

**Name:** Chong Zheng

**Gender:** Male

**Date of Birth:** Sep. 15th, 1994

**Degree of Education:** Ph.D. candidate

**Supervisor:** Prof. Yongming Huang

**Lab.:** National Mobile Communications Research Laboratory

**Faculty:** School of Information Science and Engineering

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## ✧ Education

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- Sep. 2013 - Jul., 2017: **Chongqing University, Chongqing, China.**  
Degree and Major: Bachelor of Engineering, Communication Engineering. (Obtained the Certificate of Hong Shen Honors School Chongqing University)  
GPA: 3.62/4.0. GPA Ranking: Top 5% (16/319)
- Sep., 2017 – Present: **Southeast University, Nanjing, China.**  
Degree and Major: Ph.D. candidate, Information and Communication Engineering. (National Mobile Communications Research Laboratory)
- Sep., 2021 - Sep., 2022: Visiting Ph.D. Student with the Singapore University of Technology and Design, Singapore. (Hosted by: Prof. Tony Q.S. Quek, SAEng Fellow)
- Mar., 2021 - Sep., 2021: Intern, Purple Mountain Laboratories, Nanjing, 211111.

## ✧ Research Interests

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**Intelligent communication, Edge intelligence, Hybrid resource allocation, Wireless transmission design, Privacy preservation, Machine learning, Distributed intelligence algorithm.**

- Focus on promising techniques in intelligent wireless communication, e.g., deep reinforcement learning for hybrid resource allocation in cloud/edge system, deep learning for wireless transmission, and federated learning for privacy preservation.
- Research on distributed machine learning algorithms, i.e., distributed deep reinforcement learning, federated learning, distributed multi-task learning.

## ✧ Publications

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1. **C. Zheng**, S. Liu, Y. Huang and L. Yang, “Hybrid Policy Learning for Energy-Latency Tradeoff in MEC-Assisted VR Video Service,” *IEEE Transactions on Vehicular Technology*, vol. 70, no. 9, pp. 9006-9021, Sep. 2021. (**SCI, IF: 6.239**)
2. S. Liu, **C. Zheng**, Y. Huang and Tony Q. S. Quek, “Distributed Reinforcement Learning for Privacy-Preserving Dynamic Edge Caching,” *IEEE Journal on Selected Areas in Communications*, vol. 40, no. 3, pp. 749-760, Mar. 2022. (**Associate Supervisor first author, SCI, IF: 13.081**)
3. **C. Zheng**, S. Liu, Y. Huang, W. Zhang and L. Yang, “Unsupervised Recurrent Federated Learning for Edge Popularity Prediction in Privacy-Preserving Mobile Edge Computing Networks,” *IEEE Internet of Things Journal*, vol. 9, no. 23, pp. 24328-24345, Dec. 2022. (**SCI, IF: 10.238**)
4. **C. Zheng**, S. He, Y. Huang and Tony Q. S. Quek, “Learning for Cross-Layer Optimization: Joint Subcarrier Allocation and Beamforming Design in MEC-Aided Joint Transmission Networks”,

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(Under review with *IEEE Transactions on Wireless Communications*, **SCI**, **IF: 8.346**).

5. Y. Huang, **C. Zheng**, Z. Zhang, X. You. "Research on mobile edge computing and caching in massive wireless communication network," *Journal on Communications*, vol. 42, no. 4, pp. 44-61, Apr. 2021. (**Supervisor first author, EI**)
6. **C. Zheng**, S. Liu, Y. Huang, and L. Yang, "MEC-enabled wireless VR video service: A learning-based mixed strategy for energy-latency tradeoff," in *Proc. 18<sup>th</sup> IEEE Wireless Commun. Networking Conf. (WCNC'20)*, Seoul, South Korea, May 2020, pp. 1–6. (**EI**)
7. **C. Zheng**, S. Liu, Y. Huang, and T. Q. S. Quek, "Privacy-preserving federated reinforcement learning for popularity-assisted edge caching," in *Proc. 40<sup>th</sup> IEEE Global Commun. Conf. (GLOBECOM'21): Mach. Learn. Commun. Symp.*, Madrid, Spain, Dec. 2021, pp. 1–6. (**EI**)

