

# Yuhao Wang

website <https://yuhaow.github.io>

## APPOINTMENTS

### *Assistant Professor*

Institute of Interdisciplinary Information Sciences, Tsinghua University, Beijing, China 08/2020 - present

### *Research Affiliate*

Shanghai Qi Zhi Institute, Shanghai, China 08/2020 - present

### *Research Associate*

Statistical Laboratory, University of Cambridge, Cambridge, UK 08/2019 - 07/2020  
Advisor: Professor Rajen Shah

## EDUCATION

### *Doctor of Philosophy*

Department of EECS, Massachusetts Institute of Technology, Cambridge, MA, USA 06/2019  
Advisor: Professor Caroline Uhler

### *Master of Science*

Department of EECS, Massachusetts Institute of Technology, Cambridge, MA, USA 06/2016  
Advisor: Professor Bonnie Berger

### *Bachelor of Engineering*

Department of Automation, Tsinghua University, Beijing, China 07/2014

## MAIN RESEARCH INTERESTS

*causal inference, high-dimensional statistics, experimental design.*

## AWARDS

Forbes China 30 under 30 (2021) 09/2021

## PUBLICATIONS

(\*: equal contribution or alphabetical order)

### Submitted for Review

- Kaiyue Wen\*, Tengyao Wang\* and **Y. Wang**. *Residual permutation test for high-dimensional regression coefficient testing*, preprint arXiv:2211.16182
- Guido Imbens\*, Nathan Kallus\*, Xiaojie Mao\*, **Y. Wang\***. *Long-term causal inference under persistent confounding via data combination*, in revision at Journal of the Royal Statistical Society: Series B, preprint arXiv:2202.07234
- **Y. Wang\***, Weiming Zhu\*. *Profit-driven experimental design*, preprint at SSRN:<https://ssrn.com/abstract=3896229>
- **Y. Wang**, Rajen D. Shah. *Debiased inverse propensity score weighting for estimation of average treatment effects with high-dimensional confounders*, preprint arXiv:2011.08661

### Referred Publications

- **Y. Wang**, Xinran Li. *Rerandomization with diminishing covariate imbalance and diverging number of covariates*, The Annals of Statistics 50.6 (2022): 3439-3465.

- Madeline Navarro, **Y. Wang**, Antonio G. Marques, Caroline Uhler and Santiago Segarra. *Joint inference of multiple graphs from matrix polynomials*, Journal of Machine Learning Research 23.76 (2022): 1-35.
- Alexandra Carpentier\*, Olivier Collier\*, Laetitia Comminges\*, Alexandre B. Tsybakov\*, **Y. Wang\***. *Estimation of the  $\ell_2$ -norm and testing in sparse linear regression with unknown variance*, Bernoulli 28.4 (2022): 2744-2787.
- Liam Solus, **Y. Wang**, Caroline Uhler. *Consistency guarantees for greedy permutation-based causal inference algorithms*, Biometrika 108.4 (2021): 795-814.
- **Y. Wang**, Uma Roy, Caroline Uhler. *Learning High-dimensional Gaussian Graphical Models under Total Positivity without Adjustment of Tuning Parameters*, International Conference on Artificial Intelligence and Statistics, Virtual online, Aug. 26-28, 2020.
- Basil Saeed, Anastasiya Belyaeva, **Y. Wang**, Caroline Uhler. *Anchored causal inference in the presence of measurement error*, UAI 2020.
- Chandler Squires, **Y. Wang**, Caroline Uhler. *Permutation-based causal structure learning with unknown intervention targets*, UAI 2020.
- **Y. Wang**, Santiago Segarra, Caroline Uhler. *High-dimensional joint estimation of multiple directed Gaussian graphical models*, Electronic Journal of Statistics 14.1 (2020): 2439-2483.
- Alexandra Carpentier\*, Olivier Collier\*, Laetitia Comminges\*, Alexandre B. Tsybakov\*, **Y. Wang\***. *Minimax rate of testing in sparse linear regression*, Automation and Remote Control 80.10 (2019): 1817-1834. (special issue in memory of Yakov Tsyppkin)
- **Y. Wang**, Chandler Squires, Anastasiya Belyaeva, Caroline Uhler. *Direct estimation of differences in causal graphs*, NeurIPS 2018.
- **Y. Wang**, Liam Solus, Karren D. Yang, Caroline Uhler. *Permutation-based causal inference algorithms with interventions*, NeurIPS 2017.
- Santiago Segarra, **Y. Wang**, Caroline Uhler, Antonio G Marques. *Joint inference of networks from stationary graph signals*, Asilomar Conference on Signals, Systems, and Computers 2017.
- Yaron Orenstein, **Y. Wang**, Bonnie Berger. *RCK: accurate and efficient inference of sequence and structure-based protein-RNA binding models from RNAcompete data*, Bioinformatics 32.12 (2016): i351-i359.
- Xin He\*, A. Ercument Cicek\*, **Y. Wang\***, Marcel H. Schulz, Hai-Son Le, Ziv Bar-Joseph. *De novo ChIP-seq analysis*, Genome biology 16.1 (2015): 205.
- **Y. Wang**, Jianyang Zeng, *Predicting drug-target interactions using restricted Boltzmann machines*, Bioinformatics 29.13 (2013): i126-i134.

