

First analysis of the practical exercise

Environment, Agent Architecture and Agent Properties

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Outline

- 1 Environment
 - Characteristics of our environment

- 2 Agents
 - Architecture of our agents
 - Properties of our agents

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Characteristics of the environment

Our implementation

- **Accessible** vs Inaccessible
- **Deterministic** vs Non-deterministic
- **Non-Episodic** vs Episodic
- Static vs Dynamic
- **Discrete** vs Continuous

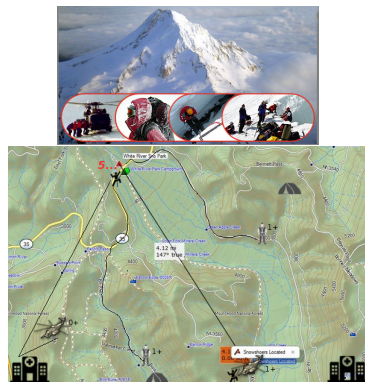


Figure: Tasks of our agents

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Architecture of the agents

Our implementation

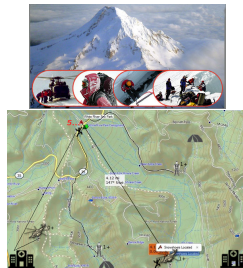
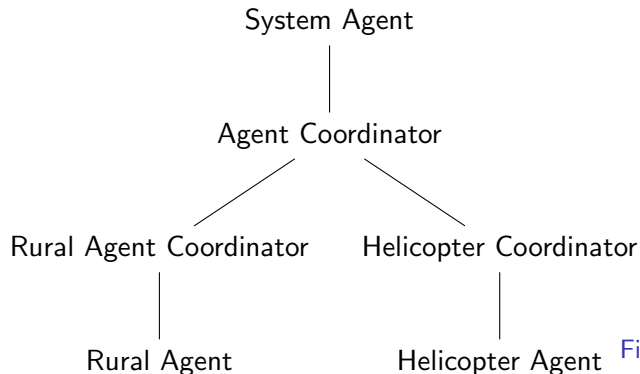


Figure: Tasks of our agents

Architecture of the agents

Deliberative vs Reactive

- **Deliberative:**

- Agent Coordinator
- Helicopter Coordinator
- Rural Agent Coordinator

- **Reactive:**

- Rural Agent
- Helicopter Agent
- *System Agent?*



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Agent properties

Properties that we consider that an agent can have 1/2

- **Reactivity**¹: Rural agents and Helicopters.
- **Pro-activeness**²
- **Social Ability**³: all our agents.
- $1+2+3 = \text{Flexibility}$ (Rural agents, Helicopters can not be considered *flexible* agents).
- **Autonomy**: System Agent, Rural Agent Coordinator and Helicopter Coordinator.

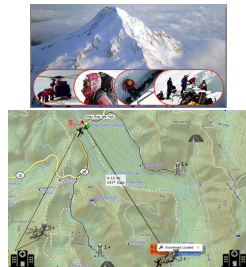


Figure: Tasks of our agents

Agent properties

Properties that we consider that an agent can have 2/2

- **Rationality**: all our Coordinators.
- **Reasoning capabilities**: all our Coordinators.
- **Learning**
- **Temporal continuity**: all our agents.
- **Mobility**

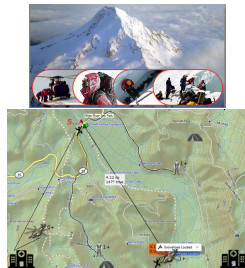


Figure: Tasks of our agents

Bibliography I



Antonio. Moreno.

Introduction to Multi-Agent Systems.

Lectures from 1 to 3.



Peter Stone.

Reactive vs. Deliberative agents.

<http://www.cs.cmu.edu/>

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