Ming Tang

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Research Interests

- Mobile edge computing; edge intelligence; network optimization and economics

Education

- **The Chinese University of Hong Kong**   Aug. 2014 - Sep. 2018
  Ph.D., Department of Information Engineering
  Advisor: Prof. Jianwei Huang

- **Stanford University**   Sep. 2017 - Feb. 2018
  Visiting Student, Department of Management Science and Engineering
  Advisor: Prof. Ramesh Johari

- **Sichuan University**   Sep. 2010 - Jun. 2014
  B.E., Department of Electronics and Information Engineering
  Best Undergraduate Thesis Award, Outstanding Graduates Award
  GPA: 91.04/100, Rank: 4/244

Work Experience

- **Southern University of Science and Technology**   Dec. 2023 - Present
  Associate Professor, Department of Computer Science and Engineering

- **Southern University of Science and Technology**   Feb. 2022 - Dec. 2023
  Assistant Professor, Department of Computer Science and Engineering

- **The University of British Columbia**   Nov. 2018 - Jan. 2022
  Postdoc, Department of Electrical and Computer Engineering
  Advisor: Prof. Vincent W.S. Wong

Publications

- Book Chapter

  1. **Ming Tang** and Vincent W.S. Wong, "Deep Reinforcement Learning for Mobile Edge Computing Systems," *Broadband Communications, Computing, and Control for Ubiquitous Intelligence*, Edited by L. Cai, B.L. Mark, J. Pan, Springer International Publishing, 2022.

- Journal Publications

  1. Rongguang Ye, Wei-Bin Kou, and **Ming Tang**$^{\boxtimes}$, "Exploring Performance-Fairness Trade-offs in Federated Learning," *IEEE Transactions on Networking*, 2026 (Accepted).
  2. Fu Peng, Meng Zhang, **Ming Tang**$^{\boxtimes}$, "An Information-Theoretic Analysis for Federated Learning under Concept Drift," *Transactions on Network Science and Engineering*, 2025 (Accepted).
  3. Shuo Wang, Bing Luo, **Ming Tang**$^{\boxtimes}$, "An Incentive Mechanism for Federated Learning with Time-Varying Client Availability," *IEEE Transactions on Mobile Computing*, 2025 (Accepted).
  4. Ning Yang, Junrui Wen, Meng Zhang, **Ming Tang**, "Generalizable Pareto-Optimal Offloading with Reinforcement Learning in Mobile Edge Computing," *Transactions on Services Computing*, 2025 (Accepted).

5. Wei-Bin Kou, Qingfeng Lin, **Ming Tang**, Sheng Xu, Rongguang Ye, Yang Leng, Shuai Wang, Guofa Li, Zhenyu Chen, Guangxu Zhu, Yik-Chung Wu, "pFedLVM: A Large Vision Model (LVM)-Driven and Latent Feature-Based Personalized Federated Learning Framework in Autonomous Driving," *IEEE Transactions on Intelligent Transportation Systems*, June 2025.

6. Jiaqi Wu, Xinyi Zhuang, **Ming Tang**, and Lin Gao, "QoE-Aware Offloading and Resource Allocation for MEC-Empowered AIGC Services," *IEEE Transactions on Mobile Computing*, 2025 (Accepted).

7. Chuiyang Meng, **Ming Tang**, Mehdi Setayesh, and Vincent Wong, "Tackling Resource Allocation for Decentralized Federated Learning: A GNN-based Approach," *IEEE Transactions on Mobile Computing*, 2025 (Accepted).

8. Wei-Bin Kou, Qingfeng Lin, **Ming Tang**, Rongguang Ye, Shuai Wang, Guangxu Zhu, Yik-Chung Wu, "Fast-Convergent and Communication-Alleviated Heterogeneous Hierarchical Federated Learning in Autonomous Driving", *IEEE Transactions on Intelligent Transportation Systems*, 2025 (Accepted).

