Pitfalls Encountered When Implementing Complex Neural Networks Like Progressive Neural Networks

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Abstract

Abstract goes here

1 Introduction

Vertellen over atari, recent advances. Feel krijgen over hoe complex door zelf implementeren w/e.

The Atari Gym Brockman et al. [2016] environment is a modern environment to train and test various reinforcement learning algorithms, on a difficult, real time, task. The gym has a large variety of different games that we can test our algorithms on. We wanted to implement and train a novel neural network in Chainer Tokui et al. [2015]. We tried implementing a Progressive Neural Network, as proposed by Rusu et al. [2016].

Unfortunately, we encountered some difficulties when implementing the network in Chainer. In this document we will give an outline of what went wrong, and what went right, so researcher know what problems they should avoid when using Chainer

We also implemented a simpler neural network to ensure ourselves that this was possible in Chainer.

2 Background

model beschrijven in termen van *states rewards en actions* + Q-learning (is pure value iteration aka rewards propagaten van de terminal state naar de eerste zet in episodes)

3 Related Work

Not sure... Misschien wat vertellen over de guru paper Mnih et al. [2013] + mogelijke verbeteringen in NATURE Mnih et al. [2015]

4 Deep Q-Learning

4.1 Preprocessing

Hoe we data eerst verwerken voor complexiteit vermindering + wat input model is (stacked frames) zie Mnih et al. [2013]

4.2 Reward Clipping

Envs hebben andere manier van reward, wij $[-1, 0, 1]$

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4.3 Replay Memory

Om patronen te voorkomen Mnih et al. [2013]

4.4 Training details

model initializatie + parameters etc. (qua hidden layers e.d.) Huber loss vs. MSE

5 Results

6 Conclusion

7 Discussion

Complexer dan we dachten + link naar PNN

References

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