

- Minors in History
- Honors thesis/undergrad research advisor: Dr. Lin

Awards, Fellowships, & Grants

Grand Proposals Funded

2024	**NSF Convergence Accelerator Track L: An Integrated and Miniaturized Opioid Sensor System: Advancing Evidence-Based Strategies for Addressing the Opioid Crisis,** National Science Foundation, Co-PI, OU part: $ 219,947.00	*$ 649,585*
2023	**ePrism: Enabling External Security Monitoring for Resource-Constrained IoT,** URC Research Foundation at OU	*$ 10,000*
2023	**Scalable Spacecraft Fuzzing Using Explainable AI,** Michigan Space Grant Consortium	*$ 10,000*
2022	**A User-friendly Generic Performance Estimation Platform for Bridging System Performance Prediction and Resource Management,** Michigan Space Grant Consortium	*$ 5,000*
2019	**A Formal Framework for Fault Injection of Autonomous Systems,** Michigan Space Grant Consortium	*$ 5,000*
2019	**Improving the Safety of Autonomous Vehicles by Adding Fault Tolerance,** URC Research Foundation at OU	*$ 10,000*
2018	**Exploring Model Repair Techniques for Autonomous Designs** Michigan Space Grant Consortium	*$ 5,000*

Grand Proposals Under Review/In Preparation

2024	**ERI: EMRadar: A Practical Sensing System on Electromagnetic Side Channel of IoT,** National Science Foundation, Sole PI	*$ 200,000*
2024	**Collaborative Research: NSF Convergence Accelerator Track L: An Integrated and Miniaturized Opioid Sensor System: Advancing Evidence-Based Strategies for Addressing the Opioid Crisis- Phase II,** National Science Foundation, co-PI	*$ 5,000,000*

Awards & Honors

2019 **Rose Supervision Fellowship** Joan Rosen Endowed Fund for OU

2018 **GHC faculty fellowship** By AnitaB, This award is highly competitive, honoring these young women faculties, who are high potential to lead or develop a product, process, or innovation that will make a notable impact on science, technology or society.

Publications

** mentored Postdoc and/or Phd/Master students; + mentored undergraduate*

[1] Chen Shen*, Jun Huang, Jingshu Chen, EMRadar: Enabling Highly Sensitive EM Side-channel Analysis, 33rd USENIX Security Symposium, (in submission), 2024

[2] Yuxuan Wang*, Jingshu Chen, Model Repair for Human-in-the-loop Edge Applications: A Case Study, (in submission), 2024

[3] Yuxuan Wang*, Irma Rushi*, Jingshu Chen, Automatic Construction of Formal Models of Power Grid Systems: A Case Study, (in submission), 2024

[4] Yuxuan Wang*, Justin Kur *, Qi Guan*, Jingshu Chen, Automatic Generation of Test Case for Command Injection Vulnerabilities in Python Libraries with Prompting, (in submission), 2024

[5] Ling Zhu*, Jingshu Chen and Sandeep Kulkarni, Revisiting a GA based Refinement Approach of Probabilistic Optimization for Stabilization., Theoretical Computer Science, (Under Revision), 2024

[6] Charlie Wingate*, Jingshu Chen, Understanding and Characterizing HyperProperties Issues in Cyber Physical Systems, Theoretical Computer Science (Under Review), 2024

[7] Yuxuan Wang*, Jingshu Chen, A Formal Approach for Safety Enforcement of Smart Contracts for IoT Application, IEEE ACCESS, (Under Review), 2024

[8] Yuxuan Wang*, Irma Rushi*, Jingshu Chen, Automatic Construction of Formal Models of Power Consumption in Aunotomous Computing, (MOST 2024)

[9] Yuxuan Wang*, Justin Kur *, Qi Guan*, Jingshu Chen, LLM-assisted Fuzzing for Command Injection Vulnerabilities in Autonomous Design, (MOST 2024)

[10] Justin Kur*, Jingshu Chen, Qingyang Wang, Ji Xue and Jun Huang, Towards Configurable Resource Management Recommendation for Cloud Systems, to be present at the 16th IEEE/ACM International Conference on Utility and Cloud Computing (UCC 2023)

[11] Justin Kur*, Jingshu Chen, Qingyang Wang, Ji Xue and Jun Huang, Bridging Resource Prediction and System Management via a Generic Performance Estimation Platform, presented at the 19th International Conference on Network and Service Management (CNSM 2023)

[12] Justin Kur*, Jingshu Chen and Jun Huang, NIER: Scalable Industrial Control System Analysis via XAI-based Gray-Box Fuzzing, presented at the 38th IEEE/ACM International Conference on Automated Software Engineering (ASE 2023)

[13] Dae-Kyoo Kim, Jingshu Chen, Hua Ming, Lunjin Lu, Assessment of ChatGPT's Proficiency in Software Development, presented at IEEE CPS: The 21st International Conference on Software Engineering Research & Practice (SERP 2023)

[14] Yuxuan Wang*, Jingshu Chen and Qingyang Wang, POSTER: ForDeen: Towards Formal Design for Ensuring Reliable UAV-Assisted Multi-Access Edge Computing: A Scenario-Based Approach, presented at The IEEE International Conference on Mobility: Operations, Services, and Technologies, (MOST 2023)