## TEACHING EXPERIENCE

<b>Course Instructor</b> 30470303-0 Probability and Statistics (English), Tsinghua University	09/2020 -
<b>Course Instructor</b> 80470282-0 Advanced Topics in Causal Inference (English), Tsinghua University	02/2021 -
<b>Teaching Assistant</b> 6.867 Machine Learning, Massachusetts Institute of Technology	09/2016 – 01/2017

## INTERNSHIP EXPERIENCE

### Student Intern

07/2013 – 08/2013

School of Computer Science, Carnegie Mellon University. Advisor: Professor. Ziv Bar-Joseph

### Undergraduate Research Assistant

2012.9 – 2013.3

Institute for Interdisciplinary Information Sciences, Tsinghua University. Advisor: Professor Jianyang Zeng

## CONFERENCES AND INVITED TALKS

- Root-n consistent estimators for average treatment effect with minimal sparsity,  
Online Causal Inference Seminar (virtual). 05/2023  
- Discussant: Professor Rajarshi Mukherjee (Harvard University)
- Residual permutation test for high-dimensional regression coefficient testing,  
International Seminar on Selective Inference (virtual). 02/2023  
- Discussant: Professor Panos Toulis (University of Chicago)
- Statistics and Data Science Seminar, Center for Statistical Science, Peking University, Beijing, China  
(virtual). 12/2022
- Long-term causal inference under persistent confounding via data combination,  
International Conference of the ERCIM WG on Computational and Methodological Statistics (CM-  
Statistics), London, UK (virtual). 12/2022
- IIM Seminar, HKU Business School, University of Hong Kong, Hong Kong, China (virtual). 06/2022
- Forum on Frontiers in Statistics and Data Analysis, Xiamen University and Tianyuan Mathematical  
Center in Southeast China, Xiamen, Fujian, China (virtual). 04/2022
- Tsinghua Logic Salon, Tsinghua University, Beijing, China. 04/2022
- Debiased inverse propensity score weighting for estimation of average treatment effects with high-dimensional  
confounders,  
Joint Econometrics and Statistics Seminar Series, the London School of Economics and Political Sci-  
ence, London, UK (virtual). 02/2022
- Seminar at School of Mathematical Sciences, Shanghai Jiao Tong University, Shanghai, China. 07/2021
- Young Data Science Researcher Seminar, ETH Zurich, Zurich, Switzerland (virtual). 06/2021
- Seminar at Center for Statistical Science, Tsinghua University, Beijing, China. 03/2021
- Hong Kong Machine Learning Meetup, Hong Kong, China (virtual). 02/2021
- Seminar of Statistics at ENSAE-CREST, Paris, France (virtual). 11/2020
- Pacific Causal Inference Conference, Peking University, Beijing, China (virtual). 09/2020
- Discussion of “A machine learning approach for causal structure estimation in high dimensions”,  
Online Causal Inference Seminar (virtual). 01/2022
- Profit-driven experimental design,  
Informs 2021 Invited Session Experiments and Computational Social Science, Anaheim, CA, USA  
(virtual). 10/2021
- Shanghai Jiao Tong University Summer School, Shanghai, China. 07/2021
- Learning high-dimensional Gaussian graphical models under total positivity without tuning parameters,  
Machine Learning Theory Workshop, Peking University, Beijing, China. 06/2019
- Seminar at Barcelona Graduate School of Economics, Barcelona, Spain. 05/2019

Provable algorithms for statistical challenges in data driven decision making, Seminar at Krannert School of Management, Purdue University, West Lafayette, IN, USA.	02/2019
Seminar at iDDA, The Chinese University of Hong Kong (Shenzhen), Shenzhen, China.	01/2019
Seminar at IIIS, Tsinghua University, Beijing, China.	12/2018
Direct estimation of differences in causal graphs, International Conference of the ERCIM WG on Computational and Methodological Statistics (CM-Statistics), Pisa, Italy.	12/2018
Robust estimation of high-dimensional graphical models under total positivity, MIT Applied Algebra Day, Cambridge, MA, USA.	11/2018
Permutation-based causal inference algorithms with interventions, NeurIPS spotlight presentation, Long Beach, CA, USA.	12/2017

## ACADEMIC SERVICE

### Editorial board reviewer

Journal of Machine Learning Research	2020 - present
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### Journal reviewer

Annals of Statistics; Biometrika; Journal of the American Statistical Association; Journal of Machine Learning Research; Biometrics; SIAM Journal on Mathematics of Data Science etc.

### Conference organizing committee

IJCAI 2021; AAAI 2023

### Conference reviewer

ICML 2018; NeurIPS 2018; ICML 2019; NeurIPS 2019; AAAI 2020; ICLR 2020; STOC 2020; UAI 2020 etc.

### Memberships

Institute of Mathematical Statistics