Yuanjie Li

✉ yuanjiel@tsinghua.edu.cn   🌐 http://www.yuanjiel.com/

Research Interests

Networked systems and security, with a recent focus on satellite networking, mobile networking and intelligent edge

Education

2012–2017	**Ph.D. in Computer Science**	University of California, Los Angeles

Advisor: Songwu Lu
Dissertation: Augmenting Intelligence in Mobile Networked Systems
Committee: Songwu Lu, Lixia Zhang, Mario Gerla, Suhas Diggavi
Cisco Outstanding Graduate Student Research Award in UCLA, 2018
UCLA Dissertation Year Fellowship, 2016

2008–2012	**Bachelor of Engineering in Electronic Engineering**	Tsinghua University

Best Student Research Training (SRT) Award, 2011

Working Experiences

2024–Now — Tsinghua University — Associate Professor
- Research area: Satellite networking, mobile networking, network security

2020–2023 — Tsinghua University — Assistant Professor
- Research area: Satellite networking, mobile networking, network security

2018–2020 — Networking, IoT & Mobility Lab at Hewlett Packard (HP) Labs — Researcher
- Research area: Fast and secure mobile edge networking and computing

2017–2018 — MobIQ Technologies — Co-Founder and CEO
http://www.mobiq-tech.com
- MobIQ offers the 1st device-based, full-stack mobile network analytics and optimization software for various IoT vendors and virtual network operators
- MobIQ has been sponsored by the NSF SBIR Phase-I grant (2019/01–2019/06) and I-Corps program (2017/11-2018/09).

Since 2014 — MobileInsight — Founder, project leader, and steering member
http://www.mobileinsight.net
- MobileInsight is the 1st open-source community tool that empowers fine-grained mobile network analytics inside your smartphones
- MobileInsight has been used by 300+ universities (Stanford, Berkeley, UIUC, Georgia Tech, etc.) and companies (Microsoft, Huawei, AT&T, etc.)
- Collaboration with UCLA, Purdue University, Peking University, and SJTU

2014/07–2014/09 — Google Inc. — Software engineering internship
- Youtube video optimization in LTE networks (Mentor: Andreas Terzis)

2013/07–2013/09 — Cisco Systems — Research internship
- Congestion control for information-centric networking (Mentor: Dave Oran)

2010–2012 — Tsinghua University — Undergraduate research assistant
- Data center networking and superconducting quantum computing

Honors and Awards

- USENIX NSDI Outstanding Paper Award, 2024
- 清华大学信息化技术中心、网络研究院先进工作者，2023 年
- ACM China Rising Star, 2022
- ACM SIGCOMM China Rising Star, 2022
- ACM Senior Member, since 2022
- IEEE Senior Member, since 2022
- 清华大学信息化技术中心、网络研究院校级先进工作者, 2022 年
- 清华大学信息化技术中心、网络研究院院系级先进工作者, 2021 年
- NSF Small Business Innovation Research (SBIR) Phase I Award, 2019
- NSF Innovation Corps (I-Corps) Awards, 2018 and 2019
- Cisco Outstanding Graduate Student Research Award in UCLA, 2018
- ACM MobiCom Best Community Paper Award, 2017
- ACM MobiCom Best Community Paper Award, 2016
- UCLA Dissertation Year Fellowship, UCLA, 2016
- 教育部国家优秀自费留学生奖学金, 2016 年
- Finalist Award for Qualcomm Innovation Fellowship (QINF), 2015
- The Best Student Research Training Award, Tsinghua University, 2011
- Qianheng Huang Scholarship, Tsinghua University, 2011
- Travel Grants: USENIX NSDI 2016, ACM HotWireless 2016

Media Report

- 网络研究院团队获得第 21 届网络系统设计与实现研讨会杰出论文奖:
清华大学, 2024
- *Democratizing Direct-to-Cell Low Earth Orbit Satellite Networks*,
Research Highlight at ACM GetMobile, 2024
- 中国大陆学者首次在全球顶级会议 SIGCOMM 举办学术专题讲座, 聚焦天地一体化:
人民网、中国教育网, 2021
- *Bridging the Data Charging Gap in the Cellular Edge*,
Research Highlight at ACM GetMobile, March 2020
- *The Tick Programmable Low-Latency SDR System*,
Research Highlight at ACM GetMobile, March 2018
- *MobileInsight: Analyzing Cellular Network Information on Smartphones*,
Research Highlight at ACM GetMobile, March 2017
- *Insecurity of Voice Solution VoLTE in LTE Mobile Networks*,
TheVerge'15, RCSWirelessNews'15, Techxina'15, NewsUnited'15.

Selected Publications

(Note: Underlined are students I supervise, "†" marks the co-primary authors, and "*" marks the corresponding authors.)

1. **[NSDI'24]:** Lixin Liu, **Yuanjie Li***, Hewu Li*, Jiabo Yang, Wei Liu, Jingyi Lan, Yufeng Wang, Jiarui Li, Jianping Wu, Qian Wu, Jun Liu, Zeqi Lai, *"Democratizing Direct-to-Cell Low Earth Orbit Satellite Networks"*
Outstanding Paper Award

2. **[MobiCom'24]: Yuanjie Li**, Lixin Liu, Hewu Li, Yimei Chen, Wei Zhao, Jianping Wu, Qian Wu, Jun Liu, Zeqi Lai, *"Stable Hierarchical Routing for Operational LEO Networks"*

3. **[S&P'24]:** Wei Liu, **Yuanjie Li**, Hewu Li, Yimei Chen, Yufeng Wang, Jingyi Lan, Jianping Wu, Qian Wu, Jun Liu, Zeqi Lai, *"The Dark Side of Scale: Insecurity of Direct-to-Cell Satellite Mega-Constellations"*

