Mozhengfu Liu
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Northwestern University, Evanston, IL, USA

EDUCATION, RESEARCH POSITIONS

Northwestern University *from September 2023 until now*
Theory Group, Department of Computer Science
PhD student, supervised by Prof. Samir Khuller

Nanyang Technological University *from July 2020 until July 2023*
School of Computer Science and Engineering
Research Assistant, supervised by Prof. Tang Xueyan

National University of Singapore *class of 2019*
Bachelor of Science with Honours(Merit)
Major in Applied Mathematics

RESEARCH INTERESTS

I am generally interested in theoretical computer science with an emphasis on scheduling problems. I have been working on the worst-case theory of scheduling problems arising from the context of classical computer systems and cloud computing. I have been working on their online and offline settings with an emphasis on algorithm design and analysis. For the offline settings, I am interested in determining the computational complexity and designing polynomial time algorithms with a low approximation ratio. For the online settings, I am interested in decreasing the gap between the lower and upper bounds of the competitiveness in the deterministic or randomized setting. The other option for online settings is to generalize the scheduling model in the context of machine learning and find the asymptotically optimal online algorithm.

FULL LIST OF PUBLICATIONS

Mozhengfu Liu and Xueyan Tang. Tight bounds for Dynamic Bin Packing with Predictions. Proc. ACM Meas. Anal. Comput. Syst. 8, 3, Article 47 (December 2024), 28 pages.

Mozhengfu Liu and Xueyan Tang. 2024. Brief Announcement: Tight bounds for Dynamic Bin Packing with Predictions. In Proceedings of the 36th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA '24). Association for Computing Machinery, New York, NY, USA, 297299.

Mozhengfu Liu and Xueyan Tang. 2024. Brief Announcement: Scheduling Jobs for Minimum Span: Improved Bounds and Learning-Augmented Algorithms. In Proceedings of the 36th ACM Symposium on Parallelism in Algorithms and Architectures (SPAA '24). Association for Computing Machinery, New York, NY, USA, 141143.

Mozhengfu Liu and Xueyan Tang. 2022. Dynamic Bin Packing with Predictions, Proc. ACM Meas. Anal. Comput. Syst. 6, 3, Article 45 (December 2022), 24 pages. In Abstract Proceedings of the 2023 ACM SIGMETRICS International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS '23). Association for Computing Machinery, New York, NY, USA, 5758.

Mozhengfu Liu and Xueyan Tang. Busy-Time Scheduling on Heterogeneous Machines: Algorithms and Analysis. IEEE Transactions on Parallel and Distributed Systems, vol. 33, no. 12, pp. 3942-3958, December 2022

Mozhengfu Liu and Xueyan Tang. 2021. Analysis of Busy-Time Scheduling on Heterogeneous Machines. In Proceedings of the 33rd ACM Symposium on Parallelism in Algorithms and Architectures (SPAA '21). Association for Computing Machinery, New York, NY, USA, 340350.