YUZE GE

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Homepage

EDUCATION

Fudan University, Shanghai, China   *Sep. 2023 – Present*
M.S. in Statistics

Fudan University, Shanghai, China   *Sep. 2019 – Jun. 2023*
B.S. in Data Science
GPA: 3.63/4.0

RESEARCH EXPERIENCE

Semismooth Newton Method for the Spectral Risk Minimization   *Jun. 2024 - Present*
Advised by Prof. Rujun Jiang   *Dept. Data Science, Fudan University, CN*

· The spectral risk (generally nonsmooth) penalizes the occurrence of extreme losses by assigning greater weights to sample points with extreme losses, rather than the same weights as in the empirical risk.
· Transformed the spectral risk minimization problem into solving a nonlinear equation and used the Semismooth Newton Method to achieve local quadratic convergence.
· Computationally, highly efficient methods for computing the generalized Jacobian and solving nonlinear equations were proposed. Theoretically, practical sufficient conditions for local quadratic convergence were presented, different from many papers that directly assume the BD-regularity.

Stochastic Optimization for Spectral Risks   *Dec. 2023 - Present*
Advised by Prof. Rujun Jiang   *Dept. Data Science, Fudan University, CN*

· The spectral risk (generally nonsmooth) penalizes the occurrence of extreme losses by assigning greater weights to sample points with extreme losses, rather than the same weights as in the empirical risk.
· Developed the first stochastic gradient-based algorithm with a near-optimal convergence rate for the spectral risk minimization problem.
· Two practical improvements: 1. Adopted the primal-dual algorithm framework to reduce the complexity of gradient evaluation. 2. Used a lazy dual update to reduce runtime (as each dual update requires computing a projection).

Nonsmooth Nonconvex Optimization for the Rank-based Loss   *Mar. 2023 - Nov. 2023*
Advised by Prof. Rujun Jiang   *Dept. Data Science, Fudan University, CN*

· A more general case than the spectral risk (generally nonsmooth nonconvex): sample points with higher losses are not necessarily assigned greater weights.
· Developed a novel algorithm for the rank-based loss minimization problem, based on the alternating direction method of multipliers (ADMM), and analyzed its convergence rate.
· Computationally, the ranking-related subproblem was efficiently solved by the pool adjacent violators algorithm (PAVA). Theoretically, the Moreau envelope smoothing technique was used to analyze the convergence rate. The propoesd algorithm can solve a wide range of rank-based problems.

Counter-argument Generation   *Oct. 2022 - Jan. 2023*
Advised by Prof. Zhongyu Wei   *Dept. Data Science, Fudan University, CN*

· Target: generate counter-arguments based on the given arguments.
· Created a new dataset for computational argumentation tasks based on Reddit.
· Fine-tuned BERT on the new dataset. Enhanced the model's performance by extracting key arguments and keywords from given arguments and using them as additional input to the model.

PUBLICATIONS

* denotes equal contributions.

Yuze Ge, Rujun Jiang. SOREL: A Stochastic Algorithm for Spectral Risks Minimization. *International Conference on Learning Representations, 2025.* [OpenReview], [Preprint]

Rufeng Xiao*, **Yuze Ge***, Rujun Jiang and Yifan Yan. A Unified Framework for Rank-based Loss Minimization. *Advances in neural information processing systems, 2023.* [OpenReview], [Preprint]

TEACHING EXPERIENCE

Methods of Optimization (DATA130026)   *Spring 2024*
Teaching assistant, *Advised by Prof. Rujun Jiang*   *Dept. Data Science, Fudan University, CN*

Introduction to Artificial Intelligence (DATA130008)   *Fall 2022*
Teaching assistant, *Advised by Prof. Zhongyu Wei*   *Dept. Data Science, Fudan University, CN*

SCHOLARSHIP & AWARD

China National Scholarship	*2024-2025*
Graduate Study Scholarship, Fudan University	*2023-2024*
Graduate Merit scholarship, Fudan University	*Jun. 2023*
Undergraduate Merit Scholarship, Fudan University	*2019-2020, 2020-2021, 2021-2022*

RELEVANT COURSEWORK

Graduate Courses

Optimization Theory	A	Foundation of Modern Probability I	A
Introduction to Algorithms	A	Data Mining	A-

Undergraduate Courses

Stochastic Processes	A	Fundamentals of Statistics: Principles, Methods, and R	A
Methods of Optimization	A	Numerical Algorithms and Case Studies	A
Calculus on Manifolds	A	Advanced Regression Analysis (Honor)	A-
Artificial Intelligence	A	Introduction to Statistical (Machine) Learning	A-
Multivariate Statistics	A	Applied Real Analysis and Functional Analysis	A

SERVICE

Conference Reviewer

· International Conference on Artificial Intelligence and Statistics (AISTATS)	*2025*
· International Conference on Learning Representations (ICLR)	*2025*
· Conference on Neural Information Processing Systems (NeurIPS)	*2024*