

Supplemental Materials: Sequential Span Classification with Neural Semi-Markov CRFs for Biomedical Abstracts

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A Number of Parameters

Table 5 shows the number of parameters that are optimized in the training phase. The methods of Jin and Szolovits and Cohan et al. use word vectors as input, while the proposed method and BiLSTMs+CRFs use sentence vectors as input. This is the reason why the number of parameters in the proposed method and BiLSTMs+CRFs is much smaller than that in the other two methods. If we regard the parameters of BERT as a part of the parameters of our proposed methods and BiLSTM+CRFs, the number of parameters in the proposed method, BiLSTMs+CRFs, and Cohan et al. is almost the same.

	# of parameters
Proposed	328,872
BiLSTMs+CRFs	329,069
Jin and Szolovits	10,663,048
Cohan et al.	110,058,391

Table 5: Number of parameters in each method.

B Training Time and Epochs

Table 6 shows the training time and the number of epochs for PubMed 20k RCT. Table 7 shows the average of training time and the average number of epochs in 10-fold cross-validation for NICTA-PIBOSO. We trained all models on a single Nvidia GeForce GTX 1080 Ti GPU.

C Validation Performance

Tables 8 and 9 show the validation performance on PubMed 20k RCT and NICTA-PIBOSO development datasets, respectively.

	training time	epochs
Proposed	3.24×10^5	60
BiLSTMs+CRFs	5.40×10^3	30
Jin and Szolovits	1.35×10^5	90
Cohan et al.	1.84×10^5	2

Table 6: Training time (seconds) and the number of epochs in the PubMed 20k RCT development dataset.

	training time	epochs
Proposed	4.15×10^4	98.7
BiLSTMs+CRFs	1.94×10^2	19.4
Jin and Szolovits	2.14×10^3	11.9
Cohan et al.	4.92×10^2	4.1

Table 7: Training time (seconds) and the number of epochs in the NICTA-PIBOSO development dataset.

	sentence-F ₁	span-F ₁
Proposed	93.2	83.5
BiLSTMs+CRFs	92.3	82.0
Jin and Szolovits	93.2	83.6
Cohan et al.	93.1	82.9

Table 8: Validation performance on the PubMed 20k RCT development dataset.

	sentence-F ₁	span-F ₁
Proposed	85.7	62.1
BiLSTMs+CRFs	85.8	62.5
Jin and Szolovits	82.4	53.3
Cohan et al.	84.3	57.2

Table 9: Validation performance on the NICTA-PIBOSO development dataset.