

Jialong Li

[Homepage](#)

[Google Scholar](#)

[ResearchGate](#)

Email: ljialong@mpi-inf.mpg.de

Phone: +86 188-0010-3889

Address: Room 517, MPI-INF, Campus E1 4, 66123 Saarbrücken, Germany

Research Interests

**Computer Networks, Data Center Networks, Optical Networks,
Optical Communication, Network for Machine Learning, Network System**

Education

Tsinghua University

Beijing, China

Doctor of Philosophy, Electronic Engineering

07/2016 – 10/2021

Thesis: Research on the convergence of optical access and metro networks

Advisor: [Bingkun Zhou](#), [Xiaoping Zheng](#)

Tsinghua University

Beijing, China

Bachelor of Engineering, Electronic Engineering

07/2012 – 06/2016

Professional Experience

Max Planck Institute for Informatics (MPI-INF) (德国马普所)

Germany

Postdoctoral Associate

11/2021 – Present

Topics: Networks for machine learning, congestion control in optical data centers, next-generation optical networks for data centers

Advisor: [Yiting Xia](#)

Publications

[1] [Uniform-Cost Multi-Path Routing for Reconfigurable Data Center Networks](#)

Jialong Li, H. Gong, F. De Marchi, Y. Lei, A. Gong, W. Bai, Y. Xia

ACM SIGCOMM 2024 (Acceptance rate: 62/366 = 16.9%)

[2] [Leveraging Joint Allocation of Multidimensional Resources for Distributed Task Assignment](#)

Jialong Li, N. Hua, K. Zhu, C. Zhao, G. Pan, Y. Li, X. Zheng, B. Zhou

IEEE/OSA Journal of Optical Communications and Networking (JOCN, JCR Q1), 2022

[3] [Flexible Low-Latency Metro-Access Converged Network Architecture Based on Optical Time Slice Switching](#)

Jialong Li, N. Hua, Z. Zhong, Y. Yu, X. Zheng, B. Zhou

IEEE/OSA Journal of Optical Communications and Networking (JOCN, JCR Q1), 2019

[4] [A Flexible Low-Latency Metro-Access Converged Network Approach Based on Time-Synchronized TWDM-PON](#)

Jialong Li, N. Hua, Y. Yu, Z. Zhong, X. Zheng, B. Zhou

Optical Fiber Communications Conference (OFC), 2018

[5] Balancing Energy Efficiency and Device Lifetime in TWDM-PON under Traffic Fluctuations

Jialong Li, Z. Zhong, N. Hua, X. Zheng, B. Zhou
IEEE Communications Letters (CL, JCR Q2), 2017

[6] Towards Low-Latency Distributed Tasks Collaboration by Joint Optimization of Transmission, Computation and Storage Resources Allocation in Edge Computing

Jialong Li, N. Hua, C. Zhao, Y. Li, X. Zheng, B. Zhou
Asia Communications and Photonics Conference (ACP), 2020

[7] Joint Optimization of Multidimensional Resources Allocation in Cloud Networking

Jialong Li, K. Zhu, N. Hua, C. Zhao, Y. Li, X. Zheng, B. Zhou
IEEE 7th Optoelectronics Global Conference (OGC), 2022

[8] Hop-On Hop-Off Routing: A Fast Tour across the Optical Data Center Network for Latency-Sensitive Flows

Jialong Li, Y. Lei, F. De Marchi, R. Joshi, B. Chandrasekaran, Y. Xia
6th Asia-Pacific Workshop on Networking (APNet 2022)

[9] Rethinking Transport Protocols for Reconfigurable Data Centers: An Empirical Study

F. De Marchi, **Jialong Li**, W. Bai, Y. Xia
ACM SIGCOMM 2024 Workshop on Hot Topics in Optical Technologies and Applications in Networking (HotOptics 2024)

[10] Enabling System Innovation in Optical Data Center Networks with OpenOptics

Y. Lei, R. Joshi, F. De Marchi, **Jialong Li**, B. Chandrasekaran, Y. Xia
ACM SIGCOMM 2024 Workshop on Hot Topics in Optical Technologies and Applications in Networking (HotOptics 2024)

[11] Efficient Flow Scheduling in Distributed Deep Learning Training with Echelon Formation

R. Pan*, Y. Lei*, **Jialong Li**, Z. Xie, B. Yuan, Y. Xia
Twenty-First ACM Workshop on Hot Topics in Networks (HotNets 2022)

[12] Provisioning Short-Term Traffic Fluctuations in Elastic Optical Networks

Z. Zhong, N. Hua, M. Tornatore, **Jialong Li**, Y. Li, X. Zheng, B. Mukherjee
IEEE/ACM Transactions on Networking (ToN, JCR Q2), 2019

[13] Opportunistic Credit-Based Transport for Reconfigurable Data Center Networks with Tidal