4. **[INFOCOM'24]:** Zeqi Lai, Yibo Wang, Hewu Li, Qian Wu, Qi Zhang, Yunan Hou, Jun Liu, **Yuanjie Li**, *"Your Mega-Constellations Can be Slim: A Cost-Effective Approach for Constructing Survivable and Performant LEO Satellite Networks"*

5. **[INFOCOM'24]:** Weisen Liu, Zeqi Lai, Qian Wu, Hewu Li, Qi Zhang, Zonglun Li, **Yuanjie Li**, Jun Liu, *"In-Orbit Processing or Not? Sunlight-Aware Task Scheduling for Energy-Efficient Space Edge Computing Networks"*

6. **[INFOCOM'24]:** Jihao Li, Hewu Li, Zeqi Lai, Qian Wu, Weisen Liu, Xiaomo Wang, **Yuanjie Li**, Jun Liu, Qi Zhang, *"SKYCASTLE: Taming LEO Mobility to Facilitate Seamless and Low-latency Satellite Internet Services"*

7. **[WWW'24]:** Jihao Li, Hewu Li, Zeqi Lai, Qian Wu, Yijie Liu, Qi Zhang, Jun Liu, **Yuanjie Li**, *"SatGuard: Concealing Endless Bursty Packet Losses in LEO Satellite Networks for Delay-Sensitive Web Applications"*

8. **[ICNP'24]:** Chenwei Gu, Qian Wu, Zeqi Lai, Hewu Li, Jihao Li, Weisen Liu, Qi Zhang, Jun Liu, **Yuanjie Li**, *"STARVERI: Efficient and Accurate Verification for Risk-Avoidance Routing in LEO Satellite Networks"*

9. **[MobiCom'23]: Yuanjie Li**, Hewu Li, Wei Liu, Lixin Liu, Wei Zhao, Yimei Chen, Jianping Wu, Qian Wu, Jun Liu, Zeqi Lai, Han Qiu, *"A Networking Perspective on Starlink's Self-Driving LEO Mega-Constellation"*

10. **[NSDI'23]:** Zeqi Lai, Hewu Li, Yangtao Deng, Qian Wu, Jun Liu, **Yuanjie Li**, Jihao Li, Lixin Liu, Weisen Liu, Jianping Wu, *"StarryNet: Empowering Researchers to Evaluate Futuristic Integrated Space and Terrestrial Networks"*

11. **[INFOCOM'23]:** Mingyang Lv, Qian Wu, Zeqi Lai, Hewu Li, **Yuanjie Li**, Jun Liu, *"FALCON: Towards Fast and Scalable Data Delivery for Emerging Earth Observation Constellations"*

12. **[INFOCOM'23]:** Zeqi Lai, Hewu Li, Yikun Wang, Qian Wu, Yangtao Deng, Jun Liu, **Yuanjie Li**, Jianping Wu, *"Achieving Resilient and Performance-Guaranteed Routing in Space-Terrestrial Integrated Networks"*

13. **[TMC'23]:** Zhaowei Tan, Jinghao Zhao, **Yuanjie Li**, Yifei Xu, Songwu Lu, *"LDRP: Device-Centric Latency Diagnostic and Reduction for Cellular Networks without Root"*

14. **[ICCV'23]:** Jianshuo Dong, Han Qiu, Yiming Li, Tianwei Zhang, **Yuanjie Li**, Zeqi Lai, Chao Zhang, Shu-Tao Xia, *"One-bit Flip is All You Need: When Bit-flip Attack Meets Model Training"*

15. **[SIGCOMM'22]: Yuanjie Li**, Hewu Li, Wei Liu, Lixin Liu, Yimei Chen, Jianping Wu, Qian Wu, Jun Liu, Zeqi Lai, *"A Case for Stateless Mobile Core Network Functions in Space"*

16. **[ToN'22]:** Zhehui Zhang, **Yuanjie Li***, Qianru Li, Jinghao Zhao, Ghufran Biag, Lili Qiu, Songwu Lu, *"Movement-Based Reliable Mobility Management for Beyond 5G Cellular Networks"*

17. **[CCS'21]: Yuanjie Li**, Hewu Li, Zhizheng Lv, Xingkun Yao, Qianru Li, Jianping Wu, *"Deterrence of Intelligent DDoS via Multi-Hop Traffic Divergence"*

18. **[MobiCom'21]: Yuanjie Li**, Chunyi Peng, Zhehui Zhang, Zhaowei Tan, Haotian Deng, Jinghao Zhao, Qianru Li, Yunqi Guo, Kai Ling, Boyan Ding, Hewu Li, Songwu Lu, *"Experience: A Five-Year Retrospective of MobileInsight"*

19. **[HotNets'21]: Yuanjie Li**, Hewu Li, Lixin Liu, Wei Liu, Jiayi Liu, Jianping Wu, Qian Wu, Jun Liu, Zeqi Lai, *"Internet in Space" for Terrestrial Users via Cyber-Physical Convergence*

20. **[NSDI'21]:** Zhaowei Tan, Jinghao Zhao, **Yuanjie Li**, Yifei Xu, Songwu Lu, *"Device-Based LTE Latency Reduction at the Application Layer"*

21. **[SIGCOMM'20]: Yuanjie Li**, Qianru Li, Zhehui Zhang, Ghufran Biag, Lili Qiu, Songwu Lu, *"Beyond 5G: Reliable Extreme Mobility Management"*

22. **[JSAC'20]:** Chenren Xu, Jing Wang, Zhiyao Ma, Yihua Chen, Yunzhe Ni, Wangyang Li, Feng Qian, **Yuanjie Li**, *"A First Look at Disconnection-centric TCP Performance on High-speed Railways"*

23. **[SIGCOMM'19]: Yuanjie Li**, Kyu-Han Kim, Christina Vlachou, Junqing Xie, *"Bridging the Data Charging Gap in the Cellular Edge"*

