

Ruozhou Yu

Assistant Professor in Computer Science

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RESEARCH INTERESTS

- Systems** Internet-of-Things (IoT), Cloud & Edge Computing, Mobile & Wireless Networks, Blockchain Networks, Software-Defined Networking, Distributed Machine Learning, Quantum Networking
- Theories** Network Algorithms, Network Optimization, Learning-based Networking, Robust Design, Resource Allocation, Game Theory, Incentive Mechanisms, Privacy Mechanisms

EDUCATION

2013–2019 Ph.D. in Computer Science, Arizona State University (ASU).

Advisor Dr. Guoliang Xue | ✉ xue@asu.edu | 📁 optimization.asu.edu

Dissertation Smart Resource Allocation in Internet-of-Things: Perspectives of Network, Security, and Economics

2009–2013 B.S. in Computer Science, Beijing University of Posts and Telecommunications (BUPT).

PROFESSIONAL EXPERIENCES

2019–present Assistant Professor, Computer Science Department, North Carolina State University.

RESEARCH EXPERIENCES

2013–2019 Research/Teaching Assistant, Optimization and Network Research Lab, ASU

Supervisor Dr. Guoliang Xue | ✉ xue@asu.edu | 📁 optimization.asu.edu

Topics IoT/CPS, Cloud/Edge, Mobile/Wireless, SDN, DCN, Blockchain, Robustness, Optimization

2012–2013 Research Assistant, Tsinghua University

Supervisor Dr. Dan Li | ✉ tolidan@tsinghua.edu.cn | 📁 nasp.cs.tsinghua.edu.cn/lidan.html

Topics DCN, Cloud Computing, Next-Generation Routing

2011–2012 Research Assistant, BUPT

Supervisor Dr. Jun Huang | ✉ xiaoniuadmin@gmail.com | 📁 sites.google.com/site/junhuangshomepage/

Topics Cloud Service Composition, Approximation Algorithms

PUBLICATIONS

Conferences (22 published/accepted, 12 first-authored, in reverse chronological order)

- C.22 **Ruozhou Yu**, Szu-Yu Lo*, Fangtong Zhou*, Guoliang Xue “Data-Driven Edge Resource Provisioning for Inter-Dependent Microservices with Dynamic Load,” accepted by *IEEE Global Communications Conference (GLOBECOM)*, 2021.
- C.21 Yuhui Zhang, Dejun Yang, Guoliang Xue, **Ruozhou Yu**, “Counter-Collusion Smart Contracts for Watchtowers in Payment Channel Networks,” in *IEEE International Conference on Computer Communications (INFOCOM)*, 2021. [AR: 252/1266=19.9%]

- C.20 Dawei Wang, Xiao Chen, Haiqin Wu, **Ruozhou Yu**, Yishi Zhao, "A Blockchain-based Vehicle-trust Management Framework Under a Crowdsourcing Environment," in *IEEE 3rd International Workshop on Blockchain Systems and Applications (BlockchainSys)*, 2020.
- C.19 **Ruozhou Yu**, Guoliang Xue, Yinxin Wan, Jian Tang, Dejun Yang, Yusheng Ji, "Robust Resource Provisioning in Time-Varying Edge Networks," in *ACM International Symposium on Theory, Algorithmic Foundations, and Protocol Design for Mobile Networks and Mobile Computing (MobiHoc)*, 2020. [AR: 30/196=15.3%]
- C.19 Vishnu Teja Kilari, **Ruozhou Yu**, Satyajayant Misra, Guoliang Xue, "EARS: Enabling Private Feedback Updates in Anonymous Reputation Systems," in *IEEE Conference on Communications and Network Security (CNS)*, 2020.
- C.18 **Ruozhou Yu**, Yinxin Wan, Vishnu Teja Kilari, Guoliang Xue, Jian Tang, Dejun Yang, "P4PCN: Privacy-Preserving Path Probing for Payment Channel Networks," in *IEEE Global Communications Conference (GLOBECOM)*, 2019.
- C.17 **Ruozhou Yu**, Vishnu Teja Kilari, Guoliang Xue, Dejun Yang, "Load Balancing for Interdependent IoT Microservices," in *IEEE International Conference on Computer Communications (INFOCOM)*, 2019. [AR: 288/1464=19.7%]
- C.16 **Ruozhou Yu**, Guoliang Xue, Vishnu Teja Kilari, Dejun Yang, Jian Tang, "CoinExpress: A Fast Payment Routing Mechanism in Blockchain-based Payment Channel Networks," in *IEEE International Conference on Computer Communications and Networks (ICCCN)*, 2018.
- C.15 **Ruozhou Yu**, Guoliang Xue, Vishnu Teja Kilari, Xiang Zhang, "Deploying Robust Security in Internet of Things," in *IEEE Conference on Communications and Network Security (CNS)*, 2018.
- C.14 **Ruozhou Yu**, Guoliang Xue, Xiang Zhang, "Application Provisioning in Fog Computing-enabled Internet-of-Things: A Network Perspective," in *IEEE International Conference on Computer Communications (INFOCOM)*, 2018. [Best Paper finalist (9/309), Best-in-Session Presentation] [AR: 309/1606=19.2%]
- C.13 Xiang Zhang, Dejun Yang, Guoliang Xue, **Ruozhou Yu**, Jian Tang, "Transmitting and Sharing: a Truthful Double Auction for Cognitive Radio Networks," in *IEEE International Conference on Communications (ICC)*, 2018.
- C.12 **Ruozhou Yu**, Guoliang Xue, Xiang Zhang, Dan Li, "Survivable and Bandwidth-Guaranteed Embedding of Virtual Clusters in Cloud Data Centers," in *IEEE International Conference on Computer Communications (INFOCOM)*, 2017. [AR: 292/1395=20.9%]
- C.11 Xiang Zhang, Guoliang Xue, **Ruozhou Yu**, Dejun Yang, Jian Tang, "Robust Incentive Tree Design for Mobile Crowdsensing," in *IEEE International Conference on Distributed Computing Systems (ICDCS)*, 2017. [AR: 89/531=16.8%]
- C.10 Yaozhong Song, Stephen S. Yau, **Ruozhou Yu**, Xiang Zhang, Guoliang Xue, "An Approach to QoS-based Task Distribution in Edge Computing Networks for IoT Applications," in *IEEE International Conference on Edge Computing (EDGE)*, 2017. [Best Student Paper]
- C.9 **Ruozhou Yu**, Guoliang Xue, Xiang Zhang, Jian Tang, "Non-preemptive Coflow Scheduling and Routing," in *IEEE Global Communications Conference (GLOBECOM)*, 2016.

