

# Shaojie Tang

---

Professor  
Director of the AI Center for Business  
Department of Management Science and Systems  
University at Buffalo School of Management

372 Jacobs Management Center  
Buffalo, NY 14260-4000  
shaojiet@buffalo.edu

**Erdős Number: 2**

## Education

Ph.D. Department of Computer Science, Illinois Institute of Technology, 2006-2012,

B.E. Department of Radio Engineering, Southeast University, Nanjing, 2002-2006

## Employment History

Director (2024–present): AI Center for Business, School of Management, University at Buffalo.

Professor (2024–present): Department of Management Science and Systems, School of Management, University at Buffalo.

Associate Professor (2020–2024): Naveen Jindal School of Management at UT Dallas.

Assistant Professor (2014–2020): Naveen Jindal School of Management at UT Dallas.

Research Assistant Professor (2012–2014): Department of Computer and Information Sciences at Temple University.

Internship (2008): Theory Group of Microsoft Research Asia.

## Selected Publications

### Selected Journal Papers

JOC “*Group Equality in Adaptive Submodular Maximization*”

S. Tang, and J. Yuan

INFORMS Journal on Computing (**JOC**), 2023.

JOC “*Federated Optimization under Intermittent Client Availability*”

Y. Yan, C. Niu, Y. Ding, Z. Zheng, S. Tang, Q. Li, F. Wu, C. Lyu, Y. Feng, and G. Chen

INFORMS Journal on Computing (**JOC**), 2023.

JoCO “*Beyond submodularity: a unified framework of randomized set selection with group fairness constraints*”

S. Tang, and J. Yuan

Journal of Combinatorial Optimization (**JoCO**), 2023.

JoCO “*Group fairness in non-monotone submodular maximization*”

J. Yuan, and S. Tang

Journal of Combinatorial Optimization (**JoCO**), 2023.

ISR “*When is More Merrier? A Cloud-Based Architecture to Procure Impressions from Multiple Ad-exchanges*”

L. Hosseini, S. Tang, and V. Mookerjee

Information Systems Research (**ISR**), 2024.

TCS “*Beyond Pointwise Submodularity: Non-Monotone Adaptive Submodular Maximization in Linear Time*”  
S. Tang

Theoretical Computer Science (**TCS**), 2021.

POM “*Cascade Submodular Maximization: Question Selection and Sequencing in Online Personality Quiz*”

S. Tang, and J. Yuan

Production and Operations Management (**POM**), 2020.

POM “*Blockchain-Enabled Data Sharing in Supply Chains: Model, Operationalization and Tutorial*”

Z. Wang, E. Zheng, W. Jiang, and S. Tang

Production and Operations Management (**POM**), 2020.

**Lead Article**

**Top Cited Article 2020-2021, 2021-2022, Production and Operations Management**

**Top Downloaded Article 2021-2022, Production and Operations Management**

ISR “*A Switch in Time Saves the Dime: A Model to Reduce Rental Cost in Cloud Computing*”

L. Hosseini, S. Tang, V. Mookerjee, and C. Sriskandarajah

Information Systems Research (**ISR**), 2019.

JOC “*Differentially-private Distributed Learning*”

Y. Zhou, and S. Tang (Equal Contribution.)

INFORMS Journal on Computing (**JOC**), 2019.

ORL “*Influence Maximization with Partial Feedback*”

S. Tang, and J. Yuan

Operations Research Letters (**ORL**), 2019

**The most cited article since 2019**

## Selected Conference Papers

KDD-24 “*Enhancing On-Device LLM Inference with Historical Cloud-Based LLM Interactions*”

Y. Ding, C. Niu, F. Wu, S. Tang, C. Lyu, and G. Chen

30th ACM SIGKDD Conference On Knowledge Discovery and Data Mining (**KDD**), 2024.

KDD-24 “*Fairness in Streaming Submodular Maximization Subject to a Knapsack Constraint*”

S. Cui, K. Han, S. Tang, F. Li, and J. Luo

30th ACM SIGKDD Conference On Knowledge Discovery and Data Mining (**KDD**), 2024.

AAIM-24 “*Submodular Participatory Budgeting*”

J. Yuan, and S. Tang

The 18th International Conference on Algorithmic Aspects in Information and Management (**AAIM**), 2024.

AAAI-24 “*Non-monotone Sequential Submodular Maximization*”

S. Tang, and J. Yuan

Thirty-Eighth AAAI Conference on Artificial Intelligence (**AAAI**), 2024.

