Yangming Zhao
Research Scientist
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Employment History

Research Scientist, University at Buffalo, Computer Science and Engineering	03/2016 - Present
Research Scientist, Nokia Shanghai Bell Co.. Bell Labs China	08/2015 - 03/2016

Education Background

Ph.D.	University of Electronic Science and Technology of China Communication and Information Engineering Dissertation: "Routing and Resource Allocation in Data Center Networks"	09/2010 – 06/2015
Visiting Ph.D. Student	Hong Kong University of Science and Technology Department of Computer Science and Engineering	11/2013 – 03/2014
Visiting Ph. D. Student	University at Buffalo Department of Computer Science and Engineering,	04/2013 – 10/2013
Graduate Study	University of Electronic Science and Technology of China Transfer to Ph.D. program before finishing my master degree	09/2008 – 06/2010
B.S.	University of Electronic Science and Technology of China Thesis: "Network Traffic Engineering Based on Flow Deviation"	09/2004 – 06/2008

Selected Awards and Honors

First Prize of Excellent Graduate Scholarship	2010 – 2011
Excellent Postgraduate Award	2008 – 2009
Meritorious Winner in The Interdisciplinary Contest in Modeling (ICM) for Undergraduate	02/2007
National Scholarship	2006 – 2007

Teaching Experience

Fill-in Instructor for CSE 410 "Introduction for Deep Learning" at UB	Fall 2019
Fill-in Instructor for CSE 368 "Introduction for Artificial Intelligence" at UB	Fall 2019
Instructor for CSE 489/589 "Modern Network Concepts" at UB	Summer 2019
Teaching Assistant for CSE 487/587 "Data Intensive Computing" at UB	Spring 2019
Teaching Assistant for "Graph Theory and Its Applications" at UESTC	Fall 2011
Teaching Assistant for "Computer Communication Networks" at UESTC	Fall 2010

Selected Journal Publications

[12] **Y. Zhao**, C. Tian, J. Fan, T. Guan, X. Zhang and C. Qiao "Joint Reducer Placement and Coflow Bandwidth Scheduling for Computing Clusters", IEEE/ACM Transactions on Networking, Volume: 29, Issue: 1, pp. 438-451, Feb. 2021

[11] **Y. Zhao**, X. Liu, L. Tu, C. Tian and C. Qiao "Dynamic Service Entity Placement for Latency Sensitive Applications in Transportation Systems", IEEE Transactions on Mobile Computing, Volume: 20, Issue: 2, pp. 460-472, Feb. 2021

[10] J. Fan, M. Jiang, Ori Rottenstreich, **Y. Zhao***, T. Guan, R. Ramesh, S. Das and C. Qiao, "A Framework for Provisioning Availability of NFV in Data Center Networks", IEEE J. of Sele. Area in Commu. ,

Volume: 36, Issue: 10, pp. 2246 – 225, Oct. 2018 (corresponding author)

[9] C. Tian, A. Munir, A. Liu, J. Yang and **Y. Zhao**, "OpenFunction: An Extensible Data Plane Abstraction Protocol for Platform-Independent Software-Defined Middleboxes", IEEE/ACM Transactions on Networking, Volume: 26, Issue: 3, pp. 1488 – 1501, Jun. 2018

[8] **Y. Zhao**, C. Tian, Z. Zhu, J. Cheng, C. Qiao and A. Liu "Minimize the Make-span of Batched Requests for FPGA Pooling in Cloud Computing", IEEE Transactions on Parallel and Distributed Systems, Volume: 29, Issue: 11, pp. 2514 – 2527, Nov. 2018

[7] H. Chen, X. Wang, **Y. Zhao**, T. Song, Y. Wang, S. Xu and L. Li "MOSC: a method to assign the outsourcing of service function chain across multiple clouds", Computer Networks, Volume 133, Issue: 14, pp. 166-182, Mar. 2018

[6] S. Luo, H. Yu, **Y. Zhao**, B. Wu, S. Wang. S. Yu and L. Li, "Towards Practical and Near-optimal Coflow Scheduling for Data Center Networks", IEEE Trans. on Parallel and Distributed Systems, Volume: 27, Issue: 11, pp. 3366 – 3380, Nov. 2016

[5] Y. Peng, K, Chen, G. Wang, W. Bai, **Y. Zhao**, H. Wang, Y. Geng, Z. Ma and L. Gu, "Towards Comprehensive Traffic Forecasting in Cloud Computing: Design and Application", IEEE/ACM Transactions on Networking, Volume: 24, Issue: 4, pp. 2210 – 2222, Aug. 2016

