Leyna May

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SUMMARY

I am currently completing a PhD in algebraic topology. Alongside my research and teaching, I got involved with the community by running the research group's seminar series for two years, organising the British Topology conference, and delivering my own seminar talks. I have also helped to run local Women in Tech coding workshops. Recently, I've enjoyed working on personal projects, combining my knowledge of mathematics and programming to create 3D physics games and simulations. I am now excited to apply my expertise and love of learning to software development roles.

EDUCATION

University of Sheffield   2025

PhD in Mathematics. Thesis 'Hidden Symmetries, Trees and Operads'

Durham University   2020

Masters in Mathematics, First class honours. Thesis 'Morse Theory: Morse-Bott Functions and Homology'

EXPERIENCE

Graduate teacher   2021 – Present

University of Sheffield

- Taught Python and R to undergraduate engineering students
- Led tutorials for undergraduate mathematics and engineering students
- Marked undergraduate examinations and assessments
- Developed skills in reviewing and debugging other people's code, giving constructive feedback and communicating technical concepts clearly

Project supervisor   June - July 2023

University of Sheffield

- Supervised a UKRI funded undergraduate student summer project on the topic of knot theory

PROJECTS

Tilt Game | *JavaScript, Three.js, React, SQLite, HTML, CSS*   January 2025

- Developed a full stack physics-based browser game with ball movement, tilting platform mechanics, and collision detection using Three.js
- Implemented my own physics algorithms to simulate the ball's motion
- Added mouse controls to allow a player to adjust the tilt of the platform, with the aim of reaching the target square and avoiding holes in the platform
- Used an SQLite database to store player scores, and displayed a leaderboard using React
- Project can be found at tilt.leynamay.com and on GitHub at github.com/LeynaM/tilt-game

Bouncing Ball | *JavaScript, p5.js, CSS*   December 2024

- Developed a physics simulation of a bouncing ball with adjustable gravity and slope parameters using p5.js
- Implemented realistic physics mechanics, including collision detection, velocity, and acceleration
- Project can be found at leynamay.com/ball-on-slope and on GitHub at github.com/LeynaM/ball-on-slope

PUBLICATIONS

Quartic graphs which are Bakry-Émery curvature sharp | *Python*   March 2020

- Published in Discrete Mathematics, Volume 343, Issue 3 (https://doi.org/10.1016/j.disc.2019.111767)
- Wrote a recursive algorithm using Python to generate unique graphs with certain curvature properties

SKILLS

Programming Languages: Python, JavaScript, HTML/CSS, React, SQLite, R
Tools: Git, Linux, LaTeX
Languages: English (Fluent), German (B1)