Chengzhang Li

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I'm a Ph.D. student in the Electrical and Computer Engineering Department at Virginia Tech, supervised by Prof. Tom Hou. I received my B.S. degree in Electronic Engineering from Tsinghua University in 2017, and my M.S degree in Computer Engineering from Virginia Tech in 2020. My current research interests are real-time scheduling in 5G, Age of Information (AoI), and machine learning in wireless networks.

Education

2020–Present **Ph.D. Student**,
ECE Department at Virginia Tech, Blacksburg, VA. Advisor: Prof. Tom Hou.

2017–2020 **M.S. in Computer Engineering**,
ECE Department at Virginia Tech, Blacksburg, VA. Advisor: Prof. Tom Hou.

2013–2017 **B.S. in Electronic Engineering**,
EE Department at Tsinghua University, Beijing, China.

Internships

May–Aug. 2022 **Software Intern - 5G Wireless**,
NVIDIA Corporation, Santa Clara, CA.

Research Interests

5G; Age of Information; Real-time optimization; Machine learning in wireless networks.

Awards

May 2021 **Student Travel Grant** *issued by IEEE INFOCOM 2021*.

July 2020 **Student Travel Grant** *issued by IEEE INFOCOM 2020*.

July 2019 **Student Travel Grant** *issued by IEEE ICDCS 2019*.

Oct. 2015 **University Scholarship** *issued by Tsinghua University*.

Oct. 2014 **University Scholarship** *issued by Tsinghua University*.

Oct. 2014 **Geru Zheng Scholarship** *issued by Geru Zheng Fundation*.

Skills

Languages: Proficient in Matlab, Python, C/C++

Skills: NVIDIA CUDA

Teaching

Spring 2018 **Teaching Assistant**
ECE 2704 Signal & Systems, Virginia Tech.

Fall 2017 **Teaching Assistant**
ECE 2704 Signal & Systems, Virginia Tech.

Services

Reviewer: *IEEE/ACM ToN, IEEE TWC, IEEE TNSE, IEEE ISIT*.

Publications

Journal papers

ToN'22 ***Chengzhang Li***, *Qingyu Liu, Shaoran Li, Yongce Chen, Y. Thomas Hou, Wenjing Lou, and Sastry Kompella*, "Scheduling with Age of Information Guarantee", IEEE/ACM Transactions on Networking, 2022.

TMC'22 *Yongce Chen, Yan Huang,* ***Chengzhang Li****, Y. Thomas Hou, and Wenjing Lou*, "Turbo-HB: A Sub-millisecond Hybrid Beamforming Design for 5G mmWave Systems", IEEE Transactions on Mobile Computing, 2022.

ToN'21 *Shaoran Li, Yan Huang,* ***Chengzhang Li****, Brian A Jalaian, Y. Thomas Hou, Wenjing Lou, and Stephen Russell*, "Maximize Spectrum Efficiency in Underlay Coexistence With Channel Uncertainty", IEEE/ACM Transactions on Networking, 2021.

TMC'21 *Yongce Chen, Shaoran Li,* ***Chengzhang Li****, Huacheng Zeng, Brian Jalaian, Y. Thomas Hou, and Wenjing Lou*, "On DoF Conservation in MIMO Interference Cancellation based on Signal Strength in the Eigenspace", IEEE Transactions on Mobile Computing, 2021.

TMC'21 *Shaoran Li, Yan Huang,* ***Chengzhang Li****, Y. Thomas Hou, Wenjing Lou, Brian Jalaian, and Stephen Russell*, "Achieving Real-Time Spectrum Sharing in 5G Underlay Coexistence with Channel Uncertainty", IEEE Transactions on Mobile Computing, 2021.

IoTJ'21 ***Chengzhang Li****, Yan Huang, Shaoran Li, Yongce Chen, Brian A. Jalaian, Y. Thomas Hou, Wenjing Lou, Jeffrey H. Reed, and Sastry Kompella*, "Minimizing AoI in a 5G-based IoT Network under Varying Channel Conditions", IEEE Internet of Things Journal, 2021.

IoTJ'21 *Darshan A. Ravi, Vijay K. Shah,* ***Chengzhang Li****, Y. Thomas Hou and Jeffrey H. Reed*, "RAN Slicing in Multi-MVNO Environment underDynamic Channel Conditions", IEEE Internet of Things Journal, 2021.

