Chengzhang Li

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I am a research scientist at AI-EDGE Institute, The Ohio State University, Columbus, OH, USA. I received my Ph.D. and M.S. degrees in Computer Engineering from Virginia Tech in 2022 and 2020, respectively, and my B.S. degree in Electronics Engineering from Tsinghua University, Beijing, China, in 2017. My current research interests are data compression in edge networks, split computing, real-time scheduling in 5G, and Age of Information (AoI).

Education

2017–2022 Ph.D. in Computer Engineering
M.S. in Computer Engineering (obtained in 2020)
ECE Department at Virginia Tech, Blacksburg, VA
Advisor: Prof. Tom Hou

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

Work Experience

2024–Present **Research Scientist, AI-EDGE Institute**,
ECE, OSU. Supervisor: Prof. Ness Shroff.

2023–2024 **Postdoc, AI-EDGE Institute**,
ECE, OSU. Advisor: Prof. Ness Shroff.

Summer 2022 **Software Interns**,
NVIDIA Corporation, Santa Clara, CA.

Awards

2021 **Student Travel Grant,** *IEEE INFOCOM.*

2020 **Student Travel Grant,** *IEEE INFOCOM.*

2019 **Student Travel Grant,** *IEEE ICDCS.*

2015 **University Scholarship,** *Tsinghua University.*

2014 **University Scholarship,** *Tsinghua University.*

2014 **Geru Zheng Scholarship,** *Geru Zheng Foundation.*

Skills

Languages: Proficient in Matlab, Python, C/C++
Skills: NVIDIA CUDA

Teaching

Fall 2017 & **Teaching Assistant**
Spring 2018 *ECE 2704 Signal & Systems, Virginia Tech.*

Professional Services

Guest Editor: *MPDI Electorics.*

Reviewer: *IEEE/ACM ToN, IEEE TIT, IEEE TWC, IEEE TNSE, IEEE ISIT, IEEE Comm. Magazine, AAAI AI Magazine, Nature Scientific Reports.*

Conference TPC: *IEEE INFOCOM 2025, 2024.*

Publications

Journal Articles

1. **Chengzhang Li**, Qingyu Liu, Y. Thomas Hou, Wenjing Lou, and Sastry Kompella, "Aequitas: A 5G Scheduler for Minimizing Outdated Information in IoT Networks," *IEEE Internet of Things Journal,* vol. 11, no. 13, pp. 23322–23335, July. 2024.

2. **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,* vol. 30, no. 5, pp. 2046–2059, Oct. 2022.

3. **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,* vol. 8, no. 19, pp. 14543–14558, Oct. 2021.

4. **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*, vol. 7, no. 4, pp. 2256–2270, Oct. 2020.

5. Peizhong Ju, **Chengzhang Li** (co-first author), Yingbin Liang, and Ness Shroff, "AI-EDGE: An NSF AI institute for future edge networks and distributed intelligence," *AI Magazine,* vol. 45, no. 1, pp. 29–34, Mar. 2024.

6. Naru Jai, Yi Shi, Shaoran Li, **Chengzhang Li**, Y Thomas Hou, Wenjing Lou, Jeffrey H Reed, Masoud Olfat, Sastry Kompella, and Luiz DaSilva, "Modeling and Optimization of Channel Allocation for PAL and GAA Users in the CBRS Band," *IEEE Transactions on Cognitive Communications and Networking,* vol. 10, no. 1, Feb. 2024.

7. Qingyu Liu, **Chengzhang Li**, Y. Thomas Hou, Wenjing Lou, Jeffery H. Reed, and Sastry Kompella, "Aion: A Bandwidth Conserving Scheduler with Data Freshness Guarantee," *IEEE Transactions on Mobile Computing,* vol. 23, no. 1, pp. 102–116, Jan. 2024.

8. P. Kheirkhah Sangdeh, **Chengzhang Li**, Hossein Pirayesh, Shichen Zhang, Huacheng Zeng, and Y. Thomas Hou, "CF4FL: A Communication Framework for Federated Learning in Transportation Systems," *IEEE Transactions on Wireless Communications,* vol. 22, no. 5, pp. 3821–3836, June 2023.

9. Shaoran Li, **Chengzhang Li**, Yan Huang, Brian Jalaian, Y. Thomas Hou, and Wenjing Lou, "Enhancing Resilience in Mobile Edge Computing with Processing Uncertainty," *IEEE Journal on Selected Areas in Communications,* vol. 41, no. 3, pp. 659–674, Mar. 2023.

10. 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*, vol. 22, no. 7, pp. 4332–4346, July 2023.

11. 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,* vol. 22, no. 5, pp. 2862–2877, May 2023.

12. 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*, vol. 22, no. 4, pp. 1922–1937, Apr. 2023.

13. Darshan A. Ravi, Vijay K. Shah, **Chengzhang Li**, Y. Thomas Hou and Jeffrey H. Reed, "RAN Slicing in Multi-MVNO Environment under Dynamic Channel Conditions," *IEEE Internet of Things Journal*, vol. 9, no. 6, pp. 4748–4757, March 2022.