24. **[MobiCom'19]:** Jing Wang, Yufan Zheng, Yunzhe Ni, Chenren Xu, Feng Qian, Wangyang Li, Wantong Jiang, Yihua Cheng, Zhuo Cheng, **Yuanjie Li**, Xiufeng Xie, Yi Sun, Zhongfeng Wang, *"An Active-Passive Measurement Study of TCP Performance over LTE on High-speed Rails"*

25. **[ToN'18]: Yuanjie Li**, Chunyi Peng, Haotian Deng, Zengwen Yuan, Guan-Hua Tu, Jiayao Li, Songwu Lu, Xi Li, *"Device-Customized Multi-Carrier Network Access on Commodity Smartphones"*

26. **[SIGMETRICS'18]:** Zhaowei Tan, **Yuanjie Li**, Qianru Li, Zhehui Zhang, Songwu Lu, *"Supporting Mobile VR in LTE Networks: How Close Are We?"*

27. **[MobiCom'18]:** Zengwen Yuan, Qianru Li, **Yuanjie Li**, Chunyi Peng, Songwu Lu, George Varghese, *"Resolving Policy Conflicts in Multi-carrier Access"*

28. **[MobiCom'17]: Yuanjie Li**, Zengwen Yuan, Chunyi Peng, *"A Control-Plane Perspective on Reducing Data Access Latency in LTE Networks"*

29. **[MobiCom'17]:** Haoyang Wu, Tao Wang, Zengwen Yuan, Chunyi Peng, Zhiwei Li, Zhaowei Tan, Boyan Ding, Xiaoguang Li, **Yuanjie Li**, Jun Liu, Songwu Lu, *"The Tick Programmable Low-Latency SDR System"*
Best Community Paper Award

30. **[MobiCom'16]: Yuanjie Li**, Chunyi Peng, Zengwen Yuan, Jiayao Li, Haotian Deng, Tao Wang, *"MobileInsight: Extracting and Analyzing Cellular Network Information on Smartphones"*
Best Community Paper Award

31. **[NSDI'16]: Yuanjie Li**, Haotian Deng, Chunyi Peng, Guan-Hua Tu, Jiayao Li, Zengwen Yuan, Songwu Lu, *"iCellular: Device-Customized Cellular Network Access on Commodity Smartphones"*

32. **[SIGMETRICS'16]: Yuanjie Li**, Haotian Deng, Jiayao Li, Chunyi Peng, Songwu Lu, *"Instability in Distributed Mobility Management: Revisiting Configuration Management in 3G/4G Mobile Networks"*

33. **[ToN'16]:** Guan-Hua Tu†, **Yuanjie Li**†, Chunyi Peng, Chi-Yu Li, Hongyi Wang, Songwu Lu, *"Detecting Problematic Control-Plane Protocol Interactions in Mobile Networks"*

34. **[INFOCOM'16]:** Chunyi Peng, **Yuanjie Li**, Zhuoran Li, Jie Zhao, Jiaqi Xu, *"Understanding and Diagnosing Real-World Femtocell Performance Problems"*,

35. **[CCS'16]:** Guan-Hua Tu, Chi-Yu Li, Chunyi Peng, **Yuanjie Li**, Songwu Lu, *"New Security Threats Caused by IMS-based SMS Service in 4G LTE Networks"*

36. **[CCS'15]:** Chi-Yu Li, Guan-Hua Tu, Chunyi Peng, Zengwen Yuan, **Yuanjie Li**, Songwu Lu, Xinbing Wang, *"Insecurity of Voice Solution VoLTE in LTE Mobile Networks"*

37. **[SIGCOMM'14]:** Guan-Hua Tu†, **Yuanjie Li**†, Chunyi Peng, Chi-Yu Li, Hongyi Wang, Songwu Lu, *"Control-Plane Protocol Interactions in Cellular Networks"*

38. **[ToN'13]:** Dan Li, **Yuanjie Li**, Jianping Wu, Sen Su, Jiangwei Yu, *"ESM: Efficient and Scalable Data Center Multicast Routing"*

Full Publication List

1. <u>Lixin Liu</u>, **Yuanjie Li***, Hewu Li*, Jiabo Yang, Wei Liu, Jingyi Lan, Yufeng Wang, Jiarui Li, Jianping Wu, Qian Wu, Jun Liu, Zeqi Lai, *"Democratizing Direct-to-Cell Low Earth Orbit Satellite Networks"*, **USENIX NSDI, 2024**
Outstanding Paper Award

2. **Yuanjie Li**, <u>Lixin Liu</u>, Hewu Li, Yimei Chen, Wei Zhao, Jianping Wu, Qian Wu, Jun Liu, Zeqi Lai, *"Stable Hierarchical Routing for Operational LEO Networks"*, **ACM MobiCom 2024**

3. <u>Wei Liu</u>, **Yuanjie Li**, Hewu Li, Yimei Chen, Yufeng Wang, Jingyi Lan, Jianping Wu, Qian Wu, Jun Liu, Zeqi Lai, *"The Dark Side of Scale: Insecurity of Direct-to-Cell Satellite Mega-Constellations"*, **IEEE S&P, 2024**

4. <u>Lixin Liu</u>, <u>Wei Liu</u>, **Yuanjie Li***, Hewu Li, *"Enabling 6G and Beyond Network Functions from Space: Challenges and Opportunities"*, **IEEE Internet Computing, 2024**

5. Zeqi Lai, Yibo Wang, Hewu Li, Qian Wu, Qi Zhang, Yunan Hou, Jun Liu, **Yuanjie Li**, *"Your Mega-Constellations Can be Slim: A Cost-Effective Approach for Constructing Survivable and Performant LEO Satellite Networks"*, **IEEE INFOCOM 2024**

6. Weisen Liu, Zeqi Lai, Qian Wu, Hewu Li, Qi Zhang, Zonglun Li, **Yuanjie Li**, Jun Liu, *"In-Orbit Processing or Not? Sunlight-Aware Task Scheduling for Energy-Efficient Space Edge Computing Networks"*, **IEEE INFOCOM 2024**

