YAQI DUAN

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ACADEMIC POSITIONS

New York University, Stern School of Business — New York, NY
Assistant Professor in the Department of Technology, Operations, and Statistics — 2023 –

Massachusetts Institute of Technology — Cambridge, MA
Postdoc, hosted by Professor Martin J. Wainwright — 2022 – 2023

EDUCATION

Princeton University — Princeton, NJ
Ph.D. in Operations Research and Financial Engineering — 2017 – 2022

Peking University — Beijing, China
B.S. in Mathematics — 2013 – 2017

SELECTED AWARDS AND HONORS

- IMS Lawrence D. Brown Ph.D. Student Award, *Institute of Mathematical Statistics* — 2023
- EECS Rising Star, *Massachusetts Institute of Technology* — 2021
- Gordon Y. S. Wu Fellowship in Engineering, *Princeton University* — 2017 – 2021

PUBLICATIONS AND PREPRINTS

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.
  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.
  Major revision at *Annals of Statistics (AoS), 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

- 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

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), Journal of Scientific Computing (JOSC);

Conference review: ICML 2022, 2021 & 2020, NeurIPS 2021 & 2020, ICLR 2021, AISTATS 2021, IEEE ISIT 2021 & 2020, CISS 2020

TEACHING EXPERIENCES

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