Jianfei Ma

Research Interests

Deep Reinforcement Learning, Optimization, Statistics

Education

Northwestern Polytechnical University — Shaanxi, Xi'an
Candidate for B.S. in Statistics — *Aug. 2019 – May 2023*

- Overall GPA: 3.74/4.1 (90.36/100)
- Rank: 1/24
- Major Courses: Mathematical Analysis, Linear Algebra, Real Analysis, Functional Analysis, Abstract Algebra, Probability, Mathematical Statistics, Stochastic Process, Optimization, Differential Geometry
- Other Courses: Reinforcement Learning, Statistical Learning, Machine Learning, Data Structures

Preprint

- Ma, J. Distillation Policy Optimization. (arXiv, 2023), https://arxiv.org/abs/2302.00533
- Ma, J. The Point to Which Soft Actor-Critic Converges. (arXiv, 2023), https://arxiv.org/abs/2303.01240
- Ma, J. Entropy Augmented Reinforcement Learning. (arXiv, 2022), https://arxiv.org/abs/2208.09322

Experience

Average-Reward Least Squares Temporal Difference Methods — Sep. 2022 – Dec. 2022
*Research Intern with **Shangtong Zhang*** — *University of Virginia*

- Extended average-reward off-policy LSTD(λ) based on MSPBE objectives
- Conducted convergence analysis of the algorithm

Meta Reinforcement Learning — Jan. 2022 – Jun. 2022
*Research Intern with **Yaodong Yang*** — *Peking University*

- Reproduced Bootstrapped Meta-Learning paper
- Extended BMG to different meta-learning frames – TorchOpt and MetaOptim

Combinatorial Optimization with Reinforcement Learning — Jan. 2022 – Apr. 2022
Student Researcher — *Northwestern Polytechnical University*

- Combined RL methods tackling shortest path problem
- Developed multi-agent model for sequential dispatch problem

Deep Learning for Thermodynamic Prediction — Oct. 2021 – Present
Main Contributor — *Northwestern Polytechnical University*

- Trained convolutional neural network predicting thermodynamic properties of materials
- Achieved speedup of the training process by dimensionality reduction method
- Utilized Von Neumann entropy for information quantification and interpretability

Projects

MagiOPT — Jun. 2022 – Jul. 2022

- A Unified Pytorch Optimizer for Numerical Optimization

Awards

ASC Student Supercomputer Challenge — Jan. 2022 – Mar. 2022

- Second Class Prize

Mathematical Contest In Modeling — Feb. 2021

- Honorable Mention

Skills

Programming Language: Python, C/C++, Bash, R, Matlab, Cuda
Framework & Tools: Git, LaTeX, Emacs, Pytorch, Tensorflow