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

Projects

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

- Developed a 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
- The player uses the mouse to control the tilt of the platform with the aim of reaching the target square and avoiding holes in the platform
- Project can be found at leynamay.com/tilt-game 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
- Created an interactive user interface for customizing gravity strength and slope angle
- 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 local configurations of graphs with certain curvature properties
- This lead to the main theorem of the paper, in which the local results were used to classify all graphs with this property

Skills

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