

# Jialin Li

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**EMPLOYMENT**      **National University of Singapore**      Singapore  
School of Computing  
Department of Computer Science  
Sung Kah Kay Assistant Professor      January 2020 - Present

**ETH Zürich**      Zürich, Switzerland  
Department of Computer Science  
Systems Group  
Visiting Researcher      August 2019 - December 2019

**EDUCATION**      **University of Washington**      Seattle, WA  
Ph.D. in Computer Science and Engineering      August 2019  
Thesis: *Co-Designing Distributed Systems with Programmable Network Hardware*

**University of Washington**      Seattle, WA  
M.S. in Computer Science and Engineering      June 2014  
Thesis: *Improving Distributed Systems using Approximate Synchrony in Datacenter Networks*

**University of Michigan**      Ann Arbor, MI  
B.S.E in Computer Engineering      May 2012  
Minor in Mathematics      May 2012

**CONFERENCE PUBLICATIONS**      Yihan Yang, Haifeng Sun, Antoine Kaufmann, and Jialin Li. “NutCracker: A Compilation Framework for Hybrid DPU Architectures”. In *Proceedings of the 21st European Conference on Computer Systems (EuroSys '26)*. Edinburgh, UK, 2026.

Michael Y. Hu, Alvin H. Y. Yan, Yihan Yang, Xiang Liu, and Jialin Li. “Lemonshark: Asynchronous DAG-BFT With Early Finality”. In *Proceedings of the 23rd USENIX Conference on Networked Systems Design and Implementation (NSDI '26)*. May 2026.

Chaoyi Ruan, Chao Bi, Kaiwen Zheng, Ziji Shi, Xinyi Wan, and Jialin Li. “Cortex: Achieving Low-Latency, Cost-Efficient Remote Data Access For LLM via Semantic-Aware Knowledge Caching”. In *Proceedings of the 23rd USENIX Conference on Networked Systems Design and Implementation (NSDI '26)*. May 2026.

Chaoyi Ruan, Yinhe Chen, Dongqi Tian, Yandong Shi, Yongji Wu, Jialin Li, and Cheng Li. “Libra: Flexible Request Partitioning and Scheduling for Serving Unbalanced and Dynamic LLM Workloads”. In *Proceedings of the 23rd USENIX Conference on Networked Systems Design and Implementation (NSDI '26)*. May 2026.

Sidharth Sankhe, Felix Zhang, Umayrah Chonee, Sherman Lim, Jason Hu, Jialin Li, and Qizhen Zhang. “PD3: Prefetching Data with DPUs for Disaggregated Memory”. In *Proceedings of the 23rd USENIX Conference on Networked Systems Design and Implementation (NSDI '26)*. May 2026.

Dehui Wei, Jiao Zhang, Haozhe Li, Rui Han, Zhichen Xue, Yajie Peng, Xiaofei Pang, Yan Ma, and Jialin Li. “HyperEdge: An Edge CDN Infrastructure for Cost Efficient Video Streaming”. In *Proceedings of the 23rd USENIX Conference on Networked Systems Design and Implementation (NSDI '26)*. May 2026.

Jun Lu, Jialin Li, Yaoxue Zhang, and Ju Ren. “Bridging Storage and Execution: A Semantic Virtual Bus for On-Demand Application Streaming”. In *Proceedings of the 23rd USENIX Conference on Networked Systems Design and Implementation (NSDI '26)*. May 2026.

Congcong Miao, Yuejie Wang, Jianming Wang, Xuefeng Ji, Guozhi Shan, Sirui Li, Pan Fang, Yanke Zhang, Jialin Li, Xianneng Zou, and Guyue Liu. “MirrorNet: High-fidelity and Scalable Network Emulation for Software-defined WAN”. In *Proceedings of the 23rd USENIX Conference on Networked Systems Design and Implementation (NSDI '26)*. May 2026.

Xinyi Wan, Penghui Qi, Guangxing Huang, Chaoyi Ruan, Min Lin, and Jialin Li. “Revisiting Parameter Server in LLM Post-Training”. In *The Fourteenth International Conference on Learning Representations (ICLR '26)*. Rio de Janeiro, Brazil, 2026.