- ICWSM-24 “*Submodular Optimization Beyond Nonnegativity: Adaptive Seed Selection in Incentivized Social Advertising*”  
S. Tang, and J. Yuan
- CIST-23 “*Managing Ad Campaigns on Digital Billboards under Supply Disruptions*”  
W. Zhu, S. Tang, and V. Mookerjee  
INFORMS Conference on Information Systems and Technology (**CIST**), 2023.
- COCOA-23 “*Data Summarization beyond Monotonicity: Non-monotone Two-Stage Submodular Maximization*”  
S. Tang  
The 16th Annual International Conference on Combinatorial Optimization and Applications (**COCOA**), 2023.
- UAI-23 “*Regularized Online DR-Submodular Optimization*”  
P. Zuo, Y. Wang, and S. Tang  
39th Conference on Uncertainty in Artificial Intelligence (**UAI**), 2023.
- CTW-23 “*Achieving Long-term Fairness in Submodular Maximization through Randomization*”  
S. Tang, J. Yuan, and T. Mensah-Boateng  
19th Cologne-Twente Workshop on Graphs and Combinatorial Optimization (**CTW**), 2023.
- AAMAS-23 “*Worst-Case Adaptive Submodular Cover*”  
J. Yuan, and S. Tang  
22nd International Conference on Autonomous Agents and Multiagent Systems (**AAMAS**), 2023.
- CIST-22 “*Winners, Losers, or Both: Should Ad-Exchanges Subsidize the Acquisition of Targeting Data in Ad Auctions?*”  
W. Zhu, S. Tang, and V. Mookerjee  
INFORMS Conference on Information Systems and Technology (**CIST**), 2022.
- CIST-22 “*Joint Advertising and Assortment Optimization Under Sequential Multinomial Logit Model*”  
C. Wang, Y. Wang, and S. Tang  
INFORMS Conference on Information Systems and Technology (**CIST**), 2022.
- NeurIPS-22 “*Federated Submodel Optimization for Hot and Cold Data Features*”  
Y. Ding, C. Niu, F. Wu, S. Tang, C. Lyu, Y. Feng, G. Chen  
Thirty-sixth Conference on Neural Information Processing Systems (**NeurIPS**), 2022.
- ICML-22 “*Fast and Provable Nonconvex Tensor RPCA*”  
H. Qiu, Y. Wang, S. Tang, D. Meng, and Q. Yao  
Thirty-ninth International Conference on Machine Learning (**ICML**), 2022.
- COLT-22 “*Improved Parallel Algorithm for Minimum Cost Submodular Cover Problem*”  
Y. Ran, Z. Zhang, and S. Tang  
The 35th Annual Conference on Learning Theory (**COLT**), 2022.

