



UJI Agents

Summary of our two agents for
LOCM competition at CEC19

Team



Raúl Montoliu



Arturo Barbosa



Alejandro Juan



Sergio Ferreras



Diego Villabrille



Daniel Delgado

Affiliation

Research group on Machine Learning for Smart Environments

<http://giant.uji.es>

Institute of new Imaging Technologies

Jaume I University

Castellón, Spain

We present:

- UJIAgent1: Based on heuristic and our experience playing similar games like Hearthstone
- UJIAgent2: One step look ahead-based policy

Instructions to run the agent

- Both agents have been written using *python 3*
- Each agent is a unique .py file
- Common libraries have been used
- They have successfully been tested in *codingame* web platform



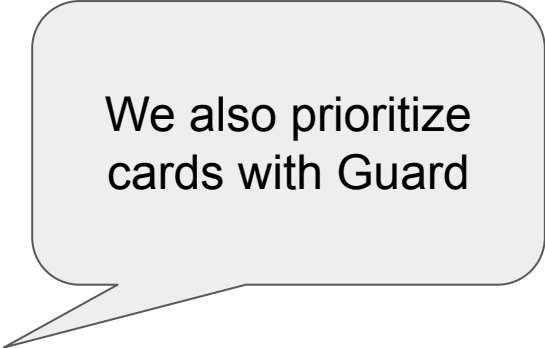


UJI Agent1


UJIAgent1: Draft

We try to have a card distribution as follows:

- 5 cards with cost 0 or 1
- 5 cards with cost 2
- 3 cards with cost 3
- 3 cards with cost 4
- 3 cards with cost 5
- 4 cards with cost 6
- 4 cards with cost 7 or more
- 3 red items
- No green or blue items.



We also prioritize cards with Guard



If card 151 is drafted, we always select it

UJI Agent1: Battle

- Order:
 - Summon or use
 - Attack
 - If there is still mana available summon or use again

UJI Agent1: Battle

- Summon/Use strategie:
 - First, summon/use cards with more cost
 - If our card to summon has *Guard*, select the player line with less cards with *Guard*
 - If not, select the player line with less cards



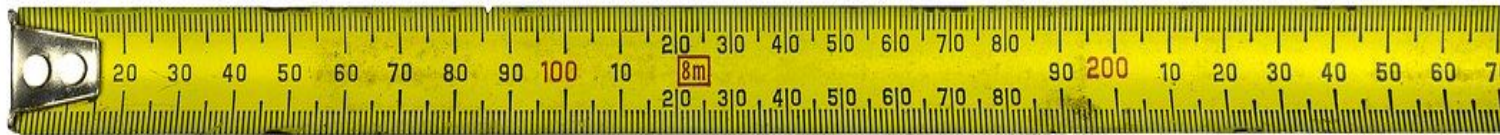
UJI Agent1: Battle

- Use strategie:
 - If card is blue or green: random selection of target
 - If card is red select the most dangerous card of the opponent:
 - More attack + defense + abilities

UJI Agent1: Battle



- Attack strategie:
 - First, check if it is possible to directly kill the opponent
 - If not:
 - prioritize the attack to opponent cards with guard.
 - If opponent does not have guard cards:
 - random target
 - but, if our card has guard, always attack to the opponent player.
 - We select always the best card to perform the attack:
 - The one that is not going to dead after attacking.



UJI Agent2

UJIAgent2:

- One step look ahead policy:
 - We have designed **several** strategies to summon/use and to attack
 - At each turn, we select randomly a subset of the total number of possible combinations.
 - Each one is **evaluated**.
 - The best one is played.

UJIAgent2:

- In total we have:
 - 24 different strategies to summon/use.
 - 9 different strategies to attack.
- We have $24 \cdot 9 = 216$ possible combinations.
- We select randomly 120 of the 216.

UJIAgent2:

- Draft: similar idea than UJIAgent1.
- Summon/use:
 - The different strategies try to cover both lines, or just one. Some strategies take into account abilities of the cards and their attack/defense values. Some ones prioritize to summon a lot of cards, other just the ones with higher cost, etc.
- Attack:
 - Attack to the opponent, attack to the most powerful card, attack both lines, just one, etc.

UJI Agent2:



- Evaluation:
 - $X = \text{Player's HP} + \text{sum of the values of the player's cards on the board (attack + defense + abilities)}$.
 - $Y = \text{Opponent's HP} + \text{sum of the values of the opponent's cards on the board}$.
- We evaluate if the value $(X-Y)$ is increased after performing the selected strategie.



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