Daniel Morrison

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Education

Mathematics Ph.D., *University of California-Irvine*, GPA: 3.99, 2018-2024
Thesis: Cohomology of Symplectic Manifolds

- Developed new methods for differentiating symplectic manifolds
- Demonstrated computational applications of symplectic cohomologies
- Proposed applications to nilmanifolds along with computational algorithms

Mathematics M.S., University of California-Irvine, 2018-2020
Mathematics B.S. and Physics B.S., Computer Science Minor and Economics Minor, *University of Wisconsin-La Crosse,* GPA: 3.97, 2014-2018

Work Experience

Graduate Student Researcher for Math CEO Program, 2022-2024

- Coached undergraduate students on inclusive math activities and key teaching skills
- Created a framework for adding culturally responsive practices to after-school programs
- Developed and implemented a rubric for measuring culturally responsive practices

Course Instructor, Summer 2022

- Developed all course content, including course policies, lectures, homework, and exams
- Designed course content to support non-math students during an accelerated course
- Managed two graduate student teaching assistants

Teaching Assistant, 2018-2022

- Run discussion sections to review key material and target common mistakes
- Provided additional instruction to students in office hours
- Courses: Calculus, Biocalculus, Linear Algebra, Group Theory, Graduate Algebra

Projects

Machine Learning, Summer 2024

- Taking an online Machine Learning and AI course
- Reviewing Python basics and the pandas package

Formalization of Mathematics (SLMath), Summer 2023

- Attended summer graduate program on the Lean interactive proof assistant
- Learned from worldwide experts on proof formalization
- Solved formalization problems including a group project developing new content for the math library

Redeveloped Biocalculus Course, Summer 2023

- Advised incoming biology students on common pitfalls of first year success
- Co-taught a course on statistical tests and research methods

Collaborator on Teacher Noticing in Math Project, 2022-2023

- Analyzed proof writing styles to create a framework for teaching proof based content

- Measured student learning with questions designed to target framework skills

Creating Prerequisite Review Materials, Summer 2020

- Identified key knowledge needed for future classes and built corresponding review modules
- Covered multiple topics each with video notes and practice problems with solutions
- Designed content to be used remotely by students preparing for online classes

Undergraduate Research Experience at IPAM, Summer 2016

- Summer program at the Institute for Pure and Applied Mathematics
- Studied a classical approximation of quantum dots as a project in collaboration with HRL
- Collaborated in a small group, presented results to company representatives, and developed a report with code and findings

Machine Learning, 2014-2015

- Learned supervised & unsupervised learning techniques and neural networks
- Developed algorithm for the company Fastenal to predict sales patterns capable of saving thousands of dollars per month
- Participated in the Wisconsin Math Modeling Challenge and won an award for the presentation of my algorithm

Awards

Murphy Award for Academic Excellence (Awarded to the top two graduating scholars at UW-La Crosse), Apr 2018

Outstanding Physics Senior Award, Apr 2018

Skills

Certificates

- Certificate in Inclusive Hybrid Teaching, Nov 2022
- Mentoring Excellence Certificate Program, May 2021
- Certificate in Remote Instruction, Oct 2020
- Course Design Certificate Program, Sep 2020

Programming Languages

- Mathematica, LEAN, Java, Python, C#