[4] X. Zhang, S. Wang, **Y. Zhao**, S. Xu, X. Wang, X. Gao, C. Qiao, "Multi-Objective Optimization for Green Network Routing in Game Theoretical Perspective", IEEE J. of Sele. Area in Commu., Volume: 33, Issue: 12, pp. 2801 – 2814, Dec. 2015 (Extended version of INFOCOM 2013)

[3] **Y. Zhao**, S. Wang, S. Luo, V. Anand, H. Yu, S. Xu and X. Zhang, "Dynamic Topology Management in Optical Datacenter Networks", IEEE J. of Lightwave Tech., Volume: 33, Issue: 19, pp. 4050-4062, Oct. 2015

[2] X. Gao, Z. Ye, J. Fan, W. Zhong, **Y. Zhao**, X. Cao, H. Yu, C. Qiao, "Virtual network mapping for multicast services with max-min fairness of reliability", IEEE/OSA J. of Optical Communication Netw., Volume: 7, Issue: 9, pp. 942 – 951, Sep. 2015

[1] **Y. Zhao**, Y. Huang, K. Chen, M. Yu, S. Wang and D. Li, "Joint VM Placement and Topology Optimization for Traffic Scalability in Dynamic Datacenter Networks", Computer Networks, Volume 80, Issue: 7, pp. 109-123, Apr. 2015

Selected Conference Publications

[24] **Y. Zhao** and C. Qiao "Redundant Entanglement Provisioning and Selection for Throughput Maximization in Quantum Networks", IEEE International Conference on Computer Communications (INFOCOM) 2021

[23] Z. Wang, H. Xu, J. Liu, H. Huang, C. Qiao and **Y. Zhao** "Resource-Efficient Federated Learning with Hierarchical Aggregation in Edge Computing", IEEE International Conference on Computer Communications (INFOCOM) 2021

[22] Z. Meng, H. Xu, M. Chen, Y. Xu, **Y. Zhao** and C. Qiao, "Learning-Driven Decentralized Machine Learning in Resource-Constrained Wireless Edge Computing", EEE International Conference on Computer Communications (INFOCOM) 2021

[21] **Y. Zhao**, J. Fan, L. Su, T. Song, S. Wang and C. Qiao "SNAP: A Communication Efficient Distributed Machine Learning Framework for Edge Computing", IEEE International Conference on Distributed Computing Systems (ICDCS) 2020

[20] G. Zhao, H. Xu, **Y. Zhao**, C. Qiao and L. Huang "Offloading Dependent Tasks in Mobile Edge Computing with Service Caching", IEEE International Conference on Computer Communications (INFOCOM) 2020

[19] X. Liu, **Y. Zhao** and C. Qiao "Autonomous Vehicle Dispatching for Person Evacuation", IEEE Global Communications Conference (Globecom) 2019

[18] **Y. Zhao**, C. Tian, J. Fan, T. Guan and C. Qiao "RPC: Joint Online Reducer Placement and Coflow

Bandwidth Scheduling for Clusters", IEEE International Conference on Network Protocols (ICNP) 2018

[17] **Y. Zhao**, J. Fan, H. Chen and C. Qiao "Providing VNF Services with Pipe &Hose Model Based Nonblocking SDN Networks", IEEE/ACM International Symposium on Quality of Service (IWQoS) 2018

[16] **Y. Zhao**, X. Liu and C. Qiao "Job Scheduling for Acceleration systems in Cloud Computing", IEEE International Conference on Communications (ICC) 2018

[15] **Y. Zhao**, S. Luo, Y. Wang and S. Wang "Cotask Scheduling in Cloud Computing", IEEE International Conference on Network Protocols (ICNP) 2017

[14] **Y. Zhao** and C. Qiao "Enhancing the Robustness of Interdependent Cyber-Physical Systems by Designing the Interdependency Relationship", IEEE International Conference on Communications (ICC) 2017

[13] X. Zhang, **Y. Zhao**, S. Guo and Y. Li "Performance-aware Energy-efficient Virtual Machine Placement in Cloud Data Center", IEEE International Conference on Communications (ICC) 2017

[12] J. Fan, C. Guan, **Y. Zhao** and C. Qiao "Availability-aware Mapping of Service Function Chains", IEEE International Conference on Computer Communications (INFOCOM) 2017

[11] **Y. Zhao**, M. Pithapur, C. Qiao "On Progressive Recovery in Interdependent Cyber Physical Systems", IEEE Global Communications Conference (Globecom) 2016

[10] **Y. Zhao**, K. Chen, W. Bai, M. Yu, C. Tian, Y. Geng, Y. Zhang, D. Li, S. Wang, "RAPIER: Integrating Routing and Scheduling for Coflow-aware Data Center Networks", IEEE International Conference on Computer Communications (INFOCOM) 2015.

