VIPICS: **V**isualizing and **I**nteracting with **P**aths in **C**onfiguration **S**paces

Mathematics Computing Laboratory
Spring 2019 project

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Structure.

- There will be weekly meetings with assigned readings / problems / coding.
- You will recieve a letter grade based on your participation.

Checklist (non-math).

- how to use `git` and GitHub
- how to code in C#
- how to use Unity with the Oculus headset

Checklist (math). Undergraduate level understanding of sets and algebraic topology.

- Edelsbrunner, Harer: Chapter 3
- Carlsson: Sections 2.1, 2.3
- Aguilar, Gitler, Prieto: Pages xvii-xx
- Hatcher: Pages xii, 5-6, 25-27

Sources. Some, not all.

- Edelsbrunner, Harer (2009). *Computational Topology: An Introduction.*
- Carlsson (2009). *Topology and data.*
- Topaz, Ziegelmeier, Halverson (2015). *Topological Data Analysis of Biological Aggregation Models.*
- Aguilar, Gitler, Prieto (2002). *Algebraic Topology from a Homotopical Viewpoint.*
- May (1999). *A Concise Course in Algebraic Topology.*
- Hatcher (2015). *Algebraic Topology.*