Extended Abstract: Task1

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4th November 2021

1 Extended Abstract on Opponent Modeling in Poker:

Some board games, such as chess and checkers, are simple to exploit since players have complete information of their opponent because it is visible to both players, and artificial intelligence is capable of manipulating even the greatest human players. On the other hand, games like Poker and Bridge can't be readily manipulated since they require incomplete knowledge about the opponent because the cards aren't visible. However, the poker has been highlighted for AI study because of the following characteristics. Imperfect knowledge (the opponent's hands are hidden), multiple competing agents (more than two players), risk management (betting strategies and their consequences), agent modelling (identifying and exploiting patterns in the opponent's strategy), deception (bluffing and varying your style of play), and dealing with unreliable information (taking into account your opponent's deceptive plays) are just a few examples. When it comes to poker, there are two major strategies. The first step is to utilise simpler variations that are easier to understand. However, simplifying does not eliminate the problem's difficult aspects. Another option is to choose an actual variation and study it using mathematical analysis, simulation, and other means. Meanwhile, Loki, a poker software capable of watching, modelling, and dynamically modifying its play to best exploit trends in the opponents' play. It primarily analyses trends and flaws in the program's play, and then adjusts their approach to take advantage of them. This study explains Loki and assesses opponent modelling. The first portion of the paper discusses Texas Hold'em, which is often considered to be the most tactically challenging poker variant. This section focuses on the Texas Hold'em regulations and the criteria for a strong Hold'em programme in terms of opponent modelling. The next part discusses how opponents are modelled and how this knowledge is utilised to change our evaluation of our hands. The next section goes through some of the findings from the experiments. The project's ongoing work is discussed in the last part. This paper's main scientific contribution is that it is the first effective demonstration of applying opponent modelling to increase performance in a realistic game-playing simulation. The "technique" presented in the study article primarily focuses on four components: pre-flop evaluation, hand strength and hand potential, betting strategy, and opponent modeling. Weighting the Enumeration, Computing Initial Weights, and Re-weighting are three steps in the opponent modelling process that work together to give you a sense of all the various hands you can make in successive rounds. When confronted with a world-class player, meanwhile, the player changes his tactics at different stages of the game, which is a drawback of this model. As a result, a more appropriate and realistic model was necessary.