

# Christian Lentz

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## Education

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### Macalester College

St. Paul, MN

BA, Mathematics and Computer Science

05/2024

- Summa Cum Laude
- Advisors: Lori Ziegelmeier and Susan Fox
- Honors Thesis: [Persistent Relative Homology for Topological Data Analysis](#)

### Oxford University

Oxford, England, UK

Visiting Student, Mathematics

01/2023 - 06/2023

### University of Wisconsin

Madison, WI

Visiting Student, Mathematics

06/2022 - 08/2022

## Research & Teaching

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### Macalester College

St. Paul, MN

Teaching Assistant

01/2022 - 05/2024

- Attended lectures and held office hours weekly.
- Graded students' work including code, proofs and problem sets.
- Courses: Linear Algebra, Statistical Modeling, Computational Geometry, Algorithms.

### University of Minnesota

Minneapolis, MN

Research Assistant

05/2023 - 07/2023

- Algebraic and computational topology, homological and sparse matrix algebra.
- Project advised by [Lori Ziegelmeier](#) (Macalester Col.) and [Greg Henselman-Petrusek](#) (PNNL).
- Regularly participated in literature review and technical writing.

## Publications

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FINISH THIS WHEN WE GET OUR PAPER IN REVIEW!!

## Talks & Presentations

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### Contributed Talks

2024 January: Joint Mathematics Meetings, AIM-AMS Special Session on Applied Topology Beyond Persistence Diagrams, *A computational approach for persistent relative homology*.

2023 September: Fall Meeting of Mathematical Association of America NCS, *A matrix factorization algorithm for persistent relative homology*.

### Poster Presentations

2024 January: Joint Mathematics Meetings, PME Undergraduate Student Poster Session, *A computational approach for persistent relative homology*.

2023 October: Macalester College, Summer Showcase Seminar, *A matrix factorization algorithm for persistent relative homology*.

### Miscellaneous

2024 April: Undergraduate honors defense, Macalester College, Department of Mathematics, Statistics and Computer Science, *Persistent relative homology for topological data analysis*.

## Awards & Honors

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### Konhauser Achievement Award

Macalester College, 05/24

- Awarded to juniors or seniors majoring in mathematics or computer science at Macalester College.
- Established and funded in honors of Dr. Joseph D. Konhauser.
- For outstanding academic record and demonstrated dedication to and interest in the field.

### Dewitt Wallace Distinguished Scholarship

Macalester College, 2020

- Based on academic merit and awarded on a highly-competitive basis.

## Other Work Experience

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### Maverick Software Consulting

Minneapolis, MN

QA Software Engineer, Internship

06/2022 - 01/2023

- Contracted with TravelNet Solutions of Cottage Grove, MN.
- Reference: [Tracy Olhausen](#), Senior Director of Quality Assurance.
- Manual / regression testing and test case documentation for frontend and backend.
- Contributed to automated test suite using JavaScript, Playwright, CSS.
- Experience with agile / scrum methodologies.
- Frequent participation with code review and GitHub issue management.

### Crossover Cantina and Eatery

Waterford, WI

Food Server

07/2021 - 07/2024

### Macalester College

St. Paul, MN

Building Supervisor

02/2022 - 05/2024

## Open Source Contributions

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## Relevant Skills

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**Languages** | Python , Java, JavaScript, R, Rust, C/C++, **SQL**

**Front End Development** | HTML, CSS, **React.js**

**Backend Development** | Node.js, **Flask**, Google Firebase, **PostgreSQL**

**ML & Data Science** | NumPy, SciPy, **PyTorch**, matplotlib, RStudio, Tidyverse, Numerical & ML Algorithms

**Miscellaneous** | VS Code, Git/GitHub, Jira, Mathematica, **RESTful APIs**, **database management**

**Research** | literature review, technical & academic writing, project management, collaboration

**General** | customer service, teaching, technical presentations