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Abstract: In the aftermath of a large-scale disaster, agents' decisions derive from self-interested (e.g. survival), common-good (e.g. victims' rescue) and teamwork (e.g. fire extinction) motivations. However, current decision-theoretic models are either purely individual or purely collective and find it difficult to deal with motivational attitudes; on the other hand, mental-state based models find it difficult to deal with uncertainty. We propose a hybrid, CvI-JI, approach that combines: i) collective 'versus' individual (CvI) decisions, founded on the Markov decision process (MDP) quantitative evaluation of joint-actions, and ii)joint-intentions (JI) formulation of teamwork, founded on the belief-desire-intention (BDI) architecture of general mental-state based reasoning. The CvI-JI evaluation explores the performance's improvement during the process of learning a coordination policy in a partially observable stochastic domain.

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