INF FAKULTÄT FÜR INFORMATIK

Fighting Game Competition – Horst Haudrauf

Group K

Florian Schweighöfer, Peter Kretschmer, Sebastian Mai

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Agenda

- Idea
- Defining the State
- Learning the Rewards
- Action Selection
- Findings

Idea

Use a concept from the lecture ⇒ Reward Based reasoning.

- We can't look into the future
- We need to simplify the (game) state in order to reduce the complexity of the solution space
- We need to define what our actions are

Defining the State

- initially the state was more complex, but hard to compute
- oppenent state ("STAND", "CROUCH", "AIR", "DOWN")
- distance to opponent

Learning the Rewards

- compute rewards for the last 50 state-action-pairs (about two seconds)
- reward decaying exponentially over time
- rewards depend on damage done to opponent and damage taken
- small negativ reward if nothing happens to the HP at all

Action Selection

- probability based
- p_1 : select action with best reward
- $(1 - p_1) \cdot p_2$: select any action with positive reward
- $(1 - p_1) \cdot (1 - p_2)$: select random action
- $p_1 = 0.1, p_2 = 0.1$

Learning the Rewards

- the algorithm does get better over time
- the actions are overly simplified
- there needs to be a better description of the game-state
- online learning works, but takes to long to win within a small number of games < 10

Thank you for your attention!