Hejing Li, Marvin Meiers, Jialin Li, and Antoine Kaufmann. “SplitSim: Towards Practical Large-Scale Full-System Simulation for Systems Research”. In *Proceedings of the ACM on Networking (CoNEXT '25)*. Dec. 2025.

Xiang Liu, Zhenheng Tang, Xia Li, Yijun Song, Sijie Ji, Zemin Liu, Bo Han, Linshan Jiang, and Jialin Li. “One-shot Federated Learning Methods: A Practical Guide”. In *Proceedings of the 34th International Joint Conference on Artificial Intelligence (IJCAI '25)*. Aug. 2025.

Xiang Liu, Yijun Song, Xia Li, Yifei Sun, Huiying Lan, Zemin Liu, Linshan Jiang, and Jialin Li. “Efficient Partitioning Vision Transformer on Edge Devices for Distributed Inference”. In *2025 IEEE 45th International Conference on Distributed Computing Systems (ICDCS '25)*. July 2025.

Xinyi Wan, Penghui Qi, Guangxing Huang, Jialin Li, and Min Lin. “PipeOffload: Improving Scalability of Pipeline Parallelism with Memory Optimization”. In *Proceedings of the 42nd International Conference on Machine Learning (ICML '25)*. July 2025.

Jiagsheng Hu, Philip Bernstein, Jialin Li, and Qizhen Zhang. “DPDPU: Data Processing with DPUs”. In *Conference on Innovative Data Systems Research (CIDR '25)*. Jan. 2025.

Xiang Liu, Liangxi Liu, Feiyang Ye, Yunheng Shen, Xia Li, Linshan Jiang, and Jialin Li. “FedLPA: One-shot Federated Learning with Layer-Wise Posterior Aggregation”. In *Advances in Neural Information Processing Systems (NeurIPS '24)*. Dec. 2024.

Ziji Shi, Jialin Li, and Yang You. “ParaGAN: A Scalable Distributed Training Framework for Generative Adversarial Networks”. In *Proceedings of the 2024 ACM Symposium on Cloud Computing (SoCC '24)*. Nov. 2024.

Mo Sha, Jialin Li, Sheng Wang, Feifei Li, and Tan Kian-Lee. “TEE-based General-purpose Computational Backend for Secure Delegated Data Processing”. In *Proceedings of the 2024 ACM SIGMOD International Conference on Management of Data (SIGMOD '24)*. June 2024.