IoTJ'20 *Yan Huang, Shaoran Li,* ***Chengzhang Li****, Y. Thomas Hou, and Wenjing Lou*, "A Deep Reinforcement Learning-based Approach to Dynamic eMBB/URLLC Multiplexing in 5G NR", IEEE Internet of Things Journal, 2020.

TNSE'20 ***Chengzhang Li****, Shaoran Li, Yongce Chen, Y. Thomas Hou, and Wenjing Lou*, "Minimizing Age of Information under General Models for IoT Data Collection", IEEE Transactions on Network Science and Engineering, 2020.

Conference papers

INFOCOM'22 *Qingyu Liu,* ***Chengzhang Li****, Y. Thomas Hou, Wenjing Lou, Jeffrey Reed, and Sastry Kompella*, "Ao^{2}I: Minimizing Age of Outdated Information to Improve Freshness in Data Collection", in Proc. of IEEE INFOCOM 2022.

MobiHoc'21 *Shaoran Li,* ***Chengzhang Li****, Yan Huang, Brian A Jalaian, Y Thomas Hou, Wenjing Lou*, "Task Offloading with Uncertain Processing Cycles", in Proc. of ACM MobiHoc 2021.

INFOCOM'21 ***Chengzhang Li****, Qingyu Liu, Shaoran Li, Yongce Chen, Y. Thomas Hou, and Wenjing Lou*, "On Scheduling with AoI Violation Tolerance", in Proc. of IEEE INFOCOM 2021.

INFOCOM'21 *Qingyu Liu,* ***Chengzhang Li****, Y. Thomas Hou, Wenjing Lou, and Sastry Kompella*, "Aion: A Bandwidth Optimized Scheduler with AoI Guarantee", in Proc. of IEEE INFOCOM 2021.

DySPAN'21 *Naru Jai, Shaoran Li,* ***Chengzhang Li****, Y. Thomas Hou, Wenjing Lou, Jeffrey Reed, and Sastry Kompella*, "Optimal Channel Allocation in the CBRS Band with Shipborne Radar Incumbents", in Proc. of IEEE DySPAN 2021.

INFOCOM'20 ***Chengzhang Li****, Shaoran Li, Yongce Chen, Y. Thomas Hou, and Wenjing Lou*, "AoI Scheduling with Maximum Thresholds", in Proc. of IEEE INFOCOM 2020.

INFOCOM'20 *Yongce Chen, Yan Huang,* ***Chengzhang Li****, Y. Thomas Hou, and Wenjing Lou*, "Turbo-HB: A Novel Design and Implementation to Achieve Ultra-Fast Hybrid Beamforming", in Proc. of IEEE INFOCOM 2020.

Globecom'19 *Shaoran Li, Yan Huang,* ***Chengzhang Li****, Brian Jalaian, Stephen Russell, Y. Thomas Hou, Wenjing Lou, and Benjamin MacCall*, "A Real-Time Solution for Underlay Coexistence with Channel Uncertainty", in Proc. of IEEE GLOBECOM 2019.

ICDCS'19 ***Chengzhang Li****, Yan Huang, Yongce Chen, Brian Jalaian, Y. Thomas Hou, and Wenjing Lou*, "Kronos: A 5G Scheduler for AoI Minimization under Dynamic Channel Conditions", in Proc. of IEEE ICDCS 2019.

MobiHoc'19 *Shaoran Li, Yan Huang,* ***Chengzhang Li****, Brian A. Jalaian, Y. Thomas Hou, and Wenjing Lou*, "Coping Uncertainty in Coexistence via Exploitation of Interference Threshold Violation", in Proc. of ACM MobiHoc 2019.

INFOCOM'19 ***Chengzhang Li****, Shaoran Li, and Y. Thomas Hou*, "A General Model for Minimizing Age of Information at Network Edge", in Proc. of IEEE INFOCOM 2019.

INFOCOM'19 *Yongce Chen, Shaoran Li,* ***Chengzhang Li****, Y. Thomas Hou, and Brian Jalaian*, "To Cancel or Not to Cancel: Exploiting Interference Signal Strength in the Eigenspace for Efficient MIMO DoF Utilization", in Proc. of IEEE INFOCOM 2019.

References

Dr. Tom Hou
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Dr. Wenjing Lou
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Dr. Jeffrey H. Reed
Willis G. Worcester Professor
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