Duohan Zhang

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Education

University of Wisconsin-Madison *Madison, Wisconsin*

Department of Statistics, M.S. in Statistics and Data Science, GPA: 3.82/4.0 *Sept 2021 - May 2023*

- **Relevant coursework:** Statistical Learning(100, top 1); Theory of Probability I(94), a PhD-level course; Theory of Probability II(top 1), a PhD-level course; Introduction to Statistical Learning Inference(93); Learning Based Methods for Computer Vision: on-going.

University of Science and Technology of China *Hefei, China*

Department of Statistics, B.S. in Statistics, GPA: 86.47/100 *Sept 2018 - June 2022*

- **Relevant coursework:** Computer Programming(95); Real Analysis(100); Functional Analysis(93).

Research Interests

- Statistical/Machine Learning, (deep) Reinforcement Learning, Optimization, Data Science.

Publication

Robust On-Policy Sampling for Data-efficient Policy Evaluation.

Rujie Zhong, **Duohan Zhang**, Lukas Schäfer, Stefano V.Albrecht, Josiah P. Hanna.

Thirty-sixth Conference on Neural Information Processing Systems. December 2022.

Research Experience

Robust On-Policy Sampling-Proximal Policy Optimization algorithm *2022/7 - Present*

University of Wisconsin Madison. Advisor: Prof. Josiah Hanna.

- Investigated the core difficulty(function approximation) in generalizing ROS to complex environments, and proposed an off-policy algorithm(ROS-PPO) that could be more data-efficient than vanilla PPO.
- Showed that ROS-PPO can outperform vanilla-PPO in terms of data efficiency in simpler domains.

Robust On-Policy Sampling(ROS) *2021/12 - 2022/5*

University of Wisconsin Madison. Advisor: Prof. Josiah Hanna.

- Proposed an off-policy sampling algorithm(ROS) that can produce data that more closely matches the expected on-policy data distribution.
- Proved theoretically that ROS can produce data that converges(at the rate of $O_p(\frac{1}{m^2})$) faster to the expected on-policy distribution comparing with on-policy sampling.
- Showed empirically that the faster convergence in sampling error leads to lower mean squared error policy value estimates in both tabular settings and continuous-space settings.

Online forgetting process for moderate linear regression *2021/6 - 2021/8*

University of Science and Technology of China. Advisor: Prof. Xiao Guo.

- Proposed a moderate dimensional regression model in which past data has to be deleted required by privacy protection, while the number of features is increasing at the same time.
- Investigated the structure of the new regression model, and proposed the tool(Martingale) to find its asymptotic behavior.

Skills

Programming Python (Pandas, PyTorch, NumPy, Scikit-learn. etc.), R, C, HTML.

Miscellaneous Linux, Shell (Bash), LaTeX, GitHub.

Awards

2020 **Student Scholarship,** School of Management, USTC *China*

2019 **Student Scholarship,** School of Earth and Space Sciences, USTC *China*

Language Skills

English Professional proficiency, TOEFL iBT 100(Reading 26, Listening 23, Speaking 23, Writing 28).

GRE GRE Verbal 153(58%), Quantitative 170(96%), Analytical Writing 4.0(54%).