

Brice HUANG

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ACADEMIC POSITIONS

JUL 2025 – | **Postdoctoral Researcher in Statistics, Stanford University.**
Stanford Science Fellow and NSF Postdoctoral Fellow. Hosted by Andrea Montanari.

EDUCATION

JAN 2020 – | **Ph.D. Electrical Engineering and Computer Science, Massachusetts Institute of Technology.**
JUN 2025 | Advised by Guy Bresler and Nike Sun.

JAN 2020 – | **S.M. Electrical Engineering and Computer Science, Massachusetts Institute of Technology.**
FEB 2022 | Ernst A. Guillemin Award for Best Master's Thesis.

SEP 2015 – | **S.B. Mathematics and EECS, Massachusetts Institute of Technology.**
JUN 2019 | GPA 5.0/5.0.

SELECTED HONORS

2025 | **Stanford Science Fellowship.**
2025 | **NSF Postdoctoral Fellowship in Mathematics.**
2024 | **FOCS Best Student Paper.**
2023 | **Google Ph.D. Fellowship.**
2020 | **Siebel Scholarship.**
2019 | **NSF Graduate Fellowship.**
2017 | **9th Place.** William Lowell Putnam Competition.
2015 | **2nd Place in Basic Research.** Intel Science Talent Search.
2015 | **Gold Medal (7th).** Romanian Master of Mathematics.

PUBLICATIONS AND PREPRINTS: PROBABILITY

- **Stable Algorithms Cannot Reliably Find Isolated Perceptron Solutions**
S. Gong, B. Huang, S. Li, and M. Sellke, preprint 2026. [arXiv:2604.00328](https://arxiv.org/abs/2604.00328)
- **Shotgun assembly of random regular graphs**
B. Huang, E. Mossel, N. Sun, C. Zhang, and L. Zhou, preprint 2025. [arXiv:1512.08473](https://arxiv.org/abs/1512.08473)
- **On Zeros and Algorithms for Disordered Systems: Mean-Field Spin Glasses**
F. Bencs, B. Huang, D. Z. Lee, K. Liu, and G. Regts. *STOC 2026*. [arXiv:2507.15616](https://arxiv.org/abs/2507.15616).
- **Strong Low Degree Hardness for Stable Local Optima in Spin Glasses**
B. Huang and M. Sellke, preprint 2025. [arXiv:2501.06427](https://arxiv.org/abs/2501.06427).
- **Weak Poincaré Inequalities, Simulated Annealing, and Sampling from Spherical Spin Glasses**
B. Huang, S. Mohanty, A. Rajaraman, and D. X. Wu. *STOC 2025*. [arXiv:2411.09075](https://arxiv.org/abs/2411.09075).
- **Capacity Threshold for the Ising Perceptron**
B. Huang, *FOCS 2024*. **Best Student Paper**. [arXiv:2404.18902](https://arxiv.org/abs/2404.18902).
- **Sampling from Spherical Spin Glasses in Total Variation via Algorithmic Stochastic Localization**
B. Huang, A. Montanari, and H. T. Pham, preprint 2024. [arXiv:2404.15651](https://arxiv.org/abs/2404.15651).
- **A Constructive Proof of the Spherical Parisi Formula**
B. Huang and M. Sellke, preprint 2023. [arXiv:2311.15495](https://arxiv.org/abs/2311.15495).
- **Strong Topological Trivialization of Multi-Species Spherical Spin Glasses**
B. Huang and M. Sellke, *Annals of Probability* 54(2) (2026), 1034–1107. [arXiv:2308.09677](https://arxiv.org/abs/2308.09677).
- **Optimization Algorithms for Multi-Species Spherical Spin Glasses**
B. Huang and M. Sellke, *Journal of Statistical Physics* 191 (2024), paper no. 29. [arxiv:2308.09672](https://arxiv.org/abs/2308.09672).
- **Algorithmic Threshold for Multi-Species Spherical Spin Glasses**
B. Huang and M. Sellke, preprint 2023. Under revision at *Proceedings of the London Mathematical Society*.

