

# Jialong Li (李嘉龙)

## Homepage

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## Homepage 2

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**Birthday:** 1994/01

**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 (清华大学)** 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 (清华大学)** 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](#), [Anja Feldmann](#)

## 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/Optica 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/Optica 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] 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)*

[11] 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

[12] Opportunistic Credit-Based Transport for Reconfigurable Data Center Networks with Tidal (**Third Place**)

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

[13] 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*

[14] 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*

[15] 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*

[16] 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*

[17] 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*

[18] Throughput Scaling for MMF-Enabled Optical Datacenter Networks by Time-Slicing-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*

[19] 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**, ICNT 2024

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

**Reviewer**, WCSP 2019

### Journals

**Reviewer**, IEEE/ACM Transactions on Networking

**Reviewer**, IEEE/Optica Journal of Optical Communications and Networking

**Reviewer**, IEEE Transactions on Wireless Communications

**Reviewer**, IEEE Communications Letters

**Reviewer**, Journal of Cybersecurity and Privacy

**Reviewer**, Mathematics

**Reviewer**, Photonics

**Reviewer**, Applied Science

**Reviewer**, Electronics

**Reviewer**, Sensors

**Reviewer**, Computer Networks and Communications

### Academic Service

**Web Chair**, ACM SIGCOMM 2024 Workshop on HotOptics, 2024

**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 (**Highst**)

#### Interns

**Rui Pan**, University of Wisconsin-Madison, 02/2022 – 08/2022, Now Phd student@Princeton

**Haotian Gong**, The University of British Columbia, 05/2023 – 08/2023, , Now Phd student@University of Michigan

**Aoyu Gong**, EPFL, 07/2023 – 02/2024, Now Phd student@EPFL

**Max Huang**, University of Waterloo, 01/2024 – 04/2024

**Laskhay Rastogi**, Indian Institute of Technology (IIT), Kanpur, 10/2023 – 01/2024

**Shreyansh Tripathi**, Saarland University, 05/2024 – Present

### Selected Talks

**Uniform-Cost Multi-Path Routing for Reconfigurable Data Center Networks**

ACM SIGCOMM 2024, Sydney, Australia, 08/2024

AI Time on Networking Seminar, online, 10/2024

Asia Communications and Photonics Conference Workshop, Beijing, China, 11/2024

**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 03/2025*