

# Ziqian Zhong

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## Education

01/2025 – present Pittsburgh, PA	<b>P.h.D. in Computer Science, Carnegie Mellon University</b> Conduct research on understanding and improving deep neural networks. Advised by Aditi Raghunathan.
08/2020 – 06/2024 Cambridge, MA	<b>Candidate for B.S. in Computer Science and Mathematics, Massachusetts Institute of Technology</b> GPA: 5.0/5.0 Selected Coursework: Quantitative Methods for Natural Language Processing, Multi-agent Communication, Machine Learning, Advanced Complexity Theory, Fundamentals of Statistics

## Experiences

06/2024 – 01/2025 Palo Alto, CA	<b>Research Scientist, Mellis Inc. / Pika Labs</b> Develop and improve large-scale video generation models. Contributed to the release of Pika 1.5 and led the release of Pika 2.0 <a href="#">🔗</a> .
08/2022 – 06/2024 Cambridge, MA	<b>Deep Learning Undergraduate Researcher, Massachusetts Institute of Technology</b> Took part in deep learning research with a focus on interpreting and understanding neural networks. Worked with Neil Thompson, Jacob Andreas, and Ziming Liu.
10/2021 – 05/2022 Cambridge, MA	<b>Theoretical Computer Science Undergraduate Researcher, Massachusetts Institute of Technology</b> Member of research team guided by Virginia Vassilevska Williams. Co-discovered several new results in graph theory and combinatorics. Resulted in several published papers.
05/2023 – 08/2023 New York, NY	<b>Algo Developer Intern, Hudson River Trading</b> Conducted market and algorithmic research. Project featured in intern spotlights <a href="#">🔗</a> .

## Selected Awards

08/2019	<b>Gold Medal, Fourth Place, International Olympiad in Informatics 2019</b>
12/2024	<b>First Place, Meta Hackercup 2024</b>
04/2024	<b>Gold Medal, 46th ICPC World Final</b>
06/2022	<b>Honorable Mention, Alibaba Global Mathematics Competition 2022</b>
12/2022	<b>Honorable Mention, Putnam Mathematical Competition 2022</b>

## Publications

- 06/2023 **The Clock and the Pizza: Two Stories in Mechanistic Explanation of Neural Networks**, Ziqian Zhong\*, Ziming Liu\*, Max Tegmark, Jacob Andreas; Oral @ NeurIPS 2023 [↗](#)
- 06/2024 **Algorithmic Capabilities of Random Transformers**, Ziqian Zhong, Jacob Andreas; NeurIPS 2024 [↗](#)
- 02/2022 **On Problems Related to Unbounded SubsetSum: A Unified Combinatorial Approach**, Mingyang Deng\*, Xiao Mao\*, Ziqian Zhong\*; SODA 2023 [↗](#)
- 12/2023 **Grokking as Compression: A Nonlinear Complexity Perspective**, Ziming Liu, Ziqian Zhong, Max Tegmark; NeurIPS 2023 UniReps Workshop [↗](#)
- 07/2022 **New Additive Approximations for Shortest Paths and Cycles**, Mingyang Deng\*, Yael Kirkpatrick\*, Victor Rong\*, Virginia Vassilevska Williams\*, Ziqian Zhong\*; ICALP 2022 [↗](#)
- 08/2022 **New Lower Bounds and Upper Bounds for Listing Avoidable Vertices**, Mingyang Deng\*, Virginia Vassilevska Williams\*, Ziqian Zhong\*; MFCS 2022 [↗](#)

## Talks

- 12/2023 **Two Stories in Mechanistic Explanation of Neural Networks**, New Orleans, LA  
NeurIPS 2023 Oral, with Ziming Liu
- 01/2023 **New Approach for Unbounded SubsetSum**, SODA 2023  
Florence, Italy

## Selected Projects

- 11/2023 **Is my problem new?**, <http://yuantiji.ac/> [↗](#)  
A tool that employs LLM and vector embeddings to search for competitive problems with similar ideas. Problem setters can use it to check similarity between newly proposed problems and existing problems. Has ~20k page views per month and is widely accepted and adopted by problemsetters in major competitive programming contests.
- 07/2022 **CP Ideas**, <https://fjzzq2002.github.io/cpideas/> [↗](#)  
A tool that generates competitive programming problems by fine-tuning GPT-3. Collected and cleaned data from various online judges.