Society. [arXiv:2303.12172](https://arxiv.org/abs/2303.12172).

- **Tight Lipschitz Hardness for Optimizing Mean Field Spin Glasses**
B. Huang and M. Sellke, *Communications on Pure and Applied Mathematics* **78**(1) (2025), 60–119. [arxiv:2110.07847](https://arxiv.org/abs/2110.07847). Conference version in *FOCS* 2022.
- **The Algorithmic Phase Transition of Random k -SAT for Low Degree Polynomials**
G. Bresler and B. Huang, *FOCS 2021*. [arXiv:2106.02129](https://arxiv.org/abs/2106.02129).
- **Convergence of Maximum Bisection Ratio of Sparse Random Graphs**
B. Huang, *Electronic Communications in Probability* **23** (2018), paper no. 51. [arXiv:1802.01619](https://arxiv.org/abs/1802.01619).

PUBLICATIONS AND PREPRINTS: STATISTICAL INFERENCE AND LEARNING

- **Threshold for Detecting High Dimensional Geometry in Anisotropic Random Geometric Graphs**
M. Brennan, G. Bresler and B. Huang, *Random Structures & Algorithms* **64**(1) (2024), 125–137. [arXiv:2206.14896](https://arxiv.org/abs/2206.14896).
- **When Does Adaptivity Help for Quantum State Learning?**
S. Chen, B. Huang, J. Li, A. Liu, and M. Sellke, *FOCS 2023*. [arXiv:2206.05265](https://arxiv.org/abs/2206.05265).
- **Tight Bounds for Quantum State Certification with Incoherent Measurements**
S. Chen, B. Huang, J. Li and A. Liu, *FOCS 2022*. [arXiv:2204.07155](https://arxiv.org/abs/2204.07155).
- **De Finetti-Style Results for Wishart Matrices: Combinatorial Structure and Phase Transitions**
M. Brennan, G. Bresler, and B. Huang, preprint 2021. [arXiv:2103.14011](https://arxiv.org/abs/2103.14011).

PUBLICATIONS AND PREPRINTS: COMBINATORICS

- **Improved Lower Bound for Frankl’s Union-Closed Sets Conjecture**
R. Alweiss, B. Huang and M. Sellke, *Electronic Journal of Combinatorics* **31**(3) (2024), paper no. 35. [arxiv:2211.11731](https://arxiv.org/abs/2211.11731).
- **Cyclic Descents for General Skew Tableaux**
B. Huang, *Journal of Combinatorial Theory, Series A* **169** (2020). [arXiv:1808.04918](https://arxiv.org/abs/1808.04918).
- **On the Local Geometry of Graphs in Terms of Their Spectra**
B. Huang and M. Rahman, *European Journal of Combinatorics* **81** (2019), 378–393. [arXiv:1807.06034](https://arxiv.org/abs/1807.06034).
- **An Upper Bound on the Number of (132,213)-Avoiding Cyclic Permutations**
B. Huang, *Discrete Mathematics* **342**(6) (2019), 1762–1771. [arXiv:1808.08462](https://arxiv.org/abs/1808.08462).

INVITED TALKS

APR 2026	Algorithmic Threshold for Random Perceptron Models UC Davis Probability Seminar
APR 2026	Algorithmic Threshold for Random Perceptron Models Lausanne Event on Machine Learning and Neural Network Theory (LemanTh), EPFL
FEB 2026	Algorithmic Threshold for Random Perceptron Models Stanford Probability Seminar
FEB 2026	Sampling From Spherical Spin Glasses: Diffusions and Simulated Annealing BIRS Workshop on High-Dimensional Learning Dynamics
DEC 2025	Strong Low Degree Hardness in Random Optimization Problems UC Davis Probability Seminar
OCT 2025	Strong Low Degree Hardness in Random Optimization Problems IDEAL Institute Workshop on Inference in High Dimensions: Algorithms and Statistics
OCT 2025	Capacity Threshold for the Ising Perceptron Lehigh University – University of Minnesota Probability Seminar
AUG 2025	Spin Glasses, Algorithms, and Inference (survey talk) Cargèse Institute: Statistical Physics and Machine Learning Moving Forward
AUG 2025	Strong Low Degree Hardness of Strict Local Optima and other Random Optimization Problems JSM: Recent Advances in High-Dimensional Probability and Combinatorial Optimization

