# 吴文斐

手机：(+86) 18500655635
邮箱：*wenfeiwu@outlook.com*
性别：男 · 籍贯：山东

## 教育背景

**威斯康星大学麦迪逊分校**，计算机科学，博士，导师：Aditya Akella    2010.09 - 2015.12
**北京航空航天大学**，计算机科学与技术，本科    2006.09 - 2010.07

## 职业经历

**清华大学**，交叉信息研究院，助理教授    2017.04 至今
- 院长：姚期智
- 2018.12 - 2020.11，任交叉信息研究院附属机构"中关村海华信息技术前沿研究院"管委会成员

**美国惠普实验室**，系统网络组，博士后研究员    2016.01 - 2017.04
- 主管：Sujata Banerjee、Ying Zhang

## 研究方向

**网络体系结构**
- 互联网、数据中心网络、移动网络

**网络管理**
- 网络故障诊断、网络功能开发、网络策略管理

**网络安全**
- 恶意软件分析、可信网络服务

## 教学经历

在清华大学交叉信息研究院负责本科生精英班级"姚班"课程教学。

**《密码学基础》**    2017-2020 年秋季学期
- 本科生课程，面向姚班学生

**《网络空间中的安全技术》**    2018-2020 年春季学期
- 研究生课程，面向交叉信息研究院学生

## 荣誉经历

**IPCCC19 最佳论文提名**    2019.11
微软联合科研奖    2017.11
**SoCC13 最佳学生论文**    2013.10
**SIGCOMM10 最佳论文提名**    2010.08

## 科研项目

自 2017 年至今总共申请并获得 1053 万元科研经费，其中纵向经费 161 万元，横向经费 892 万元。

**《智能媒体融合网络试验与示范》**    2019 - 2023
- 科技部重点研发计划 2018YFB1802202，总经费 4475 万元，负责 134 万元，项目参与者。

**《网络多样化趋势下的网络功能单元敏捷开发技术的研究与实现》**    2018 - 2021
- 国家自然科学基金青年项目 61802225，总经费 27 万元，项目负责人。

### 其他工业界和地方研究院科研项目

- 获微软、华为、字节跳动等公司科研经费支持，总经费 220 万元，项目负责人。
- 获南京图灵人工智能研究院、中关村海华信息技术前沿研究院科研经费支持，总经费 672 万元，项目负责人。

# 学术活动

## 学术会议技术委员会成员

- ACM Asia-Pacific Workshop on Networking, 2021
- IFIP/IEEE International Symposium on Integrated Network Management, 2021
- ACM Special Interest Group on Data Communication, Poster Session, 2020
- ACM Special Interest Group on Data Communication, Poster Session, 2019
- ACM/IEEE Symposium on Architectures for Networking and Communications Systems, 2019
- ACM/IEEE Symposium on Architectures for Networking and Communications Systems, 2018
- IEEE ICNP Workshop on Hot Topics in Internet-of-Things, 2016

## 学术期刊审稿人

- IEEE Transactions on Computers
- IEEE/ACM Transactions on Networking
- IEEE Transactions on Network and Service Management
- IEEE Internet Computing

# 学术论文

共发表 33 篇论文（CCF A 类文章 10 篇），获得 3 项专利授权。谷歌学术引用量为 1588，H-Index 为 14.

## 会议论文

[1] Bangwen Deng and **Wenfei Wu***. "**NFReducer: Redundant Logic Elimination for Network Functions with Runtime Configurations**". In: *the 2021 IEEE International Conference on Computer Communications*. <u>INFOCOM '21</u>. 2021.

[2] Yongchao He, **Wenfei Wu***, Xuemin Wen, Haifeng Li, and Yongqiang Yang. "**Scalable On-Switch Rate Limiters for the Cloud**". In: *the 2021 IEEE International Conference on Computer Communications*. <u>INFOCOM '21</u>. 2021.

