Di Yue

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EDUCATION

Peking University Beijing, China
Candidate for Bachelor of Science *September 2021 - Present*
School of Electronics Engineering And Computer Science
GPA: 3.83/4.0

RESEARCH INTERESTS

Theoretical Computer Science, Approximation Algorithm, High-dimensional Computational Geometry, Metric Embedding.

PUBLICATIONS (In theoretical computer science, authors are listed in alphabetical order.)

Submitted

Near-Optimal Dimension Reduction for Facility Location
Lingxiao Huang, Shaofeng H.-C. Jiang, Robert Krauthgamer, **Di Yue**.
Submitted to the 36th ACM-SIAM Symposium on Discrete Algorithms (SODA 2025).

RESEARCH EXPERIENCE

Near-Optimal Dimension Reduction for Facility Location *July 2023 - July 2024*
Academic Advisor: Shaofeng Jiang *Peking University, China*

- We proved that target dimension $m = \tilde{O}(\varepsilon^{-2}\text{ddim})$ suffices to $(1+\varepsilon)$-approximate the optimal value of *uniform facility location (UFL)* on high-dimensional inputs whose *doubling dimension* is bounded by ddim.
- We proposed the first PTAS for Euclidean UFL on doubling subsets, where the facilities are allowed to lie in the (high-dimensional) ambient space $\mathbb{R}^d$.
- We generalized our PTAS to doubling metrics without vector representations, which improves the $2^{2^{O(\text{ddim}^2)}}n$ running time in [Cohen-Addad, Feldmann and Saulpic, JACM 2021] to $2^{2^{\tilde{O}(\text{ddim})}}n$.
- This work is submitted to **SODA 2025**.

Preserving the Diameter via Dimension Reduction *January 2023 - April 2023*
Academic Advisor: Shaofeng Jiang *Peking University, China*

- We proved that target dimension $m = O(\varepsilon^{-2}\text{ddim})$ suffices to $(1+\varepsilon)$-approximate the diameter of a high-dimensional doubling subset whose *doubling dimension* is bounded by ddim.
- Our result immediately implies a streaming algorithm that approximates diameter.

HONOURS AND AWARDS

Second Class Scholarship of Peking University (10%) 2022
Merit Student (10%) 2022
Study Excellence Award (20%) 2023