JUL 2025	Capacity Threshold for the Ising Perceptron ICTP: Youth in High Dimensions
JUN 2025	Weak Poincaré Inequalities, Simulated Annealing, and Sampling from Spherical Spin Glasses INFORMS APS: Mean-Field and Statistical Physics Models in Modern High-Dimensional Statistics
JUN 2025	Algorithmic Threshold for Random Perceptron Models McGill/CRM Workshop on Phase Transitions and Dynamics in Random Media
JUN 2025	Algorithmic Threshold for Random Perceptron Models TTIC Workshop on Information-Computation Tradeoffs for Statistical Tasks
APR 2025	Capacity Threshold for the Ising Perceptron Brown Probability Seminar
FEB 2025	Algorithmic Thresholds in Random Optimization Problems Yale University, Department of Statistics and Data Science
FEB 2025	Algorithmic Thresholds in Random Optimization Problems Georgia Tech, School of Computer Science
JAN 2025	Algorithmic Thresholds in Random Optimization Problems University of Pennsylvania, Department of Statistics and Data Science
JAN 2025	Algorithmic Thresholds in Random Optimization Problems University of Pennsylvania, Department of Mathematics
JAN 2025	Algorithmic Thresholds in Random Optimization Problems Stanford University, Department of Statistics
JAN 2025	Algorithmic Thresholds in Random Optimization Problems Carnegie Mellon University, Department of Mathematical Sciences
JAN 2025	Algorithmic Threshold for Random Perceptron Models Northwestern University Probability Seminar
NOV 2024	Algorithmic Threshold for Random Perceptron Models Duke Workshop in Operations Research and Data Science (WORDS)
NOV 2024	Capacity Threshold for the Ising Perceptron MIT Combinatorics Seminar
NOV 2024	Capacity Threshold for the Ising Perceptron Harvard Computer Science Group Meeting
OCT 2024	Capacity Threshold for the Ising Perceptron MIT Algorithms & Complexity Seminar
SEP 2024	Capacity Threshold for the Ising Perceptron Columbia Probability Seminar
SEP 2024	Algorithmic Threshold for Random Perceptron Models Cornell Probability Seminar
SEP 2024	Capacity Threshold for the Ising Perceptron Yale Statistics and Data Science Seminar
AUG 2024	Algorithmic Threshold for Random Perceptron Models BIRS Workshop on Frontiers of Statistical Mechanics and Theoretical Computer Science
MAY 2024	Capacity Threshold for the Ising Perceptron IDEAL Institute Workshop on Statistical Inference and Learning Dynamics
MAY 2024	Capacity Threshold for the Ising Perceptron Math of Deep Learning Collaboration Meeting, UC San Diego
MAY 2024	Capacity Threshold for the Ising Perceptron MIT Probability Seminar
APR 2024	A Constructive Proof of the Spherical Parisi Formula Harvard Internal Probability Seminar
FEB 2024	A Constructive Proof of the Spherical Parisi Formula BIRS Workshop in Computational Complexity of Statistical Inference
OCT 2023	Strong Topological Trivialization for Multi-Species Spherical Spin Glasses Harvard Probabilitas Seminar
SEP 2023	Strong Topological Trivialization for Multi-Species Spherical Spin Glasses University of Waterloo Probability Seminar
JUL 2023	Computational Thresholds for Stable Algorithms in Random Optimization Problems Santa Fe Institute Workshop on Connecting Physics, Geometry, and Algebraic Hardness
JUN 2023	Algorithmic Threshold for Multi-Species Spherical Spin Glasses FODSI/MIT Computational Complexity of Statistical Problems Workshop

