

Huacheng Yu

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EDUCATION

Stanford University *2012-2017*

Ph.D. in Computer Science
Advised by Ryan Williams and Omer Reingold

Tsinghua University *2008-2012*

Institute for Interdisciplinary Information Sciences
Bachelor of Engineering in Computer Science and Technology

POSITIONS

Harvard University *2017-present*

Postdoc Researcher in the Theory of Computation group
Host: Jelani Nelson and Madhu Sudan

PUBLICATIONS

- Jacob Teo Por Loong, Jelani Nelson, Huacheng Yu. **Fillable Arrays with Constant Time Operations and A Single Bit of Redundancy.** *Manuscript*
- Huacheng Yu, and Hongyang Zhang. **Distance Labelings on Random Power Law graphs.** *Manuscript*
- Kasper Green Larsen, Omri Weinstein, and Huacheng Yu. **Crossing the Logarithmic Barrier for Dynamic Boolean Data Structure Lower Bounds.**
To appear in the 50th ACM Symposium on Theory of Computing (STOC 2018).
- Josh Alman, Joshua R. Wang, and Huacheng Yu. **Cell-Probe Lower Bounds from Online Communication Complexity.**
To appear in the 50th ACM Symposium on Theory of Computing (STOC 2018).
- Kasper Eenberg, Kasper Green Larsen, and Huacheng Yu. **DecreaseKeys are Expensive for External Memory Priority Queues.**
In the 49th ACM Symposium on Theory of Computing (STOC 2017). Presented at MASSIVE 2016.
- Daniel Lokshtanov, Ramamohan Paturi, Suguru Tamaki, Ryan Williams, and Huacheng Yu. **Beating Brute Force for Systems of Polynomial Equations over Finite Fields.**
In the 27th ACM-SIAM Symposium on Discrete Algorithms (SODA 2017).
- Omri Weinstein, and Huacheng Yu. **Amortized Dynamic Cell-Probe Lower Bounds from Four-Party Communication.**
In the 57th IEEE Symposium on Foundations of Computer Science (FOCS 2016).
- Huacheng Yu. **Cell-probe Lower Bounds for Dynamic Problems via a New Communication Model.**
In the 48th ACM Symposium on Theory of Computing (STOC 2016).

- Huacheng Yu. **An Improved Combinatorial Algorithm for Boolean Matrix Multiplication.**
In the 42nd International Colloquium on Automata, Languages, and Programming (ICALP 2015).
Co-winner of the best student paper award for Track A.
- Amir Abboud, Virginia Vassilevska Williams, and Huacheng Yu. **Matching Triangles and Basing Hardness on an Extremely Popular Conjecture.**
In the 47th ACM Symposium on Theory of Computing (STOC 2015).
- Amir Abboud, Ryan Williams, and Huacheng Yu. **More Applications of the Polynomial Method to Algorithm Design.**
In the 25th ACM-SIAM Symposium on Discrete Algorithms (SODA 2015).
- Virginia Vassilevska Williams, Joshua R. Wang, Ryan Williams, and Huacheng Yu. **Finding Four-Node Subgraphs in Triangle Time.**
In the 25th ACM-SIAM Symposium on Discrete Algorithms (SODA 2015).
- Ryan Williams, and Huacheng Yu. **Finding Orthogonal Vectors in Discrete Structures.**
In 24th ACM-SIAM Symposium on Discrete Algorithms (SODA 2014).
- Tengyu Ma, Xiaoming Sun, and Huacheng Yu. **On a conjecture of Butler and Graham.**
Designs, Codes and Cryptography 69(3), 265–274 (2013).
- Tengyu Ma, Xiaoming Sun, and Huacheng Yu. **A New Variation of Hat Guessing Games.**
In 17th Annual International Computing and Combinatorics Conference (COCOON 2011).

AWARDS

- Co-winner of the best student paper award for Track A at ICALP 2015.
- First Prize of Yao Award, Tsinghua University, 2011.
- 6th place in ACM/ICPC World Final, 2010.
- ACM/ICPC Asia Regional Champions, 2008, 2009.
- 5th place in Google Code Jam 2008.
- 1st place in the 20th International Olympiad in Informatics (IOI 2008).

TEACHING EXPERIENCES

CS254 Computational Complexity Theory Course Assistant	2015.4-2015.6 2016.9-2016.12
Algorithm Design and Implementation for Olympiad in Informatics	2008.8-2010.8
Lecture at National Winter Camp in Informatics, 2009. Problems development for National Olympiad in Informatics, National Winter Camp and Chinese Team Selection Contest.	
Fundamentals of Programming Tutor	2008.9-2008.12
Tutor in C++ programming for the course.	

SERVICES

Conference program committees: COCOON 2017, COCOA 2017
 Conference/journal reviewing: STOC, FOCS, SODA, ICALP, ESA, SPAA, Theoretical Computer Science, Transactions on Algorithms, Information Processing Letters
 Stanford theory seminar student organizer 2014.1-2015.12

ACADEMIC TALKS

Cell-Probe Lower Bounds from Online Communication Complexity.	
• Stanford theory lunch	2017.4
• Columbia theory seminar	2017.9
Crossing the Logarithmic Barrier for Dynamic Boolean Data Structure Lower Bounds.	
• Berkeley theory lunch	2017.4
• Harvard postdoc day	2017.9
Amortized Dynamic Cell-Probe Lower Bounds from Four-Party Communication.	
• Dagstuhl seminar	2016.11
• Harvard ToC seminar	2016.10
• FOCS 2016	2016.10
Cell-probe Lower Bounds for Dynamic Problems via a New Communication Model.	
• STOC 2016	2016.6
• MADALGO theory seminar	2016.3
• Stanford theory lunch	2016.1
Combinatorial Algorithms for Boolean Matrix Multiplication.	
• Stanford theory qualifying exam	2015.8
An Improved Combinatorial Algorithm for Boolean Matrix Multiplication.	
• MADALGO theory seminar	2016.6
• HALG 2016	2016.6
• China Theory Week	2015.8
• Chinese Academy of Sciences	2015.7
• ICALP 2015	2015.7
More Applications of the Polynomial Method to Algorithm Design.	
• Stanford theory lunch	2015.2
• SODA 2015	2015.1
Finding Four-Node Subgraphs in Triangle Time.	
• Chinese Academy of Science	2014.7
Finding Orthogonal Vectors in Discrete Structures.	
• SODA 2014	2014.1
• Stanford theory lunch	2013.10
Hat Guessing Games.	
• Stanford theory lunch	2013.2