9. Jiaqi Wu, **Ming Tang**, Changkun Jiang, Lin Gao, Bin Cao, "Cloud-Edge-End Collaborative Task Offloading in Vehicular Edge Networks: A Multi-Layer Deep Reinforcement Learning Approach," *IEEE Internet of Things Journal*, 2024 (Accepted).

10. Yizhou Yan, Xinyu Tang, Chao Huang, and **Ming Tang**✉, "Incentivizing Efficient Label Denoising in Federated Learning," *IEEE Internet of Things Journal*, vo1. 11, no. 23, pp.38012 - 38022, Dec. 2024.

11. **Ming Tang**, Fu Peng, and Vincent W.S. Wong, "A Blockchain-Empowered Incentive Mechanism for Cross-Silo Federated Learning," *IEEE Transactions on Mobile Computing*, vol. 23, no. 10, Oct. 2024.

12. Chao Huang, **Ming Tang**, Qian Ma, Jianwei Huang, and Xin Liu, "Promoting Collaboration in Cross-Silo Federated Learning: Challenges and Opportunities" *IEEE Communications Magazine*, vol. 62, no. 4, pp. 9240 - 9253, Apr. 2024.

13. Haoyuan Pan, Yu Zhou, Tse-Tin Chan, **Ming Tang**, Jianqiang Li, and Zhihua Du, "Improving Information Freshness via Backbone-Assisted Cooperative Access Points," *IEEE Internet of Things Journal*, vol. 10, no. 5, Mar. 2023.

14. **Ming Tang** and Vincent W.S. Wong, "Online Bitrate Selection for Viewport Adaptive 360-Degree Video Streaming," *IEEE Transactions on Mobile Computing (TMC)*, vol. 21, no. 7, pp. 2506 - 2517, Jul. 2022.

15. **Ming Tang** and Vincent W.S. Wong, "Deep Reinforcement Learning for Task Offloading in Mobile Edge Computing Systems," *IEEE Transactions on Mobile Computing (TMC)*, vol.21, no. 6, Jun. 2022. (***ESI Highly Cited Paper, 2022 Best Paper Award from IEEE TMC***)

16. **Ming Tang** and Jianwei Huang, "How Do You Earn Money on Live Streaming Platforms? A Study of Donation-Based Markets," *IEEE/ACM Transactions on Networking (ToN)*, vol. 29, no. 4, pp. 1813 - 1826, Aug. 2021.

17. **Ming Tang**, Lin Gao, and Jianwei Huang, "Communication, Computation, and Caching Resource Sharing for Internet-of-Things," *IEEE Communications Magazine*, vol. 58, no. 4, pp. 75-80, Apr. 2020.

18. **Ming Tang**, Lin Gao, and Jianwei Huang, "Enabling Edge Cooperation in Tactile Internet via 3C Resource Sharing," *IEEE Journal on Selected Areas in Communications (JSAC)*, vol. 36, no. 11, pp. 2444-2454, Nov. 2018.

19. **Ming Tang**, Haitian Pang, Shou Wang, Lin Gao, Jianwei Huang, and Lifeng Sun, "Multi-Dimensional Auction Mechanisms for Crowdsourced Mobile Video Streaming," *IEEE/ACM Transactions on Networking (ToN)*, vol. 26, no. 5, pp. 2062-2075, Oct. 2018.

20. Lin Gao, **Ming Tang**, Haitian Pang, Jianwei Huang, and Lifeng Sun, "Multi-User Cooperative Mobile Video Streaming: Performance Analysis and Online Mechanism Design," *IEEE Transactions on Mobile Computing (TMC)*, vol. 18, no. 2, pp. 376-389, Feb. 2018.

21. **Ming Tang**, Lin Gao, Haitian Pang, Jianwei Huang and Lifeng Sun, "Optimizations and Economics of Crowdsourced Mobile Streaming," *IEEE Communications Magazine*, vol. 55, no. 4, pp. 21 - 27, Apr. 2017.

