NLTHP Agents vs Human User

1. Main Hypothesis

The common Poker player relies on experience and wit when engaging in a game of Poker. It is important for a player to be able to remain calm and attentive in order to make rational decisions. As a game of Poker lingers on, players can experience a lapse in concentration as mental fatigue sets in. This can lead to players making irrational decisions. Players are also limited to their experience as aforementioned. Players often make decisions based on scenarios they have experienced before.

We believe an AI player that is not hindered by the limits of the human mind and that has uncapped Poker experience will outperform most human Poker players. This AI can be achieved via the use of our NLTHP AI Agents.

2. The Experiment

To test our hypothesis, we felt the need to compare the results of our NLTHP AI Agents against a real human Poker player. To properly challenge our AI Agents, the human player would need to have considerable experience in No-Limit Texas Hold'Em Poker and also be a skilled player.

We decided to ask a friend who is a professional Poker dealer if he was willing to take part in our experiment. The topic of AI vs Man is an often talked about topic in the world of Poker. As a dealer, our friend was no stranger to this topic. He explained that players worldwide are split: some believing AI will ruin the game of Poker and others believe AI has a place in the game, with him being somewhere on the fence. As we are currently in a national lockdown due to the Covid-19 pandemic, our friend is out of work and was more than willing to play against our AI.

We decided our friend would play 6 games against our AI Agents over the course of 2 days (3 games a day). We also noted the fact that our friend would be playing against 5 AI Agents at a time which would skew the favour on the side of our NLTHP AI.

3. The Rules

The rules applied were the usual official No-Limit Texas Hold'Em Poker rules set by our NLTHP application. Our friend would play against our AI using our www.nlthp.me website. The games would be played on the "Ultimate Poker Pro" difficulty level. This is the difficulty level uses our most trained AI Agents. We would engage in a video call using the platform Discord which allowed our friend to share his screen while he played against our AI. As mentioned above, our friend would play 6 games against our AI. These games would be judged by a point system. Our friend would receive 1 point for any AI player on the table that went bust before him and a further 2 points for winning a game. Our AI, on the other hand, would only receive points for a win but a win would be worth 5 points.

4. The Results

The results of the 6 games were as follows:

Day 1

Game 1:

- NLTHP AI: 5 Pts (Win)
- Our Friend: 2 Pts

Game 2:

- NLTHP AI: 0 Pts
- Our Friend: 7 Pts (Win)

Game 3:

- NLTHP AI: 5 Pts (Win)
- Our Friend: 0 Pts

Day 2

Game 1:

- NLTHP AI: 0 Pts
- Our Friend: 7 Pts (Win)

Game 2:

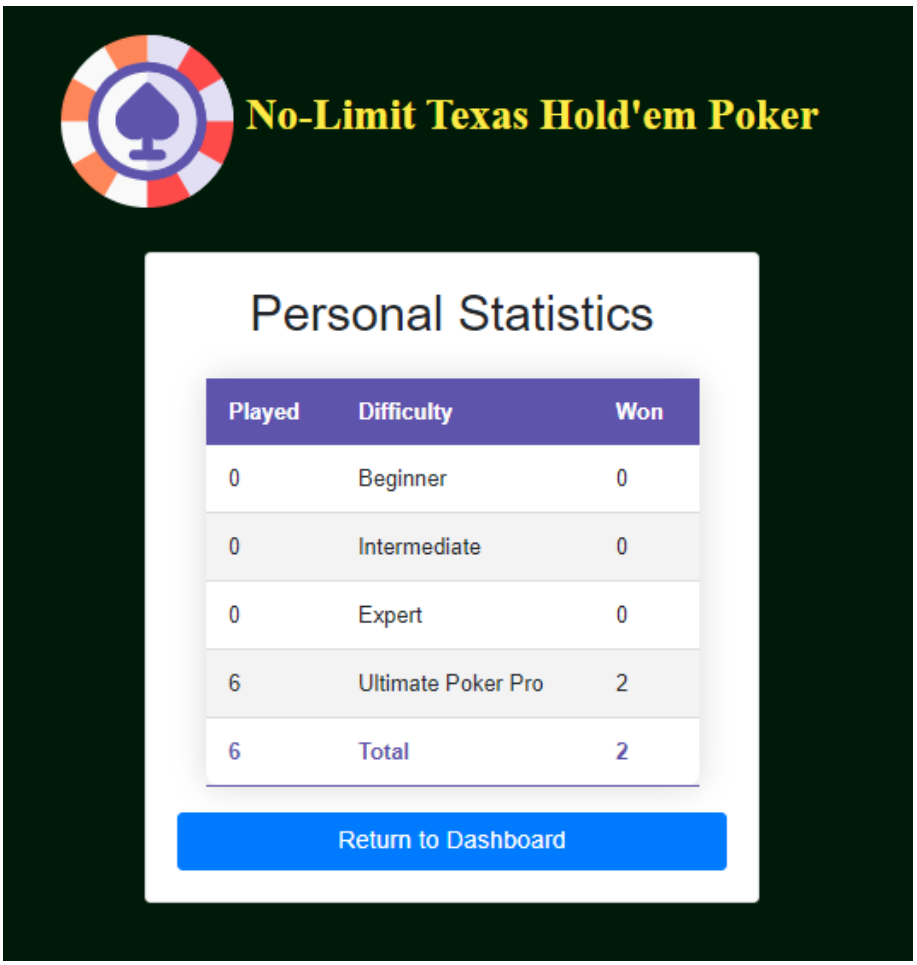
- NLTHP AI: 5 Pts (Win)
- Our Friend: 2 Pts

Game 3:

- NLTHP AI: 5 Pts (Win)
- Our Friend: 0 Pts

Overall:

- NLTHP AI: 20 Pts
- Our Friend: 18 Pts



NLTHP Personal Statistics of our AI vs Human Experiment

6. Comparing the Results

As we can see above, our NLTHP AI ended up scoring slightly more points than our friend. However, it is safe to say that the NLTHP AI was able to outperform our friend by winning 4 games out of 6. The point system is not a fair measure of performance as it was designed in such a way to make the match up against 5 AI Agents fairer towards our friend, as he was competing against 5 AI Agents each game.

It is worth noting that the AI was able to win Game 3 on each day. While our friend performed best in Game 1 or Game 2. This could be due to the mental fatigue our friend would begin to experience. The games of Poker all lasted at least 1 hour and a half with some lasting over two hours in length. Our AI, on the other hand, with time becomes a more advanced opponent. The AI is able to remember previous hands it has encountered and adapt its playstyle while keeping the same level of attentiveness. This definitely gave the AI an edge as the games played out.

Although 6 games is not a sufficient amount of games to jump to conclusions, in this brief experiment we can see how the AI Agents are able to outperform a human player.

7. Conclusion

Ideally, a similar experiment would be performed over a larger time span but due to time constraints, this was not possible. Nevertheless, we still feel very confident about the performance of our NLTHP AI Agents. With more time to improve the algorithm controlling the AI Agents, these agents should be able to challenge even more experienced Poker players.