



The Agent Contest Competition

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Introduction

Aim

- stimulate research in the area of multi-agent systems
- identifying key problems
- collecting suitable benchmarks that can serve as milestones for evaluating new tools, models, and techniques

Challenge: solve a cooperative task in a dynamically changing environment.



History

1st: The First CLIMA Contest – 2005

Scenario:

- grid-like world
- food and depot
- goal: collect and store food

Competition:

- 4 participants

2nd: The Second CLIMA Contest – 2006

Scenario:

- grid-like world
- gold and depot
- goal: collect and store gold

Competition:

- internet based environment provided by the organizers
- 3 participants

3rd: Multi-Agent Programming Contest in Association with ProMAS – 2007

Competition:

- slight changes in the environment
- 6 participants

4th: Multi-Agent Programming Contest in Association with ProMAS – 2008

Scenario and Submission:

- new scenario

Competition:

- 7 participants



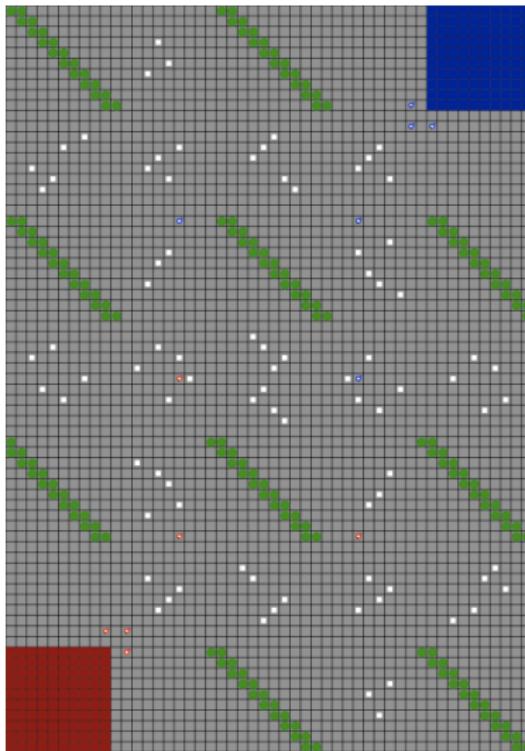
Agent Contest 2008

Scenario: Cows and Cowboys

Task: implement a team of agents that collects more cows than the opponent

Aim: agents have to cooperate and coordinate their actions

Environment



- Cows
- Cowboys
- Corrals
- Obstacles

What is the optimal solution?

What is the optimal solution?

We do not know!

Details

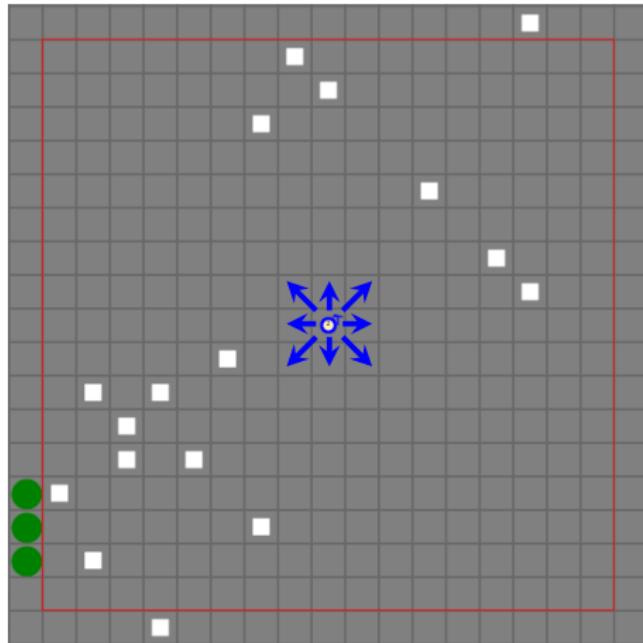
Discrete Simulation: in each step do

- send perceptions to agents
- wait for agents' actions or timeout
- let agents act and move cows

Tournament Structure:

