Department of Computer Science and Engineering
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Hui Lu

Associate Professor

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Education

Purdue University — August 2012 – August 2017
Ph.D. in Computer Science — West Lafayette, IN
Advisor: Professor Dongyan Xu

Shanghai Jiao Tong University — September 2006 – March 2009
M.E. in Electronic Engineering — Shanghai, China
Advisor: Professor Hongkai Xiong

Shanghai Jiao Tong University — September 2002 – July 2006
B.E. in Electronic Engineering — Shanghai, China

Appointments

Associate Professor — September 2026 – present
Department of Computer Science and Engineering, The University of Texas at Arlington — Arlington, TX

Assistant Professor — September 2023 – August 2026
Department of Computer Science and Engineering, The University of Texas at Arlington — Arlington, TX

Assistant Professor — August 2017 – August 2023
Department of Computer Science, Binghamton University, State University of New York — Binghamton, NY

Visiting Faculty — June 2019 – August 2019
Air Force Research Laboratory (AFRL) and Griffiss Institute — Rome, NY

Performance Engineer — March 2009 – July 2012
Software and Solutions Group, Intel Asia-Pacific R&D Center — Shanghai, China

Earlier Research Positions

Research Assistant — August 2012 – August 2017
FRIENDS Lab (Research in Emerging Networked and Distributed Systems), Purdue University — West Lafayette, IN

Research Intern — June 2016 – September 2016
Microsoft Research — Redmond, WA

Research Intern — May 2014 – August 2014
AT&T Labs Research — Bedminster, NJ

Research Intern — May 2013 – August 2013
NEC Laboratories America — Princeton, NJ

Research Assistant — September 2006 – March 2009
Image, Video and Multimedia Communications Lab, Shanghai Jiao Tong University — Shanghai, China

Honors and Awards

UT System Rising STARs Award	2024
NSF CAREER Award	2023
Summer Faculty Fellowship, Air Force Research Laboratory (AFRL)	2019

Publications

Peer-reviewed conference and workshop papers, most recent first. Acceptance rates are given where available.

[NeurIPS '26] *[author list to be added]*, **Hui Lu**, "SPIRIT: Speed-Driven Online Adaptation for Self-Speculative Decoding," in *Conference on Neural Information Processing Systems*, 2026. To appear.

[ATC '26] *[author list to be added]*, **Hui Lu**, "Courier: Host-Transparent Direct Network I/O for Secure Containers in Cloud VMs," in *USENIX Annual Technical Conference*, 2026. To appear.

[SC '26] Peiran Du, Weishu Deng, Yang Song, Chenfei Liao, Yujie Yang, Ren Wang, **Hui Lu**, and Jia Rao, "Quantifying the Cost of Software-Managed Synchronization on Multi-Host CXL Memory," in *The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC)*, 2026. Acceptance rate 20%.

[OSDI '26] Kaesi Manakkal, Nathan Daughety, Yu Sun, Marcus Pendleton, and **Hui Lu**, "vBOIDs: Taming Chaos via Coarse-Grained Scheduling Abstraction for Containers," in *USENIX Symposium on Operating Systems Design and Implementation*, 2026. Acceptance rate 19.9%.

[OSDI '26] Jiangshan Lai, Hang Huang, Quan Xu, Zhen Ren, Wenlong Hou, Wei Guo, Jia Rao, **Hui Lu**, Weidong Han, Jiesheng Wu, Jiang Liu, Naixuan Guan, Yibin Shen, Feng Yu, Xu Wang, Shiqiang Zhang, Zhiheng Tao, Yisheng Xie, Song Wu, and Hai Jin, "JANUS: Cross-World, Cooperative Nested Virtualization for Secure Containers," in *USENIX Symposium on Operating Systems Design and Implementation*, 2026. Acceptance rate 19.9%.

[HPDC '26] Weishu Deng, Yujie Yang, Peiran Du, Lingfeng Xiang, Zhen Lin, Chen Zhong, Faraz Ahmed, Lianjie Cao, Puneet Sharma, Song Jiang, **Hui Lu**, and Jia Rao, "Scaling Attention Beyond GPUs for LLM Inference," in *ACM International Symposium on High-Performance Parallel and Distributed Computing*, 2026. Acceptance rate 12.5%.

