

# Di Yue

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## EDUCATION

### Peking University

Candidate for Bachelor of Science

School of Electronics Engineering And Computer Science

GPA: 3.828/4.0

Beijing, China

*September 2021 - July 2025 (expected)*

## 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](https://arxiv.org/abs/2411.05432).

## RESEARCH EXPERIENCE

### Visiting Student at Weizmann Institute of Science.

*Advisor: Robert Krauthgamer*

*August 2024 - September 2024*

*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

*Advisor: Shaofeng Jiang*

*July 2023 - July 2024*

*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  $\text{ddim}$ .
- 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, improving previous results in [Cohen-Addad et al., JACM 2021].
- Wrote the technical sections of the paper, and helped with some parts in the introduction.

### Research Rotation in Computer Science Department

*Advisor: Shaofeng Jiang, Tianren Liu*

*January 2023 - June 2023*

*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  $\text{ddim}$ .
- 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