- C.8 Jun Huang, Shihao Li, Qiang Duan, **Ruozhou Yu**, Shui Yu, "QoS Correlation-Aware Service Composition for Unified Network-Cloud Service Provisioning," in *IEEE Global Communications Conference (GLOBECOM)*, 2016.
- C.7 **Ruozhou Yu**, Shuang Qin, Mehdi Bennis, Xianfu Chen, Gang Feng, Zhu Han, Guoliang Xue, "Enhancing Software-Defined RAN with Collaborative Caching and Scalable Video Coding," in *IEEE International Conference on Communications (ICC)*, 2016.
- C.6 Xiang Zhang, Guoliang Xue, **Ruozhou Yu**, Dejun Yang, Jian Tang, "Truthful Incentive Mechanisms for Crowdsourcing," in *IEEE Conference on Computer Communications (INFOCOM)*, 2015. [AR: 316/1640=19.3%]
- C.5 **Ruozhou Yu**, Guoliang Xue, Xiang Zhang, "Towards Min-Cost Virtual Infrastructure Embedding," in *IEEE Global Communications Conference (GLOBECOM)*, 2015.
- C.4 Xiang Zhang, Guoliang Xue, Dejun Yang, **Ruozhou Yu**, "A Sybil-proof and Time-sensitive Incentive Tree Mechanism for Crowdsourcing," in *IEEE Global Communications Conference (GLOBECOM)*, 2015.
- C.3 Xiang Zhang, Guoliang Xue, Dejun Yang, **Ruozhou Yu**, Xiaoyan Huang, "TSA: A Framework of Truthful Spectrum Auctions under the Physical Interference Model," in *IEEE International Conference on Communications (ICC)*, 2015.
- C.2 Xiang Zhang, Guoliang Xue, **Ruozhou Yu**, Dejun Yang, Jian Tang, "You Better Be Honest: Discouraging Free-Riding and False-Reporting in Mobile Crowdsourcing," in *IEEE Global Communications Conference (GLOBECOM)*, 2014.
- C.1 **Ruozhou Yu**, Xudong Yang, Jun Huang, Qiang Duan, Yan Ma, Yoshiaki Tanaka, "QoS-aware Service Selection in Virtualization-based Cloud Computing," in *IEEE Asia-Pacific Network Operations and Management Symposium (APNOMS)*, 2012.