[3] Hongyi Huang, **Wenfei Wu***, Yongchao He, Bangwen Deng, Ying Zhang, Yongqiang Xiong, Guo Chen, Yong Cui, and Peng Cheng. "**NFD: A Development Framework for Cross-Platform Network Functions**". In: *the 2021 IEEE International Conference on Computer Communications*. <u>INFOCOM '21</u>. 2021.

[4] ChonLam Lao, Yanfang Le, Kshiteej Mahajan, Yixi Chen, **Wenfei Wu***, Aditya Akella, and Michael Swift. "**ATP: In-Network Aggregation for Multi-Tenant Learning**". In: *the 18th USENIX Symposium on Networked Systems Design and Implementation*. <u>NSDI '21</u>. 2021.

[5] Ming Sun, Ya Su, Shenglin Zhang, Junliang Tang, Yuanpu Cao, Yuqing Liu, **Wenfei Wu***, Dan Pei, Yongsu Zhang, and Xiaozhou Liu. "**CTF: Anomaly Detection in High-Dimensional Time Series with Coarse-to-Fine Model Transfer**". In: *the 2021 IEEE International Conference on Computer Communications*. <u>INFOCOM '21</u>. 2021.

[6] Bangwen Deng, **Wenfei Wu***, and Linhai Song. "**Redundant Logic Elimination in Network Functions**". In: *Proceedings of the 2020 Symposium on SDN Research*. <u>SOSR '20</u>. Google Scholar Citation 0. 2020.

[7] Qingxiu Liu, **Wenfei Wu***, Qingsong Liu, and Qun Huang. "**T2DNS: A Third-Party DNS Service with Privacy Preservation and Trustworthiness**". In: *Proceedings of the 29th International Conference on Computer Communications and Networks*. <u>ICCCN '20</u>. Google Scholar Citation 0. 2020.

[8] Harsha Sharma, **Wenfei Wu***, and Bangwen Deng. "**Symbolic Execution for Network Functions with Time-Driven Logic**". In: *Proceedings of the 2020 Symposium on Modelling, Analysis, and Simulation of Computer and Telecommunication Systems*. <u>MASCOTS '20</u>. Google Scholar Citation 0. 2020.

[9] Yongheng Chen, Linhai Song, Xinyu Xing, Fengyuan Xu, and **Wenfei Wu**. "**Automated Finite State Machine Extraction**". In: *Proceedings of the 2019 Workshop on Forming an Ecosystem Around Software Transformation*. <u>FEAST '19</u>. Google Scholar Citation 0. 2019.

[10] Yimin Jiang, Yong Cui, **Wenfei Wu**, Zhe Xu, Jiahan Gu, K. K. Ramakrishnan, Yongchao He, and Xuehai Qian. "**SpeedyBox: Low-Latency NFV Service Chains with Cross-NF Runtime Consolidation**". In: *Proceedings of the 39th IEEE International Conference on Distributed Computing Systems*. ICDCS '19. Google Scholar Citation 6. 2019.

[11] Junfeng Li, Dan Li, **Wenfei Wu**, K. K. Ramakrishnan, Jinkun Geng, Fei Gui, Fanzhao Wang, and Kai Zheng. "**Sphinx: A Transport Protocol for High-Speed and Lossy Mobile Networks**". In: *Proceedings of the 38th IEEE International Performance Computing and Communications Conference*. IPCCC '19. Google Scholar Citation 0. 2019.

[12] Soo-Jin Moon, Jeffrey Helt, Yifei Yuan, Yves Bieri, Sujata Banerjee, Vyas Sekar, **Wenfei Wu**, Mihalis Yannakakis, and Ying Zhang. "**Alembic: Automated Model Inference for Stateful Network Functions**". In: *Proceedings of the 16th USENIX Symposium on Networked Systems Design and Implementation*. NSDI '19. Google Scholar Citation 8. 2019.

[13] Qi-An Fu and **Wenfei Wu\***. "**TUS: A Transactional Update Service for SDN Applications**". In: *Proceedings of the 9th ACM SIGOPS Asia-Pacific Workshop on Systems*. APSys '18. Google Scholar Citation 0. 2018.

