Learning robots to rescue

*The RoboCup Rescue as training ground*

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After the Great Hanshin Earthquake of 1995 in Kobe, the Japanese government decided to promote research related to the problems encountered during large-scale urban disasters. A major outcome of this initiative was the RoboCup Rescue competitions. This lead to both versatile robots as control software for large teams of rescue agents.

To apply Bayesian games to realistic RoboCup Rescue scenario’s, the decision making is decomposed into a high-level Bayesian game and low-level MDP:

Bayesian Game approximations make it possible to bridge the gap to coordination problems encountered in benchmarks as the RoboCup Rescue. Modeling that each robot has a certain amount of private information, next to a certain amount of common knowledge, is a natural assumption. Also online planning is natural in such dynamic situations.

Based on the individual action $a_i$, observation $z_i$, the actions of all the other agents are inferred, relying on a common knowledge assumption, by finding match to the type $\Theta$. 

References


More information: http://wiki.robocup.org/Rescue_Simulation_League