ANALYSIS OF MACHINE LEARNING APPLIED TO BOARD GAMES

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Abstract

In late 2017 DeepMind announced a groundbreaking system in a preprint [1] and the results were astonishing. The system was called AlphaZero and utilized *artificial neural networks* in combination with *heuristic algorithms* in order to teach itself the game chess without any proprietary knowledge. After approximately 9 hours it was able to beat the strongest hand-crafted engines, such as Stockfish and it had learned centuries of human knowledge of chess. In this paper we aim to study the effectiveness of different *neural networks* and *heuristic algorithms* such as the one used in AlphaZero. More precisely, we intend to analyze the efficiency of those networks and algorithms in combination with varying *optimizations, parameters, hyperparameters* and *architectures* applied to the classic games *Connect Four* and *Othello*.

Keywords — Machine Learning, Supervised Learning, Reinforcement Learning, Neural Network, Deep Learning

Contents

1 Motivation

2 Introduction

2.1 What is Reinforcement Learning

2.2 What is Deep Learning

2.2.1 Artificial Neural Networks

2.2.2 Deep Reinforcement Learning

3 Notation and Definitions

3.1 Sigma Function

3.2 Vector

3.3 Matrix

3.4 Derivative

3.5 Gradient

References

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