[EuroSys '26] Zixuan Wang, Qi Wu, Hang Huang, Jia Rao, **Hui Lu**, Hao Fan, Zhuo Huang, Song Wu, and Hai Jin, "AEP: Achieving Hierarchical Fault Tolerance in DSM Through Atomic Execution Protection," in *European Conference on Computer Systems*, 2026. Acceptance rate 18.5%.

[ICDE '26] Ziling Huang, Zhengmao Ye, Qingsong Cai, Zelong Huang, Bo Sang, Haitao Zhang, Jian Sha, Tingfeng Lan, **Hui Lu**, Yuanchun Zhou, and Mingjie Tang, "DLRover-LM: LLM Pre-Training Framework with Thousands of Accelerators in AntGroup," in *IEEE International Conference on Data Engineering*, 2026.

[USENIX ATC '25] Kaesi Manakkal, Nathan Daughety, Marcus Pendleton, and **Hui Lu**, "LiteShield: Secure Containers via Lightweight, Composable Userspace μKernel Services," in *USENIX Annual*

Technical Conference, 2025. Acceptance rate 15.8%.

[USENIX ATC '25] Ruili Liu, Teng Ma, Mingxing Zhang, Jialiang Huang, Yingdi Shan, Zheng Liu, Lingfeng Xiang, Zhen Lin, **Hui Lu**, Jia Rao, Kang Chen, and Yongwei Wu, "DSA-2LM: A CPU-Free Tiered Memory Architecture with Intel DSA," in *USENIX Annual Technical Conference*, 2025. Acceptance rate 15.8%.

[VLDB '25] Zhengmao Ye, Dengchun Li, Zetao Hu, Tingfen Lan, Sha Jian, Sicong Zheng, Lei Duan, Jie Zuo, **Hui Lu**, Yuanchun Zhou, and Mingjie Tang, "mLoRA: Fine-Tuning LoRA Adapters via Highly-Efficient Pipeline Parallelism in Multiple GPUs," in *Proceedings of the VLDB Endowment*, 2025.

[SYSTOR '25] Zhen Lin, Yujie Yang, Lingfeng Xiang, Lianjie Cao, Faraz Ahmed, Jia Rao, **Hui Lu**, and Puneet Sharma, "Can Hardware Outsmart Software in Tiered Memory Management? A CMM-H Case Study," in *ACM International Systems and Storage Conference*, 2025. Acceptance rate 37.2%.

[VLDB '24] Qinlong Wang, Tingfeng Lan, Yinghao Tang, Bo Sang, Ziling Huang, Yiheng Du, Haitao Zhang, Jian Sha, **Hui Lu**, Yuanchun Zhou, Ke Zhang, and Mingjie Tang, "DLRover-RM: Resource Optimization for Deep Recommendation Models Training in the Cloud," in *Proceedings of the VLDB Endowment*, 2024. Acceptance rate 20%.

[OSDI '24] Lingfeng Xiang, Zhen Lin, Weishu Deng, **Hui Lu**, Jia Rao, Yifan Yuan, and Ren Wang, "Nomad: Non-Exclusive Memory Tiering via Transactional Page Migration," in *USENIX Symposium on Operating Systems Design and Implementation (OSDI)*, 2024. Acceptance rate 17.4%.

[SOSP '23] Hang Huang, Jiangshan Lai, Jia Rao, **Hui Lu**, Wenlong Hou, Hang Su, Quan Xu, Jiang Zhong, Jiahao Zeng, Xu Wang, Zhengyu He, Weidong Han, Jiang Liu, Tao Ma, and Song Wu, "PVM: Efficient Shadow Paging for Deploying Secure Containers in Cloud-native Environment," in *ACM Symposium on Operating Systems Principles*, 2023. Acceptance rate 18.8%.

[USENIX ATC '23] Zhen Lin, Lingfeng Xiang, Jia Rao, and **Hui Lu**, "P2Cache: Exploring Tiered Memory for In-Kernel File Systems Caching," in *USENIX Annual Technical Conference*, 2023. Acceptance rate 18.4%.