- Conference Publications

    1. Chuiyang Meng, **Ming Tang**, Vincent W.S. Wong, "ZorBA: Zeroth-order Federated Fine-tuning of LLMs with Heterogeneous Block Activation", *Proc. IEEE INFOCOM*, 2026.

    2. **Ming Tang**, Yuxuan Zhou, Chao Huang, "Tackling Biased Evaluators in Dueling Bandits," *Proc. NeurIPS*, 2025. **(Spotlight, Top 13%)**

    3. Guanghao Li, Wenhao Jiang, Mingfeng Chen, Yan Li, Hao Yu, Shuting Dong, Tao Ren, **Ming Tang**$^{\boxtimes}$, Chun Yuan$^{\boxtimes}$, "SCOUT: Teaching Pre-trained Language Models to Enhance Reasoning via Flow Chain-of-Thought", *Proc. NeurIPS*, 2025.

    4. Shuting Dong, Mingzhi Chen, Feng Lu, Hao Yu, Guanghao Li, Zhe Wu, **Ming Tang**$^{\boxtimes}$, Chun Yuan$^{\boxtimes}$, "VPR-Cloak: A First Look at Privacy Cloak Against Visual Place Recognition," *Proc. ICCV*, 2025.

    5. Wei-Bin Kou, Guangxu Zhu, Bingyang CHENG, Shuai Wang, **Ming Tang**$^{\boxtimes}$, Yik-Chung Wu$^{\boxtimes}$, "FedEMA: Federated Exponential Moving Averaging with Negative Entropy Regularizer in Autonomous Driving", *Proc. IROS*, 2025.

    6. Wei-Bin Kou, Qingfeng Lin, **Ming Tang**, Jingreng Lei, Shuai Wang, Rongguang Ye, Guangxu Zhu, Yik-Chung Wu, "Enhancing Large Vision Model in Street Scene Semantic Understanding through Leveraging Posterior Optimization Trajectory", *Proc. IROS*, 2025.

    7. Rongguang Ye and **Ming Tang**$^{\boxtimes}$, "One-for-All Pruning: A Universal Model for Customized Compression of Large Language Models," *Proc. ACL Findings*, 2025.

    8. Rongguang Ye and **Ming Tang**$^{\boxtimes}$, "Learning Heterogeneous Performance-Fairness Trade-offs in Federated Learning," *Proc. IJCAI*, 2025.

    9. Xing Liu, Chao Huang, **Ming Tang**$^{\boxtimes}$, "CoCoI: Distributed Coded Inference System for Straggler Mitigation," *Proc. WiOpt*, 2025.

    10. Yiyu Liu, Yilin Xiao, **Ming Tang**, Lin Gao, Jianwei Huang, "Spectral Co-Clustering Based Wireless Network Decomposition for Resource Scheduling," *Proc. WiOpt*, 2025. **(Best Paper Award)**

    11. Wei-Bin Kou, Guangxu Zhu, Rongguang Ye, Shuai Wang, **Ming Tang**$^{\boxtimes}$, Yik-Chung Wu$^{\boxtimes}$, "Label Anything: An Interpretable, High-Fidelity and Prompt-Free Annotator", *Proc. ICRA*, 2025.

    12. Xinbao Qiao, Meng Zhang, **Ming Tang**, and Ermin Wei, "Hessian-Free Online Certified Unlearning", *Proc. ICLR*, 2025.

    13. Xinyi Zhuang, Jiaqi Wu, Hongjia Wu, **Ming Tang**, and Lin Gao"QoS-Driven Hybrid Inference Scheme for Generative Diffusion Models in MEC-Enabled AI-Generated Content Networks", *Proc. ICC*, 2025.

    14. Rongguang Ye, Wei-Bin Kou, **Ming Tang**$^{\boxtimes}$, "PraFFL: A Preference-Aware Scheme in Fair Federated Learning", *Proc. ACM KDD*, 2025.

    15. Pengchao Han, Chao Huang, Geng Tian, **Ming Tang**$^{\boxtimes}$, Xin Liu, "Convergence Analysis of Split Federated Learning on Heterogeneous Data" *Proc. NeurIPS*, 2024.

