

# YAQI DUAN

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## ACADEMIC POSITIONS

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

### Journal publications and preprints

- Taming “data-hungry” reinforcement learning? Stability in continuous state-action spaces.  
**Duan, Y.**, Wainwright, M. J.  
*arXiv:2401.05233*.
- Policy evaluation from a single path: Multi-step methods, mixing and mis-specification.  
**Duan, Y.**, Wainwright, M. J.  
*arXiv:2211.03899*.  
Preliminary version appeared in *Annual Learning for Dynamics & Control Conference (L4DC)* 2023.
- Optimal policy evaluation using kernel-based temporal difference methods.  
**Duan, Y.**, Wang, M., Wainwright, M. J.  
Major revision at *Annals of Statistics (AoS)*, 2023+.  
*2023 IMS Lawrence D. Brown Ph.D. Student Award*
- Adaptive and robust multi-task learning.  
**Duan, Y.**, Wang, K.  
*Annals of Statistics (AoS)*, 51(5): 2015-2039, 2023.
- Learning good state and action representations for Markov decision process via tensor decomposition.  
Ni, C., **Duan, Y.**, Dahleh, M., Wang, M., Zhang, A.  
*Journal of Machine Learning Research (JMLR)*, 24(115):1–53, 2023.  
Preliminary version appeared in *IEEE International Symposium on Information Theory (ISIT)* 2021.

- 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.

## Conference publications and preprints

- A finite-sample analysis of multi-step temporal difference estimates.  
**Duan, Y.**, Wainwright, M. J.  
*Annual Learning for Dynamics & Control Conference (L4DC)* 2023.
- 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 2023 INFORMS Annual Meeting	Oct. 2023
• The 2023 Joint Statistical Meetings	Aug. 2023
• 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
- The 2020 INFORMS Annual Meeting (virtual) Nov. 2020
- School of Mathematical Sciences, Peking University (virtual) Oct. 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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Journal review: Annals of Statistics (AoS), Journal of the Royal Statistical Society: Series B (JRSSB), Journal of the American Statistical Association (JASA), Journal of Machine Learning Research (JMLR);  
Conference review: ICML 2022, 2021 & 2020, NeurIPS 2021 & 2020, ICLR 2021, AISTATS 2021, IEEE ISIT 2021 & 2020, CISS 2020

## **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