Jiaheng Wang

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Education

- Ph.D. student — University of Edinburgh, 2020 - (2023)
  Advisor: Heng Guo
- B.Sc. *summa cum laude* in Computer Science *(Turing Class)* — Peking University, 2016 - 2020

Visiting (for research purpose)

- Queen Mary, University of London — 2022/06
  Advisor: Mark Jerrum
- Shanghai University of Finance and Economics — 2020/05 - 2020/09
  Advisor: Pinyan Lu
- University of Edinburgh — 2019/07 - 2019/08
  Advisor: Heng Guo
- Institute of Computing Technology, Chinese Academy of Sciences — 2018/09 - 2020/01
  Advisor: Xiaoming Sun

Honours and Awards

- Informatics Global PhD Scholarship (3.5 years) — University of Edinburgh, 2020
- Turing Class Scholarship — Peking University, 2019
- May 4^{th} Scholarship — Peking University, 2018
- Merit Student Award — Peking University, 2018
- Award for Academic Excellents — Peking University, 2017

Research Interests

- Algorithms and complexity of approximate counting.
- Extremal combinatorics.

Research Articles

[7] **Inapproximability of counting independent sets in linear hypergraphs.**
Guoliang Qiu and **Jiaheng Wang**.
submitted
arXiv: 2212.03072

[6] **Towards derandomising Markov chain Monte Carlo.**
Weiming Feng, Heng Guo, Chunyang Wang, **Jiaheng Wang** and Yitong Yin.
submitted
arXiv: 2211.03487

[5] **A simple polynomial-time approximation algorithm for the total variation distance between two product distributions.**
Weiming Feng, Heng Guo, Mark Jerrum and **Jiaheng Wang**.
6th SIAM Symposium on Simplicity in Algorithms (SOSA 2023)
arXiv: 2208.00740

Last update: 05/04/2023

[4] **Swendsen-Wang dynamics for the ferromagnetic Ising model with external fields.**
Weiming Feng, Heng Guo and **Jiaheng Wang**.
submitted
arXiv: 2205.01985

[3] **Improved bounds for randomly colouring simple hypergraphs.**
Weiming Feng, Heng Guo and **Jiaheng Wang**.
26th International Conference on Randomization and Computation (RANDOM 2022).
arXiv: 2202.05554

[2] **Inapproximability of counting hypergraph colourings.**
Andreas Galanis, Heng Guo and **Jiaheng Wang**.
ACM Transactions on Computation Theory, 14(3–4):10, pp. 1–33, 2022
arXiv: 2107.05486

[1] **On the degree of Boolean functions as polynomials over $\mathbb{Z}_m$.**
Xiaoming Sun, Yuan Sun, **Jiaheng Wang**, Kewen Wu, Zhiyu Xia and Yufan Zheng.
47th International Colloquium on Automata, Languages and Programming (ICALP 2020).
arXiv: 1910.12458

Teaching

- At University of Edinburgh:
  - INFR08026 Introduction to Algorithms and Data Structures — Teaching Assistant/Tutor, 2022/23
  - INFR11201 Randomized Algorithms — Tutor, 2022 Autumn
  - INFR08026 Introduction to Algorithms and Data Structures — Teaching Assistant/Tutor, 2021/22
- At Peking University:
  - 04834010 Randomized Algorithms — Teaching Assistant, 2020 Spring
  - 04833440 Introduction to the Theory of Computation — Teaching Assistant, 2020 Spring
  - 04833040/04832363 Introduction to Computer Systems — Teaching Assistant/Tutor, 2019 Fall
  - 04833440 Introduction to the Theory of Computation — Teaching Assistant, 2019 Spring
  - 04833040/04832363 Introduction to Computer Systems — Teaching Assistant/Tutor, 2018 Fall

Services and Activities

- Conference reviewer: ICALP'21, SODA'21
- Student organizer of SAGT'18 (organizing volunteers, getting involved in press, etc.)

Talks

- A Simple Polynomial-Time Approximation Algorithm for Total Variation Distances Between Product Distributions
  - SOSA 2023, Florence, Italy
- Improved Bounds for Randomly Colouring Simple Hypergraphs
  - APPROX/RANDOM 2022, Champaign, IL, United States (virtual conference)
  - Highlights of Algorithms, LSE & QMUL, London, United Kingdom
- Inapproximability of Counting Hypergraph Colourings
  - CS Peer Talk, Peking University, Beijing, China (virtual)
  - Highlights of Algorithms, LSE & QMUL, London, United Kingdom
- On the Degree of Boolean Functions as Polynomials over $\mathbb{Z}_m$.
  - ICALP 2020, Saarbrücken, Germany (virtual conference)