7. Jihao Li, Hewu Li, Zeqi Lai, Qian Wu, Weisen Liu, Xiaomo Wang, **Yuanjie Li**, Jun Liu, Qi Zhang, *"SKYCASTLE: Taming LEO Mobility to Facilitate Seamless and Low-latency Satellite Internet Services"*, **IEEE INFOCOM 2024**

8. Jihao Li, Hewu Li, Zeqi Lai, Qian Wu, Yijie Liu, Qi Zhang, Jun Liu, **Yuanjie Li**, *"SatGuard: Concealing Endless and Bursty Packet Losses in LEO Satellite Networks for Delay-Sensitive Web Applications"*, **ACM WWW 2024**

9. Chenwei Gu, Qian Wu, Zeqi Lai, Hewu Li, Jihao Li, Weisen Liu, Qi Zhang, Jun Liu, **Yuanjie Li**, *" STARVERI: Efficient and Accurate Verification for Risk-Avoidance Routing in LEO Satellite Networks"*, **IEEE ICNP, 2024**

10. Erzhu Ding, Hewu Li, Jun Liu, Jihao Li, Qian Wu, **Yuanjie Li**, Zeqi Lai, *"Research on Edge Server Deployment Strategy in LEO Mega-Constellation"*, **IEEE WCNC 2024**

11. <u>Wei Zhao</u>, **Yuanjie Li**, Hewu Li, Yimei Chen, *"A First Look at Networking-Aware LEO Maneuvers"*, **ACM Workshop on LEO Networking and Communication (LEO-NET), 2023**

12. **Yuanjie Li**, Hewu Li, Wei Liu, Lixin Liu, Wei Zhao, Yimei Chen, Jianping Wu, Qian Wu, Jun Liu, Zeqi Lai, Han Qiu, *"A Networking Perspective on Starlink's Self-Driving LEO Mega-Constellation"*, **ACM MobiCom 2023**

13. Zeqi Lai, Hewu Li, Yangtao Deng, Qian Wu, Jun Liu, **Yuanjie Li**, Jihao Li, Lixin Liu, Weisen Liu, Jianping Wu, *"StarryNet: Empowering Researchers to Evaluate Futuristic Integrated Space and Terrestrial Networks"*, **USENIX NSDI 2023**

14. Zhaowei Tan, Jinghao Zhao, **Yuanjie Li**, Yifei Xu, Songwu Lu, *"LDRP: Device-Centric Latency Diagnostic and Reduction for Cellular Networks without Root"*, **IEEE Transactions on Mobile Computing, 2023**

15. Mingyang Lv, Qian Wu, Zeqi Lai, Hewu Li, **Yuanjie Li**, Jun Liu, *"FALCON: Towards Fast and Scalable Data Delivery for Emerging Earth Observation Constellations"*, **IEEE INFOCOM 2023**

16. Zeqi Lai, Hewu Li, Yikun Wang, Qian Wu, Yangtao Deng, Jun Liu, **Yuanjie Li**, Jianping Wu, *"Achieving Resilient and Performance-Guaranteed Routing in Space-Terrestrial Integrated Networks"*, **IEEE INFOCOM 2023**

17. Jianshuo Dong, Han Qiu, Yiming Li, Tianwei Zhang, **Yuanjie Li**, Zeqi Lai, Chao Zhang, Shu-Tao Xia, *"One-bit Flip is All You Need: When Bit-flip Attack Meets Model Training"*, **IEEE ICCV 2023**

18. Yaoying Zhang, Qian Wu, Zeqi Lai, Yangtao Deng, Hewu Li, **Yuanjie Li**, Jun Liu, *"Energy Drain Attack in Satellite Internet Constellations"*, **IEEE/ACM IWQoS 2023**

19. Tianyu Zhang, Hewu Li, Jun Liu, Lu Lu, Qian Wu, Shaowen Zheng, Zeqi Lai, **Yuanjie Li**, *"High-risk LEO satellite network path detection based on spatial and temporal delay anomaly analysis"*, **China Communications, 2023**

20. Moinak Ghoshal, Z. Jonny Kong, Qiang Xu, Zixiao Lu, Shivang Aggarwal, Imran Khan, Jiayi Meng, **Yuanjie Li**, Y. Charlie Hu, Dimitrios Koutsonikolas, *"Can 5G mmWave Enable Edge-Assisted Real-Time Object Detection for Augmented Reality?"*, **IEEE MASCOTS 2023**

21. **Yuanjie Li**, Hewu Li, Wei Liu, Lixin Liu, Yimei Chen, Jianping Wu, Qian Wu, Jun Liu, Zeqi Lai, *"A Case for Stateless Mobile Core Network Functions in Space"*, **ACM SIGCOMM 2022**

22. Zhehui Zhang, **Yuanjie Li***, Qianru Li, Jinghao Zhao, Ghufran Biag, Lili Qiu, Songwu Lu, *"Movement-Based Reliable Mobility Management for Beyond 5G Cellular Networks"*, **IEEE/ACM Transactions on Networking, 2022**

23. Ghufran Baig, Changhan Ge, Lili Qiu, **Yuanjie Li**, Wangyang Li, Jian He, Zhehui Zhang, Songwu Lu, *"Extracting and Predicting Multipath Profiles under High Mobility and Its Application"*, **ACM MobiHoc 2022**

24. <u>Lixin Liu</u>, Hewu Li, **Yuanjie Li***, Zeqi Lai, Yangtao Deng, Yimei Chen, Wei Liu, Qian Wu, *"Geographic Low-Earth-Orbit Networking without QoS Bottlenecks from Infrastructure Mobility"*, **IEEE/ACM IWQoS 2022**

25. Moinak Ghoshal, Z. Jonny Kong, Qiang Xu, Zixao Lu, Shivang Aggarwal, Imran Khan, **Yuanjie Li**, Y. Charlie Hu, Dimitrios Koutsoniklas, *"An In-Depth Study of Uplink Performance of 5G mmWave Networks"*, **SIGCOMM 5G-MeMU 2022**

