

# Jing Guo

## Resume

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📄 [guoj.org](http://guoj.org)

🌐 [guojing0](https://github.com/guojing0)

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## Work Interests

Software engineering, data science, machine/deep learning, generative AI, 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 – **Common Lisp Software Intern (Remote)**, *Atlas Engineer*, USA and

Feb. 2022 Germany.

Authored and merged 9 pull requests, implementing several useful features for navigating document structures, optimizing components across multiple files for performance and maintainability, and collaborating with the community to address user issues, improve project documentation, and contribute to testing.

Sep. 2020 – **Contract Research Programmer (Remote)**, *University of Bergen*, Bergen,  
Oct. 2020 Norway.  
Supervisor: Dr. Mateus de Oliveira Oliveira  
Description: Implement functionalities related to treewidth and tree decomposition

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## Research Experience

Oct. 2023 – **Student Research Assistant (Studentische Hilfskräfte)**, *Fakultät für  
May 2024 Informatik und Data Science*, Universität Regensburg.  
Supervisor: Dr. Radu Curticapean  
Description: Implement and optimize fixed-parameter tractable (FPT) algorithms for counting graph homomorphisms in SageMath

Summer **Research Assistant**, *Budapest Semesters in Mathematics (Online)*, Budapest,  
2021 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

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## 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>

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## 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/>

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## Honors and Awards

Fall 2022 – **ALGANT Excellence Scholarship**, *ALGANT.*  
Spring 2024

April 2020 **Undergraduate Research Scholar**, *University of Utah.*

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## Other Information

Programming Python, Common Lisp, Racket, Ruby, Java, C/C++, and L<sup>A</sup>T<sub>E</sub>X  
Languages Chinese, English, German (Basic), and Russian (Basic)