- Dehui Wei, Jiao Zhang, Haozhe Li, Zhichen Xue, Yajie Peng, Xiaofei Pang, Yuanjie Liu, Rui Han, and Jialin Li. “Pscheduler: QoE-Enhanced MultiPath Scheduler for Video Services in Large-scale Peer-to-Peer CDNs”. In *Proceedings of the 2024 IEEE Conference on Computer Communications (INFOCOM '24)*. May 2024.
- Guangda Sun, Mingliang Jiang, Xin Zhe Khooi, Yunfan Li, and Jialin Li. “NeoBFT: Accelerating Byzantine Fault Tolerance Using Authenticated In-Network Ordering”. In *Proceedings of the 2023 ACM SIGCOMM 2023 Conference (SIGCOMM '23)*. Sept. 2023.
- Cha Hwan Song, Xin Zhe Khooi, Raj Joshi, Jialin Li, and Mun Choon Chan. “Network Load Balancing with In-network Reordering Support for RDMA”. In *Proceedings of the 2023 ACM SIGCOMM 2023 Conference (SIGCOMM '23)*. Sept. 2023.
- Inho Choi, Ellis Michael, Yunfan Li, Dan Ports, and Jialin Li. “Hydra: Serialization-Free Network Ordering for Strongly Consistent Distributed Applications”. In *Proceedings of the 20th USENIX Conference on Networked Systems Design and Implementation (NSDI '23)*. Apr. 2023.
- Akshaye Shenoi, Prasanna Karthik Vairam, Kanav Sabharwal, Jialin Li, and Dinil Mon Divakaran. “iPET: Privacy Enhancing Traffic Perturbations for Secure IoT Communications”. In *Proceedings on Privacy Enhancing Technologies 2023 (PETS '23)*. July 2023.
- Hejing Li, Jialin Li, and Antoine Kaufmann. “SimBricks: End-to-End Network System Evaluation with Modular Simulation”. In *Proceedings of the 2022 ACM SIGCOMM 2022 Conference (SIGCOMM '22)*. Aug. 2022.
- Ruijie Meng, Zhen Dong, Jialin Li, Ivan Beschastnikh, and Abhik Roychoudhury. “Linear-time Temporal Logic guided Greybox Fuzzing”. In *Proceedings of the 44th International Conference on Software Engineering (ICSE '22)*. Pittsburgh, PA, USA, May 2022.
- Xin Zhe Khooi, Levente Csikor, Jialin Li, Min Suk Kang, and Dinil Mon Divakaran. “Revisiting Heavy-Hitter Detection on Commodity Programmable Switches”. In *2021 7th IEEE Conference on Network Softwarization (NetSoft '21)*. Virtual Conference, 2021.
- Jialin Li, Jacob Nelson, Ellis Michael, Xin Jin, and Dan R. K. Ports. “Pegasus: Tolerating Skewed Workloads in Distributed Storage with In-Network Coherence Directories”. In *Proceedings of the 14th USENIX Symposium on Operating Systems Design and Implementation (OSDI '20)*. 2020.
- Adriana Szekeres, Michael Whittaker, Jialin Li, Naveen Kr. Sharma, Arvind Krishnamurthy, Dan R. K. Ports, and Irene Zhang. “Meerkat: Multicore-Scalable Replicated Transactions Following the Zero-Coordination Principle”. In *Proceedings of the Fifteenth European Conference on Computer Systems (EuroSys '20)*. Heraklion, Greece, 2020.
- Hang Zhu, Zhihao Bai, Jialin Li, Ellis Michael, Dan R. K. Ports, Ion Stoica, and Xin Jin. “Harmonia: Near-Linear Scalability for Replicated Storage with in-Network Conflict Detection”. In *Proceedings of the VLDB Endowment* 13.3, Nov. 2019, 376–389.
- Jialin Li, Ellis Michael, and Dan R. K. Ports. “Eris: Coordination-Free Consistent Transactions Using In-Network Concurrency Control”. In *Proceedings of the 26th Symposium on Operating Systems Principles (SOSP '17)*. Shanghai, China, 2017.

Jialin Li, Ellis Michael, Naveen Kr. Sharma, Adriana Szekeres, and Dan R. K. Ports. “Just Say NO to Paxos Overhead: Replacing Consensus with Network Ordering”. In *Proceedings of the 12th USENIX Symposium on Operating Systems Design and Implementation (OSDI '16)*. Savannah, GA, USA, Nov. 2016.

James Bornholt, Antoine Kaufmann, Jialin Li, Arvind Krishnamurthy, Emina Torlak, and Xi Wang. “Specifying and Checking File System Crash-Consistency Models”. In *Proceedings of the 21st International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS '16)*. Atlanta, GA, USA, Apr. 2016.

Dan R. K. Ports, Jialin Li, Vincent Liu, Naveen Kr. Sharma, and Arvind Krishnamurthy. “Designing Distributed Systems Using Approximate Synchrony in Data Center Networks”. In *Proceedings of the 12th USENIX Conference on Networked Systems Design and Implementation (NSDI '15)*. Oakland, CA, USA, May 2015. **Best Paper Award**.

Jialin Li, Naveen Kr. Sharma, Dan R. K. Ports, and Steven D. Gribble. “Tales of the Tail: Hardware, OS, and Application-level Sources of Tail Latency”. In *Proceedings of the 5th ACM Symposium on Cloud Computing (SOCC '14)*. Seattle, WA, USA, Nov. 2014.

