Yuxing LIU

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EDUCATION

Fudan University (FDU)   **Shanghai, China**

Bachelor of Science in Data Science   *Aug 2020- Jul 2024*

➢ **Overall GPA**: 3.59/4.0; **Major GPA**: 3.76/4.0;

➢ Relevant Course Work: Mathematical Analysis(A), Linear Algebra, Probability Theory(A), Data Structure(A), Statistics: Principles, Methods and R, Numerical Algorithms(A), Method of Optimization(A), Stochastic Processes, Statistical Learning and Machine Learning, Computational Statistics, Applied Functional Analysis(A), Artificial Intelligence, Linear Programming, Neural Network and Deep Learning(A),

Hong Kong University of Science and Technology (HKUST)   **Hong Kong, China**

UG Visiting Internship Student in Department of Mathematics   *Aug 2023- Sep 2023*

Advisor: Tong Zhang, professor, Department of Mathematics, HKUST

RESEARCH EXPERIENCES

Research on SGD Heavy Ball Momentum   *Jun 2023 - Present*

Research Assistant | Advisor: Tong Zhang, professor, Department of Mathematics, HKUST

➢ Aimed to theoretically explain the speedup of SGD with Heavy Ball Momentum over SGD on some strongly convex target functions

➢ Developed and applied new techniques on matrices to prove the result

➢ In preparation for ICLR 2024

Decentralized First-Order Strongly Convex Optimization   *Mar 2023 - Present*

Research Assistant | Advisor: Luo Luo, assistant professor, School of Data Science, FDU

➢ Aimed to reduce energy cost by applying techniques inspired by variance reduction to reduce total first-order oracle complexity

➢ A version of deterministic optimization case has been submitted to NeurIPS 2023

➢ Preparing for extension to finite-sum optimization case, where the technique seems to have great performance and inspire a novel lower bound on the problem

Studies on Bandit Algorithms   *Jul 2023 - Aug 2023*

Group Seminar | Advisor: Luo Luo, assistant professor, School of Data Science, FDU

➢ Studied broadly on multi-arm bandits problem and some classic algorithms

➢ Researched through the UCB and MOSS algorithm and discuss their merits and limitation

Projects on Neural Network and Deep Learning Course   *Apr 2022 - Jun 2022*

Class Project | Advisor: Yanwei Fu, professor, School of Data Science, FDU

➢ Researched on smoothness of an network and how batch normalization helps training

➢ Tried to deal with Novel Image Captioning task on MSCOCO dataset

Gomoku AI Design   *Sept 2022 - Dec 2022*

Class Project | Advisor: Zhongyu Wei, associate professor, School of Data Science, FDU

➢ Implemented an Gomoku AI based on Alpha Beta pruning method

➢ Further applied Q-Learning method to the problem

SKILLS

Technical: Programming in Python, MATLAB, R, C/C++