CHENYU ZHANG

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EDUCATION

Fudan University *2018 - 2022 (expected)*

Undergraduate in Mathematics and Applied Mathematics

Su Buqing Top Talent Program (Only for the top 30% of undergraduates)

Overall GPA: 3.54/4

Relevant Courses

Deep Learning	A	Methods of Optimization	A
Functions of Complex Variable	A	Probability Theory	A
An Introduction to Differential Manifolds (H)	A-	Advanced Algebra	A
Computational Thinking	A	Fundamentals of Mechanics	A
College Physics	A		

Relevant Seminars

Intelligent Optimization Algorithms
Complex Analysis
Differential Manifolds and Differential Topology
Non-Euclidean Geometry and Point Set Topology
Advanced Mathematical Analysis
Convex Optimization
Global Differential Geometry
Differential Geometry of Curves and Surfaces
Principles of Mathematical Analysis

Shenzhen Middle School *2015 - 2018*

Honor Curriculum (Physics Olympiad)

Award: Chinese Physics Olympiad - First Class Award

WORKING PAPERS

- **Chenyu Zhang,** Qi Cai, Zhuoran Yang, and Zhaoran Wang, *On Reward-Free Reinforcement Learning for POMDPs with Linear Function Approximation,* International Conference on Machine Learning (ICML), 2022. [Ready to submit]
- **Chenyu Zhang,** Rufeng Xiao, and Rujun Jiang, *A Trust-Region Method based Augmented Lagrangian Method for Nonsmooth Optimization on Riemannian Manifolds,* Advances in Neural Information Processing Systems (NeurIPS), 2022. [In progress]

RESEARCH EXPERIENCE

Reinforcement Learning for POMDPs *March 2021 - Present*

Research assistant, advised by Prof. Zhaoran Wang, Dept. of IEMS&CS, Northwestern University, USA

Co-advised by Prof. Zhuoran Yang, Dept. of Stat&Data Science, Yale University, USA

- Developed a reward-free algorithm for tabular POMDPs and established its sample efficiency guarantee.
- Developed a sample-efficient reward-free algorithm for linear POMDPs.

Non-smooth Non-convex Optimization on Riemannian Manifolds *October 2021 - Present*

Research assistant, advised by Prof. Rujun Jiang of Dept. Data Science, Fudan University, China

- Developing a trust-region method based augmented Lagrangian method for non-smooth non-convex optimization problems on Riemannian manifolds.

RELEVANT PROJECTS

Internship: Database Migration and Deployment of OA Systems *July 2021 - September 2021*

Database developer intern, jointly supervised by Shanghai Weaver Network and Shenzhen Sine Electric

- Migrated the old OA system's SQL Server database and deployed it as a MySQL database for the new OA system.
- Extended the functionalities of existing workflows, such as automated email delivery and single sign-on, by developing many hooks.

Course Project: Introduction to Databases Systems *February 2021 - June 2021*

- Built an interactive library database web application: *Salt Library* using Flask and PostgreSQL.

Mathematical Contest In Modeling 2021 *February 2021*

- Designed a fast-response UAV firefighting system based on the genetic algorithm.

TECHNICAL STRENGTHS

Programming Languages	Python, JavaScript, MATLAB
Python Libraries	NumPy, SciPy, Sklearn, Pandas, Matplotlib, PyTorch, TensorFlow, Keras, Flask
Neural Networks	MLP, CNN, RNN
Optimization Algorithms	SGD (NAG, Adagrad, Adadelta, Adam, AdaMax, Nadam), SVRG, PGM, FISTA, Trust-Region Method, Subgradient Method, Genetic Algorithm, Simulated Annealing
Web Languages	HTML, CSS
Markup Languages	LaTeX, Markdown
Databases	PostgreSQL, MySQL, SQL Server
Tools	VS Code, Git, Linux

SCHOLARSHIP & AWARD

Undergraduate Merit Scholarship – Third Class Award	*2019-2020, 2020-2021*
Undergraduate Major Scholarship	*2018-2019, 2019-2020, 2020-2021*
The Chinese Mathematics Competitions – Second Class Award	*2019*
The Chinese Physics Competitions - Second Class Award	*2019*
Undergraduate Merit Scholarship – Second Class Award	*2018-2019*
Freshman Scholarship	*2018*