Cap2TxT: Captcha to Text, An End-to-End Hybrid Neural Network for Captcha Image Text Sequence Recognition

2020 Spring ML Class Final Project Submission

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Abstract

*Recent developments of deep neural networks including CNN(Convolutional Neural Network) and RNN(Recurrent Neural Network) made object classification and detection process much more easier. However, many real-world sequence learning tasks require the prediction of sequences of labels from noisy, unsegmented input data. In this paper, I propose **Cap2TxT**, a light-weight end-to-end fashion network for captcha image recognition problem.*
TODO...

1. Introduction

In the last few years,

The main contribution of this paper is three-fold. In summary, the contributions are as follows:

-
- second..
- third..

The rest of this paper is organized as follows. In Section 2, I start with a brief overview of the research area related to my work including OCR and deep neural networks. Section 3 gives a detailed description of the *Cap2TxT* network architecture that I proposed in this final project. In Section 4, I describe the experimental results and methods, and introduce several candidate models for *Cap2TxT* network that have undergone trial and error during the project, and Section 5 concludes.

2. Related Works

2.1. OCR

2.2. Deep Neural Networks

3. Proposed Network Architecture

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3.1. Width-Oriented Image Feature Sequence Extraction

3.2. Feature Sequence Predicting

3.3. Sequence Squeezing

3.4. Training Methodology

4. Experiments & Discussion

4.1. Experiment Details& Results

4.2. Attempts not Adopted as Final Model

I tried some other methods before adopting the final Cap2TxT Network.

5. Conclusion

References

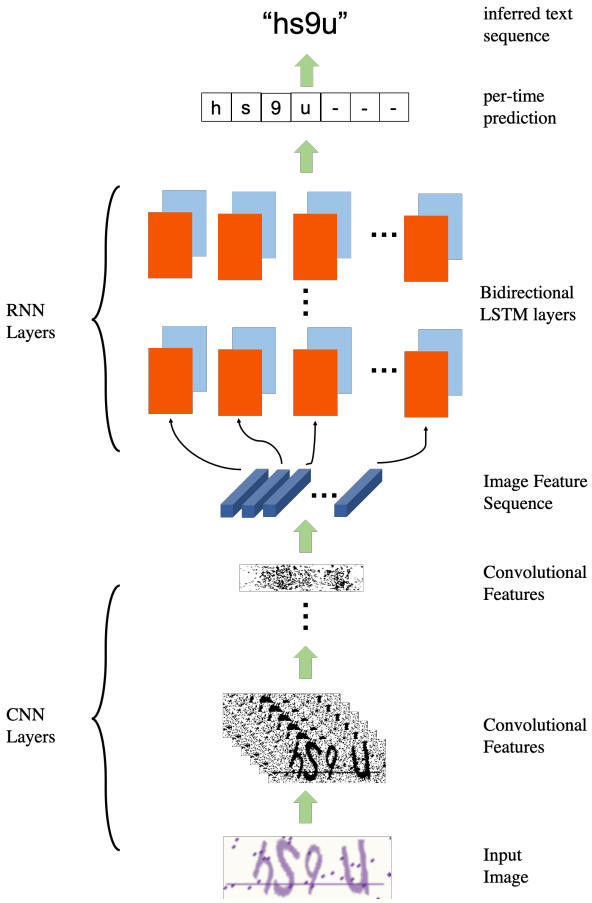

Figure 1. The overview of Cap2Txt architecture. The network is composed of two parts: 1) CNN layers: It takes captcha image as input, extract a feature sequence. 2) RNN Layers: