Ming Tang

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Research Interests

- Mobile edge computing; federated learning; Internet of things; crowdsourced intelligence; mobile video streaming and live streaming

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**　　Feb. 2022 - Present
  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. **M. Tang** and V. 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. H. Pan, Y. Zhou, T. -T. Chan, **M. Tang**, J. Li, and Z. Du, "Improving Information Freshness via Backbone-Assisted Cooperative Access Points," *IEEE Internet of Things Journal*, 2022 (Early Access)
  2. **M. Tang** and V. W.S. Wong, "Online Bitrate Selection for Viewport Adaptive 360-Degree Video Streaming," *IEEE Transactions on Mobile Computing (TMC)*, vol. 21, no. 7, Jul. 2022. (CCF A)
  3. **M. Tang** and V. 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. (CCF A, ***ESI Highly Cited Paper***)
  4. **M. Tang** and J. 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, Aug. 2021. (CCF A)
  5. **M. Tang**, L. Gao, and J. Huang, "Communication, Computation, and Caching Resource Sharing for Internet-of-Things," *IEEE Communications Magazine*, vol. 58, no. 4, pp. 75-80, Apr. 2020. (SCI一区)

6. **M. Tang**, L. Gao, and J. 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. (CCF A, SCI一区)

7. **M. Tang**, H. Pang, S. Wang, L. Gao, J. Huang, and L. 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. (CCF A)

8. L. Gao, **M. Tang**, H. Pang, J. Huang, and L. 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. (CCF A)

9. **M. Tang**, L. Gao, H. Pang, J. Huang and L. Sun, "Optimizations and Economics of Crowdsourced Mobile Streaming," *IEEE Communications Magazine*, vol. 55, no. 4, pp. 21 - 27, Apr. 2017. (SCI一区)

- Conference Publications

  1. **M. Tang** and V. W.S. Wong, "Tackling System Induced Bias in Federated Learning: Stratification and Convergence Analysis," *Proc. IEEE International Conference on Computer Communications (INFOCOM)*, Accepted for Publication. (CCF A)

  2. **M. Tang** and V. 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. (CCF A)

  3. **M. Tang** and J. 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. (CCF A)

  4. **M. Tang**, S. Wang, L. Gao, J. Huang and L. 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. (CCF A)

  5. **M. Tang**, L. Gao, and J. Huang, "A General Framework for Crowdsourcing Mobile Communication, Computation, and Caching," *Proc. IEEE Global Communications Conference (GLOBECOM)*, Singapore, Singapore, Dec. 2017.

  6. **M. Tang**, L. Gao, H. Pang, J. Huang and L. 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.

  7. L. Gao, **M. Tang**, H. Pang, J. Huang, and L. Sun, "Performance Bound Analysis for Crowdsourced Mobile Video Streaming," *Proc. Conference on Information Systems and Sciences (CISS)*, Princeton, NJ, Mar. 2016.

  8. H. Pang, P. Wang, L. Gao, **M. Tang**, J. Huang and L. 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

Presentation

- Invited talk "Deep Reinforcement Learning for Task Offloading in Mobile Edge Systems" at IEEE SECON Workshop on the Economics of Fog, Edge and Cloud Computing, Sep. 2022.

Teaching

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

- CS 201 Discrete Mathematics for Computer Science (Spring 2022)
- CS 305 Computer Networking (Fall 2022)

- **Guest Lecturer**, Dept. of Electrical and Computer Engineering, The University of British Columbia

  - EECE 571G Blockchain Software Engineering (Spring 2020): Game Theory Fundamentals

- **Teaching Assistant**, Dept. of Information Engineering, The Chinese University of Hong Kong

  - IERG5330 Network Economics (Fall 2016, Fall 2018)
  - ESTR3302 Networks: Technology, Economics, and Social Interactions (Spring 2016)

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.

Awards

- **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 Open Journal of the Communications Society Area

- **Technical Program Committee (TPC) Members**

  - IEEE International Conference on Communications (ICC)
  - IEEE Wireless Communications and Networking Conference (WCNC)
  - IEEE 5G World Forum (5GWF)
  - International Teletraffic Congress (ITC)

- **Senior Technical Reviewers**

  - IEEE Open Journal of the Communications Society

- **Technical Reviewers**

  - IEEE Transactions on Mobile Computing (TMC)
  - IEEE Journal on Selected Areas in Communications (JSAC)
  - IEEE Transactions on Big Data (TBD)

- IEEE Transactions on Communications (TCOM)
- IEEE Internet of Things Journal (IoT)
- IEEE Transactions on Vehicular Technology (TVT)
- Frontiers in Communications and Networks
- IEEE International Conference on Computer Communications (INFOCOM)
- IEEE Wireless Communications and Networking Conference (WCNC)
- International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt)
- IEEE International Conference on Communications (ICC)