

### What has changed since the initial submission

The initial submission's main issue was that the game was terminating before it should. When trying to debug the code, we found that there was an issue where the list of valid moves was empty. However, that should never be empty while the game is still being played since that would indicate that the game was won, lost or tied. We realized that there was an issue with the original "check 3x3" method. While looking into this issue we realized that our player was not waiting for its turn. We also edited the heuristics to make the player more efficient. We used the following journal article to choose our heuristics

(<https://www.cs.huji.ac.il/w~ai/projects/2013/UltimateTic-Tac-Toe/files/report.pdf>). We finalized the heuristics as follows: winning the center board is 3 points, having the center position in any board is 3 points, winning a small board is 5 points, winning the whole board is 100 points.

### What each teammate contributed

Joey worked individually for much of the improvement. Danilo joined about  $\frac{2}{3}$  of the way through Joey's work session. Mikaela wrote the write up and monitored the team group chat for any contributions she could make. She also found a paper that was used to modify the heuristics.