Chess ML

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Abstract

We intend to present an automatic learning method for chess, utilizing deep neural networks. We exercise our deep neural network using a combination of both unsupervised and supervised training. Employing unsupervised training, our engine pre-trains to identify and extract high-level features that exist in a dataset of chess matches. The supervised training compares two chess positions and evaluates the favourable location between both options. Therefore, we create a deep neural network without incorporating the rules of the game and using no prior manually extracted features. Instead, the system is trained from end to end on a large dataset of chess positions. The resulting deep neural network allows for simulations that extend the possibilities of chess strategies, highly valuable to chess grandmasters and strategist.

1 Introduction

It should have motivation, brief review of others ideas, what is your approach and how this differs from others.

2 Extensive review of other ideas

3 Problem Statement

In this era, there is a massive amount of data collected in a large variety of different topics, of which lots of information can be extracted. The issue here comes with the fact

that we cannot simply extract the information by visual inspection. There is currently too much data.

One such domain that contains a large amount of data is the game of chess. Many players like to study chess games to try and improve their play, but it's very hard to find games that are relevant or interesting to learn from amidst the plethora of games to choose from. Although there are many famous known games such as the Opera game of Paul Morphy vs Duke Karl or game 6 from the 1972 world championship match between Robert Fischer vs Boris Spassky [1], these are usually kept as beginner studies. Also, the fact that they are already well known doesn't necessarily help us discover anything new.

On top of these numerous known games, surely there are many more games that you could learn from. In fact, the website lichess.org logged 68,027,862 games at all levels of play in September of 2020 alone [2]. Some of these could be interesting to study, irrespective of the players ratings not being at the level of Grandmaster. All of this to say, there must be support from algorithms or machine learning techniques to be able to group similar games of interest together, or show games that lie far outside the norm, which could be interesting studies.

4 Our Approach/Model

5 Algorithm and Discussion

6 Implementation

7 Conclusions

References

[1] Timothy Glenn Forney. *Best Chess Games of All Time*. URL: https://www.chessgames.com/perl/chesscollection?cid=1001601.

[2] *lichess.org game database*. URL: https://database.lichess.org/. (accessed: 22.10.2020).