Deep Learning for Maximum Cut

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Abstract

The purpose of this study is to explore the application of deep learning techniques to the Maximum Cut problem, a fundamental problem in graph theory with significant implications in various fields such as computer science, physics, and operations research. The objective is to develop a neural network model that can effectively approximate solutions to the Maximum Cut problem, which is known to be NP-hard. We explore three different neural network architectures for solving maximum cut and prepare them to heuristic methods like semidefinite programming. Our results indicate that different methods for solving Max-Cut are optimal for different types of networks, highlighting the importance of selecting the appropriate approach based on the structure of the input graph.

1 Introduction

Introduce the problem, motivation, and background. Explain why this work is important.

2 Background

Discuss previous work and how your work is different or builds upon it.