Ajay Srinivasan | Curriculum Vitae

530 Church St., 5080 EH – Ann Arbor, MI 48109 – U.S.A

✉ avsriniv@umich.edu   •   🌐 avsrinivasan.github.io

Education

University of Michigan	**Ann Arbor, MI**
PhD Mathematics	*2025 – Present*
University of Southern California	**Los Angeles, CA**
BS Mathematics (Honors Program), CGPA: 3.95	*2021 – 2025*
Minor in Physics	

Graduate Coursework at USC: Algebra I-II, Algebraic Topology, Differential Geometry, Complex Analysis, Thermodynamics and Statistical Mechanics, Quantum Field Theory II (at Caltech), Topics in Algebraic Geometry (audited, instructor: Joseph Helfer), Seminar in Algebra: Derived ∞-Categories (audited, instructor: Aravind Asok).

Experience

Academic

Department of Mathematics, The University of Chicago	**Chicago, IL**
Visiting Participant, Mathematics REU 2024	*Summer 2024*
Worked on infinite loop spaces in motivic homotopy theory	
Dept. of Physics and Astronomy, University of Southern California	**Los Angeles, CA**
Undergraduate Researcher	*2022–2024*
Worked on the theory of binary Bose-Einstein condensates in two dimensions.	
IAS/Park City Mathematics Institute, Institute for Advanced Study	**Park City, UT**
Undergraduate Summer School Participant	*Summer 2023*
Learned about quantum algorithms. Also worked on computing the number of holonomy vectors of at most a certain length on a Veech surface.	

Vocational

Department of Mathematics, The University of Chicago	**Chicago IL**
Mentor, Mathematics REU 2025	*Summer 2025*
Mentored students in the algebraic geometry and algebraic topology groups	
Department of Mathematics, University of Southern California	**Los Angeles, CA**
Grader	*2024–2025*
Graded weekly assignments for Calculus III in Fall 2024 and Calculus II (for Engineers and Scientists) in Spring 2025.	
Student-Athlete Academic Services, University of Southern California	**Los Angeles, CA**
Undergraduate Tutor, Mathematics and Physics	*2023–2025*
Tutored student-athletes at USC in a variety of math and physics classes including the calculus sequence, the intro to physics sequence, number theory, and probability theory.	

Community

SC Math Club   **Los Angeles, CA**
President   *2023–2024*
Rebuilt the e-board for Spring 2024. Organized events for the undergraduate math community like the department BBQ, the integration bee, and weekly general meetings.

Integration Bee Committee, USC   **Los Angeles, CA**
Chair   *2022–2024*
Founded the integration bee at USC. Worked alongside the undergraduate math associations at UCLA and Caltech to co-organize the first annual inter-university integration bees between these institutions.

Writing

On the stable adjunction in $\mathbb{A}^1$-homotopy theory
with J.P. May. Based on work done at the UChicago Mathematics REU 2024   (In progress)

Vortex stability in interacting Bose-Einstein condensates   **2025**
*with S. Haas and A. Wirthwein, Phys. Rev. B **112**, 104511*

Talks

Lecture Series, UChicago Math REU 2025   **Chicago, IL**
Derived Fun: Towards Homotopical Algebra   *August 2025*
On derived functors and model categories in homotopy theory

Volunteer Talk, UChicago Math REU 2024   **Chicago, IL**
The Where's Waldo of Infinite Loop Spaces   *August 2024*
Based on recent work of J.P. May, H.J. Kong, F. Zou and discussions with J.P. May

APS March Meeting 2024   **Minneapolis, MN**
Single Vortex Dynamics in Binary Bose-Einstein Condensates   *March 2024*
Based on work done with S. Haas and A. Wirthwein

Undergraduate Talk, IAS/Park City Mathematics Institute 2023   **Park City, UT**
Billiard Dynamics on the Double Pentagon   *August 2023*
Delivered with H. Malik, S. Rothstein, N. Ringrose, and E. Brodsky. Advised by A. Artiles.

Honors and Scholarships

NSF Graduate Research Followship   **2025**
Awarded by the National Science Foundation

Haltom Sr. Endowed Scholarship and Gleberman Endowed Scholarship   **2024**
Awarded by USC Dornsife

Lick Scholarship   **2023, 2024**
Awarded by the USC Dept. of Physics & Astronomy for conference travel
to Strings & Geometry and APS March Meeting

Honorable Mention in the Physical Sciences, Math, and Engineering Category   **2023**
USC Undergraduate Research Symposium
for *Collision Dynamics of Bose-Einstein Condensates in Two Spatial Dimensions*

USC Department of Mathematics Outreach Award   **2022**

Languages (computer and otherwise)

Computer: Python, Mathematica, C++, MATLAB, Arduino.
Human: English (native), Tamil (native), French (proficient).

Interests

Homotopical algebraic geometry, motivic homotopy theory, algebraic K-theory, moduli spaces, and stable homotopy theory. Also, holography and flux compactifications in string theory.