    16. Wei-Bin Kou, Qingfeng Lin, **Ming Tang**, Shuai Wang, Guangxu Zhu, and Yik-Chung Wu, "FedRC: A Rapid-Converged Hierarchical Federated Learning Framework in Street Scene Semantic Understanding" *Proc. IEEE\RSJ IROS*, 2024.

    17. Shuo Wang, Bing Luo, **Ming Tang**$^{\boxtimes}$, "Tackling System-Induced Bias in Federated Learning: A Pricing-based Incentive Mechanism," *Proc. IEEE ICDCS*, Jul. 2024.

    18. Haoyu Wang, Yiyu Liu, Chunhui Xu, Xing Liu, **Ming Tang**$^{\boxtimes}$, "Non-Linear Coded Computation for Distributed CNN Inference: A Learning-based Approach," *Proc. IEEE ICDCS Tech4Goods Workshop*, Jul. 2024.

19. Chen Huang, Zhiyuan Wang, **Ming Tang**$^{\boxtimes}$, "Self-Interested Load Announcement by Edge Servers: Overreport or Underreport?" *Proc. INFOCOM ICCN Workshop*, May 2024.

20. Lyudong Jin*, **Ming Tang***, Meng Zhang, and Hao Wang, "Fractional Deep Reinforcement Learning for Age-Minimal Mobile Edge Computing," *Proc. AAAI Conference on Artificial Intelligence*, Feb. 2024.

21. **Ming Tang** and Vincent W.S. Wong, "Tackling System Induced Bias in Federated Learning: Stratification and Convergence Analysis," *Proc. IEEE International Conference on Computer Communications (INFOCOM)*, 2023.

22. Yizhou Yan, Xinyu Tang, Chao Huang, and **Ming Tang**, "Price of Stability in Quality-Aware Federated Learning," *Proc. IEEE Global Communications Conference (GLOBECOM)*, 2023.

23. Yanqing Lu, Meng Zhang, and **Ming Tang**$^{\boxtimes}$, "Caching for Edge Inference at Scale: A Mean Field Multi-Agent Reinforcement Learning Approach," *Proc. IEEE Global Communications Conference (GLOBECOM)*, 2023.

24. Chuiyang Meng, **Ming Tang**, Mehdi Setayesh, and Vincent W.S. Wong, "GNN-based Neighbor Selection and Resource Allocation for Decentralized Federated Learning," *Proc. IEEE Global Communications Conference (GLOBECOM)*, 2023.

25. Ning Yang, Junrui Wen, Meng Zhang, and **Ming Tang**, "Multi-objective Deep Reinforcement Learning for Mobile Edge Computing," *Proc. The International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless (WiOpt)*, 2023.

26. **Ming Tang** and Vincent W.S. Wong, "An Incentive Mechanism for Cross-Silo Federated Learning: A Public Goods Perspective," *Proc. IEEE International Conference on Computer Communications (INFOCOM)*, May 2021.

27. **Ming Tang** and Jianwei Huang, "How to Earn Money in Live Streaming Platforms?—A Study of Donation-Based Markets," *Proc. IEEE International Conference on Computer Communications (INFOCOM)*, Paris, France, Apr. 2019.

28. **Ming Tang**, Shou Wang, Lin Gao, Jianwei Huang and Lifeng Sun, "MOMD: A Multi-Object Multi-Dimensional Auction for Crowdsourced Mobile Video Streaming," *Proc. IEEE International Conference on Computer Communications (INFOCOM)*, Atlanta, GA, May 2017.

29. **Ming Tang**, Lin Gao, and Jianwei Huang, "A General Framework for Crowdsourcing Mobile Communication, Computation, and Caching," *Proc. IEEE Global Communications Conference (GLOBECOM)*, Singapore, Singapore, Dec. 2017.

