

# AIWolf - Werewolf playing Agent Competition

## Challenge:

**Build an agent that is able to build consensus with other, potentially deceptive, actors in order to vote agents of your opposing team out of the game.**

Werewolf (also called mafia) is a debate and voting social game which puts an uninformed majority team (villagers) against an informed minority team (werewolf). The goal of each team is to eliminate all the members of the opposing team. The main tools that both teams have is voting: At every game phase, all players must collectively vote on one player to remove from the game.

Agents in the villager team are the uninformed majority. They could win the game if they could coordinate their vote. However, they do not know which of the other agents are in the same team as themselves. Therefore they must communicate with other agents in order to build a coalition and find a consensus on who is the wolf.

Agents in the werewolf team are the informed minority. They possess information on the team membership of all players, but can be outvoted if their own team membership is revealed. Therefore they must pretend to be a villager, while leading the consensus towards the removal of other villager players.

The game take place in phases. In the “Day” phase, all agents may communicate through a fixed protocol (so that the use of NLP is not necessary). They must exchange arguments to build a consensus on which player is most likely to be one of the wolves.

In the “Voting” phase, agents vote and eliminate one of the players. Unlike other negotiation leagues, a simple majority is considered as the negotiation result. However, if a strong majority is not reached, multiple wolves can easily cooperate to disrupt weak majorities and win the game.

In the “Night” phase, agents with special roles can acquire information about the game state.

Participants must build an agent that is able to take part and win in werewolf games both as a villager or as a wolf.

## Task for the Entrants

Entrants to the competition have to develop and submit an AIWolf agent using Java, Python or C#. The agents communicate with the game server using sockets through a standard interface provided by the competition organizers.

The agents will use a fixed communication protocol that allow the agents to express their intent, their beliefs about the game state, inquire other agents about their beliefs, and make requests to other agents, both of actions or of changing beliefs.

The performance of the agents will be evaluated on a two-tiered competition. In the first round, all the agents play numerous games against each other, and the average number of victories is calculated. In the second round, the players with the highest number of victories are chosen for a final round of games among themselves.

Finally, the winning agents will perform one or more exhibition matches at IJCAI. We intend to also perform mixed human-agent exhibition matches at the event.

### Technical Details:

Technical Details about the game rules, contest rules, and agent preparation can be read on the “ANAC\_AIWOLF\_COMPETITION\_RULES” file. Details about the communication protocol used among the agents can be read on the “protocol\_specification” file.

For more details, please see the following information:

- AIWolf project page: <http://aiwolf.org/en/>
- AIWolf software page: <http://aiwolf.org/en/server>
- AIWolf programming guide (Java) <https://www.slideshare.net/HirotakaOsawa/aiwolf-programming-guide>
- Sample Python Code: <https://github.com/ehauckdo/AIWoolf>
- AIWolf Developer’s Mailing List: <https://groups.google.com/group/aiwolfdev/>
- AIWolf Contest Organizers’ Mailing List: gm@aiwolf.org

## Submission *(Deadline: July 7, 2019)*

Participants must register their team at the website: <http://contest.aiwolf.org/en>

Then they must submit their agent's source code and class file (in a .jar, .dll or .zip package, depending on the programming language). Please check the submission details on the ANAC\_AIWOLF\_COMPETITION\_RULES file.

## Academic report

Each participant is invited to prepare an academic report and presentation describing the technical aspects of their entry. The winning participants and those with significant novel contributions will be invited to briefly present their work during the competition workshop.

## Important Dates

<b>Submission deadline:</b>	July 7, 2019
<b>Notification to finalists:</b>	July 15, 2019 (tentative)
<b>Event:</b>	10-16 August, 2019

## Questions and Answers

- Send your questions to:
  - Hirotaka Osawa: [osawa@iit.tsukuba.ac.jp](mailto:osawa@iit.tsukuba.ac.jp)
  - Claus Aranha: [caranha@cs.tsukuba.ac.jp](mailto:caranha@cs.tsukuba.ac.jp)
  - AIWolf competition mailing list: [gm@aiwolf.org](mailto:gm@aiwolf.org)