26. Zeqi Lai, Hewu Li, Qian Wu, Qiang Ni, Mingyang Lv, Jihao Li, Jianping Wu, Jun Liu, **Yuanjie Li**, *"Integrating Space Edge Computing with Terrestrial Networks for Futuristic 6G Pervasive On-Demand Services"*, **IEEE Vehicular Technology Magazine**, 2022

27. Tianzhu Zhang, Han Qiu, Marco Mellia, **Yuanjie Li**, Hewu Li, Ke Xu, *"Interpreting AI for Networking: Where We Are and Where We Are Going"*, **IEEE Communications Magazine**, 60(2), pp.25-31, 2022

28. Moinak Ghoshal, Pranab Dash, Zhaoning Kong, Qiang Xu, Y. Charlie Hu, Dimitrios Koutsonikolas, **Yuanjie Li**, *"Can 5G mmWave Support Multi-User AR?"*, **PAM 2022**

29. Weisen Liu, Qian Wu, Zeqi Lai, Hewu Li, **Yuanjie Li**, Jun Liu, *"Enabling Ubiquitous and Efficient Data Delivery by LEO Satellites and Ground Station Networks"*, **IEEE GLOBECOM 2022**

30. Tianyu Zhang, Hewu Li, Jun Liu, Qian Wu, **Yuanjie Li**, Yaoying Zhang, *"SASA: Source Address Spoofing Avoidance Mechanism under High Movement for Mega-Constellation"*, **IEEE ICC 2022**

31. Zitong Lin, Hewu Li, **Yuanjie Li**, Jun Liu, Lixin Liu, Qi Zhang, Qian Wu, Zeqi Lai, *"Systematic Utilization Analysis of Mega-Constellation Networks"*, **IWCMC-SCN 2022**

32. **Yuanjie Li**, Hewu Li, Lixin Liu, Wei Liu, Jiayi Liu, Jianping Wu, Qian Wu, Jun Liu, Zeqi Lai, "*Internet in Space*" *for Terrestrial Users via Cyber-Physical Convergence*, **ACM HotNets 2021**

33. **Yuanjie Li**, Hewu Li, Zhizheng Lv, Xingkun Yao, Qianru Li, Jianping Wu, *"Deterrence of Intelligent DDoS via Multi-Hop Traffic Divergence"* , **ACM CCS 2021**

34. **Yuanjie Li**, Chunyi Peng, Zhehui Zhang, Zhaowei Tan, Haotian Deng, Jinghao Zhao, Qianru Li, Yunqi Guo, Kai Ling, Boyan Ding, Hewu Li, Songwu Lu, *"Experience: A Five-Year Retrospective of MobileInsight"* , **ACM MobiCom 2021**

35. Zhaowei Tan, Jinghao Zhao, **Yuanjie Li**, Yifei Xu, Songwu Lu, *"Device-Based LTE Latency Reduction at the Application Layer"*, **USENIX NSDI 2021**

36. **Yuanjie Li**, Esha Datta, Jiaxin Ding, Ness Shroff, Xin Liu, *"Can Online Learning Make Extreme Mobility More Reliable?"* , **IEEE/ACM IWQoS 2021**

37. **Yuanjie Li**, Qianru Li, Zhehui Zhang, Ghufran Baig, Lili Qiu, Songwu Lu, *"Beyond 5G: Reliable Extreme Mobility Management"*, **ACM SIGCOMM'20**, (Acceptance rate: 54/250 = 22%)

38. **Yuanjie Li**, Kyu-Han Kim, Christina Vlachou, Junqing Xie, *"Bridging the Data Charging Gap in the Cellular Edge"*, **ACM GetMobile 2020 (Research Highlight)**

39. Chenren Xu, Jing Wang, Zhiyao Ma, Yihua Chen, Yunzhe Ni, Wangyang Li, Feng Qian, **Yuanjie Li**, *"A First Look at Disconnection-centric TCP Performance on High-speed Railways"*, **JSAC 2020**

40. **Yuanjie Li**, Kyu-Han Kim, Christina Vlachou, Junqing Xie, *"Bridging the Data Charging Gap in the Cellular Edge"*, **ACM SIGCOMM'19**, (Acceptance rate: 32/221 = 14%)

41. Jing Wang, Yufan Zheng, Yunzhe Ni, Chenren Xu, Feng Qian, Wangyang Li, Wantong Jiang, Yihua Cheng, Zhuo Cheng, **Yuanjie Li**, Xiufeng Xie, Yi Sun, Zhongfeng Wang, *"An Active-Passive Measurement Study of TCP Performance over LTE on High-speed Rails"*, **ACM MobiCom'19** (Acceptance rate: 55/290 = 18%)

42. **Yuanjie Li**, Chunyi Peng, Haotian Deng, Zengwen Yuan, Guan-Hua Tu, Jiayao Li, Songwu Lu, Xi Li, *"Device-Customized Multi-Carrier Network Access on Commodity Smartphones"*, to appear at **IEEE/ACM Transactions on Networking (ToN)**, 2018

43. Zhaowei Tan, **Yuanjie Li**, Qianru Li, Zhehui Zhang, Songwu Lu, *"Supporting Mobile VR in LTE Networks: How Close Are We?"*, **ACM SIGMETRICS'18** (Acceptance rate: 54/270 = 20%)

44. Zengwen Yuan, Qianru Li, **Yuanjie Li**, Chunyi Peng, Songwu Lu, George Varghese, *"Resolving Policy Conflicts in Multi-carrier Access"*, **ACM MobiCom'18** (Acceptance rate: 42/187 = 22%)

45. Zengwen Yuan, **Yuanjie Li**, Chunyi Peng, Songwu Lu, Haotian Deng, Zhaowei Tan, Taqi Raza, *"A Machine Learning Based Approach to Mobile Network Analysis"*, **IEEE ICCCN'18** (Invited paper)

