GOETHE UNIVERSITÄT FRANKFURT AM MAIN

Uno with Q-learning

Project by
Sebastian Bielfeldt (Mtr: 6400507)
Marco Knipfer (Mtr.: 4640754)
Nils Nover (Mtr.: 6983668)
Roman Smit (Mtr.: 4497101)

Simplified Uno (for now)

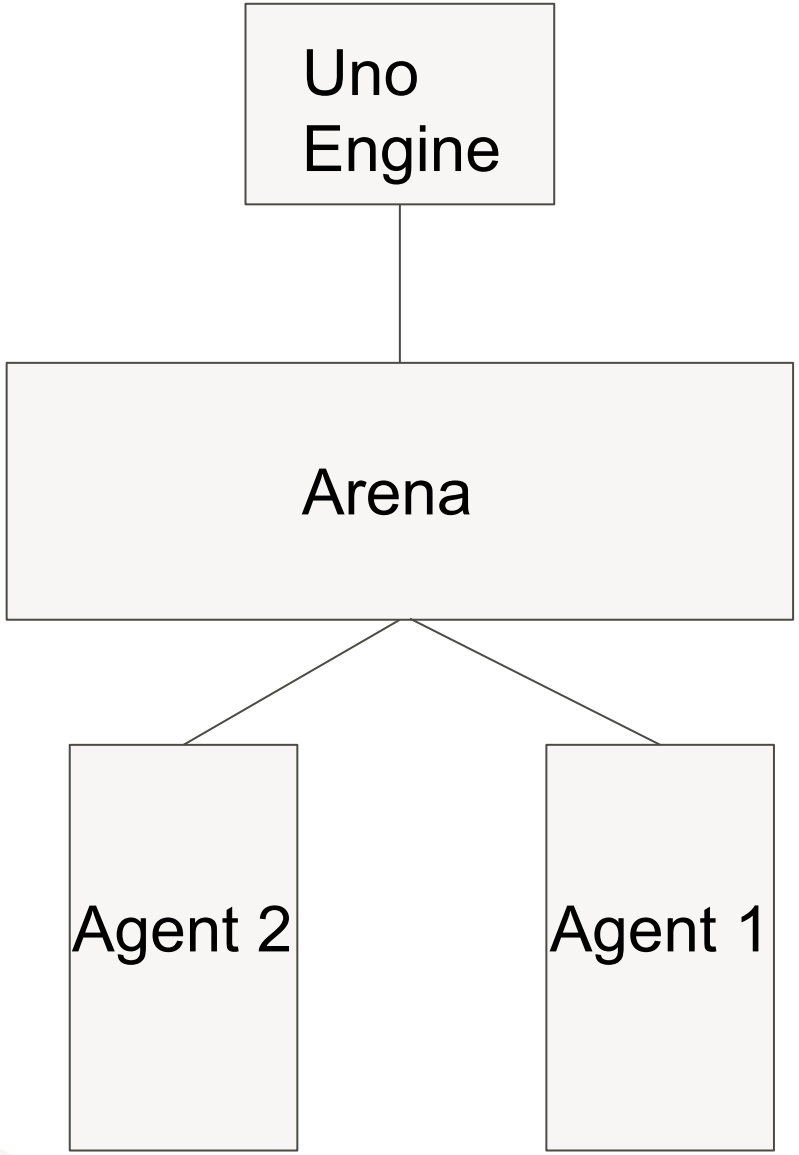
- Two players
- 4 Colors, 10 Numbers and

