Niven Achenjang

Contact Information

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Appointments

Harvard BP+NSF Postdoctoral Fellow **2025 – 2030**

NSF Mentor: Melanie Matchett Wood

FSMP Postdoctoral Fellow at Université Sorbonne Paris Nord **2027 (planned)**

Mentor: Olivier Wittenberg
I will be on leave from Harvard for this calendar year.

Education

MIT **2020 – 2025**
PhD, Mathematics
Advisor: Bjorn Poonen

Stanford University **2016 – 2020**
B.S. Mathematics

Publications/ Preprints

1. N. Achenjang, On Brauer groups of tame stacks, *preprint (arXiv:2410.06217).* Submitted. (2024)
2. N. Achenjang, D. Bhamidipati, A. Jha, C. Ji, and R. Lopez, The Brauer group of $\mathscr{Y}_0(2)$, *preprint (arXiv:2311.18132).* Submitted. (2023)
3. N. Achenjang, The Average Size of 2-Selmer Groups of Elliptic Curves in Characteristic 2, *preprint (arXiv:2310.08493).* Submitted. (2023)
4. N. T. Achenjang, J. S. Morrow, Integral Points on Varieties With Infinite Étale Fundamental Group, *International Mathematics Research Notices*, Volume 2024, Issue 10, May 2024, Pages 8157 – 8171.
5. N. Achenjang and A. Berger, On gaps in the closures of divisor functions, *International Journal of Number Theory.* **15** (2019), 1023 – 1036.

Seminar Organizing

Fall 2023	*Organizer*, Modularity/Fermat Seminar.
Spring 2022 – Fall 2023, & Spring 2025	*Co-organizer*, Seminar on Topics in Arithmetic, Geometry, Etc. (STAGE)

Teaching Experience

Spring	2025	GUMMI Mentor	MIT Grad-Undergrad Math Mentoring Initiative
Fall	2024	GUMMI Mentor	MIT Grad-Undergrad Math Mentoring Initiative
March	2024	Study Group Leader	Arizona Winter School
January	2024	DRP Mentor	MIT's Directed Reading Program
Fall	2023	Teaching Assistant	MIT 18.06 (Linear Algebra)
January	2023	DRP Mentor	MIT's Directed Reading Program
Fall	2022	Teaching Assistant	Preliminary Arizona Winter School
January	2022	DRP Mentor	MIT's Directed Reading Program
July	2021	Teaching Assistant	Park City Math Institute Undergraduate Session
January	2021	DRP Mentor	MIT's Directed Reading Program
Fall	2019	Teaching Assistant	Euler Circle Cryptography Class
Summer	2019	Teaching Assistant / Residential Counselor	Stanford University Mathematics Camp (SUMaC)
Spring	2018	Tutor	Stanford Math 122: Modules and Group Representations

Winter	2018	Grader	Stanford Math 62DM: Modern Mathematics: Discrete Methods
Summer	2016	Residential Counselor	VAMPY/SCATS Summer camps
Winter	2015	Teaching Assistant	High-school Calculus

Honors and Awards

2027	*Fondation Sciences Mathématiques de Paris* (FSMP) Lauréat
2025 – 2029	*NSF Mathematical Sciences Postdoctoral Research Fellowship* (NSF MSPRF)
2020 – 2023	*MIT Dean of Science Fellowship*
2020 – 2025	*National Science Foundation Graduate Research Fellowship* (NSF GRFP)
2020	*Undergraduate Research Award* for my senior thesis.
2017	*Code2040 Fellow*
2016	*SanDisk Scholarship*
2016	*National Merit Finalist*
2016	*Ron Brown Captain*

Talks/ Presentations

1. *Background talk: Local Poitou–Tate duality*, RTG 2025 Workshop Arithmetic Statistics, Ohio State University. (June 2025)
2. *Ranks of quadratic twists of elliptic curves*, Arithmetic Statistics Seminar, Harvard University. (May 2025)
3. *Brauer groups of stacky curves, via the example of* $\mathscr{Y}(1)$, Emory Algebra and Number Theory Seminar, Emory University. (April 2025)
4. *An upper bound for the average rank of elliptic curves over arbitrary function fields*, AMS Spring Eastern Sectional Meeting, Hartford, Connecticut. (April 2025)
5. *General strategy for algebraic degeneracy*, Algebraic Hyperbolicity Seminar, Harvard University. (April 2025)
6. *Integral point on varieties with infinite étale fundamental group*, Johns Hopkins Junior Number Theory Days, Johns Hopkins University. (February 2025)
7. *Overview of the Lawrence–Venkatesh proof*, Seminar on Topics in Arithmetic, Geometry, Etc. (STAGE), MIT. (February 2025)
8. *Brauer groups of stacky curves, via the example of* $\mathscr{Y}(1)$, Rice AGNT Seminar, Rice University. (October 2024)
9. *Brauer groups of stacky curves, via the example of* $\mathscr{Y}(1)$, AMS Fall Western Sectional Meeting, UC Riverside. (October 2024)
10. *On Brauer groups of stacky curves*, Québec–Maine Number Theory Conference, Québec. (October 2024)
11. *On the Brauer groups of stacky curves*, Explicit Methods in Number Theory, Oberwolfach (MFO). (September 2024)
12. *The average rank of elliptic curves is bounded, over any global field*, The Mordell conjecture 100 years later, MIT. (July 2024)
13. *Integral Points on Varieties with Infinite Étale Fundamental Groups*, GTA: Philadelphia 2024, Temple University. (June 2024)
14. *The Brauer Group of Stacky* $\mathscr{Y}_0(2)$, UW Number Theory Seminar, University of Washington. (April 2024)
15. *The Mordell–Weil theorem and Chabauty's theorem*, Seminar on Topics in Arithmetic, Geometry, Etc. (STAGE), MIT. (February 2024)