Journals (12 published/accepted, 6 first-authored, in reverse chronological order)

(Impact factors as of Mar. 2019 and/or after)

- J.12 Vishnu T. Kilari, **Ruozhou Yu**, Satyajayant Misra, Guoliang Xue, "Robust Revocable Anonymous Authentication for Vehicle to Grid Communications," *IEEE Transactions on Intelligent Transportation Systems (T-ITS)*, vol. 21, no. 11, pp. 4845–4857, 2020. [IF: 5.744]
- J.11 **Ruozhou Yu**, Guoliang Xue, Xiang Zhang, "Provisioning QoS-aware and Robust Applications in Internet-of-Things: A Network Perspective," *IEEE/ACM Transactions on Networking (ToN)*, vol. 27, no. 5, pp. 1931–1944, 2019. [IF: 3.579]
- J.10 **Ruozhou Yu**, Guoliang Xue, Vishnu Teja Kilari, Xiang Zhang, "The Fog-of-Things Paradigm: Road towards On-demand Internet-of-Things," *IEEE Communications Magazine*, vol. 56, no. 9, pp. 48–54, 2018. [IF: 9.27]
- J.9 **Ruozhou Yu**, Guoliang Xue, Mehdi Bennis, Xianfu Chen, Zhu Han, "HSDRAN: Hierarchical Software-Defined Radio Access Network for Distributed Optimization," *IEEE Transactions on Vehicular Technology (TVT)*, vol. 67, no. 9, pp. 8623–8636, 2018. [IF: 4.432]
- J.8 **Ruozhou Yu**, Guoliang Xue, Xiang Zhang, "QoS-aware and Reliable Traffic Steering for Service Function Chaining in Mobile Networks," *IEEE Journal on Selected Areas in Communications (JSAC)*, vol. 35, no. 11, pp. 2522–2531, 2017. [IF: 7.172]

- J.7 **Ruozhou Yu**, Guoliang Xue, Xiang Zhang, "The Critical Network Flow Problem: Migratability and Survivability," *IEEE/ACM Transactions on Networking (ToN)*, vol. 25, no. 6, pp. 3545–3558, 2017. [IF: 3.11]
- J.6 Xiang Zhang, Guoliang Xue, **Ruozhou Yu**, Dejun Yang, Jian Tang, "Countermeasures Against False-Name Attacks on Truthful Incentive Mechanisms for Crowdsourcing," *IEEE Journal on Selected Areas in Communications (JSAC)*, vol. 35, no. 2, pp. 478–485, 2017. [IF: 7.172]
- J.5 Xiaoyan Huang, Guoliang Xue, **Ruozhou Yu**, Supeng Leng, "Joint Scheduling and Beamforming Coordination in Cloud Radio Access Networks with QoS Guarantees," *IEEE Transactions on Vehicular Technology (TVT)*, vol. 65, no. 7, pp. 5449–5460, 2016. [IF: 4.432]
- J.4 Dan Li, Congjie Chen, Junjie Guan, Ying Zhang, Jing Zhu, **Ruozhou Yu**, "DCloud: Deadline-aware Resource Allocation for Cloud Computing Jobs," *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, vol. 27, no. 8, pp. 2248–2260, 2016. [IF: 3.971]
- J.3 **Ruozhou Yu**, Guoliang Xue, Vishnu Teja Kilari, Xiang Zhang, "Network Function Virtualization in the Multi-tenant Cloud," *IEEE Network Magazine*, vol. 29, no. 3, pp. 42–47, 2015. [IF: 7.197]
- J.2 Xiang Zhang, Guoliang Xue, **Ruozhou Yu**, Dejun Yang, Jian Tang, "Keep Your Promise: Mechanism Design Against Free-Riding and False-Reporting in Crowdsourcing," *IEEE Internet of Things Journal (IoT-J)*, vol. 2, no. 6, pp. 562–572, 2015. [IF: 5.863]
- J.1 Jun Huang, Yanbin Liu, **Ruozhou Yu**, Qiang Duan, Yoshiaki Tanaka, "Modeling and Algorithms for QoS-aware Service Composition in Virtualization-based Cloud Computing," *IEICE Transactions on Communications*, vol. 96, no. 1, pp. 10–19, 2013.

PUBLIC TALKS

- 2020** "Robust Resource Provisioning in Time-Varying Edge Networks," presented at ACM Mobihoc 2020 conference, online due to COVID-19.
- 2019** "P4PCN: Privacy-Preserving Path Probing for Payment Channel Networks," presented at IEEE GLOBECOM 2019 conference, Waikoloa, HI, USA.
- 2018** [Invited Talk] "Can Blockchain Save IoT Security" at ASU West Campus, Phoenix, AZ, USA.
- 2018** "Application Provisioning in Fog Computing-enabled Internet-of-Things: A Network Perspective," presented at IEEE INFOCOM 2018 conference (Best-in-Session Presentation), Honolulu, HI, USA.
- 2017** "Survivable and Bandwidth-Guaranteed Embedding of Virtual Clusters in Cloud Data Centers," presented at IEEE INFOCOM 2017 conference, Atlanta, GA, USA.
- 2016** "Non-preemptive Coflow Scheduling and Routing," presented at IEEE GLOBECOM 2016 conference, Washington, D.C., USA.
- 2015** "Towards Min-Cost Virtual Infrastructure Embedding," presented at IEEE GLOBECOM 2015 conference, San Diego, CA, USA.
- 2015** "A Sybil-proof and Time-sensitive Incentive Tree Mechanism for Crowdsourcing," presented at IEEE GLOBECOM 2015 conference, San Diego, CA, USA.