[HotStorage '23] Zhen Lin, Lianjie Cao, Faraz Ahmed, **Hui Lu**, and Puneet Sharma, "When Caching Systems Meet Emerging Storage Devices: A Case Study," in *ACM Workshop on Hot Topics in Storage and File Systems*, 2023. Acceptance rate 39.5%.

[IPDPS '23] Jiaxin Lei, Manish Munikar, **Hui Lu**, and Jia Rao, "mFlow: Accelerating Packet Processing in Container Overlay Networks via Packet-level Parallelism," in *IEEE International Parallel and Distributed Processing Symposium*, 2023. Acceptance rate 25.7%.

[ICDCS '22] Manish Munikar, Jiaxin Lei, **Hui Lu**, and Jia Rao, "PRISM: Streamlined Packet Processing for Containers with Flow Prioritization," in *IEEE International Conference on Distributed Computing Systems*, 2022. Acceptance rate 20%.

[PLOS@SOSP '21] Zhen Lin, Kao-Feng Hsieh, Yu Sun, Seunghee Shin, and **Hui Lu**, "FlashCube: Fast Provisioning of Serverless Functions with Streamlined Container Runtimes," in *Workshop on Programming Languages and Operating Systems*, 2021.

[EuroSys '21] Jiaxin Lei, Manish Munikar, Kun Suo, **Hui Lu**, and Jia Rao, "Parallelizing Packet Processing in Container Overlay Networks," in *European Conference on Computer Systems*, 2021. Acceptance rate 20%.

[EuroSys '20] Bo Sang, Pierre-Louis Roman, Patrick Eugster, **Hui Lu**, Srivatsan Ravi, and Gustavo Petri, "PLASMA: Programmable Elasticity for Stateful Cloud Computing Applications," in *European Conference on Computer Systems*, 2020. Acceptance rate 18%.

[INFOCOM '20] Dinuni Fernando, Ping Yang, and **Hui Lu**, "SDN-based Order-aware Live Migration of Virtual Machines," in *IEEE International Conference on Computer Communications*, 2020. Acceptance rate 20%.

[SoCC '20] Yu Sun, Jiaxin Lei, Seunghee Shin, and **Hui Lu**, "BAOverlay: A Block-Accessible Overlay File System for Fast and Efficient Container Storage," in *ACM Symposium on Cloud Computing*, 2020. Acceptance rate 24%.

[CLOUD '20] Haohang Xu, Jin Li, Hongkai Xiong, and **Hui Lu**, "FedMax: Enabling a Highly-Efficient Federated Learning Framework," in *IEEE International Conference on Cloud Computing*, 2020. Acceptance rate 21%.

[HotCloud '19] Jiaxin Lei, Kun Suo, **Hui Lu**, and Jia Rao, "Tackling Parallelization Challenges of Kernel Network Stack for Container Overlay Networks," in *USENIX Workshop on Hot Topics in Cloud Computing*, 2019. Acceptance rate 37%.

[CLOUD '19] Gourav Rattihalli, Madhusudhan Govindaraju, **Hui Lu**, and Devesh Tiwari, "Exploring Potential for Non-Disruptive Vertical Auto Scaling and Resource Estimation in Kubernetes," in *IEEE International Conference on Cloud Computing*, 2019. Invited paper.

[IC2E '19] **Hui Lu**, Abhinav Srivastava, and Yu Sun, "ShadeNF: Testing Online Network Functions," in *IEEE International Conference on Cloud Engineering*, 2019. Acceptance rate 26%.

[VEE '19] Spoorti Doddamani, Piush Sinha, **Hui Lu**, Kevin Cheng, Hardik Bagdi, and Kartik Gopalan, "Fast and Live Hypervisor Replacement," in *ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments*, 2019.

[DCPerf@INFOCOM '19] Piush Kumar Sinha, Spoorti Doddamani, **Hui Lu**, and Kartik Gopalan, "mWarp: Accelerating Intra-Host Live Container Migration via Memory Warping," in *IEEE INFOCOM Workshops: Big Data and Cloud Performance (DCPerf)*, 2019.

