Introduction

Background

The field of soft robotics is relatively new with many areas left unexplored. An area of interest is the design of the physical form of soft robots. Due to their compliant and imprecise nature, coming up with accurate and specific designs is often difficult. Additionally, there is a lot of potential for unexplored design spaces to yield interesting and potentially useful results.

A well-known method of exploring large and unknown design spaces is the application of genetic algorithms. These algorithms are well-suited to exploring the

Soft robotics are a primarily mechanical and mechatronic field, due to the materials science, design, manufacturing and control involved. Dr. Martin Venter and the MOD research group deal with soft robotics and their design, and thus investigation into potential design solutions has some relevance and purpose.

Objectives

Write a CPPN-NEAT genetic algorithm capable of evolving soft robots that perform a specified function

Construct these soft robots in VoxCAD

Optimize and define individual element behavior

Motivation

Soft robots have many potential practical applications but can be difficult to design manually. Constructing a system that automatically sets up