Wei Bai

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Research Interests

Computer networks, with a special focus on data center networks

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Education

2013-2017 **Ph.D. Computer Science**
Hong Kong University of Science and Technology (HKUST), Hong Kong
Thesis title: "Congestion Control Mechanisms for Data Center Networks"
Thesis advisor: Prof. Kai Chen

2009-2013 **B.Eng. Information Security**
Shanghai Jiao Tong University (SJTU), Shanghai, China

Employment

2017-Present Associate Researcher 2, Microsoft Research Asia, Beijing, China

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Awards and Honors

2016, 2017 HKUST Research Travel Grant

2015, 2016 USENIX NSDI Student Grant

2015 **Microsoft Research Asia Fellowship** (13 awardees in the Asia-Pacific region. I am the only one in computer networks area.)

2013-2017 HKUST Postgraduate Scholarship

2013 SJTU Outstanding Bachelor Thesis Award (Top 1%)

2012 First Prize, Software Group, Information Security Contest, National Undergraduate Electronic Design Contest

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Publications

Conference Publications

NSDI (3), SIGCOMM (2), CoNEXT (1), EuroSys (1), INFOCOM (4), ICNP (1)

[C12] Hong Zhang, Junxue Zhang, **Wei Bai**, Kai Chen, Mosharaf Chowdhury, "Resilient Datacenter Load Balancing in the Wild" in *Proceedings of the ACM SIGCOMM 2017 Conference* (**SIGCOMM**), Los Angeles, California, August 21-25, 2017.

[C11]   Ziyang Li, **Wei Bai**, Kai Chen, Dongsu Han, Yiming Zhang, Dongsheng Li, Hong-fang Yu, "Rate-Aware Flow Scheduling for Commodity Data Center Networks" in *Proceedings of the 36th Annual IEEE International Conference on Computer Communications* (**INFOCOM**), Atlanta, Georgia, May 1-4, 2017.

[C10]   **Wei Bai**, Kai Chen, Li Chen, Changhoon Kim, Haitao Wu, "Enabling ECN over Generic Packet Scheduling" in *Proceedings of the 12th International Conference on emerging Networking EXperiments and Technologies* (**CoNEXT**), Irvine, California, December 12-15, 2016.

[C9]   Li Chen, Kai Chen, **Wei Bai**, Mohammad Alizadeh "Scheduling Mix-flows in Commodity Datacenters with Karuna" in *Proceedings of the ACM SIGCOMM 2016 Conference* (**SIGCOMM**), Florianpolis, Brazil, August 22-26, 2016.

[C8]   **Wei Bai**, Li Chen, Kai Chen, Haitao Wu "Enabling ECN in Multi-Service Multi-Queue Data Centers" in *Proceedings of the 13th USENIX Symposium on Networked Systems Design and Implementation* (**NSDI**), Santa Clara, California, March 16-18, 2016.

[C7]   Shuihai Hu, **Wei Bai**, Kai Chen, Chen Tian, Ying Zhang, Haitao Wu, "Providing Bandwidth Guarantees, Work Conservation and Low Latency Simultaneously in the Cloud", in *Proceedings of the 35th Annual IEEE International Conference on Computer Communications* (**INFOCOM**), San Francisco, California, April 10-14, 2016.

[C6]   Hong Zhang, Kai Chen, **Wei Bai**, Dongsu Han, Chen Tian, Hao Wang, Haibing Guan, Ming Zhang, "Guaranteeing Deadlines for Inter-Datacenter Transfers" in *Proceedings of the 10th European Conference on Computer Systems* (**EuroSys**), Bordeaux, France, April 21-24, 2015.

[C5]   **Wei Bai**, Li Chen, Kai Chen, Dongsu Han, Chen Tian, Hao Wang, "Information-Agnostic Flow Scheduling for Commodity Data Centers" in *Proceedings of the 12th USENIX Symposium on Networked Systems Design and Implementation* (**NSDI**), Oakland, California, May 4-6, 2015.

[C4]   Shuihai Hu, Kai Chen, Haitao Wu, **Wei Bai**, Chang Lan, Hao Wang, Hongze Zhao, Chuanxiong Guo, "Explicit Path Control in Commodity Data Centers: Design and Applications" in *Proceedings of the 12th USENIX Symposium on Networked Systems Design and Implementation* (**NSDI**), Oakland, California, May 4-6, 2015.

[C3]   Yangming Zhao, Kai Chen, **Wei Bai**, Minlan Yu, Chen Tian, Yanhui Geng, Yiming Zhang, Dan Li, Sheng Wang, "RAPIER: Integrating Routing and Scheduling for Coflow-aware Data Center Networks" in *Proceedings of the 34th Annual IEEE International Conference on Computer Communications* (**INFOCOM**), Hong Kong, April 26-May 1, 2015.