16. *The Average Size of 2-Selmer Groups of Elliptic Curves over Function Fields*, Harvard Number Theory Seminar, Harvard University. (February 2024)
17. *An Overview of DGH's Proof of Uniform Mordell*, Uniform Mordell Learning Seminar, Boston University. (February 2024)
18. *The Average Size of 2-Selmer Groups of Elliptic Curves over Function Fields*, Brown University Algebra Seminar, Brown University. (January 2024)
19. *The Average Size of 2-Selmer Groups of Elliptic Curves over Function Fields*, Boston University Number Theory Seminar, Boston University. (January 2024)
20. *An Upper Bound for the Average Rank of Elliptic Curves over Global Function Fields, via 2-Selmer Groups*, Joint Mathematics Meetings, San Francisco. (January 2024)
21. *Automorphic forms for quaternion algebras I*, Modularity/Fermat Seminar, MIT. (November 2023)
22. *Integral models of modular curves*, Seminar on Topics in Arithmetic, Geometry, Etc. (STAGE), MIT. (November 2023)
23. *Galois Deformation Rings & Stating $R = \mathbb{T}$ Theorems*, Modularity/Fermat Seminar, MIT. (October 2023)
24. *An Overview of the proof of Fermat*, Modularity/Fermat Seminar, MIT. (September 2023)
25. *Complex Multiplication, Shimura-Taniyama formula*, Seminar on Topics in Arithmetic, Geometry, Etc. (STAGE), MIT. (May 2023)
26. *The descent obstruction*, Seminar on Topics in Arithmetic, Geometry, Etc. (STAGE), MIT. (December 2022)
27. *Galois Reps at p*, p-adic Hodge Theory Learning Seminar, Harvard University. (October 2022)
28. *Local Heights and Arithmetic Surfaces*, Gross-Zagier Seminar, Online. (July 2022)
29. *Étale Topology*, Étale Cohomology Learning Seminar, Online. (June 2022)
30. *More on Hurwitz Spaces*, Arithmetic Statistics Seminar, Harvard University. (April 2022)
31. *Reparametrisation of Definable Sets*, Harvard Number Theorists Seminar, Harvard University. (April 2022)
32. *Proof of the New Gap Principle 1*, Seminar on Topics in Arithmetic, Geometry, Etc. (STAGE), MIT. (April 2022)
33. *Vojta's Approach to the Mordell Conjecture II*, Seminar on Topics in Arithmetic, Geometry, Etc. (STAGE), MIT. (October 2021)
34. *Vojta's Approach to the Mordell Conjecture I*, Seminar on Topics in Arithmetic, Geometry, Etc. (STAGE), MIT. (October 2021)
35. *Introduction to Class Field Theory*, Juvitop Seminar, MIT. (February 2021).
36. *Homological Stability for Mapping Class Groups of Surfaces*, IAP Kan Seminar, MIT. (January 2021)
37. *Forms of K-Theory*, Kan Seminar, MIT. (December 2020)
38. *Quillen's Work on Formal Groups and Complex Cobordism*, Kan Seminar, MIT. (November 2020)
39. *Cohomology Theories*, Kan Seminar, MIT. (October 2020)

40. *Smooth and étale morphisms*, Seminar on Topics in Arithmetic, Geometry, Etc. (STAGE), MIT. (September 2020)
41. *Basic Properties of the Riemann Zeta Function*, Stanford Math Directed Reading Program Colloquium Session II, Winter 2019, Stanford University. (April 2019)
42. *On Gaps in the Closures of Images of Divisor Functions*, Joint Mathematics Meetings 2019, Baltimore. Joint work with Aaron Berger. (January 2019)

Other Work Experience	Summer 2017	Software Engineering Intern at Affirm, San Francisco, CA
Programming Skills	Proficient	C/C++, Rust, Python, Mathematica
	Advanced	Haskell, Octave, Common Lisp