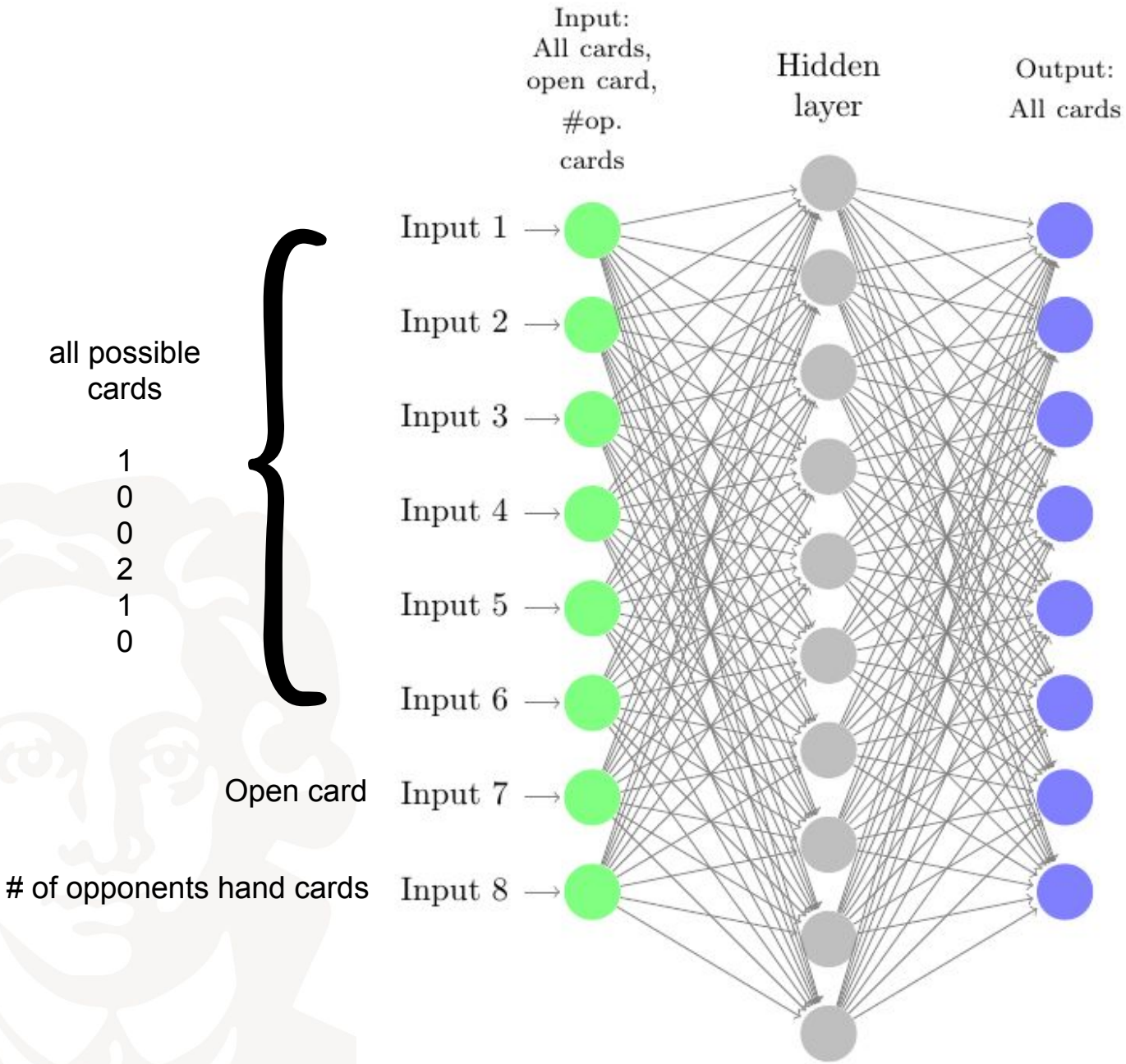
  Draw 2 and Change Directions

Perks and challenges Using Q-learning

- Set up game engine, arena, agents
- Q-table not feasible
- Neural network
- Randomness
- Reinforcement learning strategy

Setup




Input:
All cards,
open card,
#op.
cards
Hidden
layer
Output:
All cards
Input 1
Input 2
Input 3
Input 4
Input 5
Input 6
Input 7
Input 8
all possible
cards
1
0
0
2
1
0
Open card
# of opponents hand cards

Status quo and outlook on this Project

- Uno engine, arena, random agent: Working
- Simple toy example neural networks: Working
- Reinforcement agent: Not implemented

Thank you for your attention!