IAS intelligent autonomous systems

UNIVERSITEIT VAN AMSTERDAM

Reinforcement learning competition: The invasive species domain

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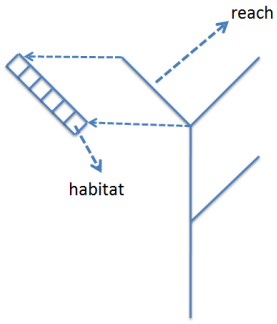
NB: this project is about a domain from the reinforcement learning competition 2014. We encourage students who do this project to submit their agents to this competition and participate.



http://en.wikipedia.org/wiki/File:Tamarix_ramosissima_a2.jpg
https://sites.google.com/site/rlcompetition2014/domains/invasive-species

Idea

Travelling the world is one of humanity's great achievements, but it often has unforeseen consequences. In this project you attempt to limit the damage after an alien species has been introduced to an ecosystem, and has begun taking over all the available habitats.

Domain

The "Invasive species domain" was first introduced to the reinforcement learning competition in 2014, and is a typical real-world inspired problem. You will be trying to remove the Tamarisk plant, an invasive species, from an ecosystem. Each action you can take has (financial) costs, and costs that penalize the level of invasion by Tamarisk. For a detailed description of the domain, click here (https://sites.google.com/site/rlcompetition2014/domains/invasive-species).

Task

Develop an agent that learns in the invasive species domain, in accordance with the competition rules. For this, you can use any known RL algorithm (for example from the Autonomous Agents course), and adapt and tweak it in anyway to make it as effective for the domain as possible. Document the choices you make, and especially the reasoning behind these choices. Focus on what works and what does not, and try to explain why, using systematic experimentation.