[C2]   **Wei Bai**, Kai Chen, Haitao Wu, Wuwei Lan, Yangming Zhao, "PAC: Taming TCP Incast Congestion Using Proactive ACK Control" in *Proceedings of the IEEE 22nd International Conference on Network Protocols* (**ICNP**), Research Triangle, North Carolina, October 21-24, 2014.

[C1] Yang Peng, Kai Chen, Guohui Wang, **Wei Bai**, Zhiqiang Ma, Lin Gu, "HadoopWatch: A First Step Towards Comprehensive Traffic Forecasting in Cloud Computing" in *Proceedings of the 33rd Annual IEEE International Conference on Computer Communications* (**INFOCOM**), Toronto, Canada, April 27-May 2, 2014.

Workshop Publications

HotNets (1), APNet (2)

[W3] Gaoxiong Zeng, **Wei Bai**, Ge Chen, Kai Chen, Dongsu Han, Yibo Zhu, "Combining ECN and RTT for Datacenter Transport" in *Proceedings of the 1st Asia-Pacific Workshop on Networking* (**APNet**), Hong Kong, China, August 3-4, 2017.

[W2] **Wei Bai**, Kai Chen, Shuihai Hu, Kun Tan, Yongqiang Xiong, "Congestion Control for High-speed Extremely Shallow-buffered Datacenter Networks" in *Proceedings of the 1st Asia-Pacific Workshop on Networking* (**APNet**), Hong Kong, China, August 3-4, 2017.

[W1] **Wei Bai**, Li Chen, Kai Chen, Dongsu Han, Chen Tian, Weicheng Sun, "PIAS: Practical Information-Agnostic Flow Scheduling for Data Center Networks" in *Proceedings of the 13th ACM Workshop on Hot Topics in Networks* (**HotNets**), Los Angeles, California, October 27-28, 2014.

Journal Publications

ToN (4)

[J4] **Wei Bai**, Li Chen, Kai Chen, Dongsu Han, Chen Tian, Hao Wang, "PIAS: Practical Information-Agnostic Flow Scheduling for Commodity Data Centers" accepted by *IEEE/ACM Transactions on Networking*, (**ToN**), 2017.

[J3] Hong Zhang, Kai Chen, **Wei Bai**, Dongsu Han, Chen Tian, Hao Wang, Haibing Guan, Ming Zhang, "Guaranteeing Deadlines for Inter-Datacenter Transfers" in *IEEE/ACM Transactions on Networking* (**ToN**), Volume 25, Issue 1, Pages 579-595, February 2017.

[J2] Shuihai Hu, Kai Chen, Haitao Wu, **Wei Bai**, Chang Lan, Hao Wang, Hongze Zhao, Chuanxiong Guo, "Explicit Path Control in Commodity Data Centers: Design and Applications" in *IEEE/ACM Transactions on Networking*, (**ToN**), Volume 24, Issue 5, Pages 2768-2781, October 2016.

[J1] Yang Peng, Kai Chen, Guohui Wang, **Wei Bai**, Yangming Zhao, Hao Wang, Yanhui Geng, Zhiqiang Ma, Lin Gu, "Towards Comprehensive Traffic Forecasting in Cloud Computing: Design and Application" in *IEEE/ACM Transactions on Networking* (**ToN**), Volume 24, Issue 4, Pages 2210-2222, Auguest 2016.

Selected Talks

Aug. 2017 Experiments with Data Center Congestion Control Research, APNet 2017, Hong Kong, China

Dec. 2016 Enabling ECN over Generic Packet Scheduling, CoNEXT 2016, Irvine, California

Mar. 2016 Enabling ECN in Multi-Service Multi-Queue Data Centers, NSDI 2016, Santa Clara, California

May 2015   Information-Agnostic Flow Scheduling for Commodity Data Centers, NSDI 2015, Oakland, California

Professional Activities

Reviewer   IEEE/ACM Transactions on Networking

Elsevier Computer Networks

IEEE Transactions on Network and Service Management

Teaching Experience in HKUST

2017 Spring   Computer Communication Networks I, Teaching Assistant

2016 Spring   Computer Communication Networks I, Teaching Assistant

2014 Fall   Operating Systems, Teaching Assistant

2014 Spring   Computer Communication Networks I, Teaching Assistant

Computer Skills

Programming   C, Python

Miscellaneous   Linux Netfilter, NS-2 simulation, switch configuration

References

Available upon request