F. De Marchi, **Jialong Li**, W. Bai, Y. Xia
Poster, ACM SIGCOMM 2024

- [14] An Open Research Framework for Optical Data Center Networks
Y. Lei, R. Joshi, F. De Marchi, **Jialong Li**, B. Chandrasekaran, Y. Xia
Demo, ACM SIGCOMM 2024
- [15] Provisioning Uninterrupted Satellite Communication Services by Preset-Satellite-Chain (PSC)-Based Seamless Handover (**Best Poster Award**)
C. Zhao, N. Hua, **Jialong Li**, X. Zheng
Asia Communications and Photonics Conference (ACP), 2020
- [16] Achieving Ultralow-Latency Optical Interconnection for High Performance Computing (HPC) Systems by Joint Allocation of Computation and Communication Resources (**Top-Scored Paper**)
R. Luo, Y. Yu, N. Hua, Z. Zhong, **Jialong Li**, X. Zheng, B. Zhou
Optical Fiber Communications Conference (OFC), 2019
- [17] Time-Sliced Flexible Resource Allocation for Optical Low Earth Orbit Satellite Networks
Z. Zheng, N. Hua, Z. Zhong, **Jialong Li**, Y. Li, X. Zheng
IEEE Access, 2019
- [18] Achieving Global Optical Spectral Perception via Unified Information Model and Adaptive Perceptual Information Calibration
K. Zhu, N. Hua, C. Zhao, Y. Li, **Jialong Li**, Y. Li, X. Zheng, B. Zhou
Optoelectronics and Communications Conference (OECC), 2021
- [19] Throughput Scaling for MMF-Enabled Optical Datacenter Networks by Time-Tlicing-based Crosstalk Mitigation
Z. Zhong, N. Hua, Y. Yu, Z. Wu, J. Li, H. Yan, S. Li, R. Luo, **Jialong Li**, Y. Li, X. Zheng
Optical Fiber Communications Conference (OFC), 2018
- [20] Fast-Reconfigurable Optical Interconnect Architecture based on Time-Synchronized Node Coordination for High Performance Computing
Y. Yu, N. Hua, Z. Zhong, **Jialong Li**, R. Luo, Z. Zheng, X. Zheng
Asia Communications and Photonics Conference (ACP), 2017

Teaching

Max Planck Institute for Informatics (MPI-INF)

Co-Lecturer, Data Networks

Spring 2022

Tutor, Hot Topics in Data Networks Seminar

Fall 2021

Tutor, Hot Topics in Data Networks Seminar

Fall 2022

Tsinghua University

TA, Introduction to Information Science and Technology

Fall 2018

TA, Introduction to Information Science and Technology

Fall 2017

Professional Service

Conferences

Program Committee, ACM SIGCOMM 2024 Workshop on HotOptics

Program Committee, 24th Asia Communications and Photonics Conference (ACP/IPOC 2024)

Reviewer, WCSP 2019

Journals

Reviewer, IEEE/ACM Transactions on Networking

Reviewer, IEEE/OSA Journal of Optical Communications and Networking

Reviewer, IEEE Communications Letters

Reviewer, Mathematics

Reviewer, Photonics

Reviewer, Applied Science

Reviewer, Computer Networks and Communications

Reviewer, Sensors

Academic Service

Committee member of Max Planck Institute Internship Program, 2022

Student Chairman of Beijing Optical Society Tsinghua University Chapter, 2018 – 2019

Awards and Honors

Tsinghua's Friend – Xiaomi Corporation Scholarship (Tsinghua University) 2020

The Second Prize of Comprehensive Scholarship (Tsinghua University) 2018

Excellence Scholarship for Social Work (Tsinghua University) 2014

Student Mentoring

Master Thesis

Vadim Farutin, Saarland University, 10/2022 – 08/2023, Topic: Network-Aware GPU Sharing for Distributed Deep Learning, Score: 1.0 (**Highest**)

Interns

Haotian Gong, The University of British Columbia, 05/2023 – 08/2023, Topic: Uniform-Cost Multi-Path Routing in Reconfigurable Data Center Networks

Aoyu Gong, EPFL, 07/2023 – 02/2024, Topic: Uniform-Cost Multi-Path Routing in Reconfigurable Data Center Networks

Max Huang, University of Waterloo, 01/2024 – 04/2024, Topic: Fastest Path Routing in Reconfigurable Data Center Networks

Laskhay Rastogi, Indian Institute of Technology (IIT), Kanpur, 10/2023 – 01/2024, Topic: Optimal Model Placement for Mixture of Experts (MoE) Training

Shreyansh Tripathi, Saarland University, 05/2024 – Present, Topic: Optimal Model Placement for Mixture of Experts (MoE) Training

Selected Talks

Routing and Scheduling in Optical Data Center Networks for Emerging Cloud Applications

Shanghai Jiao Tong University, Shanghai, China, 02/2024

Fudan University, Shanghai, China, 02/2024

ShanghaiTech University, Shanghai, China, 02/2024

University of Science and Technology of China, Hefei, China, 03/2024

Hop-On Hop-Off Routing: A Fast Tour across the Optical Data Center Network for Latency-Sensitive Flows

6th Asia-Pacific Workshop on Networking (APNet 2022), online, 07/2022

Tsinghua-Berkeley Shenzhen Institute, Shenzhen, China, 04/2023

Leveraging Joint Allocation of Multidimensional Resources for Distributed Task Assignment

IEEE 7th Optoelectronics Global Conference (OGC 2022), online, 12/2022

Conference on Information Optics and Photonics, Xi'An, China, 07/2021

Building Low-Latency and Energy-Efficient Optical Metro-Access Converged Networks

Max Planck Institute for Informatics, online, 12/2020

University of Vienna, online, 04/2021

Updated on 06/2024