Asaf Etgar

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Research Interests

Graph algorithms, metric repair, streaming and sublinear algorithms, parameterized algorithms and complexity, random graphs and threshold phenomena, algorithm engineering, and combinatorics.

Education

Ph.D. Applied Mathematics 2022–present
Yale University
Advisor: Anna Gilbert
Thesis: *Estimate and Repair: Graph Algorithms for Limited and Corrupted Information*

M.S. Computer Science 2020–2022
Hebrew University of Jerusalem
Advisor: Nati Linial
Thesis: *On the Connectivity and Diameter of Geodetic Graphs*

B.Sc. Mathematics 2016–2020
Hebrew University of Jerusalem
Magna Cum Laude

Awards & Funding

CADMY Research Funding 2026, Spring 2027
Center for Algorithms, Data, and Market Design at Yale

Excellence Scholarship for M.Sc. Students 2020–2022
Rachel and Selim Benin School of Computer Science and Engineering, Hebrew University of Jerusalem
Two-year merit award with full tuition exemption

Publications

1. A. Etgar and A. Gilbert. "Metric repair is two problems: Which edges, and what weights". *SIAM Symposium on Algorithm Engineering and Experiments (ALENEX 2027)*, to appear. arXiv:2608.07715. [code]
2. A. Etgar and N. Linial. "On the connectivity and diameter of geodetic graphs". *European Journal of Combinatorics* 116 (2024), p. 103886. [journal] arXiv:2208.06324.
3. A. Etgar, R. Friedman, S. Haiman, D. Perez, and D. G. Feitelson. "The effect of information content and length on name recollection". *Proceedings of the 30th IEEE/ACM International Conference on Program Comprehension (ICPC)*, 2022, pp. 141–151. [IEEE Xplore]

Preprints

1. A. Etgar, A. Gilbert, and J. Tucker-Foltz. "Structural tractability frontiers for metric repair". Submitted, 2026. arXiv:2607.29649.
2. A. Etgar, A. Gilbert, Q. C. Liu, and A. McGregor. "Scalable triangle counting: The threshold algorithm". 2026. arXiv:2609.15848. [code]
3. A. Etgar, A. Gilbert, Q. C. Liu, and A. McGregor. "Parameter-free

triangle counting". Submitted, 2026. arXiv:2609.24829.

4. G. Beniamini, A. Etgar, and Y. Kirkpatrick. "The $\mathbb{F}_2$-rank and size of graphs". 2022. arXiv:2206.11625.

Talks & Posters

Algorithms and Complexity Seminar, Massachusetts Institute of Technology, December 2, 2026 *(upcoming)*.

Theory Seminar, University of Michigan, November 13, 2026 *(upcoming)*.

Theory Seminar, Boston College, November 6, 2026 *(upcoming)*.

Metric Repair: Where Structure Helps. Mathematics Colloquium, Trinity College (Hartford, CT), October 15, 2026.

Parameter-Free Triangle Counting (poster). New England Theory Day, University of Massachusetts Amherst, October 2, 2026.

Parameter-Free Triangle Counting. Yale Theory Student Seminar, April 17, 2026.

Metric Repair: Hardness, Approximation, and More Hardness. Yale Theory Student Seminar, October 11, 2024.

On Metric Nearness and the Study of Graph Metric Repair (poster). FDS Workshop on the Theory and Practice of Foundation Models, Yale University, October 25–27, 2023.

On Graphs and Geometry. Yale Theory Student Seminar, July 12, 2023.

On the Connectivity and Diameter of Geodetic Graphs. Yale Theory Student Seminar, May 31, 2023.

Workshops

Frontiers in Complexity Theory: A Graduate Workshop, DIMACS Center, Rutgers University, July 29 – August 1, 2024.

Teaching

Part-Time Acting Instructor (Instructor of Record) Fall 2026
Yale University, Associates in Teaching Program
Modern Combinatorics (MATH 3450), co-taught with Richard Kenyon

Teaching Fellow Summers 2025, 2026
First-Year Scholars at Yale
Multivariable Calculus (MATH S1190)

Teaching Fellow Spring 2025
Yale University
Discrete Mathematics (MATH 244)

Teaching Fellow Springs 2024, 2026
Yale University
Intensive Algorithms (CPSC 366)

Teaching Assistant & Course Developer Spring 2022
Hebrew University of Jerusalem
Calculus for CS Students (67559)

Instructor of Record & Course Developer Spring 2022
Federmann Center for the Study of Rationality
Game Theory for High-School Students (67128)

Teaching Assistant Fall 2020
Hebrew University of Jerusalem
Data Structures (67109)

Lecturer & Course Developer Summers 2020, 2021
Azrieli & Hadassah Colleges
Supplementary classes: discrete mathematics, linear algebra, calculus

Grader Fall 2018
Hebrew University of Jerusalem
Probability Theory (80420) and *Linear Algebra II* (80135)

Instructor 2015–2019
Kidum Education Group, Israel
SAT preparation courses

Service

Applied Mathematics Representative 2023–present
Graduate Student Assembly, Yale University

Research Mentor Summers 2023, 2026
Yale SUMRY Undergraduate Research Program
2023 with Kevin O'Neil; 2026 with Kirsti Kuenzel and Ryan Pellico

Research Mentor Summer 2025
Undergraduate research project in weighted random graph theory
Mentored Mihai Esanu, co-supervised with Anna Gilbert

Organizer Fall 2023
Graph Theory and Additive Combinatorics Reading Group, Yale University

Student Review Panel
Ackerman Award for Teaching and Mentoring, Yale School of Engineering & Applied Science

Reviewer
Journal of Graph Theory; ICLR

Outreach

"Easy To See" Educational Program 2020–2021
Geometric intuition for first-year calculus; reached over 200 students

References

Anna Gilbert (advisor)
Professor of Statistics and Data Science, Yale University
anna.gilbert@yale.edu

Andrew McGregor
Professor, Manning College of Information & Computer Sciences, University of Massachusetts Amherst
amcgrego@umass.edu

Quanquan C. Liu
Assistant Professor of Computer Science, Yale University
quanquan.liu@yale.edu

Jamie Tucker-Foltz
Assistant Professor of Operations, Yale School of Management
j.tuckerfoltz@yale.edu

John Hall (teaching)
Senior Lecturer in Mathematics, Yale University
john.hall@yale.edu