

Jun-Ting (Tim) Hsieh

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<https://jthsieh.github.io/>

CURRENT POSITION

C.L.E. Moore Instructor of Mathematics at MIT

Sep. 2025 - Present

EDUCATION

Carnegie Mellon University

Aug. 2019 - Aug. 2025

Ph.D. in Computer Science

Advisor: Pravesh K. Kothari

Thesis: *Algorithms and Explicit Constructions via Spectral Techniques*

Stanford University

Sep. 2017 - Mar. 2019

M.S. in Computer Science

Advisors: Fei-Fei Li, Stefano Ermon

Stanford University

Sep. 2013 - Jun. 2017

B.S. in Computer Science with Distinction

Advisor: Jure Leskovec

PUBLICATIONS

THEORETICAL COMPUTER SCIENCE

(Authors are sorted in alphabetical order.)

- **Explicit Constant-Alphabet Subspace Design Codes.**
Rohan Goyal, Venkatesan Guruswami, **Jun-Ting Hsieh**.
Foundations of Computer Science (FOCS), 2026.
- **Explicit Almost-Optimal ε -Balanced Codes via Free Expander Walks.**
Jun-Ting Hsieh, Sidhanth Mohanty, Rachel Yun Zhang.
Foundations of Computer Science (FOCS), 2026.
- **Rigorous Implications of the Low-Degree Heuristic.**
Jun-Ting Hsieh, Daniel M. Kane, Pravesh K. Kothari, Jerry Li, Sidhanth Mohanty, Stefan Tiegel.
Symposium on Theory of Computing (STOC), 2026.
- **Coloring 3-Colorable Graphs with Low Threshold Rank.**
Jun-Ting Hsieh.
Symposium on Discrete Algorithms (SODA), 2026.
- **Sparsifying Cayley Graphs on Every Group.**
Jun-Ting Hsieh, Daniel Z. Lee, Sidhanth Mohanty, Aaron Putterman, and Rachel Yun Zhang.
Symposium on Discrete Algorithms (SODA), 2026.
- **Solving Random Planted CSPs below the $n^{k/2}$ Threshold.**
Arpon Basu, **Jun-Ting Hsieh**, Andrew D. Lin, Peter Manohar.
International Colloquium on Automata, Languages and Programming (ICALP), 2026.
- **Explicit Lossless Vertex Expanders.**
Jun-Ting Hsieh, Alex Lubotzky, Sidhanth Mohanty, Assaf Reiner, Rachel Yun Zhang.
Foundations of Computer Science (FOCS), 2025. **Best Paper Award**.

- **The Quasi-Polynomial Low-Degree Conjecture is False.**
Rares-Darius Buhai, **Jun-Ting Hsieh**, Aayush Jain, Pravesh K. Kothari.
Foundations of Computer Science (FOCS), 2025.
- **Improved Lower Bounds for all Odd-Query Locally Decodable Codes.**
Arpon Basu, **Jun-Ting Hsieh**, Pravesh K. Kothari, Andrew D. Lin.
Foundations of Computer Science (FOCS), 2025.
- **Explicit Two-Sided Vertex Expanders Beyond the Spectral Barrier.**
Jun-Ting Hsieh, Ting-Chun Lin, Sidhanth Mohanty, Ryan O'Donnell, Rachel Yun Zhang.
Symposium on Theory of Computing (STOC), 2025. **Invited to SICOMP Special Issue for STOC 2025.**
- **Rounding Large Independent Sets on Expanders.**
Mitali Bafna, **Jun-Ting Hsieh**, Pravesh K. Kothari.
Symposium on Theory of Computing (STOC), 2025.
- **Small Even Covers, Locally Decodable Codes and Restricted Subgraphs of Edge-Colored Kikuchi Graphs.**
Jun-Ting Hsieh, Pravesh K. Kothari, Sidhanth Mohanty, David Munha Correia, Benny Sudakov.
International Mathematics Research Notices, 2025.
- **Predicting quantum channels over general product distributions.**
Sitan Chen, Jaume de Dios Pont, **Jun-Ting Hsieh**, Hsin-Yuan Huang, Jane Lange, Jerry Li.
Preprint, 2024.
- **Certifying Euclidean Sections and Finding Planted Sparse Vectors Beyond the $\sqrt{n}$ Dimension Threshold.**
Venkatesan Guruswami, **Jun-Ting Hsieh**, Prasad Raghavendra.
Foundations of Computer Science (FOCS), 2024.
- **Explicit two-sided unique-neighbor expanders.**
Jun-Ting Hsieh, Theo McKenzie, Sidhanth Mohanty, Pedro Paredes.
Symposium on Theory of Computing (STOC), 2024.
- **New SDP Roundings and Certifiable Approximation for Cubic Optimization.**
Jun-Ting Hsieh, Pravesh K. Kothari, Lucas Pesenti, Luca Trevisan.
Symposium on Discrete Algorithms (SODA), 2024.
- **Efficient Algorithms for Semirandom Planted CSPs at the Refutation Threshold.**
Venkatesan Guruswami, **Jun-Ting Hsieh**, Pravesh K. Kothari, Peter Manohar.
Foundations of Computer Science (FOCS), 2023.
- **Ellipsoid Fitting Up to a Constant.**
Jun-Ting Hsieh, Pravesh K. Kothari, Aaron Potechin, Jeff Xu.
International Colloquium on Automata, Languages and Programming (ICALP), 2023.
- **Approximating Max-Cut on Bounded Degree Graphs: Tighter Analysis of the FKL Algorithm.**
Jun-Ting Hsieh, Pravesh K. Kothari.
International Colloquium on Automata, Languages and Programming (ICALP), 2023.
- **A simple and sharper proof of the hypergraph Moore bound.**
Jun-Ting Hsieh, Pravesh K. Kothari, Sidhanth Mohanty.
Symposium on Discrete Algorithms (SODA), 2023.
- **Polynomial-Time Power-Sum Decomposition of Polynomials.**
Mitali Bafna, **Jun-Ting Hsieh**, Pravesh K. Kothari, Jeff Xu.
Foundations of Computer Science (FOCS), 2022.
- **Certifying solution geometry in random CSPs: counts, clusters and balance.**
Jun-Ting Hsieh, Sidhanth Mohanty, Jeff Xu.
Computational Complexity Conference (CCC), 2022.