[9] S. Luo, H. Yu, **Y. Zhao**, B. Wu, S. Wang. L. Li, "Minimizing Average Coflow Completion Time with Decentralized Scheduling", IEEE International Conference on Communications (ICC) 2015

[8] **Y. Zhao**, S. Wang, S. Luo, H. Yu, S. Xu and X. Zhang, "Dynamic Topology Management in Optical Datacenter Networks", IEEE Global Communications Conference (Globecom) 2014.

[7] W. Bai, K. Chen, H. Wu, W. Lan and **Y. Zhao**, "PAC: Taming TCP Incast Congestion Using Proactive ACK Control", IEEE International Conference on Network Protocols (ICNP) 2014.

[6] H. Wang, **Y. Zhao** and H. Guang "On Pricing Schemes in Data Center Network with Game Theoretic Approach", IEEE International Conference on Computer Communications and Networks (ICCCN) 2014.

[5] **Y. Zhao**, S. Wang, S. Xu, X. Wang, X. Gao and C. Qiao, "Load Balance vs Energy Efficiency in Traffic Engineering: A Game Theoretical Perspective", IEEE International Conference on Computer Communications (INFOCOM) 2013

[4] G. Feng, **Y. Zhao** and S. Wang, "A Modified Implementation of Bounded Shortest Path Algorithm for Constrained Multicast Routing", IEEE International Conference on Information Science and Technology Information Science and Technology (ICIST) 2012

[3] **Y. Zhao**, S. Xu, B. Wu, X. Wang and S. Wang, "Monitoring Trail Allocation in All-Optical Networks with the Random Next Hop Policy", IEEE International Conference on High Performance Switching and Routing (HPSR) 2012

[2] **Y. Zhao**, S. Wang, H. Cai and X. Wang, "A New Framework to Design Distributed Query System", IET International Conference on Advanced Intelligence and Awareness Internet (AIAI) 2011

[1] **Y. Zhao**, S. Xu, X. Wang and S. Wang, "A New Heuristic for Monitoring Trail Allocation in All-Optical WDM Networks", IEEE Global Communications Conference (Globecom) 2010

Presentations

[10] "SNAP: A Communication Efficient Distributed Machine Learning Framework for Edge Computing", IEEE ICDCS 2020, Singapore, Singapore (Online Event)

[9] "RPC: Joint Online Reducer Placement and Coflow Bandwidth Scheduling for Clusters", IEEE ICNP

2018, Cambridge, UK

[8] "Providing VNF Services with Pipe &Hose Model Based Nonblocking SDN Networks", ACM/IEEE IWQoS 2018, Banff, Canada

[7] "On Progressive Recovery in Interdependent Cyber Physical Systems", IEEE Globecom 2016, Washington D.C., USA

[6] "RAPIER: Integrating Routing and Scheduling for Coflow-aware Data Center Networks", IEEE INFOCOM 2015, Hong Kong

[5] "Dynamic Topology Management in Optical Datacenter Networks", IEEE Globecom 2014, Austin, TX, USA

[4] "Monitoring Trail Allocation in All-Optical Networks with the Random Next Hop Policy", HPSR 2012, Belgrade, Serbia

[3] "A Modified Implementation of Bounded Shortest Path Algorithm for Constrained Multicast Routing", ICIST 2012, Wuhan, China

[2] "A New Framework to Design Distributed Query System", IET AIAI 2011, Shenzhen, China

[1] "A New Heuristic for Monitoring Trail Allocation in All-Optical WDM Networks", IEEE Globecom 2010, Miami, FL, USA

TPC Members

- The 11th EAI International Conference on Communications and Networking in China, Chongqing, 2016
- The Seventeenth International Conference on Networks, Athens, Greece, 2018

Reviewers

- IEEE Internet of Things Journal
- IEEE Transactions on Cloud Computing
- IEEE Transactions on Networking
- IEEE Transactions on Parallel and Distributed Systems
- IEEE Journal of Selected Area on Communications
- IEEE/OSA Journal of Optical Communications and Networking
- Elsevier Journal of Computer Communications
- Security and Communication Networks
- Journal of Network and Computer Applications
- Digital Communications and Networks
- KSII Transactions on Internet and Information Systems
- Concurrency and Computation: Practice and Experience
- IEEE International Conference on Distributed Computing Systems
- IEEE International Conference on Communications
- IEEE Global Communications Conference
- IFIP Networking
- CloudCom