

DD2424 Deep Learning in Data Science

Assignment 4 - 24th July, 2019

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I trained a RNN to synthesize a text by using Goblet of Fire book by J. K. Rowling. AdaGrad is used during training of the model for updating parameters. The dataset contains 1.100.000 characters.

1. Gradients

I have calculated the gradients and checked them against each other (analytical and numerical). The resulting relative errors are so small (less than 10^{-6}) that led me to think that my computations are correct. Then I concluded that I managed to write the code without any bugs and correctly.

2. Smooth Loss Function

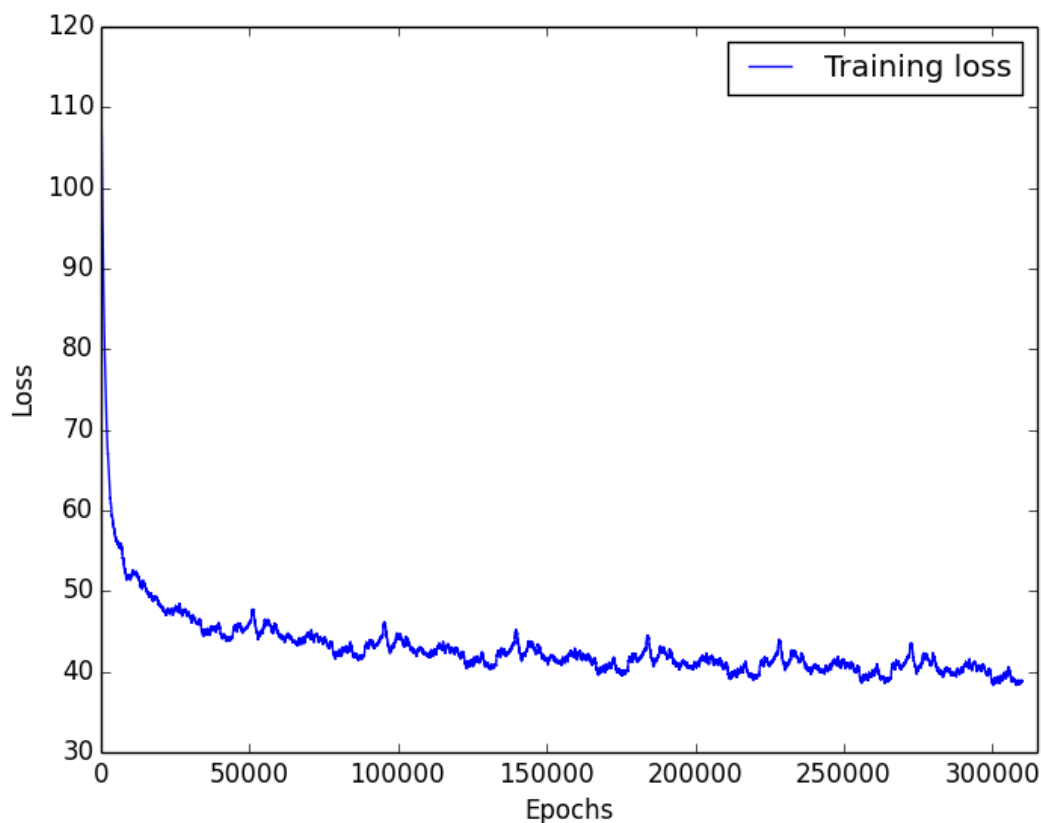


Figure 1: Smooth loss function when model is trained with 7 epochs.

The reason I have chosen 7 epochs is to get close to the experimental values (such as iteration count) shown in the Assignment pdf.

3. Synthesized Texts

Iteration: 0

h0!dAzFJ?U

w.b0hHWb}nYQz,Y7eAe(GZT3FDhu0x6r)co,s6W-"bDJp;F})G^e(Yi"iaKZ Yi_K.GKC?

9byL-:dn(eYwp17^;1aF/HK9B}fYJly4J_h,o lzKNcnnOQKA)(2;OSTLe0p'ADPAW'Neo90yaZ6FBaP}

PLEYE"etlL

B9juBu7 tYILQ:XkY0?v

Iteration: 10000

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"Baclly and arry o f rere er, any.

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Iteration: 20000

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Iteration: 30000

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Iteration: 40000

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Iteration: 50000

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Iteration: 60000

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Iteration: 70000

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Iteration: 80000

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"The r

Iteration: 90000

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Iteration: 100000

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"Hear, !"

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"What hey ming quill exami

4. Best Model

smooth_loss = 38.747

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the told. "Dibling not geprees!"
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lookinn.
Jut lister ap more underict. "He's back over by houres.
"Young. I said one'd in his head. Prode. .

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in the witkini