30. **Ming Tang**, Lin Gao, Haitian Pang, Jianwei Huang and Lifeng Sun, "A Multi-Dimensional Auction Mechanism for Mobile Crowdsourced Video Streaming," *Proc. The International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless (WiOpt)*, Tempe, AZ, May, 2016.

31. Lin Gao, **Ming Tang**, Haitian Pang, Jianwei Huang, and Lifeng Sun, "Performance Bound Analysis for Crowdsourced Mobile Video Streaming," *Proc. Conference on Information Systems and Sciences (CISS)*, Princeton, NJ, Mar. 2016.

32. Haitian Pang, Peng Wang, Lin Gao, **Ming Tang**, Jianwei Huang and Lifeng Sun, "Crowdsourced Mobility Prediction Based on Spatio-Temporal Contexts," *Proc. IEEE International Conference on Communications (ICC)*, Kuala Lumpur, Malaysia, May 2016.

- Patent

1. Lifeng Sun, Shou Wang, **Ming Tang**, Lin Gao, and Jianwei Huang, "End-to-end peer video assistance transmission method", CN patent No.105898550B, March 2019

Teaching

- **Lecturer**, Dept. of Computer Science and Engineering, Southern University of Science and Technology

  - CS 201 Discrete Mathematics for Computer Science (Spring, 2022–2025)

- CS 305 Computer Networking (Fall, 2022–2025)
- **Guest Lecturer**, Dept. of Electrical and Computer Engineering, The University of British Columbia
    - EECE 571G Blockchain Software Engineering (Spring, 2020): Game Theory Fundamentals

Research Grant

- Principle Investigator , "Mobile edge computing-based hierarchical cross-silo federated learning framework" (reference number 62202214), The Young Scientists Fund of the National Natural Science Foundation of China, 01/2023 - 12/2025, RMB 300,000.

- Principle Investigator , "Federated learning framework for time-varying data" (reference number 2023A151512819), Natural Science Foundation of Guangdong, 01/2023 - 12/2025, RMB 100,000.

Awards

- **2025 Best Paper Award from International Symposium on Modeling and Optimization in Mobile, Ad hoc, and Wireless Networks (WiOpt)**, IEEE Control Systems Society, May 2025

- **2023 Exemplary Editor from IEEE Open Journal of the Communication Society (OJCOMS)**, IEEE Computer Society, Sep. 2024

- **2022 Best Paper Award from IEEE Transactions on Mobile Computing (TMC)**, IEEE Computer Society Publications Board, Dec. 2023

- **Global Scholarship Programme for Research Excellence**, CUHK, 2017-2018

- **Overseas Research Attachment Programme**, Faculty of Engineering, CUHK, 2017-2018

- **Best-in-Session Presentation Award**, IEEE INFOCOM, 2017

- **Student Travel Grant**, IEEE Communications Society for attending IEEE INFOCOM, 2017

- **Best Student Presentation Award**, Network Communications and Economics Lab, CUHK, 2017

- **Hong Kong PhD Fellowship**, Hong Kong, 2014-2017

- **Outstanding Graduates Award** and **Best Undergraduate Thesis Award**, Sichuan University, 2014

- **Model Student Award** (top 30 students in the university), Sichuan University, 2012

- **National Scholarship** (ranking 1/328), China, 2011

Academic Services

- **Associate Editor**
    - IEEE Transactions on Wireless Communications
    - IEEE Internet of Things Journal
    - IEEE Open Journal of the Communications Society

- **Conference Co-Chair**
    - International Conference on Communication and Information Systems (ICCIS) 2024

- **Local Organizing Chair**
    - International Conference on Communication Software and Networks (ICCSN) 2026

- **Technical Program Committee (TPC) Members**
    - IEEE Global Communications Conference (GLOBECOM)
    - IEEE International Conference on Distributed Computing Systems (ICDCS)
    - IEEE International Conference on Communications (ICC)
    - IEEE Wireless Communications and Networking Conference (WCNC)
    - IEEE 5G World Forum (5GWF)
    - International Teletraffic Congress (ITC)