Tianyi Zhang

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Research Interests Graph Algorithms

Education

Tsinghua University, Beijing, China

    PhD, Computer Science, July 2021
    Advisor: Prof. Ran Duan

Tsinghua University, Beijing, China

    BEng, Computer Science, July 2016

Employment

- Post-doctoral fellow at Tel Aviv University, supervised by Prof. Shay Solomon
  October 2023 to September 2024 (expected)

- Post-doctoral fellow at Tel Aviv University, supervised by Prof. Shiri Chechik
  October 2021 to September 2023

Papers

1. Almost-Optimal Sublinear Additive Spanners. **STOC 2023**
   Zihan Tan, Tianyi Zhang

2. Faster Deterministic Worst-Case Dynamic All-Pairs Shortest Paths via Decremental Hop-Restricted Shortest Paths. **SODA 2023**
   Shiri Chechik, Tianyi Zhang

3. Constant Approximation of Min-Distances in Near-Linear Time. **FOCS 2022**
   Shiri Chechik, Tianyi Zhang

4. Constant-Round Near-Optimal Spanners in Congested Clique. **PODC 2022**
   Shiri Chechik, Tianyi Zhang

5. Faster Cut-Equivalent Trees in Simple Graphs. **ICALP 2022**
   Tianyi Zhang

6. Faster min-plus product for monotone instances. **STOC 2022**
   Shucheng Chi, Ran Duan, Tianle Xie, Tianyi Zhang

7. Nearly 2-Approximate Distance Oracles in Subquadratic Time. **SODA 2022**
   Shiri Chechik, Tianyi Zhang

8. Deterministic Maximum Flows in Simple Graphs. **ICALP 2021**
   Tianyi Zhang

9. Incremental Single Source Shortest Paths in Sparse Digraphs. **SODA 2021**
   Shiri Chechik, Tianyi Zhang

10. A Scaling Algorithm for Weighted f-Factors in General Graphs. **ICALP 2020**, arxiv.org:2003.07589
    Ran Duan, Haoqing He, Tianyi Zhang

11. Near-Linear Time Algorithms for Approximate Minimum Degree Spanning Trees. **LATIN 2020**, arXiv:1712.09166

    Ran Duan, Haoqing He, Tianyi Zhang

12. Dynamic Low-Stretch Spanning Trees in Subpolynomial Time. **SODA 2020**

    Shiri Chechik, Tianyi Zhang

13. Fully Dynamic Maximal Independent Set in Expected Poly-Log Time. **FOCS 2019**

    Shiri Chechik, Tianyi Zhang

14. Dynamic Edge Coloring with Improved Approximation. **SODA 2019**

    Ran Duan, Haoqing He, Tianyi Zhang

15. An Improved Algorithm for Incremental DFS Tree in Undirected Graphs. **SWAT 2018**

    Lijie Chen, Ran Duan, Ruosong Wang, Hanrui Zhang, Tianyi Zhang

16. Purely Combinatorial Algorithms for Approximate Directed Minimum Degree Spanning Trees. arXiv:1707.05123

    Ran Duan, Tianyi Zhang

17. Improved Distance Sensitivity Oracles via Tree Partitioning. **WADS 2017**

    Ran Duan, Tianyi Zhang

TALKS

1. Almost-Optimal Sublinear Additive Spanners

   STOC, June 2023, Orlando, USA

   Theory Seminar at University of Haifa, May 2023, Haifa, Israel

   Theory Seminar at Chinese Academy of Sciences, May 2023, Online

2. Deterministic Worst-Case Dynamic All-Pairs Shortest Paths via Decremental Hop-Restricted Shortest Paths

   SODA, Jan 2023, Florence, Italy

3. Constant Approximation of Min-Distances in Near-Linear Time

   FOCS, November 2022, Denver, USA

4. Constant-Round Near-Optimal Spanners in Congested Clique

   PODC, July 2022, Salerno, Italy

5. Faster Cut-Equivalent Trees in Simple Graphs

   ICALP, July 2022, Online

6. Faster min-plus product for monotone instances

   STOC, June 2022, Rome, Italy

7. Nearly 2-Approximate Distance Oracles in Subquadratic Time

   SODA, January 2022, Online

8. Deterministic Maximum Flows in Simple Graphs

   ICALP, July 2021, Online

9. Incremental Single Source Shortest Paths in Sparse Digraphs
   SODA, January 2021, Online
   Theory Seminar organized by CCF, November 2020, Online

10. Near-Linear Time Algorithms for Approximate Minimum Degree Spanning Trees
    LATIN, January 2021, Online

11. Dynamic Low-Stretch Spanning Trees in Subpolynomial Time
    SODA, January 2020, Salt Lake City, USA

12. Fully Dynamic Maximal Independent Set in Expected Poly-Log Time
    FOCS, November 2019, Baltimore, USA

13. Dynamic Edge Coloring with Improved Approximation
    SODA, January 2019, San Diego, USA

14. An Improved Algorithm for Incremental DFS Tree in Undirected Graphs
    SWAT, June 2018, Malmo, Sweden

15. Improved Distance Sensitivity Oracles via Tree Partitioning
    WADS, July 2017, St. John's, Canada

CONFERENCE
REVIEWS
- SODA 2024, ESA 2023, FOCS 2023, ICALP 2023, CIAC 2023, STOC 2023, FOCS 2022, SODA 2022, PODS 2021, FOCS 2020, SWAT 2020, TAMC 2020, IPCO 2020, STOC 2020, SODA 2020, ISAAC 2019

AWARDS
- Outstanding Doctoral Dissertation Award of Tsinghua University 2021
- Outstanding Undergraduate Thesis Award of Tsinghua University 2016

REFERENCES

Ran Duan
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Shiri Chechik
Associate Professor   shiri.chechik@gmail.com
The Blavatnik School of Computer Science
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Shay Solomon
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School of Electrical Engineering
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