[14] Qingmei Ren, Yong Cui, **Wenfei Wu**, Changfeng Chen, Yuchi Chen, Jiangchuan Liu, and Hongyi Huang. "**Improving Quality of Experience for Mobile Broadcasters in Personalized Live Video Streaming**". In: *2018 IEEE/ACM 26th International Symposium on Quality of Service*. IWQoS '18. Google Scholar Citation 1. 2018.

[15] Ye Yu, Ying Zhang, **Wenfei Wu**, and Chen Qian. "**NetCP: Consistent, Non-interruptive and Efficient Checkpointing and Rollback of SDN**". In: *2018 IEEE/ACM 26th International Symposium on Quality of Service*. IWQoS '18. Google Scholar Citation 3. 2018.

[16] Anubhavnidhi Abhashkumar, Joon-Myung Kang, Sujata Banerjee, Aditya Akella, Ying Zhang, and **Wenfei Wu**. "**Supporting Diverse Dynamic Intent-based Policies using Janus**". In: *Proceedings of the 13th ACM International on Conference on emerging Networking Experiments and Technologies*. CoNEXT '17. Google Scholar Citation 18. 2017.

[17] Anubhavnidhi Abhashkumar, Jeongkeun Lee, Jean Tourrilhes, Sujata Banerjee, **Wenfei Wu**, Joon-Myung Kang, and Aditya Akella. "**P5: Policy-driven optimization of P4 pipeline**". In: *Proceedings of the 2017 Symposium on SDN Research*. SOSR '17. Google Scholar Citation 15. 2017.

[18] Keqiang He, Weite Qin, Qiwei Zhang, **Wenfei Wu**, Junjie Yang, Tian Pan, Chengchen Hu, Jiao Zhang, Brent Stephens, Aditya Akella, and Ying Zhang. "**Low Latency Software Rate Limiters for Cloud Networks**". In: *Proceedings of the 2017 Asia-Pacific Workshop on Networking*. APNet '17. Google Scholar Citation 9. 2017.

[19] Ying Zhang, **Wenfei Wu**, Sujata Banerjee, Joon-Myung Kang, and Mario A Sanchez. "**SLA-Verifier: Stateful and Quantitative Verification for Service Chaining**". In: *Proceedings of the 2017 IEEE Conference on Computer Communications*. INFOCOM '17. Google Scholar Citation 16. 2017.

[20] Linhai Song, Heqing Huang, Wu Zhou, **Wenfei Wu**, and Yiying Zhang. "**Learning from Big Malwares**". In: *Proceedings of the 7th ACM SIGOPS Asia-Pacific Workshop on Systems*. APSys '16. Google Scholar Citation 5. 2016.

[21] **Wenfei Wu**, Ying Zhang, and Sujata Banerjee. "**Automatic Synthesis of NF Models by Program Analysis**". In: *Proceedings of the 15th ACM Workshop on Hot Topics in Networks*. HotNets '16. Google Scholar Citation 27. 2016.

[22] Aaron Gember-Jacobson, **Wenfei Wu**, Xiujun Li, Aditya Akella, and Ratul Mahajan. "**Management plane analytics**". In: *Proceedings of the 2015 ACM Conference on Internet Measurement Conference*. IMC '15. Google Scholar Citation 16. 2015.

[23] **Wenfei Wu**, Keqiang He, and Aditya Akella. "**Perfsight: Performance diagnosis for software dataplanes**". In: *Proceedings of the 2015 ACM Conference on Internet Measurement Conference*. IMC '15. Google Scholar Citation 30. 2015.

[24] Mehrdad Moradi, **Wenfei Wu**, Li Erran Li, and Zhuoqing Morley Mao. "**SoftMoW: recursive and reconfigurable cellular WAN architecture**". In: *Proceedings of the 10th ACM International on Conference on emerging Networking Experiments and Technologies*. CoNEXT '14. Google Scholar Citation 63. 2014.

