

Christian Lentz

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[LinkedIn](#)

Education

Macalester College | St. Paul, Minnesota | 09/2020 - Current

- Bachelor of Arts - Mathematics And Computer Science
- GPA: 3.96
- Advisors: Lori Ziegelmeier, Susan Fox
- Men's Varsity Soccer 2020-2022

Oxford University | Oxford, England, United Kingdom | 01/2023 - 06/2023

- Visiting Student in Mathematics at St. Catherine's College
- Relevant Courses: Real Analysis, Elementary Number Theory, Groups and Group Actions

University of Wisconsin | Madison, Wisconsin | 06/2022 - 08/2022

- Visiting Student in Mathematics
- Relevant Courses: Combinatorics, Techniques in Ordinary Differential Equations

Relevant Experience

Undergraduate Research Assistant | 05/2023 - 07/2023

Macalester College - St. Paul, Minnesota

- Advisors: Lori Ziegelmeier (Macalester College), Gregory Henselman-Petrusek (Oxford University, Pacific Northwest National Laboratory)
- Research in Algebraic Topology / Topological Data Analysis
- Developed an algorithm for computation of persistent relative homology using recently developed matrix factorization techniques

QA Engineer - Intern | 06/2022 - 01/2023

Maverick Software Consulting / TravelNet Solutions - St. Paul, Minnesota

- Manual and automated software testing / API testing
- Reproduction and documentation of bugs/test cases in large software projects
- Contributed to automated test framework; JavaScript, Playwright, CSS
- Experience with agile development / scrum teams
- Reference: Tracy Olnhausen, Senior Direct of Quality - tolnhausen@tnsinc.com

Teaching Assistant | 02/2022 - 01/2023 and 09/2023 - 12/2023

Macalester College MSCS Department - St. Paul, MN

- Worked with professors and students to facilitate learning for undergraduate students
- Attended lectures, graded problem sets, held office hours twice weekly
- Courses: Linear Algebra, Intro to Statistical Modeling, Computational Geometry

Talks and Presentations

** denotes an upcoming event

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- *An algorithmic approach for persistent relative homology using matrix factorization techniques*, **2023 Fall Meeting of the Mathematical Association of America, North Central Section**, University of Minnesota-Duluth, September 2023
 - *An algorithmic approach for persistent relative homology using matrix factorization techniques*, **Macalester College Summer Showcase**, St. Paul, MN, October 2023
 - ****A computational approach for persistent relative homology**, **AIM-AMS Special Session on Applied Topology Beyond Persistence Diagrams, 2024 Joint Mathematics Meetings**, San Francisco, CA, January 2024
 - ****A computational approach for persistent relative homology**, **PME Undergraduate Student Poster Session, 2024 Joint Mathematics Meetings**, San Francisco, CA, January 2024

Publications

C. Lentz (2024). *Persistent relative homology for topological data analysis*. [manuscript in preparation]. [undergraduate honors thesis]. Department of Mathematics, Statistics and Computer Science, Macalester College.

G. Henselman-Petrusek**, C. Lentz*, L. Ziegelmeier*, X. Xia* (2024). *A computational approach for persistent relative homology*. [manuscript in preparation]. Department of Mathematics, Statistics and Computer Science, Macalester College*. Pacific Northwest National Laboratory**.

Languages

Proficient: Java, Python, JavaScript, RStudio, C

Intermediate: Mathematica, Rust, CSS, HTML, NetLogo, Spanish

Frameworks / SDKs: Playwright, Google Firebase