

# Huacheng Yu

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## EDUCATION

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**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

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**Harvard University** *2017-present*

Postdoc Researcher in the Theory of Computation group

Host: Jelani Nelson and Madhu Sudan

## PUBLICATIONS

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- Jacob Teo Por Loong, Jelani Nelson, Huacheng Yu. **Fillable Arrays with Constant Time Operations and A Single Bit of Redundancy.** *Manuscript*
- Kasper Green Larsen, Omri Weinstein, and Huacheng Yu. **Crossing the Logarithmic Barrier for Dynamic Boolean Data Structure Lower Bounds.** *Manuscript*
- Josh Alman, Joshua R. Wang, and Huacheng Yu. **Cell-Probe Lower Bounds from Online Communication Complexity.** *Manuscript*
- Huacheng Yu, and Hongyang Zhang. **Distance Labelings on Random Power Law graphs.** *Manuscript*
- 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

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- 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

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<b>CS254 Computational Complexity Theory Course Assistant</b>	2015.4-2015.6 2016.9-2016.12
<b>Algorithm Design and Implementation for Olympiad in Informatics</b>	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.	
<b>Fundamentals of Programming Tutor</b>	2008.9-2008.12
Tutor in C++ programming for the course.	

## SERVICES

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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

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