# DANIEL BERLYNE, PH.D.


**Mathematician and programmer**

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## EMPLOYMENT

### Heilbronn Research Fellow | University of Bristol

Sep 2021 – Sep 2023 | Bristol, UK

- Researched mathematics while collaborating internationally, developing theorems and algorithms and publishing research papers in top journals including the *International Journal of Algebra and Computation*.
- *Research areas:* geometric group theory, low-dimensional topology, combinatorics, probability.
- Wrote Python programs (link 1, link 2) implementing novel algorithms developed in my research to provide the first computations of previously unknown properties of graph braid groups.
- Secured funding for and led the organisation of the international conference *Quotients of Hierarchically Hyperbolic Groups*.
- Invited to give dozens of talks internationally on my mathematical work, at universities such as University of Michigan, The Ohio State University, Institut Henri Poincaré, Newcastle University, and University of Warwick.
- Refereed mathematics papers for the *Journal of Topology*.
- Taught the undergraduate course *Topics in Modern Geometry*.

### Instructor/Curriculum Developer | City University of New York

Aug 2016 – May 2020 | New York, USA

- Lead instructor for the undergraduate courses *Matrix Algebra* and *Calculus II*.
- Teaching assistant for the Master's course *Probability and Stochastic Processes For Finance*.
- Collaborated on design & development of a digital module for the Zicklin School of Business, creating an original syllabus and integrating open educational resources.

## EDUCATION

### Ph.D. in Mathematics | City University of New York

Aug 2015 – Jun 2021 | New York, USA

- Dissertation Fellowship, University Fellowship, Doctoral Student Research Grant, Graduate Center Fellowship.

### MMath integrated BSc and Master's degree in Mathematics | University of Warwick

Oct 2010 – Jun 2015 | Coventry, UK

- First class hons, Undergraduate Research Scholarship. Included courses in Java and C programming.

## TECHNICAL SKILLS

- *Proficient:* Python, C#, Unity, Linux, LaTeX.
- *Some experience:* C++, Java, C, HTML, SQL.

## OTHER PROJECTS

### Surface Level (C#) | SurfaceLevel

Sep 2023 – present

- A futuristic pachinko-style puzzle game that takes place on various topological surfaces, rendered as polygons whose sides are paired together to act as portals.
- Developed using the Unity game engine.

### Recap Video Generator (Python) | recap-video-generator

Aug 2023 – Sep 2023

- Extracts clips from video files and combines them into a single video, adding custom subtitles, crossfade transitions, and normalising audio.
- Used in online forums for streamlining creation of video compilations.