

Jialin Li

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EMPLOYMENT **National University of Singapore** Singapore
School of Computing
Department of Computer Science
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 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

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

NUS Faculty Teaching Excellence Award	2022
UW IAP Cloud Workshop Best Poster Award	2017
UW CSE Industrial Affiliates Madrona Prize Runner Up	2016
NSDI '15 Best Paper Award	2015
OSDI '14 Jay Lepreau Best Paper Award	2014

	UW CSE Industrial Affiliate Madrona Prize Winner	2014
	Wang Chu Chien-Wen Research Award	2011
	James B. Angell Scholar Award	2011
INVITED TALKS	Principled End-to-End Evaluation of Co-Designed Systems Huawei Academic-Industrial Vision Forum	Jul 2023
	The Case for Network Ordering in Distributed Systems Design Huawei Sentosa Software Technology Summit	Sep 2023
	MIT FastCode Seminars	Apr 2023
	Huawei Post-Moore Network Technologies Seminar	Feb 2023
	APSys '22	Aug 2022
	Pegasus: Tolerating Skewed Workloads in Distributed Storage with In-Network Coherence Directories Symposium on Operating Systems Design and Implementation (OSDI '20)	Nov 2020
	Systems Group at Duke University	Jan 2021
	Systems Design in the Post-Moore's Law Era NUS Computing Research Week	Aug 2020
	Co-Designing Distributed Systems with Programmable Network Hardware HotDC '22	Oct 2022
	MPI-SWS	Oct 2019
	ETH Zürich	Sep 2019
	Eris: Coordination-Free Consistent Transactions Using In-Network Concurrency Control Symposium on Operating Systems Principles (SOSP '17)	Oct 2017
	Just Say NO to Paxos Overhead: Replacing Consensus with Network Ordering Symposium on Operating Systems Design and Implementation (OSDI '16)	Nov 2016
TEACHING	UW CSE Industrial Affiliates Meeting	Oct 2016
	UW CSE Cloud Day	Jun 2016
	Designing Distributed Systems Using Approximate Synchrony UW CSE Systems, Architecture and Networking Retreat	May 2014
	Introduction to Operating Systems (NUS CS2106)	Singapore
	Instructor	Fall 2024
	Instructor	Fall 2023
	Instructor	Fall 2021
	Distributed Systems (NUS CS5223)	Singapore
	Instructor	Winter 2025
	Instructor	Winter 2024
	Instructor	Winter 2023
	Instructor	Winter 2022
	Instructor	Winter 2021

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