

Jing Guo

Resume

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Work Interests

Software engineering, data science, machine/deep learning, and theoretical computer science

Education

Fall 2022 – Present **M.Sc. Mathematics**, *Universität Regensburg*, Regensburg, Bavaria, Germany.

Fall 2020 – Summer 2021 **Budapest Semesters in Mathematics (Online)**, Budapest, Hungary.

Fall 2016 – **B.S. Mathematics**, *University of Utah*, Salt Lake City, UT, USA.

Spring 2020 Minor in Computer Science

Spring 2019 **Budapest Semesters in Mathematics**, Budapest, Hungary.

Fall 2018 **Math in Moscow**, *Independent University of Moscow*, Moscow, Russia.

Publications and Preprints

- [1] Alvaro Carbonero, Willem Fletcher, Jing Guo, András Gyárfás, Rona Wang, and Shiyu Yan. Crowns in linear 3-graphs of minimum degree 4. *The Electronic Journal of Combinatorics*, 29(4):P4.17, 2022.

Work Experience

June 2023 – **Research Programmer (Remote)**, *SageMath*, Google Summer of Code.

Sep. 2023 Supervisor: Dr. Benjmain Hutz

Description: Fix bugs and generalize height algorithms in number fields

June 2022 – **Research Programmer (Remote)**, *SageMath*, Google Summer of Code.

Sep. 2022 Supervisor: Dr. Benjmain Hutz and Alexander Galarraga

Description: Fix bugs, improve implementations of height functionalities, and implement the Arakelov–Zhang pairing of rational maps in algebraic geometry

Nov. 2021 – Feb. 2022 **Common Lisp Software Intern (Remote)**, *Atlas Engineer*, USA and Germany.

Sep. 2020 – Oct. 2020 **Contract Research Programmer (Remote)**, *University of Bergen*, Bergen, Norway.

Supervisor: Dr. Mateus de Oliveira Oliveira

Description: Implement functionalities related to treewidth and tree decomposition

Research Experience

- Oct. 2023 – **Student Research Assistant (Studentische Hilfskräfte)**, *Fakultät für Informatik und Data Science*, Universität Regensburg.
May 2024 Supervisor: Dr. Radu Curticapean
Description: Implement and optimize fixed-parameter tractable (FPT) algorithms for counting graph homomorphisms in SageMath
- Summer 2021 **Research Assistant**, *Budapest Semesters in Mathematics (Online)*, Budapest, Hungary.
Supervisor: Dr. András Gyárfás
Description: Linear Turán number of the Crown C_{13} in linear 3-graphs
- Sep. 2019 – **Undergraduate Researcher**, *School of Computing*, University of Utah.
Sep. 2020 Supervisor: Dr. Blair D. Sullivan
Description: Improve heuristics and approximation algorithms for Vertex Cover and Odd-Cycle Transversal with fixed-parameter tractable algorithms

Software

- May 2024 **count-graph-homs**, with Radu Curticapean (supervisor)
SageMath implementation of exact graph homomorphism counting algorithm.
<https://github.com/guojing0/count-graph-homs>

Open Source Contributions

- June 2023 – **SageMath**, *Free open-source mathematics software system.*
May 2024 June 2022 – Oct. 2022
<https://www.sagemath.org/>
- Nov. 2021 – **Nyxt Browser**, *Keyboard-driven web browser written in Common Lisp.*
Feb. 2022 <https://nyxt.atlas.engineer/>

Honors and Awards

- Fall 2022 – **ALGANT Excellence Scholarship**, *ALGANT.*
Spring 2024
- April 2020 **Undergraduate Research Scholar**, *University of Utah.*

Other Information

- Programming Python, Common Lisp, Racket, Ruby, Java, C/C++, and \LaTeX
Languages Chinese, English, German (Basic), and Russian (Basic)