# Haoyue TANG

## PERSONAL DATA

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| HOMEPAGE: | https://loveisbasa.github.io/thy.github.io/index.html |
| PHONE: | +86 189-368-77906(CHN) |
| EMAIL: | tanghaoyue13@tsinghua.org.cn |

## EDUCATION

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|---|---|
| NOV 2017-DEC 2021 (expected) | **Tsinghua University**, Beijing, China<br>PhD in Information and Communication<br>Topic: Scheduling to Minimize Age of Information in Stochastic Networks<br>Advisor: Prof. Jintao Wang |
| AUG 2013-JUL 2017 | **Tsinghua University**, Beijing, China<br>Bachelor of Engineering \| Department of Electronic Engineering |
| FALL 2015/16 | Technische Universität München, Bayern, Deutschland<br>Exchange Student in the Department of Electrical and Computer Engineering |

## EXPERIENCE

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

## RESEARCH INTERESTS

Age of Information, Stochastic Network Optimization, Causal Inference, Reinforcement Learning

## 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:**

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|---|---|
| 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 |

## Awards

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| Dec. 2021 | Microsoft Research Asia "Stars of Tomorrow" Excellent Intern |
| Apr. 2021 | Tencent "Wizz Bird" Elite Research Student Programme (on Adaptive Network Scheduling) |
| Dec. 2020 | Stars of Haiying (awarded to phD candidates in Haidian District, 1 in each department) |
| Oct. 2020 | National Scholarship |
| 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 Olymplics Contest(Ranking 61 out of 92000) |

## Services

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| 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

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