[15] Justin Kur*, Jingshu Chen, Ji Xue and Jun Huang, Resolution Matters: Revisiting Prediction-Based Job Co-location in Public Clouds, presented at IEEE/ACM 15th International Conference on Utility and Cloud Computing, (UCC 2022)

[16] Cheng Shen*, Jun Huang, Guangyu Sun, Jingshu Chen, Electromagnetic Fingerprinting of Memory Heartbeats: System and Applications, published at Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies 6(3): 138:1-138:23 (2022). Presented at (UbiComp 2022)

[17]Jingshu Chen, Mohammad Roohitavaf and Sandeep S.Kulkarni Ensuring Average Recovery with Adversarial Scheduler, The International Conference on Principles of Distributed Systems, (OPODIS 2015)

[18]Ling Zhu, Jingshu Chen and Sandeep S. Kulkarni, Refinement of Probabilistic Stabilizing Programs Using Genetic Algorithms, presented in the International Symposium on Stabilization, Safety and Security of Distributed System, (SSS 2015)

[19]Jingshu Chen, Ali Ebnenasir and Sandeep S. Kulkarni, The Complexity of Adding Multitolerance, published in the ACM Transactions on Autonomous and Adaptive Systems, (TAAS 2014)

[20]Jingshu Chen, Marie Duflot and Stephan Merz, Analyzing Conflict Freedom for Multithreaded Programs With Time Annotations, presented in The 14th Int'l workshop on Automated Verification of Critical Systems, (AVOCS 2014)

[21]Jingshu Chen and Sandeep S. Kulkarni, Towards Scalable Model Checking of Self-Stabilizing Programs, published in the Journal of Parallel Distrib. Comput. 73(4): 400-410, (JPDC 2013)

[22]Jingshu Chen and Sandeep S. Kulkarni, MR4UM: A Framework for Adding Fault Tolerance to UML State Diagram, published in the Theoretical Computer Science, (TCS 2013)

[23]Jingshu Chen and Sandeep S. Kulkarni, SMT-Based Model Checking for Stabilizing Programs, published in The Int'l Conference on Distributed Computing and Networking, (ICDCN 2013)

[24]Jingshu Chen and Sandeep S. Kulkarni, Brief Announcement: Verification of Stabilizing Programs with SMT Solvers, published in the The Int'l Symposium on Stabilization, Safety and Security of Distributed System, (SSS 2012)

[25]Jingshu Chen and Sandeep S. Kulkarni, Application of Automated Revision for UML models: A Case Study, published in The Int'l Conference on Distributed Computing and Networking, (ICDCN 2012)

[26]Jingshu Chen and Sandeep S. Kulkarni, Effectiveness of Transition Systems to Model Fault, published in The 2nd Internaltional Workshop on Logical Aspects of Fault-Tolerance, (LAFT 2011)

[27]Jingshu Chen and Sandeep S. Kulkarni, Complexity Analysis of Weak Multitolerance, published in The International Conference on Distributed Computer System, (ICDCS 2010)

[28]Jingshu Chen and Sandeep S. Kulkarni, Effect of Fairness in Model Checking of Self-Stabilizing Programs, published in The International Conference on Principles of Distributed Systems (OPODIS 2010)

Teaching Experience

CSI 2999	Sophomore Project	*2019-2023*
CSI 3370	Software Engineering and Practise	*2017-2023*
CSI 3680	Script Programming	*2020-2022*
CSI 5900	Advanced Topic in the Design and Analysis of Component based Software Development	*2020-2023*
CSI 5610	Advanced Data Structures and Algorithms	*2019-2023*

Mentoring

2021-	Charlie Wingate, Ph.D. Student, Oakland University
2021-	Justin Kur, Ph.D. Student, Oakland University
2021-	Yuxuan Wang, Ph.D. Student, Oakland University
2023-	Irma Rushi, Ph.D. Student, Oakland University
2023-	Qi Guan, Master Student, Oakland University
2023-	Ziwei Zhou, Master Student, Oakland University
2023-	Yousef Mardrosyan, Undergraduate Student, Oakland University
2023-	Christian Huyghe, Undergraduate Student, Oakland University

Service, Outreach & Professional Development

Department of CSE at Oakland University

2017-2021	CSE Graduate Affair Committee, Member
2018-2022	CSE UnderGraduate Affair Committee, Member
2018-2021	CSE Seminar Committee, Chair
2022-2023	CSE Lab Resource Management Committee, Chair
2022-2023	CSE ABET evaluation Committee, Member

School of Engineering and Computer Science at Oakland University

2019-2022	Dean's Scholarship Committee, Member
2020-2021	SECS IT Manager Search Committee, Member

Oakland University

2019-2021	University Research Committee, Member
2019-Now	Provost Research Committee, Member
2021-Now	Academic Standards & Honors (ASH) Committee, Member
2020-2021	President's Colloquium Committee, Member
2020-2021	University Research Committee, Chair
2021-Now	Women in Computing, Faculty Advisory

Professional Community

2023	SIGCSE, TPC member
2023	NSF Panel Reviewer
2022	IEEE/ACM UCC, Session Chair
2020-2023	International Conference of Cloud Computing, TPC member
2021-Now	MI Aspiration in Computing, Committee Member
2021	ICDCS, Reviewer
2020-2021	Tapia, Scholarship Reviewer
2021-	Mathematical Problems in Engineering, Reviewer
2019	SRDS, Reviewer
2019	Journal of Service Computing, Reviewer
2018	International Conference of Web Services, TPC Member