- **Algorithmic Thresholds for Refuting Random Polynomial Systems.**

Jun-Ting Hsieh, Pravesh K. Kothari.

Symposium on Discrete Algorithms (SODA), 2022.

MACHINE LEARNING & ARTIFICIAL INTELLIGENCE

- **Learning Neural PDE Solvers with Convergence Guarantees.**

Jun-Ting Hsieh, Shengjia Zhao, Stephan Eismann, Lucia Mirabella, Stefano Ermon.

International Conference on Learning Representations (ICLR), 2019.

- **Learning to Decompose and Disentangle Representations for Video Prediction.**

Jun-Ting Hsieh, Bingbin Liu, De-An Huang, Li Fei-Fei, Juan Carlos Niebles.

Conference on Neural Information Processing Systems (NeurIPS), 2018.

- **Graph Distillation for Action Detection with Privileged Information.**

Zelun Luo, **Jun-Ting Hsieh**, Lu Jiang, Juan Carlos Niebles, Li Fei-Fei.

IEEE European Conference on Computer Vision (ECCV), 2018.

- **Computer Vision-based Descriptive Analytics of Seniors' Daily Activities for Long-term Health Monitoring.**

Jun-Ting Hsieh*, Zelun Luo*, Niranjan Balachandar, Serena Yeung, Guido Pusioli, Jay Luxenberg, Grace Li, Li-Jia Li, N. Lance Downing, Arnold Milstein, Li Fei-Fei.

Machine Learning for Healthcare (MLHC), 2018.

PHYSICAL CHEMISTRY

- **Direct kinetic measurement of the reaction of the simplest Criegee intermediate with water vapor.**

Wen Chao, **Jun-Ting Hsieh**, Chun-Hung Chang, Jim Jr-Min Lin.

Science, 2015; Volume 347, Issue 6223, page 751-754.

RESEARCH EXPERIENCE

CMU Theory Group

Advisor: Pravesh K. Kothari.

Carnegie Mellon University

Aug. 2020 - Aug. 2025

UC Berkeley

Visiting student. Advisor: Venkatesan Guruswami, Prasad Raghavendra.

UC Berkeley

Jun. 2023 - Aug. 2023

Bocconi University

Visiting student. Advisor: Luca Trevisan.

Bocconi University

May. 2022 - Jul. 2022

Computational Complexity of Statistical Inference Program

Visiting student.

Simons Institute

Sep. 2021 - Dec. 2021

Stefano Ermon Group

Research assistant. Advisor: Stefano Ermon.

Stanford University

Jun. 2018 - Dec. 2018

Stanford Vision and Learning Lab

Research assistant. Advisors: Fei-Fei Li, Juan Carlos Niebles.

Stanford University

Sep. 2017 - Mar. 2019

Network Analysis

Research assistant. Advisor: Jure Leskovec.

Stanford University

Mar. 2016 - Sep. 2017

Institute of Atomic and Molecular Sciences

Research assistant. Advisor: Jr-Min Lin.

Taipei, Taiwan

Jun. 2014 - Sep. 2014

HONORS AND AWARDS

- **FOCS Best Paper Award**, 2025.
- **Honorable Mention for the SCS CMU Distinguished Dissertation Award**, 2025.
3 honorable mentions selected by the School of Computer Science at CMU.
- **Frederick Emmons Terman Engineering Scholastic Award**, 2017.
Top 5% of the undergraduate engineering class at Stanford University.
- **Phi Beta Kappa Honor Society Member**, 2017.
Top 10% of the entire graduating class at Stanford University.
- **Stanford President's Award for Academic Excellence in the Freshman Year**, 2014.
Top 3% of the class in the freshman year.
- **Gold Medal at International Physics Olympiad (IPhO)**, 2012.
Ranked 8th overall.
- **Gold Medal at Asian Physics Olympiad (APhO)**, 2012.
Ranked 10th overall.
- **Silver Medal at Asian Physics Olympiad (APhO)**, 2011.
Ranked 26th overall.

TEACHING

MIT (INSTRUCTOR)

- | | |
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| • 18.03 Differential Equations | Fall 2026 |
| • 18.204 Undergraduate Seminar in Discrete Mathematics | Spring 2026 |
| • 18.02 Multivariable Calculus | Fall 2025 |

CMU (TEACHING ASSISTANT)

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|---|-------------|
| • 15-751 CS Theory Toolkit | Spring 2022 |
| • 15-855 Graduate Computational Complexity Theory | Spring 2021 |

PRIOR WORK EXPERIENCE

Lightspeed Venture Partners

Summer Fellow.

Menlo Park, USA

Jun. 2017 - Sep. 2017

Google Inc.

Software Engineer Intern.

Mountain View, USA

Jun. 2016 - Sep. 2016

MobiSocial Inc.

Software Engineer Intern.

Mountain View, USA

Jun. 2015 - Sep. 2015