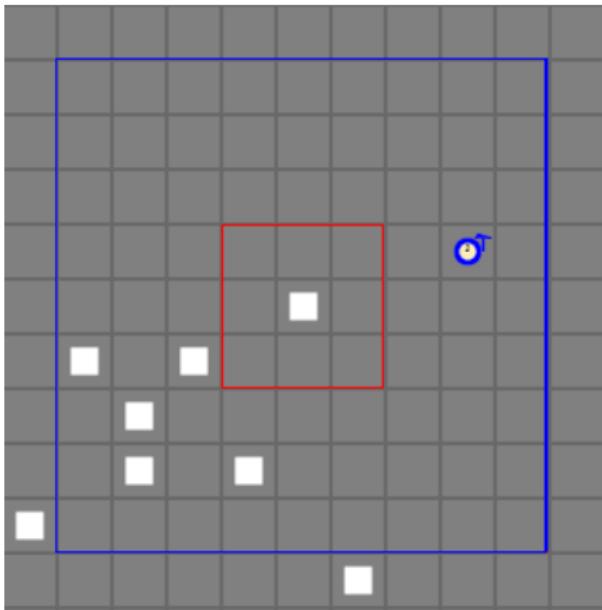
- maximum step duration around 4 seconds
- approx. 1000 steps per simulation
- 3 simulations = 1 match
- each team plays against all others, 1 match per pair

Agents



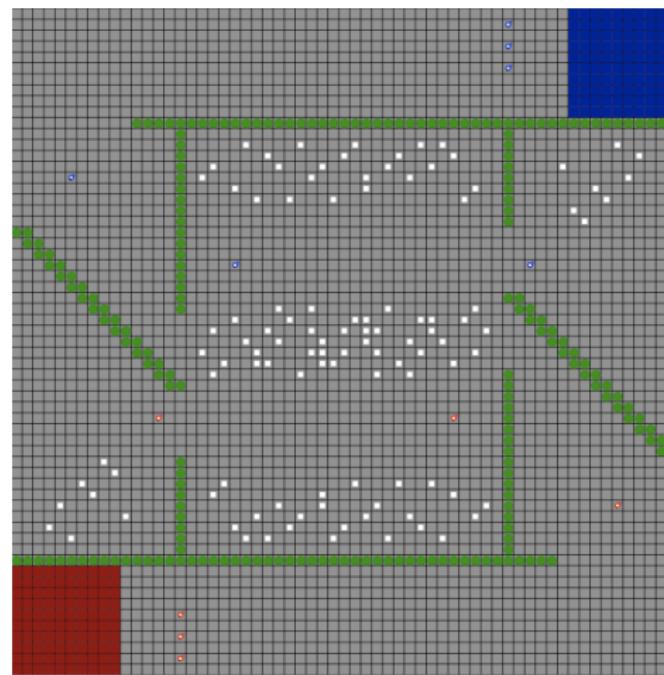
- fixed visibility range (square)
- actions: move to one of eight directions

Cows



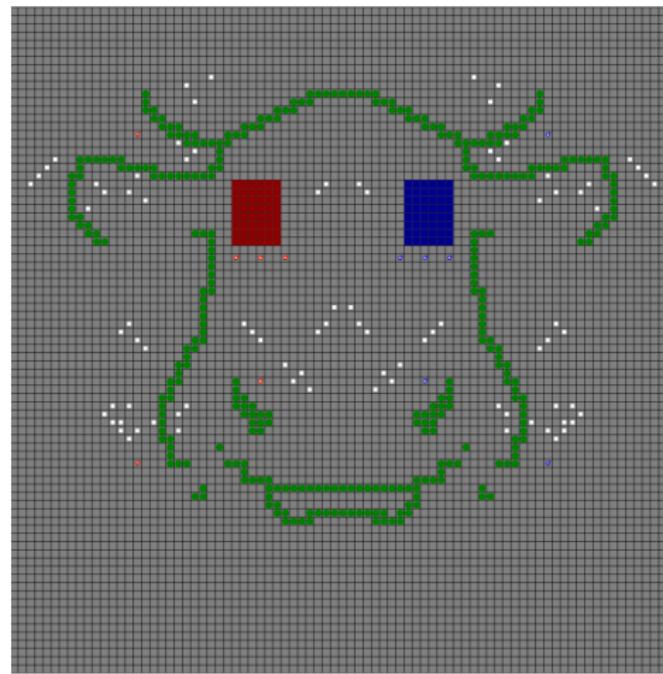
- visibility range (square)
- afraid of: agents, obstacles
- feel good: near other cows and empty spaces
- actions: move to one of eight directions
- slower than agents

