Resolve Hanabi with Neural Network

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1 Introduction

Hanabi is a cooperative game for 2 to 5 players with incomplete and asymmetric information. For this features it has been proposed by DeepMind group [2] as a new challenge for Reinforcement learning. The problem has been tackled both with deterministic (e.g [3]) and ML-learning based algorithm (e.g. [4]). The game has been demostrated to be NP-Hard in general [1]. As a rule of thumb a good algorithm is able to achieve a perfect score (25 points) in more than the 90% of games.

2 Methods

2.1 General ideas

Even if more sofisticated algorithms are avaible, I have implemented the Deep-Q-Learning algorithm introduced by Mnih et al. [5].

References

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[3] Christopher Cox et al. "How to Make the Perfect Fireworks Display: Two Strategies forHanabi". In: *Mathematics Magazine* 88.5 (Dec. 2015), pp. 323–336. DOI: 10.4169/math.mag.88.5.323.

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