14. 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*, vol. 29, no. 2, pp. 764–778, April 2021.

15. 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*, vol. 7, no. 4, pp. 6439–6456, July 2020.

Conference Papers

1. **Chengzhang Li**, Peizhong Ju, Atilla Eryilmaz, and Ness B. Shroff, "Efficient Multi-dimensional Compression for Network-edge Classification," in Proc. *ACM MobiHoc,* 10 pages, Athens, Greece, Oct. 7–10, 2024.

2. **Chengzhang Li**, Shaoran Li, Qingyu Liu, Y. Thomas Hou, Wenjing Lou, and , Sastry Kompella, "Eywa: A general approach for scheduler design in AoI optimization," in Proc. *IEEE INFOCOM,* 9 pages, New York, USA, May 17–20, 2023.

3. **Chengzhang Li**, Qingyu Liu, Y. Thomas Hou, Wenjing Lou, Jeffery H. Reed, and Sastry Kompella, "Aequitas: A Uniformly Fair 5G Scheduler for Minimizing Outdated Information," *IEEE MASS*, 8 pages, Denver, CO, Oct. 20–22, 2022.

4. **Chengzhang Li**, Qingyu Liu, Shaoran Li, Yongce Chen, Y. Thomas Hou, and Wenjing Lou, "On Scheduling with AoI Violation Tolerance," in Proc. *IEEE INFOCOM,* 9 pages, virtual conference, May 10–13, 2021.

5. **Chengzhang Li**, Shaoran Li, Yongce Chen, Y. Thomas Hou, and Wenjing Lou, "AoI Scheduling with Maximum Thresholds," in Proc. *IEEE INFOCOM,* pp. 436–445, virtual conference, July 6–9, 2020.

6. **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. *IEEE ICDCS,* pp. 1466–1475, Dallas, TX, July 7–10, 2019.

7. **Chengzhang Li**, Shaoran Li, and Y. Thomas Hou, "A General Model for Minimizing Age of Information at Network Edge," in Proc. *IEEE INFOCOM,* pp. 118–126, Paris, France, April 29–May 2, 2019.

8. Sunjung Kang, **Chengzhang Li**, Atilla Eryilmaz, and Ness B. Shroff, "Balancing Current and Historical State Information in Remote Tracking Systems: A Randomized Update Approach," *IEEE INFOCOM ASoI Workshop,* Vancouver, Canada, May 20, 2024.

9. Jihoon Yun, **Chengzhang Li**, Anish Arora, "PAMLR: A Passive-Active Multi-Arm Bandit-Based Solution for LoRa Channel Allocation," *ACM BuildSys,* Istanbul, Turkey, Nov. 15–16, 2023.

10. Qingyu Liu, **Chengzhang Li**, Y. Thomas Hou, Wenjing Lou, and Sastry Kompella, "Age of Critical Information: Optimizing Data Freshness Based on Content Criticalitym," *IEEE MILCOM,* Boston, MA, USA, Oct. 30–Nov. 3, 2023.

11. Heng Jin, Qingyu Liu, **Chengzhang Li**, Y. Thomas Hou, Wenjing Lou, and Sastry Kompella, "Hector: A Reinforcement Learning-Based Scheduler for Minimizing Casualties of a Military Drone Swarm," *IEEE MILCOM,* National Capital Region, USA, Nov. 28–Dec. 2, 2022.

12. 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, *IEEE INFOCOM,* virtual conference, May 2–5, 2022.

13. Yubo Wu, **Chengzhang Li**, Y. Thomas Hou, and Wenjing Lou, "Real-time DoA Estimation for Automotive Radar," in Proc. *European Microwave Conference,* London, UK, April 2–7, 2022.

14. 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. *IEEE DySPAN,* pp. 80–88, Los Angeles, CA, Dec. 13–15, 2021.

15. Shaoran Li, **Chengzhang Li**, Yan Huang, Brian A Jalaian, Y Thomas Hou, Wenjing Lou, "Task Offloading with Uncertain Processing Cycles," in Proc. *ACM MobiHoc,* pp. 51–60, Shanghai, China, July 26–29, 2021.

16. Qingyu Liu, **Chengzhang Li**, Y. Thomas Hou, Wenjing Lou, and Sastry Kompella, "Aion: A Bandwidth Optimized Scheduler with AoI Guarantee," in Prof. *IEEE INFOCOM,* 10 pages, virtual conference, May 10–13, 2021.

17. 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. *IEEE INFOCOM,* pp. 1489–1498, virtual conference, July 6–9, 2020.

18. 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. *IEEE GLOBECOM,* 6 pages, Waikoloa, HI, Dec. 9–13, 2019.

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. *ACM MobiHoc,* pp. 71–80, Catania, Italy, July 2–5, 2019.

20. 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. *IEEE INFOCOM,* pp. 1954–1962, Paris, France, April 29–May 2, 2019.

References

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