Simon Peter, Jialin Li, Irene Zhang, Dan R. K. Ports, Doug Woos, Arvind Krishnamurthy, Thomas Anderson, and Timothy Roscoe. “Arrakis: The Operating System is the Control Plane”. In *Proceedings of the 11th USENIX Symposium on Operating Systems Design and Implementation (OSDI '14)*. Broomfield, CO, USA, Oct. 2014. **Best Paper Award**.

Andrew DeOrio, Jialin Li, and Valeria Bertacco. “Bridging Pre- and Post-silicon Debugging with BiPeD”. In *Proceedings of the International Conference on Computer-Aided Design (ICCAD '12)*. San Jose, CA, USA, Nov. 2012.

#### WORKSHOP PUBLICATIONS

Inho Choi, Nimish Wadekar, Raj Joshi, Joshua Fried, Dan R. K. Ports, Irene Zhang, and Jialin Li. “Capybara: uSecond-Scale Live TCP Migration”. In *Proceedings of the 2023 ACM Asia-Pacific Workshop on Systems (APSys '23)*. Aug. 2023.

Bin Gao, Hejing Li, Jialin Li, and Antoine Kaufmann. “Improving Disaggregated System Evaluation with Modular End-to-End Simulation”. In *Proceedings of the 3rd Workshop on Resource Disaggregation and Serverless Computing*. Nov. 2022.

Xin Zhe Khooi, Levente Csikor, Jialin Li, and Dinil Mon Divakaran. “In-Network Applications: Beyond Single Switch Pipelines”. In *2021 1st IEEE Workshop on Theory and Practice of Programmable Forwarding (TaPoPF '21)*. Virtual Conference, June 2021.

Simon Peter, Jialin Li, Doug Woos, Irene Zhang, Dan R. K. Ports, Thomas Anderson, Arvind Krishnamurthy, and Mark Zbikowski. “Towards High-performance Application-level Storage Management”. In *Proceedings of the 6th USENIX Conference on Hot Topics in Storage and File Systems (HotStorage '14)*. Philadelphia, PA, USA, June 2014.

#### JOURNAL PUBLICATIONS

Xueying Zhu, Yingtao Li, Xiang Li, Jialin Li, and Zeke Wang. “Hare: A Systematic Framework for Efficient and Generally Automatic Hotspot Offloading on Programmable Switches”. In *IEEE Transactions on Networking*, 2025.

Dehui Wei, Jiao Zhang, Xiang Liu, Haozhe Li, Zhichen Xue, Tao Huang, Linshan Jiang, and Jialin Li. “QoE-Optimized MultiPath Scheduling for Video Services in Large-Scale Peer-To-Peer CDNs”. In *IEEE Journal on Selected Areas in Communications* 43.2, 2025.

Hongjing Huang, Yingtao Li, Jie Sun, Xueying Zhu, Jie Zhang, Liang Luo, Jialin Li, and Zeke Wang. “P4SGD: Programmable Switch Enhanced Model-Parallel Training on Generalized Linear Models on Distributed FPGAs”. In *IEEE Transactions on Parallel and Distributed Systems* 34.8, 2023.

Simon Peter, Jialin Li, Irene Zhang, Dan R. K. Ports, Doug Woos, Arvind Krishnamurthy, Thomas Anderson, and Timothy Roscoe. “Arrakis: The Operating System Is the Control Plane”. In *ACM Transactions on Computer Systems* 33.4, Nov. 2015.

SERVICE

**Conference Organizers**

APSys Program Co-Chair	2025
SOSP Registration Chair	2023
APSys Local Chair	2022
SOSP Virtual Platform Chair	2021

**Conference Program Committees**

EuroSys	2027
SOSP	2026
APNet	2026
SOSP	2025
OSDI	2025
EuroSys	2025
OSDI	2024
NSDI	2024
SysDW	2023
APSys	2023
APNet	2023
HotOS	2023
APSys	2022
APNet	2022
PaPoC	2022
OSDI	2022
ASPLOS (ERC)	2022
EuroDW	2021
VEE	2021
OSDI	2021
ASPLOS (ERC)	2021

**Journal Reviewer**

Transactions on Networking	2023
Transactions on Computer Systems	2021
Transactions on Computers	2020
Transactions on Networking	2020
Transactions on Networking	2019

