# Eliot Bongiovanni

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## EDUCATION

### Rice University

Ph.D., Department of Mathematics — anticipated May 2025
Advisor: Christopher Leininger
Research area: Low-dimensional topology / geometric group theory

Certificate in Teaching and Learning, Center for Teaching Excellence — anticipated May 2025

M.A., Department of Mathematics — 2021

### Michigan State University

B.S., Advanced Mathematics and Statistics (dual major) — 2018
Minors: Actuarial Science, German
Honors thesis: Least-area tiles of space, advised by Ben Schmidt

## GRANTS AND AWARDS

NSF Graduate Research Fellowship (nsfgrfp.org) — 2018 – 2024

Women in Natural Sciences Travel Award, Rice University — 2024, 2022

Finalist for Graduate Teaching Award for Independent Instruction, Rice University — 2022

Young Researcher, 8th Heidelberg Laureate Forum (heidelberg-laureate-forum.org) — 2021

Alumni Distinguished Scholarship, Michigan State University (admissions.msu.edu) — 2014 – 2018
*Full tuition, room and board for eight semesters of undergraduate study*

Phi Beta Kappa, Michigan State University — 2018

Herbert T. Graham Scholarship, Michigan State University — 2018

William M. and Mary King Conner Scholarship, Michigan State University — 2016, 2017

Professorial Assistantship, Michigan State University (honorscollege.msu.edu) — 2014 – 2016

Harold and Helen Tolles Mathematics Scholarship, Michigan State University — 2015

## PAPERS

**Extensions of finitely generated Veech groups.** Submitted, 2024.
arxiv:2406.11090

**The least-area tetrahedral tile of space.** *Geometriae Dedicata* 205(1) (2019), 51–93.
DOI: 10.1007/s10711-019-00465-x (Full text: rdcu.be/bJILV)
with Alejandro Diaz, Arjun Kakkar, and Nat Sothanaphan

**Isoperimetry in surfaces of revolution with density.** *Missouri J. Math. Sci.* 30(2) (2018), 150–165.
DOI: 10.35834/mjms/1544151692
with Alejandro Diaz, Arjun Kakkar, and Nat Sothanaphan

**Double bubbles on the real line with log-convex density.** *Anal. Geom. Metr. Spaces* 6 (2018), 64-88. DOI: 10.1515/agms-2018-0004
with Leonardo Di Giosia, Alejandro Diaz, Jahangir Habib, Arjun Kakkar, Lea Kenigsberg, Dylanger Pittman, Nat Sothanaphan, and Weitao Zhu

**The convex body isoperimetric conjecture in $R^2$.** *Rose-Hulman Undergraduate Mathematics Journal* 18(2) (2017).
scholar.rose-hulman.edu/rhumj/vol18/iss2/2
with John Berry, Wyatt Boyer, Bryan Brown, Matthew Dannenberg, Paul Gallagher, David Hu, Jason Liang, Alyssa Loving, Zane Martin, Maggie Miller, Byron Perpetua, Sarah Tammen, and Yingyi Zeng

## PRESENTATIONS

| | |
|---|---|
| Geometry Seminar, University of Virginia | Mar 2025 |
| Geometry Seminar, George Mason University | Mar 2025 |
| Seminar on Group Actions and Dynamics, University of Wisconsin-Madison | Sep 2024 |
| Special Session on Geometric Group Theory and Low-Dimensional Topology, AMS Central Sectional | Sep 2024 |
| Buckeye Geometry, Ohio State University | Aug 2024 |
| Spectra Survey of Mathematics Conference, Ohio State University | Jul 2024 |
| Workshop on Advances in Hierarchical Hyperbolicity, Banff International Research Station | May 2024 |
| Graduate Student Topology and Geometry Conference, Michigan State University | Apr 2024 |
| Texas Geometry and Topology Conference, Rice University | Nov 2023 |
| Group Actions and Low-Dimensional Topology, El Barco de Avila, Spain | Jul 2023 |
| Graduate Seminar on Current Mathematics, Rice University | Mar 2021, Apr 2023 |
| RTG Graduate Seminar on Topology, Rice University | Oct 2021, Oct 2022 |
| Graduate Seminar on Geometry and Analysis, Rice University | Aug 2022 |
| Lecture on group rings, course on rational points on varieties | Oct 2021 |
| 8th Heidelberg Laureate Forum Poster Session, Heidelberg, Germany (virtual) | Sep 2021 |
| AMS Contributed Paper Session on Lattices and Geometries, Joint Mathematics Meetings | Jan 2018 |
| Undergraduate Poster Session, Joint Mathematics Meetings<br>Double bubbles on the real line with log-convex density (as presenter)<br>*MAA Outstanding Poster recipient* | Jan 2018 |
| Undergraduate Poster Session, Joint Mathematics Meetings<br>The least-area tetrahedral tile of space (as coauthor)<br>*MAA Outstanding Poster recipient* | Jan 2018 |
| Seminar on Graph Theory and Combinatorics, Michigan State University | Nov 2017 |
| MAA Student Paper Sessions, MAA MathFest | Jul 2017 |

## TEACHING

**Rice University**

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| Instructor and developer: Mathematics discussion | Fall 2024 |
| Instructor: Multivariable calculus | Summer 2021, Fall 2023 |
| Teaching assistant: Introduction to analysis | Fall 2022 |
| Grader: Computational complex analysis | Spring 2024 |
| Grader: Geometry of surfaces | Spring 2023 |

**Michigan State University**

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|---|---|
| Teaching assistant: Honors multivariable calculus | Fall 2016 |
| Grader: Honors linear algebra | Fall 2018 |
| Grader: Analysis I | Spring 2017, Spring 2018 |
| Tutor: Mathematics Learning Center, Honors room | Fall 2016 |

**Private tutoring**

*Paid and volunteer tutoring for students with learning disabilities and/or socio-economic disadvantage. Academic years (AY) listed for high school students.*

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|---|---|
| Precalculus | Fall 2024, AY 2020-21 |
| Business mathematics and statistics | Fall 2023 |
| AP Calculus AB | AY 2022-23 |
| AP Calculus BC | AY 2021-22 |

## SERVICE AND ORGANIZING

**Chapter of Spectra at Rice University**, Spectra (lgbtmath.org)

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|---|---|
| Board member | Spring 2024 – current |
| Founding team | Fall 2023 |

**Hatch LGBT Youth Program**, The Montrose Center

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| Tutoring Coordinator and Lead Tutor | Fall 2019 – Spring 2020 |
| Tutor | Spring 2019 |

## OTHER SKILLS

**Languages:** English (first language), German (spoken at home / functionally proficient)

**Programming:** LaTeX, R, Java, SQL, C++, Mathematica, Javascript (all basically proficient)