

Jiaheng Wang

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EMPLOYMENT

- Postdoctoral researcher University of Edinburgh, (2023) -

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

- Basic Algorithms Research Copenhagen (BARC) (2023/07 - 2023/08)
Host: Radu Curticapean
- University of Oxford 2023/06
Host: Andreas Galanis and Leslie Ann Goldberg
- Queen Mary, University of London 2022/06
Host: Mark Jerrum
- Shanghai University of Finance and Economics 2020/05 - 2020/09
Host: Pinyan Lu
- University of Edinburgh 2019/07 - 2019/08
Host: Heng Guo
- Institute of Computing Technology, Chinese Academy of Sciences 2018/09 - 2020/01
Host: Xiaoming Sun

RESEARCH INTERESTS

- General theoretical computer science, especially algorithms and complexity of counting problems.
- Discrete mathematics, including extremal combinatorics and probabilistic combinatorics.

RESEARCH ARTICLES

- [8] **Approximate counting for spin systems in sub-quadratic time.**
Konrad Anand, Weiming Feng, Graham Freifeld, Heng Guo and J. Wang.
submitted
arXiv: 2306.14867
- [7] **Inapproximability of counting independent sets in linear hypergraphs.**
Guoliang Qiu and J. Wang.
submitted
arXiv: 2212.03072
- [6] **Towards derandomising Markov chain Monte Carlo.**
Weiming Feng, Heng Guo, Chunyang Wang, J. Wang and Yitong Yin.
submitted
arXiv: 2211.03487

Last update: 27/06/2023. Author lists are sorted in the alphabetical order.

- [5] **A simple polynomial-time approximation algorithm for the total variation distance between two product distributions.**
 Weiming Feng, Heng Guo, Mark Jerrum and **J. Wang**.
TheoretiCS, Volume 2 (2023), Article 8, 1–7
 Conference version: *6th SIAM Symposium on Simplicity in Algorithms (SOSA 2023)*
 arXiv: 2208.00740
- [4] **Swendsen-Wang dynamics for the ferromagnetic Ising model with external fields.**
 Weiming Feng, Heng Guo and **J. Wang**.
Information and Computation, accepted
 arXiv: 2205.01985
- [3] **Improved bounds for randomly colouring simple hypergraphs.**
 Weiming Feng, Heng Guo and **J. Wang**.
26th International Conference on Randomization and Computation (RANDOM 2022).
 arXiv: 2202.05554
- [2] **Inapproximability of counting hypergraph colourings.**
 Andreas Galanis, Heng Guo and **J. 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, **J. Wang**, Kewen Wu, Zhiyu Xia and Yufan Zheng.
47th International Colloquium on Automata, Languages and Programming (ICALP 2020).
 arXiv: 1910.12458

HONOURS AND AWARDS

- Informatics Global PhD Scholarship (3.5 years) University of Edinburgh, 2020
- 4 awards/scholarships during undergraduate study Peking University

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 the total variation distance between two product distributions
 - Algorithms and Complexity Theory Seminars, Oxford, United Kingdom
 - LFCS Lab Lunch, Edinburgh, United Kingdom
 - 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)

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