

1st International Werewolf AI Competition

Code Description

Team : calups

1 Description

Our agent plays with very different strategies in 5 player game and 15 player game.

1.1 5 player game

In the 5 player game, all of the actions were implemented on rule-based. We extend the agents created for the natural language division of the last AIwolf competition. Our agent decides its actions mainly based on the number of SEER comingouts. We carefully examined what actions should be made in each situation, then implemented the strategies.

Our agent has a module that manages preferences for other agents. This preference goes down when estimated to be a werewolf, voted, or voted for someone that has a high preference score. On the other hand, It goes up when estimated to be a human or voted for someone that has a negative preference score. Some of the actions are determined by this preference module.

1.2 15 player game

In the 15 player game, we constructed a machine learning model to predict the optimal behavior at a certain state of the game. Our model trained from the logs of the past AIwolf competitions. We extracted the pair of the situation and action made by the winners from the game logs and carried out the supervised learning based on it.

Our prediction model takes as input a relatively low-dimensional vector that briefly describes the state of the game, and outputs the appropriate object of actions such as VOTE, ATTACK, or DIVINE. This vector contains the information

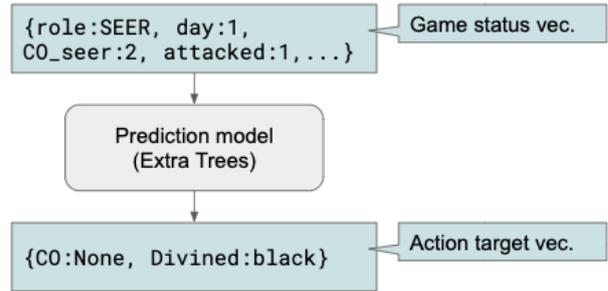


Fig 1: Our prediction model. We constructed a decision tree classifier which takes the situation of the game as an input and the object of the action as an output.

about agent's role, day, the number of attacked people, the number of executed people, the number of SEER comingouts, the number of people who have been divined by a SEER that they are human, and so on.

The output takes one of 15 class labels for the action, which consists of a combination of a comingout status and a divined status.

For that, our model's output is a suggestion like: "If two SEERs come out and there is no agent who has been divined that he is a WEREWOLF, then you should vote for the agent who has not come out and has not been divined." This proposal seems to reflect a sort of regular move in the werewolf game. We hope to extract useful knowledge not only in AIwolf but also in the actual werewolf games.