HONORS AND AWARDS

- 2021** NSF CAREER Award
- 2020** Distinguished TPC Member of IEEE INFOCOM 2020
- 2019** ASU CIDSE Doctoral Fellowship Award

- 2013–2019** ASU Graduate Research/Teaching Assistantship
- 2018** Exemplary Reviewer of IEEE Transactions on Wireless Communications (TWC)
- 2018** INFOCOM 2018 **Best-in-Session Presentation** Award
- 2018** ASU University Graduate Fellowship Award
- 2018** IEEE ComSoc Travel Grant for IEEE INFOCOM 2018
- 2018** ASU GPSA Graduate Student Individual Travel Grant
- 2017** NSF Travel Grant for IEEE INFOCOM 2017
- 2017** IEEE EDGE 2017 **Best Student Paper** Award
- 2016** NSF Travel Grant for IEEE GLOBECOM 2016
- 2016** ASU University Graduate Fellowship Award
- 2015** NSF Travel Grant for IEEE GLOBECOM 2015
- 2013–2014** ASU University Graduate Fellowship Award
- 2009–2012** BUPT Excellent Undergraduate Scholarships

RESEARCH GRANTS

- 2021** "CAREER: WolfPack: An Application-Network Co-Design Framework for Performance-Guaranteed Real-time Applications at the Network Edge," NSF Award 2045539, 07/01/2021-06/30/2026, \$505,702 (Sole-PI).
- 2020** "Collaborative Research: CNS Core: Small: Robust Resource Planning and Orchestration to Satisfy End-to-End SLA Requirements in Mobile Edge Networks," NSF Award 2007391, 10/01/2020-09/30/2023, \$142,500 (PI).

TEACHING EXPERIENCES

2019–present Teaching @ NCSU

- CSC 570: *Computer Networks*, Fall 2021
- CSC 773: *Advanced Topics in Internet Protocols*, Spring 2021
- CSC 570: *Computer Networks*, Fall 2020
- CSC 401: *Data and Computer Communications Networks*, Spring 2020
- CSC 591: *Advanced Computer Networks for Distributed Computing Systems*, Fall 2019

2013–2017 Teaching Assistant @ ASU

- CSE 310: *Data Structures and Algorithms*, Recitation Instructor, Spring 2017
- CSE 556: *Game Theory with Applications*, Fall 2015
- CSE 180: *Computer Literacy*, Fall 2014
- CSE 430: *Operating Systems*, Spring 2014
- CSE 310: *Data Structures and Algorithms*, Fall 2013

PROFESSIONAL ACTIVITIES

- Editorial** Guest Editor @ IEEE Open Journal of the Computer Society (Special Section on Emerging Techniques for Future Smart Cities after COVID-19), 2021
- OC** Web Co-chair @ IEEE INFOCOM 2022
- Workshop Co-chair @ IEEE IPCCC 2020-2021
- TPC** IEEE INFOCOM 2020-2022, EAI MONAMI 2021

Session Chair IEEE INFOCOM 2020-2021

Reviews *Conferences:* ACM SAC 2014–2016, IEEE WCNC 2018, IEEE ICC 2020

Journals: IEEE/ACM ToN, IEEE TMC, IEEE JSAC, IEEE TSE, IEEE TDSC, IEEE TWC, IEEE TPDS, IEEE TCOM, IEEE TCC, IEEE IOT-J, IEEE TVT, IEEE TNSM, IEEE TSC, IEEE TGCN, IEEE TII, IEEE MNET, IEEE COMML, IEEE Networking Letters, IEEE Access, Wiley IJCS, Elsevier JNCA, Springer JONS, Hindawi SCN, MDPI Sensors, MDPI Applied Sciences, KSII TIIS, KICS JCN, IET Communications, IET Networks

Memberships IEEE and IEEE ComSoc Student Member 2014–2019, Member 2019–present

ACM Student Member 2019, Member 2019–present

USENIX Sustainer Member 2020–present

Volunteer ACM CCS 2014, IEEE INFOCOM 2019 TPC Meeting