46. Haoyang Wu, Tao Wang, Zengwen Yuan, Chunyi Peng, Zhiwei Li, Zhaowei Tan, Boyan Ding, Xiaoguang Li, **Yuanjie Li**, Jun Liu, Songwu Lu, *"The Tick Programmable Low-Latency SDR System"*, **ACM GetMobile 2018**

47. **Yuanjie Li**, Zengwen Yuan, Chunyi Peng, *"A Control-Plane Perspective on Reducing Data Access Latency in LTE Networks"*, **ACM MobiCom 2017** (Acceptance rate: 35/186 = 18%)

48. Haoyang Wu, Tao Wang, Zengwen Yuan, Chunyi Peng, Zhiwei Li, Zhaowei Tan, Boyan Ding, Xiaoguang Li, **Yuanjie Li**, Jun Liu, Songwu Lu, *"The Tick Programmable Low-Latency SDR System"*, **ACM MobiCom 2017** (Acceptance rate: 35/186 = 18.8%) **Best Community Paper Award**

49. **Yuanjie Li**, Chunyi Peng, Zengwen Yuan, Jiayao Li, Haotian Deng, Tao Wang, *"MobileInsight: Analyzing Cellular Network Information on Smartphones"*, **ACM GetMobile 2017**, Volume 21 Issue 1, March 2017

50. Haotian Deng, Qianru Li, **Yuanjie Li**, Songwu Lu, Chunyi Peng, Taqi Raza, Zhaowei Tan, Zengwen Yuan, Zhehui Zhang, *"Towards automated intelligence in 5G systems"*, **IEEE ICCCN 2017** (Invited paper, authors in alphabetical order)

51. Wenguang Huang, Chang Zhou, **Yuanjie Li**, Songwu Lu, Luoyi Fu, *"cniCloud: Querying the Cellular Network Information at Scale"*, **ACM WinTECH 2017**

52. **Yuanjie Li**, Chunyi Peng, Zengwen Yuan, Jiayao Li, Haotian Deng, Tao Wang, *"MobileInsight: Extracting and Analyzing Cellular Network Information on Smartphones"*, **ACM MobiCom 2016** (Acceptance rate: 31/247 = 12%) **Best Community Paper Award**

53. **Yuanjie Li**, Haotian Deng, Chunyi Peng, Guan-Hua Tu, Jiayao Li, Zengwen Yuan, Songwu Lu, *"iCellular: Device-Customized Cellular Network Access on Commodity Smartphones"*, **USENIX NSDI 2016** (Acceptance rate: 45/228 = 19%)

54. **Yuanjie Li**, Haotian Deng, Jiayao Li, Chunyi Peng, Songwu Lu, *"Instability in Distributed Mobility Management: Revisiting Configuration Management in 3G/4G Mobile Networks"*, **ACM SIGMETRICS 2016** (Acceptance rate: 28/208 = 13%)

55. **Yuanjie Li**, Zengwen Yuan, Chunyi Peng, Songwu Lu, *"CAP on Mobility Control for 4G LTE Networks"*, **ACM HotWireless'16** (Invited paper)

56. **Yuanjie Li**, Jiaqi Xu, Chunyi Peng, Songwu Lu, *"A First Look at Unstable Mobility Management in Cellular Networks"*, **ACM HotMobile'16** (Acceptance rate: 18/55 = 32%)

57. Chunyi Peng, **Yuanjie Li**, Zhuoran Li, Jie Zhao, Jiaqi Xu, *"Understanding and Diagnosing Real-World Femtocell Performance Problems"*, **IEEE INFOCOM 2016** (Acceptance rate: 300/1644 = 18%)

58. Guan-Hua Tu†, **Yuanjie Li**†, Chunyi Peng, Chi-Yu Li, Hongyi Wang, Songwu Lu, *"Detecting Problematic Control-Plane Protocol Interactions in Mobile Networks"*, **IEEE/ACM Transactions on Networking (ToN)**, 2016

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60. Guan-Hua Tu, Chi-Yu Li, Chunyi Peng, **Yuanjie Li**, Songwu Lu, *"New Security Threats Caused by IMS-based SMS Service in 4G LTE Networks"*, **ACM CCS 2016** (Acceptance rate: 137/837=16%)

61. Chunyi Peng, **Yuanjie Li**, *"Demystify Undesired Handoff in Cellular Networks"*, **IEEE ICCCN 2016** (Acceptance rate: 88/352 = 25%)

62. Chi-Yu Li, Guan-Hua Tu, Chunyi Peng, Zengwen Yuan, **Yuanjie Li**, Songwu Lu, Xinbing Wang, *"Insecurity of Voice Solution VoLTE in LTE Mobile Networks"*, **ACM CCS 2015** (Acceptance rate: 128/646 = 19%)

63. Guan-Hua Tu†, **Yuanjie Li**†, Chunyi Peng, Chi-Yu Li, Hongyi Wang, Songwu Lu, *"Control-Plane Protocol Interactions in Cellular Networks"*, **ACM SIGCOMM 2014** (Acceptance rate: 45/237 = 18%)

64. Yu-Ting Yu, **Yuanjie Li**, Xingyu Ma, Wentao Shang, MY Sanadidi, Mario Gerla, *"Scalable Opportunistic VANET Content Routing With Encounter Information"*, **IEEE VCA'13**

65. Dan Li, **Yuanjie Li**, Jianping Wu, Sen Su, Jiangwei Yu, *"ESM: Efficient and Scalable Data Center Multicast Routing"*, **IEEE/ACM Transactions on Networking**, 2013

66. Xun-Wei Xu, **Yuanjie Li**, Yu-xi Liu, *"Photon Induced Tunneling in Optomechanical Systems"*, **Physical Review A, 2013**

