# 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**

- **Y. Wang** and Xinran Li. *Asymptotic theory of the best-choice rerandomization using the Mahalanobis distance*, minor revision at Journal of Econometrics, preprint arXiv:2312.02513

- Xin Lu, Fan Yang and **Y. Wang**. *Debiased regression adjustment in completely randomized experiments with moderately high-dimensional covariates*, major revision at the Annals of Statistics, preprint arXiv:2309.02073

- Lin Liu* and **Y. Wang**\*. *Root-n consistent semiparametric learning with high-dimensional nuisance functions under minimal sparsity*, preprint arXiv:2305.04174

- Kaiyue Wen*, Tengyao Wang* and **Y. Wang**. *Residual permutation test for high-dimensional regression coefficient testing*, major revision at the Annals of Statistics, preprint arXiv:2211.16182

- **Y. Wang**\*, Weiming Zhu*. *Profit-driven experimental design*, preprint at SSRN:`https://ssrn.com/abstract=3896229`

**Referred Publications**

- Guido Imbens*, Nathan Kallus*, Xiaojie Mao*, **Y. Wang***. *Long-term causal inference under persistent confounding via data combination,* Journal of the Royal Statistical Society, Series B (accepted).

- **Y. Wang**, Rajen D. Shah. *Debiased inverse propensity score weighting for estimation of average treatment effects with high-dimensional confounders,* The Annals of Statistics (accepted).

- **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 Tsypkin)

- **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

**Course Instructor**                                                                                      09/2020 -
30470303-0 Probability and Statisticcs (English), Tsinghua University

**Course Instructor**                                                                                      02/2021 -
80470282-0 Advanced Topics in Causal Inference (English), Tsinghua University

**Teaching Assistant**                                                    09/2016 – 01/2017
6.867 Machine Learning, Massachusetts Institute of Technology

## 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,
    Statistics and Data Science Seminar Series, London School of Economics, London, UK    05/2024

    Meetings in Mathematical Statistics, C.I.R.M., Marseille, France     12/2023

    Seminar at Statistical Laboratory, University of Cambridge, Cambridge, UK    09/2023

    Seminar at Department of Statistics, University of Warwick, Coventry, UK    09/2023

    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,
    Workshop on complex time series analysis, TSIMF, Sanya, China.      01/2024

    Algebraic economics workshop, IMSI, Chicago, USA.                   11/2023

    CMStatistics, London, UK (virtual).                                 12/2022
        - Session Chair: Professor Lin Liu (Shanghai Jiaotong University)

    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
  - Session Chair: Professor Marloes Maathuis (ETH Zurich)

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

**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