

Curriculum Vitae

Yifeng Huang, 11/12/2025

Positions

- 2024–present **Assistant Professor (RTPC)**, *University of Southern California (USC)*
2022–2024 **Postdoctoral Research Fellow**, *University of British Columbia (UBC)*

Education

- Apr 2022 **Ph.D. in Mathematics**, *University of Michigan, Ann Arbor (U of M)*, Advisor: Michael Zieve, Co-advisor: Jeffery Lagarias
Thesis: Topics on Polynomial Equations in Noncommutative Rings and Motivic Aspects of Moduli Spaces
- 2015 **B.Sc. in Mathematics, with First Class Honors**, *Hong Kong University of Science and Technology (HKUST)*

Research Interest

I am interested in algebraic geometry and number theory, especially the combinatorial aspects. My main expertise lies in zero-dimensional enumerative geometry, discrete random matrix theory, and Diophantine equations on noncommutative algebras.

Publications

- [12] Jason Bell, Dragos Ghioca, and Yifeng Huang. “A Mordell-Lang-type problem for GL_m ”. In: *Bull. Aust. Math. Soc.* 111.3 (2025), pp. 433–444.
- [11] Dragos Ghioca and Yifeng Huang. “A non-abelian variant of the classical Mordell-Lang conjecture”. In: *Manuscripta Math.* 176.5 (2025), Paper No. 71.
- [10] Yifeng Huang and Ruofan Jiang. “Lattices in $\mathbb{F}_q[[T]]^d$ and spiral shifting operators”. In: *Adv. in Appl. Math.* 171 (2025), Paper No. 102950, 29.
- [9] Yifeng Huang. “Cokernels of random matrix products and flag Cohen-Lenstra heuristic”. In: *Forum Math.* 37.5 (2025), pp. 1325–1332.
- [8] Gilyoung Cheong and Yifeng Huang. “The cokernel of a polynomial push-forward of a random integral matrix with concentrated residue”. In: *Math. Proc. Cambridge Philos. Soc.* 178.2 (2025), pp. 229–257.
- [7] Yifeng Huang, Ken Ono, and Hasan Saad. “Counting matrix points on certain varieties over finite fields”. In: *Contemp. Math.* 818 (2025), pp. 181–195.
- [6] Alexander Clifton, Bishal Deb, Yifeng Huang, Sam Spiro, and Semin Yoo. “Continuously increasing subsequences of random multiset permutations”. In: *European J. Combin.* 110 (2023), p. 103708.

- [5] Yifeng Huang. "Mutually annihilating matrices, and a Cohen–Lenstra series for the nodal singularity". In: *J. Algebra* 619 (2023), pp. 26–50.
- [4] Yifeng Huang. "Counting on the variety of modules over the quantum plane". In: *Algebr. Comb.* 5.3 (2022), pp. 583–592.
- [3] Gilyoung Cheong and Yifeng Huang. "Betti and Hodge numbers of configuration spaces of a punctured elliptic curve from its zeta functions". In: *Trans. Amer. Math. Soc.* 375.9 (2022), pp. 6363–6383.
- [2] Gilyoung Cheong and Yifeng Huang. "Cohen–Lenstra distributions via random matrices over complete discrete valuation rings with finite residue fields". In: *Illinois Journal of Mathematics* 65.2 (2021), pp. 385–415.
- [1] Yifeng Huang. "Unit equations on quaternions". In: *Q. J. Math.* 71.4 (2020), pp. 1521–1534.

Preprints

- [11] Shane Chern and Yifeng Huang. "Multiple Rogers–Ramanujan type identities for inert quadratic orders". Preprint. <https://arxiv.org/abs/2511.09452>.
- [10] Asvin G, Yifeng Huang, Ruofan Jiang, and Yifan Wei. "Matrix points on varieties". Preprint. <https://arxiv.org/abs/2510.13380>. 2025.
- [9] Yifeng Huang, Hoi H. Nguyen, and Roger Van Peski. "Cohen–Lenstra flag universality for random matrix products". Preprint. <https://arxiv.org/abs/2508.10127>. 2025.
- [8] Yifeng Huang. "Coh zeta functions for inert quadratic orders". Preprint <https://arxiv.org/abs/2507.21966>. 2025.
- [7] Yifeng Huang and Eric Ramos. "Hilbert series for configuration spaces of punctured surfaces". Preprint. <https://www.arxiv.org/abs/2507.09746>. 2025.
- [6] Yifeng Huang, Borys Kadets, and Olivier Martin. "Low degree subvarieties of universal hypersurfaces". Preprint. <https://arxiv.org/abs/2506.08848>. 2025.
- [5] Yifeng Huang. "Commuting matrices via commuting endomorphisms". Preprint <https://arxiv.org/abs/2404.19483>. 2024.
- [4] Yifeng Huang and Ruofan Jiang. "Motivic Coh and Quot zeta functions of singular curves". Preprint <https://arxiv.org/abs/2312.12528>.
- [3] Yifeng Huang and Ruofan Jiang. "Punctual Quot schemes and Cohen–Lenstra series of the cusp singularity". Preprint <https://arxiv.org/abs/2305.06411>. 2023.
- [2] Tianyu Wang, Yifeng Huang, and Didong Li. "From the Greene–Wu Convolution to Gradient Estimation over Riemannian Manifolds". Preprint <https://arxiv.org/abs/2108.07406>. 2021.
- [1] Yifeng Huang. "Cohomology of configuration spaces on punctured varieties". Preprint <https://arxiv.org/abs/2011.07153>. 2020.