- KDD-22 “*On-Device Learning for Model Personalization with Large-Scale Cloud-Coordinated Domain Adaption*”  
Y. Yan, C. Niu, R. Gu, F. Wu, S. Tang, L. Hua, C. Lyu, and G. Chen  
28th ACM SIGKDD Conference On Knowledge Discovery and Data Mining (**KDD**), 2022.
- OSDI-22 “*Walle: A Device-Cloud Collaborative Engineering System in Alibaba for Industrial-Strength Machine Learning Tasks*”  
C. Lv, C. Niu, R. Gu, X. Jiang, Z. Wang, B. Liu, Z. Wu, Q. Yao, C. Huang, P. Huang, T. Huang, H. Shu, J. Song, B. Zou, P. Lan, G. Xu, F. Wu, S. Tang, F. Wu, and G. Chen  
16th USENIX Symposium on Operating Systems Design and Implementation (**OSDI**), 2022.
- AAAI-22 “*Optimal Sampling Gaps for Adaptive Submodular Maximization*”  
S. Tang, and J. Yuan  
Thirty-Sixth AAAI Conference on Artificial Intelligence (**AAAI**), 2022.
- ACDA '21 “*Non-monotone Adaptive Submodular Meta-Learning*”  
S. Tang, and J. Yuan  
SIAM Conference on Applied and Computational Discrete Algorithms (**ACDA**), 2021.
- ISAAC '21 “*Adaptive Regularized Submodular Maximization*”  
S. Tang, and J. Yuan  
The 32nd International Symposium on Algorithms and Computation (**ISAAC**), 2021.
- WiOpt '21 “*Data-Free Evaluation of User Contributions in Federated Learning*”  
H. Lv, Z. Zheng, F. Wu, T. Luo, S. Tang, L. Huang, R. Jia, and C. Lv  
The 19th International Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (**WiOpt**), 2021.
- SIGMETRICS-21 “*Approximation Algorithms for Submodular Data Summarization with a Knapsack Constraint*”  
K. Han, S. Cui, T. Zhu, E. Zhang, B. Wu, Z. Yin, T. Xu, S. Tang, and H. Huang  
The 2021 ACM SIGMETRICS (**SIGMETRICS**), 2021.
- AAAI-21 “*Toward Understanding the Influence of Individual Clients in Federated Learning*”  
Y. Xue, C. Niu, Z. Zheng, S. Tang, C. Lyu, F. Wu, and G. Chen  
Thirty-Fifth AAAI Conference on Artificial Intelligence (**AAAI**), 2021.
- AAMAS-21 “*Adaptive Cascade Submodular Maximization*”  
S. Tang, and J. Yuan  
20th International Conference on Autonomous Agents and Multiagent Systems (**AAMAS**), 2021.
- WITS-21 “*Subsidizing the Advertisers Data Acquisition in Targeted Advertising*”  
W. Zhu, V. Mookerjee, and S. Tang  
The 31st Workshop on Information Technology and Systems (**WITS**), 2021.
- CIST-20 “*Optimal Information Selling Mechanism Considering the Ad Selection Behavior of Advertisers*”  
W. Zhu, S. Tang, and V. Mookerjee  
INFORMS Conference on Information Systems and Technology (**CIST**), 2020.
- MobiHoc '20 “*Optimizing Ad Allocation in Mobile Advertising*”

S. Tang, J. Yuan, and V. Mookerjee

International Symposium on Theory, Algorithmic Foundations, and Protocol Design for Mobile Networks and Mobile Computing  
(**ACM MobiHoc**), 2020.

MobiCom '20 “*Billion-Scale Federated Learning on Mobile Clients: A Submodel Design with Tunable Privacy*”

C. Niu, F. Wu, S. Tang, L. Hua, R. Jia, C. Lv, Z. Wu, and G. Chen

The 26th Annual International Conference on Mobile Computing and Networking (**MobiCom**), 2020

CIST-19 “*Is More Always Merrier? Procuring Impressions from Multiple Ad-exchanges*”

L. Hosseini, S. Tang, and V. Mookerjee

INFORMS Conference on Information Systems and Technology (**CIST**), 2019

INFOCOM '19 “*Making Big Money from Small Sensors: Trading Time-Series Data under Pufferfish Privacy*”

C. Niu, Z. Zheng, F. Wu, S. Tang, and X. Gao

IEEE International Conference on Computer Communications (**IEEE INFOCOM**), 2019.

MobiHoc '18 “*Discount Allocation for Revenue Maximization in Online Social Networks*”

K. Han, Y. He, F. Gui, S. Tang, H. Huang, and J. Luo

The ACM International Symposium on Mobile Ad Hoc Networking and Computing  
(**ACM MobiHoc**), 2018.

KDD-18 “*Unlocking the Value of Privacy: Trading Aggregate Statistics over Private Correlated Data*”

C. Niu, Z. Zheng, F. Wu, S. Tang, X. Gao, and G. Chen

24th SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**), 2018.

MobiHoc '17 “*An Online Pricing Mechanism for Mobile Crowdsensing Data Markets*”

Z. Zheng, Y. Peng, F. Wu, S. Tang, and G. Chen

The ACM International Symposium on Mobile Ad Hoc Networking and Computing  
(**ACM MobiHoc**), 2017.

MobiHoc '17 “*Online Pricing for Mobile Crowdsourcing with Multi-Minded Users*”

K. Han, Y. He, H. Tan, S. Tang, H. Huang, and J. Luo

The ACM International Symposium on Mobile Ad Hoc Networking and Computing  
(**ACM MobiHoc**), 2017.

MobiHoc '17 “*Adaptive Discount Allocation in Social Networks*”

J. Yuan and S. Tang

The ACM International Symposium on Mobile Ad Hoc Networking and Computing  
(**ACM MobiHoc**), 2017.

AAAI-17 “*Profit-driven Team Grouping in Social Networks*”

S. Tang

Thirty-First AAAI Conference on Artificial Intelligence (**AAAI**), 2017.