Hanlin Ren

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

Education

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

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

- **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/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

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

Selected Awards

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

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

Misc

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