Grants Submitted and Awarded

- 2022,2023 (Submitted) NSF Mathematical Science Postdoctoral Research Fellowship
- 2022 (Awarded) AMS-Simons Travel Grant

2019 (Awarded) Math Department Summer Research Grant, funded by Indu and Gopal Prasad Family Fund

Mentoring

- 2024–present *USC*, Directed Reading and Research
2024–2025 *Harvey Mudd College*, Co-advisor for undergraduate thesis
2023 *University of Virginia*, Research mentor of REU in Number Theory led by Ken Ono

Invited Talks

- 2025 AMS Fall Virtual Eastern Sectional, Special Session “Representations of p-adic Groups and Noncommutative Geometry” (50 minute talk)
2025 *UC Irvine*, Number Theory Seminar
2025 *Montréal*, Third Joint SIAM/CAIMS Annual Meetings (AN25), “Hypergeometric Series and Their Applications” (25 minute talk)
2025 *HKUST*, Algebra and Geometry Seminar
2025 *UCSD*, Algebra Seminar
2025 Seattle, AMS Joint Mathematics Meeting, Special Session “Quaternions” (20 minute talk)
2024 *UMass Amherst*, Valley Geometry Seminar
2024 *Claremont McKenna*, ANTC Seminar
2023 *UCSD*, Combinatorics Seminar
2023 Southern California Number Theory Day
2023 *UCSD*, Algebraic Geometry Seminar
2023 *Simon Fraser University*, Number Theory and Algebraic Geometry Seminar
2023 *Boston*, Joint Mathematics Meeting, Special Session “Quaternions”
2023 *Boston*, Joint Mathematics Meeting, Special Session “Combinatorics and Geometry of Jordan Type and Lefschetz Properties”
2022,2023 *Virginia Tech*, Algebra Seminar
2022 *University of Virginia*, Algebra Seminar
2022 *University of Massachusetts, Amherst*, AMS Eastern Sectional, Special Session “Young Voices in Combinatorics”
2022 *University of California, Irvine*, Number Theory Seminar
2022 *University of Southern California*, Combinatorics Seminar
2022 *Rutgers University*, Graduate Algebra and Representation Theory Seminar
2021 *St Johns University, New York City*, NYC Noncommutative Geometry Seminar
2021 *U of M*, RTG Seminar on Number Theory
2020 *UBC*, Discrete Mathematics Seminar
2020 *UBC*, Algebraic Geometry Seminar
2020 *University of Waterloo*, Algebra Seminar

- 2020 *Rutgers University*, Algebra Seminar
2020 *University of Minnesota*, Combinatorics and Commutative Algebra Seminar

Talks in local seminars

- 2025 *USC*, Combinatorics Seminar
2025 *USC*, Topology Seminar
2025 *Caltech, USC/Caltech Joint Algebra and Geometry Seminar*
2025 *USC*, Algebra Seminar
2025 *Caltech*, Number Theory Seminar
2024 *USC*, Combinatorics Seminar
2023 *UBC*, Algebraic Geometry Seminar
2023 *UBC*, Number Theory Seminar
2023 *UBC*, Discrete Mathematics Seminar
2023 *UBC*, Algebraic Geometry Seminar
2022 *UBC*, Number Theory Seminar
2021 *U of M*, RTG Seminar on Number Theory
2020 *U of M*, RTG Seminar on Number Theory

Teaching

- 2023 *UBC*, MATH 221 (Matrix Algebra), Lecturer of a class of 90
2023 *UBC*, MATH 101 (Integral Calculus), Instructor of 3 interactive classes of 60
2022 *UBC*, MATH 100 (Differential Calculus), Instructor of 4 interactive classes of 60
2020 *U of M*, EECS 203 (Discrete Mathematics for computer science students), Lecturer of a class of 200
2017–2019 *U of M*, MATH 116 (Calculus II), Instructor of an interactive class of 20
2018 *U of M*, MATH 676 (Algebraic Number Theory) taught by M. Zieve, Grader
2016,2021 *U of M*, MATH 115 (Calculus I), Instructor of an interactive class of 20
2015 *U of M*, MATH 105 (Precalculus), Instructor of an interactive class of 20

Reviewing

- Reviewer MathSciNet
Referee Americal Journal of Mathematics, Annals of Probability, Electronic Communications in Probability, Forum Mathematicum, Advances in Mathematics, Linear Algebra and Applications, Linear and Multilinear Algebra, Journal of Symbolic Computation, and *Combinatorics, Probability and Computing*

Organizations

- 2024–present *USC and Caltech*, Organizer of USC/Caltech Joint Algebra and Geometry Seminar
2022–2024 *UBC*, Organizer of Algebraic Geometry Seminar

Outreach

- 2024–2025 *UCLA*, Olga Radko Endowed Math Circle (ORMC), Advanced III lead instructor, with Wenyuan Li
- 2023 *Virginia Tech*, Blacksburg Math Circle, 1-hour lecture on Pólya enumeration theorem to grades 4–8 students

Skills

- Languages English (fluent), Chinese Mandarin (native), Cantonese (native), Spanish (reading), French (reading)
- Coding C++, Python, Mathematica, Sage