67. Xun-Wei Xu, **Yuanjie Li**, *"Antibunching Photons in a Cavity Coupled to an Optomechanical System"*, **Journal of Physics B, 2013**

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2. **Yuanjie Li**, Kyu-Han Kim, Qianru Li, *"Systems and Methods for Mitigating Cyberattacks"*, US Patent US20220272120A1

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5. **Yuanjie Li**, Chunyi Peng, Songwu Lu, *"Methods, systems, apparatuses, and devices for facilitating managing connections from one or more caller devices"*, US Patent US20210014353A1

6. **Yuanjie Li**, Zengwen Yuan, Jinghao Zhao, Songwu Lu, *"Methods, systems, apparatuses and devices for facilitating optimizing of a network connection established between the device and one or more servers"*, US Patent US20210112509A1

7. **Yuanjie Li**, Zhaowei Tan, Kaiyuan Chen, Jinghao Zhao, Songwu Lu, *"Optimizing the Wireless-powered Outdoor Target Advertising"*, US Patent App. 62/937,037

8. 李元杰，刘李鑫，李贺武，刘威，蓝静怡，汪宇峰，吴茜，刘君，赖泽祺，《直连蜂窝卫星网络的自助服务方法及装置》，专利申请号：202410144397.5

9. 李元杰，李贺武，陈怡梅，刘威，吴茜，刘君，赖泽祺，《一种针对伪卫星的多设备协同检测与防御方法》，专利申请号：202310912592.3

10. 李元杰，李贺武，刘威，刘李鑫，陈怡梅，吴茜，刘君，赖泽祺，《网元状态管理方法、装置、电子设备及存储介质》，国际专利申请号：PCT/CN2023/111726

11. 李元杰，李贺武，赵玮，陈怡梅，刘威，刘李鑫，吴茜，刘君，赖泽祺，《卫星自动变轨检测方法、装置、电子设备及存储介质》，专利申请号：202310839887.2

12. 李元杰，李贺武，赵玮，陈怡梅，吴茜，刘君，赖泽祺，《一种面向网络稳定性的卫星变轨方法和装置》，专利申请号：202311247368.3

13. 李元杰，刘李鑫，李贺武，刘威，陈怡梅，吴茜，刘君，赖泽祺，陆璐，郑韶雯，《星地融合互联网的稳定层次化路由方法、装置及电子设备》，专利申请号：202310675671.7

14. 李元杰，李贺武，刘李鑫，刘威，刘嘉镱，吴茜，刘君，赖泽祺，《一种星地协同组网方法及装置》，专利授权公告号：CN114039644A

15. 李元杰，李贺武，吕治政，赵玮，吴茜，刘君，赖泽祺，《天地融合网络恶意流量攻击主动抑制方法及装置》，专利授权公告号：CN114785551B

16. 李元杰，李贺武，刘威，刘李鑫，陈怡梅，吴茜，刘君，赖泽祺，《一种天地融合移动网络的网元功能状态管理机制》，专利申请号：202211430022.2

17. 李贺武，李基豪，赖泽祺，吴茜，李元杰，刘君，《低轨巨型星座网络的面向流级别的数据传输方法及装置》，专利申请号：CN117579121A

18. 李贺武，李基豪，赖泽祺，吴茜，李元杰，刘君，《低轨巨型星座网络的流量传输方法、装置及电子设备》，专利申请号：CN117579120A

19. 李贺武，李基豪，赖泽祺，吴茜，王翊堃，李元杰，刘君，《面向低轨巨型星座网络的传输方法和装置》，专利申请号：CN117650825A

20. 吴茜,宋兆杰,李贺武,李元杰,《用于高铁场景的多路径传输数据预调度方法及系统》,专利授权公告号:CN113329413B

21. 赖泽祺,李贺武,吴茜,邓洋涛,刘伟森,刘君,李元杰,李基豪,刘李鑫,吴建平,《一种天地融合网络仿真试验系统及其试验方法》,专利申请号：CN114785401A

22. 赖泽祺,刘伟森,吴茜,李贺武,吴建平,刘君,李元杰,《一种星地协作的广域实时通信系统及其通信方法》,专利申请号：CN114915331A

23. 吴茜,刘伟森,赖泽祺,李贺武,李元杰,刘君,《一种星地协同的全球内容分发路由方法、系统及电子设备》,专利申请号：CN114928869A

24. 吴茜,张瑶鋆,赖泽祺,李贺武,刘君,李元杰,陆璐,郑韶雯,《星地链路处理方法、装置及网络设备》,专利申请号：CN114710193A

Books and Chapters

1. 赵宝康,李贺武,赖泽祺,李元杰,毕远国,许昱玮,《卫星互联网的研究进展与趋势》,CCF 2020-2021 中国计算机科学技术发展报告,中国计算机协会编,北京：机械工业出版社, ISBN 978-7-111-69379-6, 2021.10

IETF Drafts

1. **Yuanjie Li**, Hewu Li, Jiayi Liu, Lixin Liu, Qian Wu,
"Problems and Requirements of Addressing in Integrated Space-Terrestrial Network", 2022.04
https://datatracker.ietf.org/doc/draft-li-istn-addressing-requirement/

Invited Talks

1. *A Networking Perspective on Starlink's Self-Driving LEO Mega-Constellation*,
ACM MobiCom 2023

2. *A First Look at Networking-Aware Maneuver*,
ACM LEO-NET 2023

3. 天地融合互联网体系结构与安全的思考,
CCF 中国网络大会, 2023

4. *Problems and Requirements of Addressing in Integrated Space-Terrestrial Network*,
IETF 116 side meeting on satellite networking, 2023

5. *A Case for Stateless Mobile Core Network Functions in Space*,
ACM TURC, ACM SIGCOMM, Microsoft Research – Redmond, Huawei, Peking University, BUPT, 2022–2023

6. *Smart and Secure Mobile Network by Clients*,
ACM TURC, SIGMOBILE CEP, China Mobile, UCSB, Tsinghua University, Fudan University, 2021–2023

