Di Yue

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EDUCATION

Peking University Beijing, China
Candidate for Bachelor of Science *September 2021 - July 2025 (expected)*
School of Electronics Engineering And Computer Science
GPA: 3.83/4.0

RESEARCH INTERESTS

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

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**.
In submission. arXiv:2411.05432.

RESEARCH EXPERIENCE

Visiting Student at Weizmann Institute of Science. *August 2024 - September 2024*
Advisor: Robert Krauthgamer *Weizmann Institute of Science, Israel*

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

Research Assistant in Shaofeng Jiang's Lab *July 2023 - July 2024*
Advisor: Shaofeng Jiang *Peking University, China*

- Studied dimension reduction for *uniform facility location (UFL)*. Proved that target dimension $m = \tilde{O}(\varepsilon^{-2}\text{ddim})$ suffices to $(1+\varepsilon)$-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 $2^{2^{\tilde{O}(\text{ddim})}}n$.

Research Rotation in Computer Science Department *January 2023 - June 2023*
Advisor: Shaofeng Jiang, Tianren Liu *Peking University, China*

- Algorithm: Studied dimension reduction for Euclidean diameter. 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.
- Cryptography: Studied *Private Information Retrieval (PIR)*. Wrote a survey on the upper and lower bounds for PIR.

HONOURS AND AWARDS

Second Class Scholarship of Peking University 2022
Merit Student 2022
Academic Excellence Award 2023