Deep Learning Project 3

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Abstract

In this project we have implemented ADMM optimization methods for the convolution layers. For the convolution layers, we considered converting a convoluted matrix into a dense toeplitz matrix. The weights updates of kernels are done by solving a system of equations by sampling equations obtained from Toeplitz matrix. We found that our method worked faster than author's implementation since they only considered the pseudoinverse of the matrix. We used MNIST digit dataset (odd-even classification) and found that our method gives 90.6% over traditional backprop method 79.6%.

1 Introduction

ADMM (Alternating Direction Method of Multipliers) is the divide and conquer approach to solve a convex optimization problem. For this project, we have implemented ADMM for Neural Networks.

2 Introduction

References