

Litt1eGirl Code Description

1. Overview

- Language: Python
- Use Module: Chainer 6.0.0
- Execution Path: Litt1eGirlPlayer.py

2. 5 player game

In 5 player game, it is easier than 15 player game to assume players strategies or behavior patterns. Litt1eGirl decides her action assuming several possible cases. For example, if there are three players who say 'COMINGOUT(CO) SEER', Litt1eGirl will assume that there will be a WEREWOLF in them.

The following shows characteristic remarks or behaviors. Note that 'fake seer' means the player who says a result which is different from a fact Litt1eGirl knows.

I. Characteristic Strategies

- VILLAGER

In Day 2, if a fake seer alive, she says 'CO WEREWOLF'.

- SEER'

In Day 2, if a fake seer alive, she says 'CO POSSESSED'.

- WEREWOLF

Sometimes she says 'CO SEER'.

In Day 2, if a fake seer alive, she says 'COMINGOUT WEREWOLF'.

In Day 1, she attacks a player who is not say 'COMINGOUT SEER'.

- POSSESSED

She says 'CO SEER' with high probability.

In Day 2, she says 'CO POSSESSED (or WEREWOLF)'

II. Werewolf Prediction

Every role except WEREOLF uses 'Werewolf Prediction Model' that is our proposed method for voting or suspecting. Its features are shown below:

A) Long Short-Term Memory (LSTM).

LSTM is a kind of Deep Learning and good for consideration of time series property. LSTM is used for learning of features or behavior of WEREWOLF.

B) Input Data

Player can use only known information during a game. So, data for input to a model is information which is open to all players such as a conversation.

C) Learning data

There are many game logs of the practice contest. In particular, it uses about 15,000 game logs from the final practice contest.

A model is trained by the method of and used for strategies of the agent. In the game, the model gives a WEREWOLF probability of each player. The probability is given by information which players can get in real time.

In the vote phase, VILLAGER and SEER vote for the player who has the highest WEREWOLF probability. POSSESSED does same but the lowest one. WEREWOLF takes advantage of other players' remarks of 'VOTE' in order not to be executed.

3. 15 player game

It was maybe good to make the model by the same method as the format of 5 player game. However, learning was not gone well because of complexity of this task and loading the model was acting very sluggish. Despite these conditions, there is no choice but to give up.

There are many agents who are good at predicting WEREWOLF. Therefore, LittleGirl decided to be spoiled to other excellent players. LittleGirl refers to other players' "VOTE"

I. Characteristic Strategy

- VILLAGER / BODYGUARD

If she is said as 'DIVINED WEREWOLF', she will say 'CO BODYGUARD'.

- WEREWOLF

Sometimes she says 'COMINGOUT SEER'.

If she is said as 'DIVINED WEREWOLF', she will say 'CO BODYGUARD'.

She piggybacks to majority but if he is her fellow, she avoids voting him.

- POSSESSED

Sometimes she says 'COMINGOUT SEER'.

If only a player claims he is SEER, she considers him as a real SEER and believe his results.

II. Werewolf Prediction

As mentioned above, she piggybacks without any predictions, but uses information she has. For example, if she is MEDIUM, the player who will claim himself as SEER is fake when he says a different result from her result.

In addition, in the final stage of 100 games, she calculates winning rate of each player and aims to kill the meta-strong player at the first few days.

Thank you for your reading. Please play Werewolf with my LittleGirl.