

# Yaqi Duan

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## ACADEMIC POSITIONS

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| <b>Massachusetts Institute of Technology</b>   | Cambridge, MA |
| Postdoc, hosted by Professor Martin J. Wainwright  | 2022 – 2023   |
| <b>New York University, Stern School of Business</b>                                     | New York, NY  |
| Incoming Assistant Professor in the Department of Technology, Operations, and Statistics | 2023 –        |

## EDUCATION

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| <b>Princeton University</b>                            | Princeton, NJ  |
| Ph.D. in Operations Research and Financial Engineering | 2017 – 2022    |
| <b>Peking University</b>                               | Beijing, China |
| B.S. in Mathematics                                    | 2013 – 2017    |

## SELECTED AWARDS AND HONORS

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| • IMS Lawrence D. Brown Ph.D. Student Award, <i>Institute of Mathematical Statistics</i> | 2023      |
| • EECS Rising Star, <i>Massachusetts Institute of Technology</i>                         | 2021      |
| • Gordon Y. S. Wu Fellowship in Engineering, <i>Princeton University</i>                 | 2017-2021 |

## PUBLICATIONS AND PREPRINTS

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### Journal publications and preprints

- Policy evaluation from a single path: Multi-step methods, mixing and mis-specification.  
**Duan, Y.**, Wainwright, M. J.  
*arXiv:2211.03899*.
- Optimal policy evaluation using kernel-based temporal difference methods.  
**Duan, Y.**, Wang, M., Wainwright, M. J.  
*arXiv:2109.12002*. [2023 IMS Lawrence D. Brown Ph.D. Student Award](#)
- Adaptive and robust multi-task learning.  
**Duan, Y.**, Wang, K.  
*arXiv:2202.05250*.
- Adaptive low-nonnegative-rank approximation for state aggregation of Markov chains.  
**Duan, Y.**, Wang, M., Wen, Z., Yuan, Y.  
*SIAM Journal on Matrix Analysis and Applications (SIMAX)*, 41(1):pp. 244-278, 2020.
- Learning good state and action representations via tractable tensor decomposition.  
Ni, C., Zhang, A., **Duan, Y.**, Wang, M.  
Minor revision at *Journal of Machine Learning Research (JMLR)*, 2022+.

## Conference publications and preprints

- Near-optimal offline reinforcement learning with linear representation: leveraging variance information with pessimism.  
Yin, M., **Duan, Y.**, Wang, M., Wang, Y.  
*International Conference on Learning Representations (ICLR) 2022.*
- Risk bounds and Rademacher complexity in batch reinforcement learning.  
**Duan, Y.**, Jin, C., Li, Z.  
*International Conference on Machine Learning (ICML) 2021.*
- Bootstrapping statistical inference for off-policy evaluation.  
Hao, B., Ji, X., **Duan, Y.**, Lu, H., Szepesvári, C., Wang, M.  
*International Conference on Machine Learning (ICML) 2021.*
- Sparse feature selection makes reinforcement learning more sample efficient.  
Hao, B., **Duan, Y.**, Lattimore, T., Szepesvári, C., Wang, M.  
*International Conference on Machine Learning (ICML) 2021.*
- Learning good state and action representations via tractable tensor decomposition.  
Ni, C., Zhang, A., **Duan, Y.**, Wang, M.  
*IEEE International Symposium on Information Theory (ISIT) 2021.*
- Minimax-optimal off-policy evaluation with linear function approximation.  
**Duan, Y.**, Wang, M.  
*International Conference on Machine Learning (ICML) 2020.*
- State aggregation learning from Markov transition data.  
**Duan, Y.**, Ke, Z., Wang, M.  
*Conference on Neural Information Processing Systems (NeurIPS) 2019.*
- Learning low-dimensional state embeddings and metastable clusters from time series data.  
Sun, Y., **Duan, Y.**, Gong, H., Wang, M.  
*Conference on Neural Information Processing Systems (NeurIPS) 2019.*

## PRESENTATIONS

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| • The 2022 INFORMS Annual Meeting  | Oct. 2022 |
| • The 2021 INFORMS Annual Meeting  | Oct. 2021 |
| • Cornell ORIE Young Researcher Workshop 2021                                      | Oct. 2021 |
| • The 2021 CORS Annual Conference, Canadian Operational Research Society (virtual) | June 2021 |
| • Institute for Artificial Intelligence, Peking University (virtual)               | Dec. 2020 |
| • School of Mathematical Sciences, Peking University (virtual)                     | Oct. 2020 |
| • The 2020 INFORMS Annual Meeting (virtual)  | Nov. 2020 |
| • Beijing International Center for Mathematical Research (BICMR)                   | Nov. 2019 |
| • Cornell ORIE Young Researcher Workshop 2019                                      | Oct. 2019 |
| • Applied Math Days at Rensselaer Polytechnic Institute                            | Apr. 2019 |

## **PROFESSIONAL SERVICES**

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INFORMS 2020 session co-chair: Statistical reinforcement learning from batch data;  
Reinforcement learning and bandit algorithms

Reviewer & programming committee member for:

Annals of Statistics, NeurIPS 2021 & 2020, ICML 2022, 2021 & 2020, AISTATS 2021,  
ICLR 2021, IEEE ISIT 2021 & 2020, CISS 2020, ICML 2021 workshop on reinforcement  
learning theory, ICML 2020 workshop on theoretical foundations of reinforcement learning

## **TEACHING EXPERIENCES**

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Graduate teaching assistants for:

ORF 245 - *Fundamentals of Statistics*: Spring 2021, Fall 2019, Spring 2019

ORF 309 - *Probability and Stochastic Systems*: Fall 2020

ORF 473 - *Financial Technology and Data-Driven Innovation*: Spring 2020

ORF 363 - *Computing and Optimization for the Physical and Social Sciences*: Fall 2018