

# Hanlin Ren

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🌐 <https://hanlin-ren.github.io/>

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## Education

August 2016 – Present

📍 **Tsinghua University, China**

Bachelor of Engineering

Major: Computer Science (Special Pilot CS Class, a.k.a Yao Class)

GPA: 3.83/4; rank: 8/38

## Research Interests

I am interested in **Algorithm Design** and **Computational Complexity**.

## Publications

(Note: in theoretical computer science, the list of authors are usually sorted in alphabetical order.)

- 📖 **Hardness of KT Characterizes Parallel Cryptography.**  
Hanlin Ren and Rahul Santhanam.  
To appear in CCC 2021.
- 📖 **Constructing a Distance Sensitivity Oracle in  $O(n^{2.5794}M)$  Time.**  
Yong Gu and Hanlin Ren.  
To appear in ICALP 2021.
- 📖 **Approximate Distance Oracles Subject to Multiple Vertex Failures.**  
Ran Duan, Yong Gu, and Hanlin Ren.  
SODA 2021.
- 📖 **Improved Distance Sensitivity Oracles with Subcubic Preprocessing Time.**  
Hanlin Ren.  
ESA 2020. Invited to the JCSS special issue for ESA 2020.
- 📖 **Strong Average-Case Circuit Lower Bounds from Non-trivial Derandomization.**  
Lijie Chen and Hanlin Ren.  
STOC 2020. Invited to the SICOMP special issue for STOC 2020.
- 📖 **Approximating All-Pair Bounded-Leg Shortest Path and APSP-AF in Truly-Subcubic Time.**  
Ran Duan and Hanlin Ren.  
ICALP 2018.

## Manuscripts / In Submission

- 📖 **A Relativization Perspective on Meta-Complexity.**  
Hanlin Ren and Rahul Santhanam.
- 📖 **Hardness on Any Samplable Distribution Suffices: New Characterizations of One-Way Functions by Meta-Complexity.**  
Rahul Ilango, Hanlin Ren, and Rahul Santhanam.

## Academic Talks

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- **Hardness of KT Characterizes Parallel Cryptography.**  
Yaoclass Seminar. Apr 2021  
Oxford-Warwick complexity meetings (online). Apr 2021
- **Approximate Distance Oracles Subject to Multiple Vertex Failures.**  
SODA 2021 (online). <https://player.vimeo.com/video/496602190>. Jan 2021  
Yaoclass Seminar. Dec 2020
- **Improved Distance Sensitivity Oracles with Subcubic Preprocessing Time.**  
ESA 2020 (online). <https://youtu.be/2Z46AybFkJ8>. Sep 2020
- **Strong Average-Case Circuit Lower Bounds from Non-trivial Derandomization.**  
STOC 2020 (online). <https://youtu.be/xWDQ4Lef0Vs>. Jun 2020  
SIGMA, ICT, Chinese Academy of Science (online). Mar 2020
- **Approximating All-Pair Bounded-Leg Shortest Path and APSP-AF in Truly-Subcubic Time.**  
ICALP 2018, Prague, Czech Republic. Jul 2018

## Teaching Experience

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- 2020 Fall   ■ Design and Analysis of Algorithms (graduate level)  
                  *Instructor: Prof. Ran Duan*  
                  Teaching assistant

## Selected Awards

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- Sep 2019   ■ Yao Award, bronze prize  
Sep 2018   ■ Evergrande Scholarship  
Sep 2017   ■ Baidu “Future Star” Scholarship  
Jul 2015   ■ Gold medal (15th place) in Chinese National Olympiad in Informatics (NOI)

## Languages

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- Chinese   ■ native  
English   ■ TOEFL 110 (Reading 30 + Listening 29 + Speaking 23 + Writing 28, May 2019)

## Misc

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- GRE score (May 2019): Verbal 161, Quantitative 170, AW 4.0