**Other**

UW CSE Academic Job Hunting Seminar Coordinator	2016
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AWARDS

<b>NUS Faculty Teaching Excellence Award</b>	2022
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	<b>UW IAP Cloud Workshop Best Poster Award</b>	2017
	<b>UW CSE Industrial Affiliates Madrona Prize Runner Up</b>	2016
	<b>NSDI '15 Best Paper Award</b>	2015
	<b>OSDI '14 Jay Lepreau Best Paper Award</b>	2014
	<b>UW CSE Industrial Affiliate Madrona Prize Winner</b>	2014
	<b>Wang Chu Chien-Wen Research Award</b>	2011
	<b>James B. Angell Scholar Award</b>	2011
INVITED TALKS	<b>Principled End-to-End Evaluation of Co-Designed Systems</b> Huawei Academic-Industrial Vision Forum	Jul 2023
	<b>The Case for Network Ordering in Distributed Systems Design</b> Huawei Sentosa Software Technology Summit	Sep 2023
	MIT FastCode Seminars	Apr 2023
	Huawei Post-Moore Network Technologies Seminar	Feb 2023
	APSys '22	Aug 2022
	<b>Pegasus: Tolerating Skewed Workloads in Distributed Storage with In-Network Coherence Directories</b> Symposium on Operating Systems Design and Implementation (OSDI '20)	Nov 2020
	Systems Group at Duke University	Jan 2021
	<b>Systems Design in the Post-Moore's Law Era</b> NUS Computing Research Week	Aug 2020
	<b>Co-Designing Distributed Systems with Programmable Network Hardware</b> HotDC '22	Oct 2022
	MPI-SWS	Oct 2019
	ETH Zürich	Sep 2019
	<b>Eris: Coordination-Free Consistent Transactions Using In-Network Concurrency Control</b> Symposium on Operating Systems Principles (SOSP '17)	Oct 2017
	<b>Just Say NO to Paxos Overhead: Replacing Consensus with Network Ordering</b> Symposium on Operating Systems Design and Implementation (OSDI '16)	Nov 2016
	UW CSE Industrial Affiliates Meeting	Oct 2016
	UW CSE Cloud Day	Jun 2016
	<b>Designing Distributed Systems Using Approximate Synchrony</b> UW CSE Systems, Architecture and Networking Retreat	May 2014
TEACHING	<b>Introduction to Operating Systems (NUS CS2106)</b> Instructor	Singapore Fall 2025
	Instructor	Fall 2024

	Instructor	Fall 2023
	Instructor	Fall 2021
	<b>Distributed Systems (NUS CS5223)</b>	Singapore
	Instructor	Winter 2026
	Instructor	Winter 2025
	Instructor	Winter 2024
	Instructor	Winter 2023
	Instructor	Winter 2022
	Instructor	Winter 2021
	<b>Computer Engineering Capstone Project (NUS CG4002)</b>	Singapore
	Instructor	Fall 2022
	<b>Systems Design for Next Gen Hardware (NUS CS6280)</b>	Singapore
	Instructor	Fall 2020
	<b>Distributed Systems (UW CSE 452)</b>	Seattle, WA
	Teaching Assistant	Spring 2017
	<b>PMP Operating Systems (UW CSEP 551)</b>	Seattle, WA
	Teaching Assistant	Fall 2014
	<b>The Hardware/Software Interface (UW CSE 351)</b>	Seattle, WA
	Tutor	Fall 2016
	Tutor	Spring 2016
	Tutor	Fall 2015
	<b>Engineering Design Projects (UM ENGR 100)</b>	Ann Arbor, MI
	Teaching Assistant	Winter 2012
	<b>Computer Organization and Design (UM EECS 370)</b>	Ann Arbor, MI
	Teaching Assistant	Fall 2011
OTHER WORK EXPERIENCE	<b>VMware, Inc.</b>	Palo Alto, CA
	MTS, Nicira NSX Group	Jun - Sep 2014
	<b>Confucius Institute at the University of Michigan</b>	Ann Arbor, MI
	Office Assistant and Teaching Assistant	Sep 2010 - May 2012