

# Jianfei Ma



## RESEARCH INTERESTS

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Deep Reinforcement Learning, Optimization, Bayesian Inference, MCMC

## EDUCATION

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### 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

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- Ma, J. Entropy Augmented Reinforcement Learning. (arXiv,2022), <https://arxiv.org/pdf/2208.09322.pdf>

## EXPERIENCE

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### Average-Reward Least Squares Temporal Difference Methods

Sep. 2022 – Present

*Research Intern with Shangdong Zhang*

*University of Virginia*

- Focusing on off-policy LSTD( $\lambda$ ) based on MSPBE objective
- Conducting 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

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### MagiOPT

Jun. 2022 – Jul. 2022

- A Unified Pytorch Optimizer for Numerical Optimization

## AWARDS

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### ASC Student Supercomputer Challenge

Jan. 2022 – Mar. 2022

- Second Class Prize

### Mathematical Contest In Modeling

Feb. 2021

- Honorable Mention

## SKILLS

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**Programming Language:** Python, C/C++, R, Matlab, Cuda

**Framework & Tools:** Git, LaTeX, Emacs, Pytorch, Tensorflow