

Haoyue TANG

PERSONAL DATA

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EDUCATION

NOV 2017-JAN **Tsinghua University**, Beijing, China
PhD in Information and Communication
Topic: Scheduling to Minimize Age of Information in Stochastic Networks
Advisor: Prof. Jintao Wang
AUG 2013-JUL 2017 **Tsinghua University**, Beijing, China
Bachelor of Engineering | Department of Electronic Engineering
FALL 2015/16 Technische Universität München, Bayern, Deutschland
Exchange Student in the Department of Electrical and Computer Engineering

EMPLOYMENT

JAN 2022-NOW **Postdoctoral Associate, Yale University**
Advisor: Prof. Leandros Tassiulas
NOV 2021-DEC 2021 **Research Intern, Database Group, Tencent**
Supported by the “Tencent Wizz Bird Elite Student Programme”
Working on Adaptive Network Scheduling and Load Balancing
NOV 2020-OCT 2021 **Research Intern, Machine Learning Group, Microsoft Research Asia**
Working on Generation Models, Causal Inference, Reinforcement Learning
JAN 2019-MAR 2019 **Visiting Student, Telecom Paris**
Supervisor: Prof. Michèle Wigger and Prof. Philippe Ciblat

RESEARCH INTERESTS

Stochastic Approximation, Federated Learning, Data Driven Decision Making, Stochastic Networks

PUBLICATIONS

* denote undergraduate students working on projects with me

H. Tang, J. Wang, L. Song and J. Song, “Minimizing Age of Information With Power Constraints: Multi-User Opportunistic Scheduling in Multi-State Time-Varying Channels,” in *IEEE Journal on Selected Areas in Communications*, vol. 38, no. 5, pp. 854-868, May 2020.

H. Tang, J. Wang, Z. Tang and J. Song, “Scheduling to Minimize Age of Synchronization in Wireless Broadcast Networks With Random Updates,” in *IEEE Transactions on Wireless Communications*, vol. 19, no. 6, pp. 4023-4037, June 2020.

H. Tang, J. Wang and L. He, “Off-Grid Sparse Bayesian Learning-Based Channel Estimation for MmWave Massive MIMO Uplink,” in *IEEE Wireless Communications Letters*, vol. 8, no. 1, pp. 45-48, Feb. 2019.

H. Tang, Y. Chen, J. Wang, J. Sun and J. Song, “Sending Timely Status Updates through Channel with Random Delay via Online Learning”, accepted Infocom2022

H. Tang, X. Hou, J. Wang and J. Song, “Joint Link Rate Selection and Channel State Change Detection in Block-Fading Channels”, accepted Globecom2021

H. Tang, P. Ciblat, J. Wang, M. Wigger and R. Yates, “Cache Updating Strategy Minimizing the Age of Information with Time-Varying Files’ Popularities. ,” 2020 IEEE Information Theory Workshop (ITW), 2021, pp. 1-5.

H. Tang, P. Ciblat, J. Wang, M. Wigger and R. Yates, “Age of Information Aware Cache Updating with File- and Age-Dependent Update Durations,” *2020 18th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOPT)*, Volos, Greece, 2020, pp. 1-6.

H. Tang, J. Wang, L. Song and J. Song, “Scheduling to Minimize Age of Information in Multi-State Time-Varying Networks with Power Constraints,” *2019 57th Annual Allerton Conference on Communication, Control, and Computing (Allerton)*, Monticello, IL, USA, 2019.

H. Tang, J. Wang, Z. Tang and J. Song, “Scheduling to Minimize Age of Synchronization in Wireless

Broadcast Networks with Random Updates,” *2019 IEEE International Symposium on Information Theory (ISIT)*, Paris, France, 2019, pp. 1027-1031.

H. Tang, J. Wang and Y. R. Zheng, “Covert communications with extremely low power under finite block length over slow fading,” *IEEE INFOCOM 2018 - IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS)*, Honolulu, HI, 2018, pp. 657-661.

H. Tang, J. Wang and L. He, “Mutual information maximization for optimal spatial modulation MIMO system,” *2017 IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB)*, Cagliari, 2017, pp. 1-4.

Y. Chen*, **H. Tang**, J. Wang, “Optimizing Age of Information in Multicast Unilateral Networks”, *2020 IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB)*, Virtual, 2020, pp. 1-4.

Y. Chen*, **H. Tang**, J. Wang, “Optimizing Age Penalty in Time-Varying Networks with Markovian and Error-Prone Channel State”, *Entropy*, vol. 23, no. 1, p. 91, Jan. 2021

W. Zhan*, **H. Tang**, J. Wang, “Delay Optimal Cross-Layer Scheduling Over Markov Channels with Power Constraint”, *2020 IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB)*, Virtual, 2020, pp. 1-4.

