

# CODE DESCRIPTION

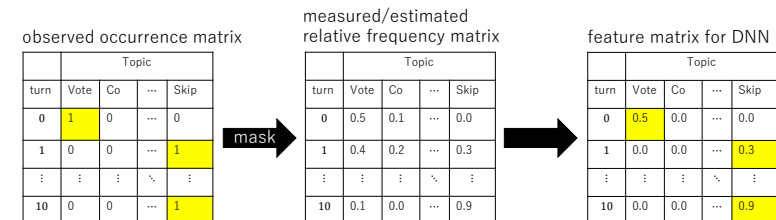
OTSUKI Takashi (Team otsuki)

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## ROLE ESTIMATION USING DNN, #1

Feature vector:

In addition to the conventional features, the utterance pattern on day 1 is used aiming for potential estimation of team.



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## ROLE ESTIMATION USING DNN, #2

Day-x only models:

- Trained using game logs from September 3<sup>rd</sup> to October 31<sup>st</sup>.
- Half of the logs is for training and the rest is for validation.

Role discrimination accuracy of trained DNN (15 agents)

| Role      | date |      |      |      |      |      |      |
|-----------|------|------|------|------|------|------|------|
|           | 1    | 2    | 3    | 4    | 5    | 6    | 7~   |
| Werewolf  | 0.84 | 0.86 | 0.87 | 0.87 | 0.88 | 0.88 | 0.88 |
| Villager  | 0.84 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.86 |
| Seer      | 0.94 | 0.93 | 0.94 | 0.94 | 0.93 | 0.93 | 0.93 |
| Possessed | 0.94 | 0.94 | 0.94 | 0.93 | 0.92 | 0.91 | 0.90 |
| Medium    | 0.97 | 0.98 | 0.98 | 0.98 | 0.97 | 0.97 | 0.97 |
| Bodyguard | 0.70 | 0.71 | 0.72 | 0.72 | 0.73 | 0.71 | 0.74 |

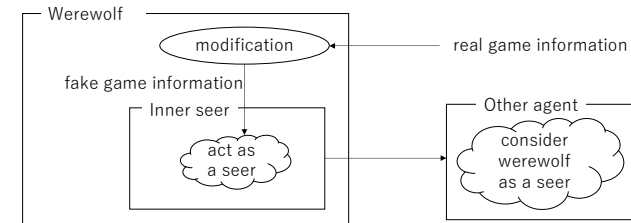
Role discrimination accuracy of trained DNN (5 agents)

| Role      | date |      |
|-----------|------|------|
|           | 1    | 2    |
| Werewolf  | 0.86 | 0.96 |
| Villager  | 0.91 | 0.94 |
| Seer      | 0.94 | 0.94 |
| Possessed | 0.96 | 0.96 |

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“To deceive the enemy, first deceive yourself.”

In acting as fake role, to deceive other agents, the player agent deceives its inner agent of that fake role, while providing fake game information.



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