[25] **Wenfei Wu**, Li Erran Li, Aurojit Panda, and Scott Shenker. "**PRAN: Programmable radio access networks**". In: *Proceedings of the 13th ACM Workshop on Hot Topics in Networks*. HotNets '14. Google Scholar Citation 28. 2014.

[26] **Wenfei Wu**, Yizheng Chen, Ramakrishnan Durairajan, Dongchan Kim, Ashok Anand, and Aditya Akella. "**Adaptive data transmission in the cloud**". In: *2013 IEEE/ACM 21st International Symposium on Quality of Service*. IWQoS '13. Google Scholar Citation 5. 2013.

[27] **Wenfei Wu**, Guohui Wang, Aditya Akella, and Anees Shaikh. "**Virtual network diagnosis as a service**". In: *Proceedings of the 4th annual Symposium on Cloud Computing*. SoCC '13. Google Scholar Citation 33. 2013.

[28] Dongsu Han, Ashok Anand, Fahad Dogar, Boyan Li, Hyeontaek Lim, Michel Machado, Arvind Mukundan, **Wenfei Wu**, Aditya Akella, David G. Andersen, John W. Byers, Srinivasan Seshan, and Peter Steenkiste. "**XIA: Efficient Support for Evolvable Internetworking**". In: *Proceedings of the 9th USENIX Symposium on Networked Systems Design and Implementation*. NSDI '12. Google Scholar Citation 196. 2012.

[29] Ashok Anand, Fahad Dogar, Dongsu Han, Boyan Li, Hyeontaek Lim, Michel Machado, **Wenfei Wu**, Aditya Akella, David G Andersen, John W Byers, et al. "**XIA: An architecture for an evolvable and trustworthy Internet**". In: *Proceedings of the 10th ACM Workshop on Hot Topics in Networks*. HotNets '11. Google Scholar Citation 154. 2011.

[30] Kai Chen, Chuanxiong Guo, Haitao Wu, Jing Yuan, Zhenqian Feng, Yan Chen, Songwu Lu, and **Wenfei Wu**. "**Generic and Automatic Address Configuration for Data Center Networks**". In: *Proceedings of the ACM SIGCOMM 2010 Conference*. SIGCOMM '10. Google Scholar Citation 71. 2010.

[31] Chuanxiong Guo, Guohan Lu, Helen J. Wang, Shuang Yang, Chao Kong, Peng Sun, **Wenfei Wu**, and Yongguang Zhang. "**SecondNet: A Data Center Network Virtualization Architecture with Bandwidth Guarantees**". In: *Proceedings of the 6th International COnference on emerging Networking EXperiments and Technologies (CoNEXT)*. CoNEXT '10. Google Scholar Citation 713. 2010.

## 期刊论文

[1] **Wenfei Wu** and Ying Zhang. "**Network Function Modeling and Its Applications**". In: *IEEE Internet Computing* (2017). Google Scholar Citation 3.

[2] Kai Chen, Chuanxiong Guo, Haitao Wu, Jing Yuan, Zhenqian Feng, Yan Chen, Songwu Lu, and **Wenfei Wu**. "**DAC: generic and automatic address configuration for data center networks**". In: *IEEE/ACM Transactions on Networking* (2012). Google Scholar Citation 33.

## 专利

[1] Joon Myung Kang, Anubhavnidhi Abhashkumar, Sujata Banerjee, Ying Zhang, and **Wenfei Wu**. "**Generating composite network policy**". In: (2018). US Patent 10812342.

[2] **Wenfei Wu**, Ying Zhang, and Sujata Banerjee. "**Middlebox modeling**". In: (2018). US Patent 10594574.

[3] Ying Zhang, **Wenfei Wu**, and Sujata Banerjee. "**Selectively monitoring a network of network function chains based on probability of service level agreement violation**". In: (2018). US Patent 10491528.