Tao Sun

Curriculum Vitae

PERSONAL DETAILS

Birth	August, 1991
Address	Deya road, Changsha, Hunan, China
Phone	15575962010
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EDUCATION

Doc. Computational Math 2015.2-2018.12

National University of Defense Technology

Thesis Name: Studies on Several Stochastic and Nonconvex Optimization Algorithms

Advisor: Prof. Lizhi Cheng.

CCF Excellent Doctoral Dissertation Nomination Award (2020), Excellent Doctoral Dissertation Award of Hunan Province (2021)

MSc. Computational Math 2012.9-2014.12

National University of Defense Technology

Thesis Name: Fast Sparse Recovery Algorithms

Advisor: Prof. Lizhi Cheng.

Excellent MSc. Dissertation Award of PLA 2017

BSc. Applied Math 2008.9-2012.7

National University of Defense Technology

Outstanding student award. Final rank 3/40.

WORKING EXPERIENCE

Visiting student 2016.10-2018.10

Math Department, University of California, Los Angeles

Supported by Prof. Wotao Yin and CSC

Assistant Professor 2019.3-Now

National Lab for Parallel and Distributed Information Processing, College of Computer, National University of Defense Technology

INTERESTS

First-Order Optimization Algorithm and Theory for Machine Learning

Theory of Algorithms for Reinforcement Learning

Distributed Training Algorithm and Theory

SKILLS

Software PHYTHON, MATLAB, LaTeX

FUNDINGS

National Natural Science Foundation of China, Youth Program (2020.01-2022.12,250k RMB)

SELECTED PUBLICATIONS

Full list can be found in my Google Scholar

`https://scholar.google.com/citations?user=fPNZpAe5WXIC&hl=zh-CN`

Selected Conference Papers

1. **T Sun** , R Hannah, W Yin. Asynchronous Coordinate Descent under More Realistic Assumptions. Advances in Neural Information Processing Systems 30, 6182-6190, 2017. **CCF-A**

2. **T Sun**, Y Sun, W Yin. On Markov Chain Gradient Descent. Advances in Neural Information Processing Systems, 9896-9905, 2018.**CCF-A**

3. T Chen, G Giannakis, **T Sun**, W Yin. LAG: Lazily Aggregated Gradient for Communication-Efficient Distributed Learning. Advances in Neural Information Processing Systems, 5050-5060, 2018.**CCF-A**

4. **T Sun**, Y Sun, D Li, Q Liao. General Proximal Incremental Aggregated Gradient Algorithms: Better and Novel Results under General Scheme. Advances in Neural Information Processing Systems, 994-1004, 2019.**CCF-A**

5. **T Sun**, P Yin, D Li, C Huang, L Guan, H Jiang. Non-ergodic Convergence Analysis of Heavy-ball Algorithms. Proceedings of the AAAI Conference on Artificial Intelligence 33, 5033-5040, 2019.**CCF-A**

6. **T Sun**, D Li, Z Quan, H Jiang, S Li, Y Dou. Heavy-ball Algorithms Always Escape Saddle Points. Proceedings of the International Joint Conference on Artificial Intelligence, IJCAI 2019. **CCF-A**

7. **T Sun**, T Sun, D Li, B Wang. Stability and Generalization of the Decentralized Stochastic Gradient Descent. Proceedings of the AAAI Conference on Artificial Intelligence 35, 2021. **CCF-A**

Selected Journal Papers

8. **T Sun**, H Jiang, L Cheng. Global Convergence of Proximal Iteratively Reweighted Algorithm. Journal of Global Optimization, 1-12, 2017. **CCF-B**

9. **T Sun**, H Jiang, L Cheng. Convergence of Proximal Pteratively Reweighted Nuclear Norm Algorithm for Image Processing. IEEE Transactions on Image Processing 26 (12),

5632-5644, 2017.**CCF-A**

10. **T Sun**, P Yin, L Cheng, H Jiang. Alternating Direction Method of Multipliers with Difference of Convex Functions. Advances in Computational Mathematics 44 (3), 723-744, 2017.

11. **T Sun**, H Jiang, L Cheng, W Zhu. Iteratively Linearized Reweighted Alternating Direction Method of Multipliers for A Class of Nonconvex Problems. IEEE Transactions on Signal Processing 66 (20), 5380-5391, 2018.

12. **T Sun**, L Qiao, D Li. Bregman Reweighted Alternating Minimization and Its Application to Image Deblurring. Information Sciences, 2019, 503: 401-416.**CCF-B**

13. **T Sun**, R Barrio, M Rodríguez, H Jiang. Inertial Nonconvex Alternating Minimizations for the Image Deblurring. IEEE Transactions on Image Processing. 2019, 28(12): 6211-6224. **CCF-A**

14.**T Sun**, Y Sun, Y Xu, W Yin. Markov Chain Block Coordinate Descent. Computational Optimization and Applications, 1-27, 2019.

15. **T Sun**, D Li. Capri: Consensus Accelerated Proximal Reweighted Iteration for A Class of Nonconvex Minimizations. IEEE Transactions on Knowledge and Data Engineering, 2020. **CCF-A**

16. **T Sun**, K Tang, D Li.Gradient Descent Learning with Floats. IEEE Transactions on Cybernetics, 2020.**CCF-B**

17. **T Sun**, L Qiao, D Li. Nonergodic Complexity of Proximal Inertial Gradient Descents. IEEE Transactions on Neural Networks and Learning Systems. 2020. **CCF-B**

18. **T Sun**, L Qiao, Q Liao, D Li. Novel Convergence Results of Adaptive Stochastic Gradient Descents. IEEE Transactions on Image Processing. 2020. **CCF-A**

19. **T Sun**, H Shen, T Chen, D Li. "Adaptive Temporal Difference Learning with Linear Function Approximation". IEEE Transactions on Pattern Analysis and Machine Intelligence 2021. **CCF-A**

20. B Wang, T M Nguyen, **T Sun**, A L Bertozzi, R G Baraniuk, S J Osher, "Scheduled Restart Momentum for Accelerated Stochastic Gradient Descent.", SIAM J. Imaging Sciences, 2021. **CCF-B**