Q. Zhang*, **H. Tang** and J. Wang, “Minimizing the Age of Synchronization in Power-Constrained Wireless Networks with Unreliable Time-Varying Channels,” *IEEE INFOCOM 2020 - IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS)*, Toronto, ON, Canada, 2020, pp. 936-941.

Y. Tan*, **H. Tang**, J. Wang and J. Song, “Early Drop: A Packet-Dropping Incentive Rate Control Mechanism to Keep Data Fresh under Heterogeneous QoS Requirements,” *2021 IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB)*, Chengdu, China, 2021, accepted.

C. Liu, **H. Tang**, T. Qin, J. Wang, Tie-Yan Liu, “ On the Generative Utility of Cyclic Conditionals, ” accepted and to appear NeurIPS 2021.

C. Liu, X. Sun, J. Wang, **H. Tang**, T. Li, T. Qin, W. Chen, and T. Liu, “Learning Causal Semantic Representation for Out-of-Distribution Prediction”, accepted and to appear NeurIPS 2021

TEACHING AND MENTORING

Thesis and Student Research Training (SRT) Supervising:

Yuchao Chen	now PhD student@Tsinghua University (with Prof. Jintao Wang)
Chenghao Deng	now PhD student@the University of Maryland, College Park (with Prof. Sennur Ulukus)
Wenhao Zhan	previously UGVR participant (with Prof. Ayfer Ozgur, 1/14 mainland China) now PhD student@Princeton (with Prof. Yuxin Chen and Jason Lee)
Qining Zhang	now PhD student@University of Michigan (with Prof. Lei Ying)
Yiqin Tan	now master student@IIIS, Tsinghua University (with Prof. Longbo Huang)
Xinyu Hou	currently doing Master Thesis

Guest Lecture Data Freshness Metrics in Communications

@ Tsinghua Undergraduate Backbone Course “Communications and Networks”

TA “Communication Signal Processing”, 2020.02-07

Tutor Department of Electrical Engineering, Tsinghua University, 2017.09-2019.07

Tutor Tsinghua University Sports Team, Tsinghua University, 2019.07-2020.07

Captain Tsinghua University Rhythmic Gymnastic Team, Tsinghua University, 2017.09-2019.01,
leading the team won “Tsinghua Excellent Sports Team” and National Champion

INVITED TALKS

Online Sampling for Freshness Optimization

Seminar, Institute of Network Science, Yale University

01/2022

Data Freshness oriented Scheduling in Time-Varying Networks

Young Researcher Forum at Sun Yat-Sen University

12/2019

Seminar, School of Information Science, Shanghai University of Science and Technology

10/2021

AWARDS

JAN. 2022 Excellent Graduate of Beijing
DEC. 2021 Women in Communications Engineering (WICE) Travel Grant for Globecom2021
DEC. 2021 Microsoft Research Asia “Stars of Tomorrow” Excellent Intern
APR. 2021 Tencent “Wizz Bird” Elite Research Student Program
DEC. 2020 Stars of Haiying (awarded to PhD candidates in Haidian District, top 1 in each department)
OCT. 2020 National Scholarship (top 2% in EE Department)
OCT. 2020 Undergraduate Student Research Training First Prize (to my students Q. Zhang and W. Zhan)
NOV. 2019 Best Paper Award, Department of Electronic Engineering PhD Forum, Tsinghua University
SEP. 2019 First Class Scholarship for Comprehensive Excellence, Tsinghua University
JUL. 2019 “Deng-Feng” Travel Award, Tsinghua University (for ISIT2019)
APR. 2019 Stars of EE Department (Highest Honor for Graduate Student in EE Department
 for Research Excellence and Specialities), Tsinghua University
OCT. 2016 Zhou Huiqi Scholarship, Tsinghua University
MAY. 2015 China Scholarship Council Excellent **Undergraduate** Fellowship
Nov. 2012 Silver Medal in 29th National Physics Olympics Contest(Ranking 61 out of 92000)

SERVICES

Committee: Yale postdoc symposium, 2022
Member: Tsinghua University Graduate Student Advisory Committee
Reviewer: IEEE JSAC, TComm, TWC, CL, ICC, ISIT
Co-Organizer: Tsinghua EE Department Seminars (with my advisor Prof. Jintao Wang) Spring 2020-Now

LANGUAGES

ENGLISH: TOEFL 105 (Reading 28 Listening 25 Speaking 23 Writing 29)
DEUTSCH: Intermediate Knowledge(B1 Standard), CET-4 passed