Hanlin Ren

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https://hanlin-ren.github.io/ Last updated: Oct 2021

Education

Oct 2021 – present
University of Oxford, UK
DPhil in computer science
Advisor: Prof. Rahul Santhanam

Aug 2016 – Jun 2021
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

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.
  CCC 2021. *Invited to the ToC special issue for CCC 2021.*
- **Constructing a Distance Sensitivity Oracle in $O(n^{2.5794}M)$ Time.**
  Yong Gu and Hanlin Ren.
  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.
- **Maintaining Exact Distances under Multiple Edge Failures.**
  Ran Duan and Hanlin Ren.

Academic Talks

- **Faster Algorithms for Distance Sensitivity Oracles.**
  IJTCS 2021 (hybrid). Aug 2021
- **Constructing a Distance Sensitivity Oracle in $O(n^{2.5794}M)$ Time.**
  ICALP 2021 (online). http://youtu.be/uIFoucab6d4 Jul 2021
- **Hardness of KT Characterizes Parallel Cryptography.**
  CCC 2021 (online). http://youtu.be/esFxj1cNLCE Jul 2021
  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/xWDQ4LefOVs. 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

Special Issue Invitation

- STOC 2020, ESA 2020, CCC 2021

Teaching Experience

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

2021 Spring
- **Theory of Computation** (undergraduate level)
  Instructor: Prof. Ran Duan
  Teaching assistant

Service

- **Conference reviewing:** RANDOM 2021, ITCS 2022

Selected Awards

2021 Clarendon Scholarship
2019 Yao Award, bronze prize
2018 Evergrande Scholarship
2017 Baidu "Future Star" Scholarship
2015 Gold medal (15th place) in Chinese National Olympiad in Informatics (NOI)