[SoCC '18] Yu Sun, **Hui Lu**, Abhinav Srivastava, and Cong Xu, "ShadeNF: A Platform for Online Network Function Verification," in *ACM Symposium on Cloud Computing*, 2018. Poster.

[Ph.D. Thesis] **Hui Lu**, "Rethinking Cloud Storage System Software under Multi-Tenancy," in *Purdue University*, 2017.

[SoCC '16] **Hui Lu**, Brendan Saltaformaggio, Cong Xu, Umesh Bellur, and Dongyan Xu, "BASS: Improving I/O Performance for Cloud Block Storage via Byte-Addressable Storage Stack," in *ACM Symposium on Cloud Computing*, 2016. Acceptance rate 25%.

[DSN '16] **Hui Lu**, Abhinav Srivastava, Brendan Saltaformaggio, and Dongyan Xu, "StorM: Enabling Tenant-Defined Cloud Storage Middle-Box Services," in *IEEE/IFIP International Conference on Dependable Systems and Networks*, 2016. Acceptance rate 22.3%.

[SoCC '15] **Hui Lu**, Brendan Saltaformaggio, Ramana Kompella, and Dongyan Xu, "vFair: Latency-Aware Fair Storage Scheduling via Per-IO Cost-Based Differentiation," in *ACM Symposium on Cloud Computing*, 2015. Acceptance rate 21.6%.

[CLOUD '15] **Hui Lu**, Cong Xu, Cheng Cheng, Ramana Kompella, and Dongyan Xu, "vHaul: Towards Optimal Scheduling of Live Multi-VM Migration for Multi-tier Applications," in *IEEE International Conference on Cloud Computing*, 2015. Acceptance rate 14%.

[Middleware '13] **Hui Lu**, Nipun Arora, Hui Zhang, Cristian Lumezanu, Junghwan Rhee, and Guofei Jiang, "Hybnet: Network Manager for a Hybrid Network Infrastructure," in *ACM/IFIP/USENIX International Middleware Conference, Industry Track*, 2013. Acceptance rate 22.7%.

[USENIX ATC '13] Cong Xu, Sahan Gamage, **Hui Lu**, Ramana Kompella, and Dongyan Xu, "vTurbo:

Accelerating Virtual Machine I/O Processing Using Designated Turbo-Sliced Core," in *USENIX Annual Technical Conference*, 2013. Acceptance rate 14.2%.

[VEE '12] **Hui Lu**, Yaozu Dong, Jiangang Duan, and Kevin Tian, "Virtualization Challenges: A View from Server Consolidation Perspective," in *ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments*, 2012. Acceptance rate 37.7%.

[IISWC '10] **Hui Lu**, Xudong Zheng, Zhiteng Huang, and Jiangang Duan, "Tackling the Challenges of Server Consolidation on Multi-Core Systems," in *IEEE International Symposium on Workload Characterization*, 2010. Acceptance rate 37.5%.

Patents

1. Kartik Gopalan and Hui Lu, "Systems and Methods for Live Update of Operating Systems and Hypervisors within Virtualization Systems," U.S. Patent 12,093,713 B2, 2024.
2. Nipun Arora, Hui Zhang, Cristian Lumezanu, Junghwan Rhee, Guofei Jiang, and Hui Lu, "Hybrid Network Management," U.S. Patent Application 14/453,054.

Teaching

The University of Texas at Arlington

CSE 3320 · Operating Systems	Fall 2025, 2024, 2023
CSE 5359/6359 · Advanced Topics in Systems and Architecture	Fall 2026, 2025, 2024
CSE 4372/5372/6351 · RISC-V Processor Design	Spring 2024

Binghamton University

CS 350 · Operating Systems	Spring 2023, Fall 2022, Spring 2022, Spring 2021, Fall 2019
CS 452/552 · Introduction to Cloud Computing	Spring 2023, 2022; Fall 2021, 2020; Spring 2020; Fall 2018, 2017
CS 550 · Operating Systems	Spring 2019, 2018