JUN 2023	The Algorithmic Phase Transition of Random k-SAT for Low Degree Polynomials Canadian Discrete and Algorithmic Mathematics Conference (CanaDAM)
APR 2023	Algorithmic Threshold for Multi-Species Spherical Spin Glasses University of Wisconsin-Madison Probability Seminar
DEC 2022	Algorithmic Threshold for Multi-Species Spherical Spin Glasses Simons Institute Reunion on Computational Complexity of Statistical Inference
DEC 2022	Algorithmic Threshold for Multi-Species Spherical Spin Glasses Georgia Tech ARC Colloquium
JAN 2022	Algorithmic Barriers in Random Optimization Problems from the Overlap Gap Property FODSI Retreat
SEP 2021	The Algorithmic Phase Transition of Random k-SAT for Low Degree Polynomials Simons Institute Workshop on Rigorous Evidence for Information-Computation Tradeoffs

CONTRIBUTED AND CONFERENCE TALKS

OCT 2024	Capacity Threshold for the Ising Perceptron FOCS 2024
AUG 2024	Sampling from Spherical Spin Glasses in Total Variation via Algorithmic Stochastic Localization JSM: Advances in the Theory of Modern Sampling Algorithms
AUG 2023	Algorithmic Threshold for Multi-Species Spherical Spin Glasses Cargèse Institute: Statistical Physics and Machine Learning Back Together Again
NOV 2022	Tight Lipschitz Hardness for Optimizing Mean Field Spin Glasses FOCS 2022
FEB 2022	The Algorithmic Phase Transition of Random k-SAT for Low Degree Polynomials FOCS 2021
NOV 2021	The Algorithmic Phase Transition of Random k-SAT for Low Degree Polynomials Northeast Probability Seminar
JAN 2019	Cyclic Descents for General Skew Tableaux Joint Math Meetings

TEACHING

SPRING 2022	6.265 Discrete Probability and Stochastic Processes (MIT) . TA.
SPRING 2019	6.046 Design and Analysis of Algorithms (MIT) . TA.
FALL 2018	6.046 Design and Analysis of Algorithms (MIT) . TA.

SERVICE

OCT 2025 – DEC 2025	Probability Seminar Organizer , STANFORD DEPARTMENT OF STATISTICS, Stanford, CA. Organized weekly department-wide probability seminar.
JUN 2024 – AUG 2024	SPUR+ Mentor , MIT DEPARTMENT OF MATHEMATICS, Cambridge, MA. Mentored a research project in the SPUR+ undergraduate research program.
SEP 2023 – DEC 2023	Mentor , MIT EECS GRADUATE APPLICATION ASSISTANCE PROGRAM, Cambridge, MA. Mentored students from underrepresented backgrounds through the process of applying for PhD programs.
SEP 2021 – DEC 2021	Reading Group Leader , SIMONS INSTITUTE FOR THE THEORY OF COMPUTING, Berkeley, CA. Organized reading group on the Overlap Gap Property at the Fall 2021 Simons Institute program on Computational Complexity of Statistical Inference.

REVIEWING

Journals: Transactions of the AMS, Annals of Probability, Annals of Applied Probability, Communications in Mathematical Physics, Journal of Machine Learning Research, SIAM Journal on Computing, IEEE Transactions on Information Theory, Bernoulli, Random Structures & Algorithms, SIAM Journal on Discrete Mathematics, Electronic Journal of Statistics, Electronic Journal of Combinatorics, Discrete Mathematics.

Conferences: STOC (2022, 2023, 2024, 2025), FOCS (2025), SODA (2023, 2024, 2025, 2026), COLT (2023, 2024), ITCS (2023), QIP (2024), ICALP (2024, 2026), RANDOM (2025), AISTATS (2025), TQC (2026).