Curriculum Vitae - Jennifer Vaccaro

Education

- 2026 University of Illinois Chicago, PhD in Mathematics
  "Hyperconvex representations and Richardson varieties" advised by Emily Dumas
- 2022 University of Illinois Chicago, MS in Mathematics
- 2017 Olin College of Engineering, BS in Electrical and Computer Engineering

Work experience

- 2020-2026 University of Illinois Chicago, Mathematics, Statistics, and Computer Science (MSCS)
  Teaching Assistant (7 semesters), Research Assistant (4 semesters), RTG Fellow (2 semesters)
- 2017-2020 Woods Hole Oceanographic Institution, Robotics Software Engineer
  Designed software and visualization tools for deep-ocean robots which collected data for scientists.
- Summer 2022 Los Alamos National Laboratory, Computational Physics Graduate Researcher
  Solved math problems identified by the engineers and scientists in the remap team.
- Summer 2016 Intel Corporation, Platform Engineering Intern
  Compared math models which tuned hardware parameters in computer chips.

Publications

- **J. Vaccaro**. "Hyperconvex representations and Richardson varieties." Doctoral thesis (2026).
- **J. Vaccaro** and K. Lipnikov. "Applying an Oriented Divergence Theorem to Swept Face Remap." SIAM Journal on Numerical Analysis (2023).
- I. Vaughn, S. Suman, Z. Berkowitz, **J. Vaccaro**, et. al. "Transitioning to Open Source at 6000m." IEEE/OES Autonomous Underwater Vehicle Workshop (2018).
- C. K. Atkinson, J. Mallepalle, J. M. Melby, S. Rafalski and **J. Vaccaro**. "Guts and volume for hyperbolic 3-orbifolds with underlying space S^3." Topology and its Applications (2017).

Presentations

- 2025 "Math Meets Policy: Advocating for Change." Joint Mathematics Meetings, Seattle, WA.
- 2024 "Higher rank symmetric spaces." 20 years of Anosov representations, MPI Leipzig, Germany.
- 2024 "Anosov components of triangle reflection groups." Joint Meeting AMS-UMI, Palermo, Italy.
- 2023 "Random Groups." UIC Graduate Geometry, Topology, and Dynamics Seminar (UIC GGTDS).
- 2022 "Symmetric Patterns of Geodesics and Automorphisms of Surface Groups" UIC GGTDS.
- 2022 "Projective Bending" UIC GGTDS.
- 2021 "Flag Manifolds and Balanced Ideals" UIC GGTDS.

Awards

- 2024 UIC MSCS Graduate Student Service Award
- 2024 AMS Catalyzing Advocacy in Science and Engineering Fellow
- 2023 UIC Award for Graduate Research
- 2022 Los Alamos Student Research Competition
- 2021 UIC MSCS Graduate Teaching Assistant Award
- 2017 ACM Student Research Competition, Grand Finals Second Place
  "Applying Computer Modeling to Post-Silicon Electrical Validation."
- 2017 COMAP Mathematical Contest in Modeling, Meritorious Winner
  MCM Problem C: "Cooperate and Navigate: Autonomous Vehicle Coordination."

Teaching experience

- Fall 2026 Math 088 Intermediate Algebra Workshop (Instructor of record)
- Summer 2026 Summer Enrichment Mathematics Workshop
  Coached incoming undergraduates to help them improve their math placement exam scores.
- Spring 2025 MSCS Teaching Assistant Coordinator
  Provided feedback to new TAs and covered TA absences in math, statistics, and computer science courses.
- Spring 2024 Stat 101 Introduction to Statistics
- Spring 2022 Math 180 Calculus I
- Fall 2021 Math 220 Differential Equations
- Spring 2021 MCS 275 Programming Tools and File Management
- Fall 2020 MCS 260 Introduction to Computer Science

Mentoring experience

UIC Directed Reading Program
Undergraduate students read a math text or paper with a graduate mentor and present what they learned.

- Spring 2026 "Elementary Applied Topology."
- Fall 2025 "Hyperbolic space and the Morse Lemma."
- Summer 2025 "Statistical Mechanics and Neuroscience."
- Spring 2025 "Graph Theory and Neuroscience."
- Spring 2024 "Representation Theory and Lie Groups."

COMAP Mathematical and Interdisciplinary Contest in Modeling (MCM / ICM)
Undergraduate teams design a mathematical model to address a real-world problem and write a short paper.

- 2024 MCM Problem C: "Momentum in Tennis."
- 2023 MCM Problem C: "Predicting Wordle Results."
- 2022 ICM Problem E: "Forestry for Carbon Sequestration."
- 2021 ICM Problem D: "The Influence of Music."
- 2021 ICM Problem F: "Checking the Pulse and Temperature of Higher Education."