

Ajay Srinivasan | Curriculum Vitae

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Education

University of Michigan

PhD Mathematics

Ann Arbor, MI

2025 – Present

University of Southern California

BS Mathematics (Honors Program), CGPA: 3.95

Minor in Physics

Los Angeles, CA

2021 – 2025

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

Visiting Participant, Mathematics REU 2024

Worked on infinite loop spaces in motivic homotopy theory

Chicago, IL

Summer 2024

Dept. of Physics and Astronomy, University of Southern California

Undergraduate Researcher

Worked on the theory of binary Bose-Einstein condensates in two dimensions.

Los Angeles, CA

2022–2024

IAS/Park City Mathematics Institute, Institute for Advanced Study

Undergraduate Summer School Participant

Learned about quantum algorithms. Also worked on computing the number of holonomy vectors of at most a certain length on a Veech surface.

Park City, UT

Summer 2023

Vocational

Department of Mathematics, University of Southern California

Grader

Graded weekly assignments for Calculus III in Fall 2024 and Calculus II (for Engineers and Scientists) in Spring 2025.

Los Angeles, CA

2024–Present

Student-Athlete Academic Services, University of Southern California

Undergraduate Tutor, Mathematics and Physics

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.

Los Angeles, CA

2023–Present

Community

SC Math Club

President

Los Angeles, CA

2023–Present

Rebuilt the e-board for Spring 2024. Organized events for the undergraduate math community like the departmental BBQ, the integral bee, and weekly general meetings.

Integral Bee Committee, USC

Los Angeles, CA

Chair

2022–Present

Founded the integral bee at USC. Worked alongside the undergraduate math associations at UCLA and Caltech to co-organize the first annual inter-university integral bees between these institutions.

Writing

A motivic homotopical monadicity theorem

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

[arXiv link](#)

Talks

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 Fellowship

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

Birational geometry, derived algebraic geometry, homological mirror symmetry, stable homotopy theory, and motivic homotopy theory. Also, holography and flux compactifications in string theory.