Map: Razoredge



Map: Razoredge

Map: Cowskullmountain



Map: Cowskullmountain

Results

Rank	Team	CowScore	Points
1.	JIAC-TNG team	643	64
2.	Jadex	542	42
3.	SHABaN	373	37
4.	krzaczory	379	26
5.	Jason	393	21
6.	bogtrotters	305	13
7.	KANGAL	32	1

Results

- observation: more formal approaches to system analysis and design (4 teams with state of the art methodology)
- roles: herders and explorers in almost all teams, differences in coordination, organisation and role-assignment
- two groups: decentralised and centralized approaches
- agent navigation: A* is employed by more and more teams
- MAS recovery monitoring mechanisms
- "bad" strategies

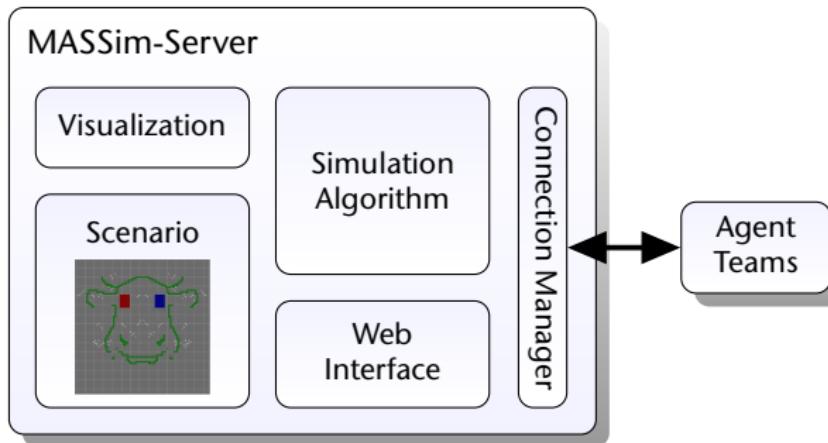


Contest Details

How does the contest work?

- 1 call for participation
- 2 documents: scenario and protocol description
- 3 preproceedings
- 4 release of the software
- 5 testing phase
- 6 the tournament
- 7 postproceedings

MASSim-Server



- **Visualization:** SVGs, complete simulations
- **Scenario:** replacable plugin
- **Simulation algorithm:** tournament schedule
- **Web interface:** real-time monitor

Download



The screenshot shows the homepage of the Agent Contest 08 website. The header features the logo "Agent Contest 08" with a horse icon, and text indicating it's the "Second Multi-Agent Programming Contest in association with ProMAS 2008" held on "May 12-13 2008 Estrel, Portugal". Navigation links include Home, History, Scenario, Participation, and Contact. Below the header, a section titled "Participants and Results" states: "This year's contest is over! The winner is JIAC-TNG from DAI Labor at Technische Universität Berlin. Congratulations!" It then displays the final scores table:

