

Opponent Modeling in Board Games

Using the Estimation Exploration Algorithm

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Abstract

In this paper I will detail my senior thesis work done on modeling opponents in board games using the estimation exploration algorithm. The paper first explains background knowledge to explain concepts relevant to the project. From there I build an outline of a system that could be used to model opponents in konane using the estimation exploration algorithm. This system is implemented and then finally tested to get data. The results found from this system were quite promising, showing that in some cases this system is capable of producing the same moves as an opponent in over 80% of scenarios. Furthermore, it was found that for every opponent that I tested against, the resultant models were significantly better than an untrained random player. These results indicate that the estimation exploration algorithm can be used to effectively model an opponent in a board game, albeit with varying degrees of success.