Searching for Unknotting Sequences using Machine Learning

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1 Introduction

motivation - why are we doing this? Perhaps contextualise this in the idea of different kinds of computational tools for mathematics research: we are accustomed to tools that

2 Problem Description

describe problem in detail. give details of what each of the operators does

3 Algorithm

Genetic algorithms (GAs) are a population-based search heuristic, designed to efficiently search a large space of possible solutions to a problem. They are inspired by

a description of the algorithm. I assume that we are going to use the SSM method? Describe the representation of the operator list, and the fitness function - and, in particular, how that fitness function is designed. A pseudocode version of the search process would be useful. We are looking just at finding the sequence for unknotting an individual knot, not a general sequence for unknotting a number of different knots, I assume?

4 Experimental Setup and Results

describe the experimental setup. how many attempts, how big is the knot, how many times did we repeat the algorithmic run.

Present a table of results. We need to run each experiment a number of times (because it is a stochastic algorithm) for a number of knots (so that a pathological case doesn't distort the results). Each experiment is a particular size of knot.

5 Discussion

...of results