LCSTalk~En

LCSTalk, a classifier platform for multi-agent learning

- **Key words :** LearningClassifierSystems, reinforcement learning, multi-agent systems
- **Development Platform :** Squeak
- **Licence :** LicenceMIT
- **Developers :** MichaëlPiel, OlivierSagit, SergeStinckwich

Overview

The goal of the reinforcement learning consists for an adaptive agent (for example a robot) implied in a sensorimotor feedback loop to take the best decision depending of the current situation. An agent take into account its environment with the help of his sensors and use perceptions to choose a resulting action. He receives in return a reward (a scalar value) and the new situation resulting of the accomplished action. The agent tries to maximize his reward on the long-term of his life.

A Learning Classifier System is a reinforcement learning approach based on simple perception-action rules. Each rule form an association between local perceptions of the agent with a corresponding action and a fitness value. Several approaches based on genetic algorithms allows to generate and select new sets of rules more fitted to the current environment. This learning technique is known to be very efficient for markovian and single-agent scenarios and several research works are conducted to adapt this approach to multi-agent applications.

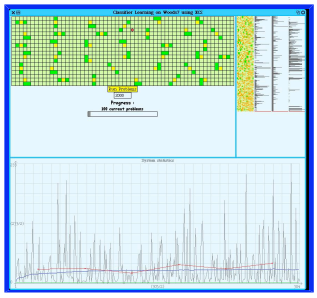
LCSTalk is a software platform dedicated to design and experiment with single and multi-agent Learning Classifier Systems in Smalltalk. LCSTalk implements a lots of different well-known LCS architectures like : ZCS, XCS, ACS, ... This tool offers to AI scientists who would like to experiment with new ideas in the field of classifier learning a great number of customizations and severals measure tools in order to study the learning algorithms performance.

LCSTalk is mainly used in our team to study meta-learning algorithms (how to learn to learn) and in applications like reconfigurable robotic simulations (see MAAMProject).

Download

The last version of LCSTalk is available on SqueakSource : http://www.squeaksource.com/LCSTalk/

Screenshots



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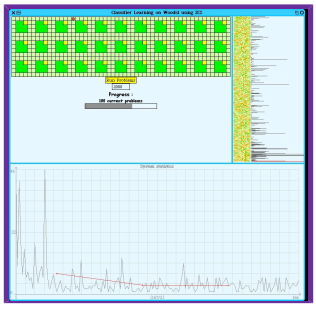

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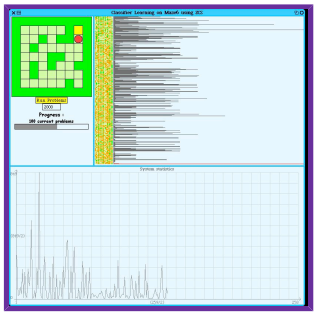

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See also : LCSTalk~Fr

CategorySmalltalk