Mentoring and Advising

Current Ph.D. Students

1. Yan Wang (since Fall 2025, UTA)
2. Yang Song (since Fall 2025, UTA)
3. Chengbo Zhan (since Fall 2024, UTA)
4. Chenfei Liao (since Fall 2024, UTA)
5. Kaesi Manakkal (since Fall 2023, UTA)

Graduated Ph.D. Students

1. Yu Sun · Graduated December 2025, Binghamton University
2. Zhen Lin · Joined Binghamton University in Spring 2021, transferred to UTA in 2023; graduated August 2025. Software Engineer at ByteDance.
   - Thesis: "Exploring Emerging Memory Devices to Enhance Data Center Applications"

3. Jiaxin Lei · Joined Binghamton University in Spring 2019, transferred to UTA in 2023; graduated August 2024. Assistant Professor at Kean University, NJ.
   - Thesis: "Accelerating Container Overlay Networks"
4. Piush Sinha · Co-advised with Prof. Kartik Gopalan, 2017–2019; graduated August 2019, Binghamton University. Infrastructure Engineer at Nutanix.
   - Thesis: "Accelerating Intra-Host Live Process Migration via Memory Warping"

Invited Talks and Presentations

Invited Talks

1. "A Lightweight Userspace μKernel Architecture for Secure Container Isolation," Trusted Computing Center of Excellence (TCCoE), Annapolis, MD, 2025.
2. "Enabling Lightweight Secure Containers," Trusted Computing Center of Excellence (TCCoE), Annapolis, MD, 2024.
3. "Achieving Both the Security of VMs and the Speed of Containers in Cloud Native," Trusted Computing Center of Excellence (TCCoE), online, 2022.
4. "Securing Cloud Serverless Infrastructure with seL4," seL4 Summit, online, 2020.
5. "Enabling seL4 Containers to Support Legacy Applications," seL4 Summit, Herndon, VA, September 2019.

Keynote

1. "An Interdisciplinary Perspective on Fake News Detection," CISS NTNU International Conference on AI and the New Interdisciplinary Frontiers, National Taiwan Normal University, Taiwan, October 2019.

Conference Presentations

1. "ShadeNF: Testing Online Network Functions," IEEE IC2E, Prague, Czech Republic, June 2019.
2. "mWarp: Accelerating Intra-Host Live Container Migration via Memory Warping," IEEE INFOCOM Workshops, Paris, France, April 2019.

Professional Service

Review Panels

National Science Foundation proposal review panels — 2018, 2019, 2020, 2021, 2023, 2024, 2026

Program Committees

USENIX Conference on File and Storage Technologies (FAST)	2027
Workshop on Programming Languages and Operating Systems (PLOS)	2021, 2023, 2025, 2026
IEEE Cloud Summit	2024–2026
IEEE Int'l Conference on High Performance Computing, Data, and Analytics (HiPC)	2024
International Conference on Parallel Processing (ICPP)	2024
IEEE International Conference on Distributed Computing Systems (ICDCS)	2022–2024
IEEE International Parallel and Distributed Processing Symposium (IPDPS)	2023
Int'l Conference on Cloud Computing, GRIDs, and Virtualization (CLOUD COMPUTING)	2020–2022
IEEE International Conference on Cloud Computing (CLOUD)	2018–2021
International Conference on Networking, Architecture, and Storage (NAS)	2018
International Conference on Big Data Computing and Communications (BIGCOM)	2019
International Conference on Computer Communications and Networks (ICCCN)	2018, 2019

Journal Reviewing

IEEE Transactions on Cloud Computing	2018–2026
IEEE Transactions on Computers	2018, 2019, 2023, 2025, 2026
ACM Transactions on Architecture and Code Optimization	2024–2026
ACM Transactions on Storage	2026
IEEE Transactions on Services Computing	2025
Journal of Network and Computer Applications	2024
IEEE Access	2019–2023
IEEE Transactions on Parallel and Distributed Systems	2018, 2022
IEEE Transactions on Dependable and Secure Computing	2016
IEEE Internet Computing	2015
ACM Transactions on Autonomous and Adaptive Systems	2015