

State-of-the-art Chinese Word Segmentation with Bi-LSTMs

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Natural Language Processing Homework 1

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1 Introduction

2 Model

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The student has to deliver via the Google form: a link to the Gitlab shared project with the source code and any additional data needed to run the software a paper of up to 4 pages (+infinite pages for references, images, tables, graphs, etc.) including: a brief introduction to the project problem, a brief state of the art, an illustration of the methods/approach/techniques (min. 1 page), a quantitative (and ideally a small qualitative) evaluation of the system, some analysis of the results.

Algorithm 1 depicts the overall procedure of training.

Algorithm 1 PPO with Clipped Objective

- 1: Collect a batch of N (multiple of the mini-batch size) transitions from parallel environments (state, action, log-probabilities, a reward, done-mask (0 if terminal), $V(s)$ (value of the state for each state)).
 - 2: Calculate the returns for the batch using GAE
 - 3: Calculate: advantage = returns - values
 - 4: For e epochs: *loop*:
 - 1: Sample through enough random mini-batches to cover all data.
 - 2: Pass state into network, obtain action, value of state', entropy and new-log-probabilities.
 - 3: Calculate the surrogate policy loss and MSE value loss.
 - 4: Backpropagate the loss through the network using SGD.
 - 5: Repeat above until converged.
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References

- [1] <https://github.com/0styk/Chinese-LSTM>