7. 天地一体化互联网的网络功能架构挑战与研究进展,
清华大学-中国移动联合研究院 Star Light 系列学术沙龙（第二期）, 2022

8. *Integrated Satellite-Terrestrial Network (ISTN)*,
ACM SIGCOMM 2021 Tutorial: https://conferences.sigcomm.org/sigcomm/2021/ISTN-tutorial.html

9. *Deterrence of Intelligent DDoS via Multi-Hop Traffic Divergence*,
ACM CCS'21, Tsinghua University

10. "*Internet in Space*" *for Terrestrial Users via Cyber-Physical Convergence*,
    ACM HotNets'21, CCF 第十届中国互联网学术年会（2021）

11. *Can Online Learning Increase the Reliability of Extreme Mobility Management?*
    IEEE/ACM IWQoS 2021

12. *Beyond 5G: Reliable Extreme Mobility Management*,
    ACM SIGCOMM'20

13. *Bridging the Data Charging Gap in the Cellular Edge*,
    ACM SIGCOMM'19, Shanghai Jiaotong University, Chinese Academy of Sciences, BUPT, 2019

14. *Data-Driven End Intelligence in the Mobile Networked Systems*,
    ACM MobiHoc Workshop on Mobile IoT Sensing/Security/Privacy, UCSB, HP Labs, 2018

15. *Securing the Mobile Networked Systems: A Control/Data-Plane Perspective*,
    Stevens Institute of Technology, 2018

16. *Symbiotic Apps-Wireless Architecture via Named Data*,
    Intel-NSF Information-Centric Networking in Wireless Edge Networks Kickoff, 2017

17. *Augmenting Intelligence in Mobile Networked System*,
    USC, Rutgers University, University of Oregon, 2017

18. *A Control-Plane Perspective on Reducing Data Access Latency in Mobile Networks*,
    ACM MobiCom 2017

19. *cniCloud: Querying the Cellular Network Information at Scale*,
    ACM WinTECH 2017

20. *MobileInsight: Extracting and Analyzing Cellular Network Information on Smartphones*,
    ACM MobiCom 2016

21. *CAP on Mobility Control for Mobile Networks*, ACM HotWireless 2016

22. *iCellular: Device-Customized Cellular Network Access on Commodity Smartphones*, USENIX NSDI 2016

23. *The Dark Side of VoLTE: Security Vulnerabilities and Solutions*, Qualcomm Innovation Fellowship Finals, 2015

24. *Control-Plane Protocol Interactions in Cellular Networks*, ACM SIGCOMM 2014

Professional Services

- **Program committee member:**
  - 2025: USENIX NSDI, IEEE INFOCOM
  - 2024: ACM SIGCOMM, USENIX NSDI, IEEE INFOCOM, ACM CoNEXT, IEEE ICCCN, IFIP Networking, ACM WiNTECH
  - 2023: ACM CoNEXT, IEEE ICNP, ACM WiNTECH, ACM SIGCOMM workshop on 5G-MeMU, ACM LEO-NET, 6G SQSC
  - 2022: ACM MobiCom, IEEE ICNP, ACM ICN, ACM SIGCOMM workshop on 5G-MeMU, ACM WiNTECH, AAAI, APNet, EAI 6G-xCOM
  - 2021: ACM MobiCom, IEEE ICNP, ACM SIGCOMM workshop on 5G-MeMU, IEEE MSN, AAAI
  - 2020: ACM MobiCom, IEEE INFOCOM (external)
  - 2018: ACM Ubicomp, ACM SIGCOMM Workshop on VR/AR
  - 2017: IEEE INFOCOM, IEEE PAC, ACM MobiCom (external), IEEE CNS, ACM WiNTECH
  - 2016: ACM CarSys, ACM MobiCom (external)

- **Journal reviewer:** IEEE/ACM Transactions on Networking (ToN), IEEE Transactions on Mobile Computing (TMC), IEEE Transactions on Dependable and Secure Computing (TDSC), IEEE Transactions on Computers (TC), IEEE Network Magazine

- **Session chair:** ACM APNet'22, ACM MobiCom'21, IEEE ICNP'21

- **Official topic previews:** ACM SIGCOMM'22, ACM SIGCOMM'21

- **ACM MobiCom 2018 Social Media Chair**

- **Juror of ACM SIGCOMM'19 Student Research Competition (SRC) and hackathon**

- **Member of UCLA Graduate Admission Review Committee, 2016--2017**

Teaching and Advising

- **Instructor and Co-instructor**
    - Wireless and Mobile Network Security, Tsinghua University, Spring 2022–2024
    - Technical Reading, Writing, and Presentation for Networking Science, Tsinghua University, Fall 2022–2024
    - CS 211: Network Protocol and Systems Software Design for Wireless and Mobile (online graduate course), UCLA, Spring 2015

- **Advising and Mentoring**
    - PhD students:
        * Wei Liu (2021–now)
        * Lixin Liu (2022–now)
        * Yimei Chen (2022–now)
        * Jingyi Lan (2023–now)
        * Minghao Tang (2023–now, with Hewu Li)
    - MS students:
        * Yufeng Wang (2023–now, with Hewu Li)
        * Wei Zhao (2021–now)
    - Undergraduate students: Li Ouyang, Junyi Li, Jiabo Yang, Xi Long, Bowen Sun, Jinyao Zhang
    - Mentor of 12 graduate, 2 undergraduate, and 2 high-school students, 2014–2020, UCLA

- **Teaching Assistant**
    - CS 211: Network Protocol and Systems Software Design for Wireless and Mobile, UCLA, Fall 2015
    - CS 118: Computer Network Fundamentals, UCLA, Fall 2014, Fall 2013
    - CS 31: Introduction to Computer Science, UCLA, Winter 2014
    - CS 33: Introduction to Computer Organization, UCLA, Spring 2014