

Di Yue

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EDUCATION

Peking University

Candidate for Bachelor of Science

School of Electronics Engineering And Computer Science

GPA: 3.83/4.0, Ranking: 14/134

Beijing, China

September 2021 - Present

RESEARCH INTERESTS

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

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

Near-Optimal Dimension Reduction for Facility Location

Lingxiao Huang, Shaofeng H.-C. Jiang, Robert Krauthgamer, **Di Yue**.

Submitted.

RESEARCH EXPERIENCE

Visiting Student at Weizmann Institute of Science.

July 2024 - Present

Advisor: Robert Krauthgamer

Weizmann Institute of Science, Israel

- Gave a talk on our recent *uniform facility location (UFL)* work in the algorithm seminar.
- Did some literature research on dimension reduction for MST and Steiner tree problems.
- Gave a new proof of dimension reduction for MST, using target dimension $m = O(\epsilon^{-2} \text{ddim} \cdot \log \Delta)$.

Near-Optimal Dimension Reduction for Facility Location (UFL)

July 2023 - July 2024

Advisor: Shaofeng Jiang

Peking University, China

- Proved that target dimension $m = \tilde{O}(\epsilon^{-2} \text{ddim})$ suffices to $(1 + \epsilon)$ -approximate the optimal value of UFL on high-dimensional inputs whose *doubling dimension* is bounded by ddim .
- 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 .
- 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 in submission.

Preserving the Diameter via Dimension Reduction

January 2023 - April 2023

Academic Advisor: Shaofeng Jiang

Peking University, China

- Proved that target dimension $m = O(\epsilon^{-2} \text{ddim})$ suffices to $(1 + \epsilon)$ -approximate the diameter of a high-dimensional doubling subset whose *doubling dimension* is bounded by ddim .

HONOURS AND AWARDS

Second Class Scholarship of Peking University (10%) 2022

Merit Student (10%) 2022

Academic Excellence Award (20%) 2023