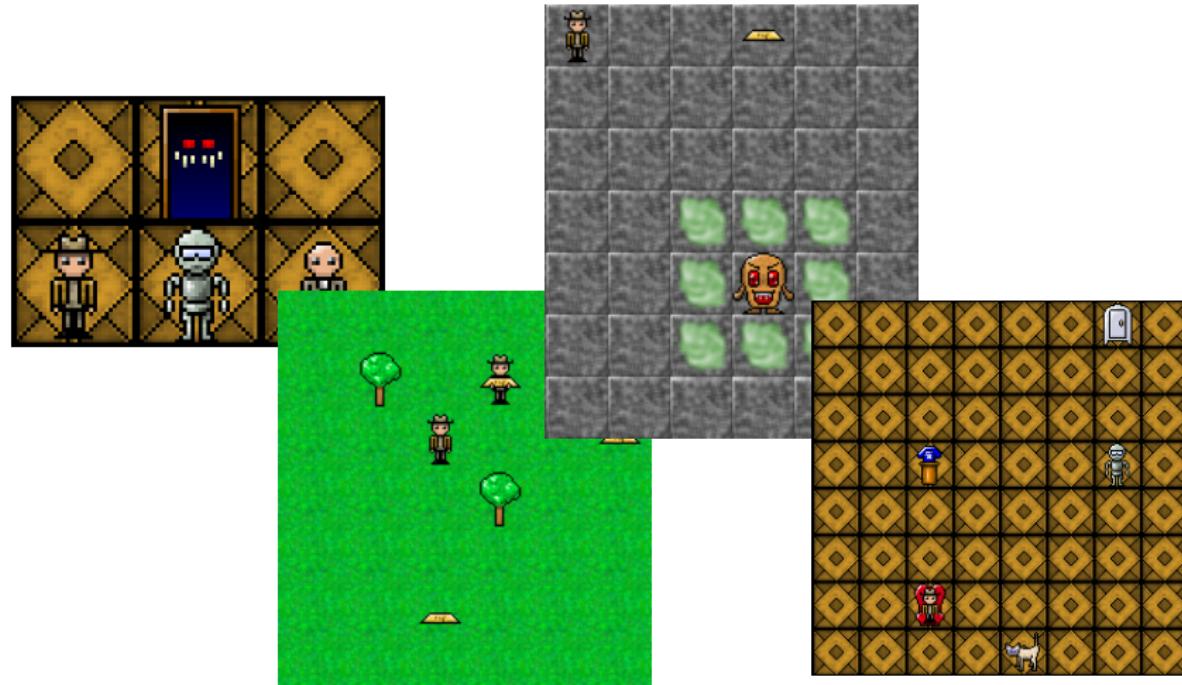
Position	Teamname	Cowscore	Points	Location
1	JIAC-TNG	643	46	Technische Universität Berlin, Germany
2	Jadex	542	42	Hamburg University of Applied Sciences, Germany
3	SHABaN	373	37	Iran University Of Science and Technology
4	krzaczory	379	26	Forschungszentrum Dresden-Rossendorf, Germany
5	Jason	393	21	ENS Mines of Saint Etienne, France, and University of Durham, UK
6	bogitrotters	305	13	University College Dublin, Ireland
7	KANGAL	32	1	Bogazici University, Istanbul, Turkey

Below the table, a link says "Click [here](#) to go to the SVGs." The "Aims and Scope" section describes the competition's purpose and lists two goals: identifying key problems and collecting suitable benchmarks.

<http://cig.in.tu-clausthal.de/agentcontest2008>

- packages: server, agent-templates
- can be used in courses

Toy-Scenarios for our course





Your opinion

Where should the Agent Contest go?



Resources



Mehdi Dastani, Jürgen Dix, and Peter Novák.

The First Contest on Multi-Agent Systems based on Computational Logic.

In F. Toni and P. Torroni, editors, *Proceedings of CLIMA '05, London, UK*, volume 3900 of *Lecture Notes in Artificial Intelligence*, pages 373–384. Springer, Berlin, 2006.



Mehdi Dastani, Jürgen Dix, and Peter Novák.

The second contest on multi-agent systems based on computational logic.

In *CLIMA VII*, pages 266–283, 2006.



Mehdi Dastani, Jürgen Dix, and Peter Novák.

Agent Contest Competition: 3th edition.

In M. Dastani, A. El Fallah Seghrouchni, A. Ricci, and M. Winikoff, editors, *Proceedings of ProMAS'06, Honolulu, Hawaii*, volume 4908 of *Lecture Notes in Artificial Intelligence*, pages 221–240. Springer, Berlin, 2007.



End