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## ✧ Projects and Patents

### Research Projects (Participated):

1. "Future network evolution based on data-drive and artificial intelligence -- Intelligent edge network co-driven by data and model," *National Key R&D Program of China*, PI: Prof. Y. Huang, 2019.07-2023.06.
2. "Multi-objective optimization algorithm for determinacy low-latency services in industrial scenarios," *Huawei Inc. research program*, PI: Prof. Y. Huang, 2020.04-2022.12.
3. "Intelligent delivery theory and method for the cloud-edge-client enabled mobile VR video service," *National Natural Science Foundation of China*, PI: Prof. S. Liu, 2021.01-2023.12.
4. "Collaborative transport technology for cross-layer optimization," *Huawei Inc. research program*, PI: Prof. Y. Huang, 2021.03-2022.03.

### Invention Patents:

1. Y. Huang, **C. Zheng**, S. Liu, L. Zhang, "Privacy-preserving dynamic edge caching design method based on distributed reinforcement learning in mobile edge computing networks," *National Invention Patent of China*, Patent No. 202110616233.4, 2021. (**Granted**)
2. Y. Huang, **C. Zheng**, S. Liu, "Privacy-preserving popularity prediction method based on unsupervised recurrent federated learning in mobile edge computing networks," *National Invention Patent of China*, Patent No. 202110594483.2, 2021. (**Open for inspection**)
3. Y. Huang, H. Cheng, **C. Zheng**, Y. Xia, "A low complexity receiving method for non-orthogonal multiple access mobile communication," *National Invention Patent of China*, Patent No. 202110284518.2, 2021. (**Open for inspection**)
4. Y. Huang, H. Cheng, **C. Zheng**, Y. Xia, "A power allocation method for non-circular signal assisted NOMA system," *National Invention Patent of China*, Patent No. 202110473323.2, 2021. (**Granted**)

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## ✧ ACADEMIC EVENTS

### Participate and make presentations in two international academic conferences:

1. 18<sup>th</sup> IEEE Wireless Commun. Networking Conf. (WCNC'20), Seoul, South Korea, May 2020, **Presentation topic**: "MEC-enabled wireless VR video service: A learning-based mixed strategy for energy-latency tradeoff".
2. 40<sup>th</sup> IEEE Global Commun. Conf. (GLOBECOM'21), Madrid, Spain, Dec. 2021, **Presentation topic**: "Privacy-preserving federated reinforcement learning for popularity-assisted edge caching".

**Served as reviewers in academic journals/conferences:** IEEE Global Commun. Conf.

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## ✧ SELECTED HONORS AND AWARDS

- 2013-2017: Outstanding Student Scholarship of Chongqing University, once for first class, twice for

second class, three times for third class.

- 2014.06: First class of the First Mobile APP Design Competition of Chongqing University.
- 2014.12: Outstanding Student Awards of Chongqing University.
- 2015.05: Winner of the Second Electronic Skills Competition of Chongqing University.
- 2015.06: Certificate of the National College Students innovation and entrepreneurship training program of Chongqing University.
- 2015.10: First class of Chongqing province in China Undergraduate Mathematical Contest in Modeling.
- 2015.12: Certificate of the 6th Student Research Training Program of Chongqing University.
- 2016.02: Honorable Mention Awards in American Undergraduate Mathematical Contest in Modeling.
- 2016.10: National Encouragement Scholarship of China.
- 2016.10: Advanced Individual in Scientific and Technological Innovation Awards of Chongqing University.
- 2017.06: Certificate of Hong Shen Honors School Chongqing University.
- 2017- Present: Southeast University Graduate Academic Scholarship, once for second class, four times for third class.
- 2020.08: National Construction of High Level College for Postgraduate Study Abroad Project.
- 2021.09: Outstanding Student Awards of Southeast University.