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From: <clinical-nlp-workshop-organizers@googlegroups.com>

Date: Tuesday, October 18, 2016

Subject: Your ClinicalNLP 2016 Submission (Number 7)

To: raghav.chalapathy@gmail.com

Dear Raghavendra Chalapathy:

On behalf of the ClinicalNLP 2016 Program Committee, I am delighted

to inform you that the following submission has been accepted to

the workshop as a short talk (12 minute talk + 3 minutes for questions):

 Bidirectional LSTM-CRF for Clinical Concept Extraction

The Program Committee worked very hard to thoroughly review

all the submitted papers. Please repay their efforts, by

following their suggestions when you revise your paper.

Camera-ready submissions must be uploaded by October 30 and follow

the instructions provided by the main conference:

 http://coling2016.anlp.jp/#camera-ready

When you are finished, you can upload your final manuscript

at the following site:

 https://www.softconf.com/coling2016/ClinicalNLP/

You will be prompted to login to your START account. If

you do not see your submission, you can access it with the

following passcode:

 7X-P4E4G3P6H3

Alternatively, you can click on the following URL, which will take you

directly to a form to submit your final paper (after logging into your

account):

 https://www.softconf.com/coling2016/ClinicalNLP/user/scmd.cgi?scmd=aLogin&passcode=7X-P4E4G3P6H3

The reviews and comments are attached below. Again, try to follow

their advice when you revise your paper.

Congratulations on your fine work. If you have any additional

questions, please feel free to get in touch.

Best Regards,

Anna Rumshisky, Kirk Roberts, Steven Bethard, and Tristan Naumann

ClinicalNLP 2016

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ClinicalNLP 2016 Reviews for Submission #7

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Title: Bidirectional LSTM-CRF for Clinical Concept Extraction

Authors: Raghavendra Chalapathy, Ehsan Zare Borzeshi and Massimo Piccardi

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 REVIEWER #1

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Reviewer's Scores

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 Relevance: 5

 Originality: 2

 Technical correctness / soundness: 4

 Readability and clarity: 5

 Meaningful comparison: 5

 Substance: 4

 Impact of ideas: 3

 Impact of resources: 1

 Overall recommendation: 4

 Recommendation for best paper award: 1

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Comments

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This paper proposes to use a bi-directional LSTM network (with CRF decoding)

for clinical entity extraction. The standard BIO framework is used. The

experiments are evaluated using 2010 i2b2/VA data. The results are on par with

the best systems evaluated on this data. The best system (deBruijn et al.,

2011) still nominally performs better but it had access to additional training

data. This paper proposes a very reasonable approach and the evaluation is

carried out carefully and correctly. One experiments that's missing is the

setting where the word embeddings are initialized randomly but then

updated/learned from the i2b2/VA data in the process of training LSTM.

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 REVIEWER #2

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Reviewer's Scores

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 Relevance: 5

 Originality: 2

 Technical correctness / soundness: 4

 Readability and clarity: 5

 Meaningful comparison: 4

 Substance: 4

 Impact of ideas: 3

 Impact of resources: 1

 Overall recommendation: 4

 Recommendation for best paper award: 2

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Comments

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This work applies recent neural network models (namely the bidirectional

LSTM-CRF) to the problem of clinical concept extraction. The work is solid,

well-situated, and well-described. Though it is lacking in novelty, it is an

appropriate size of overall contribution for a short paper. There will be

significant interest in the community about the application of off-the-shelf

deep learning techniques for concept extraction.

A few points:

 - The Jonnalagadda et al 2012 model should be listed with the deBruijn et al

2011 model, since these were both done on the original 2010 i2b2/VA corpus, and

are therefore directly comparable to each other but not to the current work.

 - Understanding that there are space constraints, it would have been

interesting to see further variation in the neural network architecture:

single-direction LSTM, GRUs, etc.

 - Understanding that there are space constraints, it would have been

interesting to see a more thorough investigation of word embedding

initializations, as suggested in the future work. In addition to training on

different corpora, a learning curve (x: # word embedding training reports; y: #

scores) might be interesting.

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 REVIEWER #3

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Reviewer's Scores

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 Relevance: 5

 Originality: 2

 Technical correctness / soundness: 3

 Readability and clarity: 5

 Meaningful comparison: 4

 Substance: 2

 Impact of ideas: 2

 Impact of resources: 3

 Overall recommendation: 2

 Recommendation for best paper award: 1

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Comments

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The paper proposes an LSTM-CRF approach for the problem of concept extraction

from clinical narratives.

While the authors show some results and compare their proposed approach with

the results from the i2b2 2010 challenge, there are some points that are

unclear and makes me ambivalent about this one:

The results are not better than the state-of-the-art (deBruijin et al., 2011)

in which the authors use an HMM model with standard Information Extraction (IE)

features. This brings up the natural question that why should people prefer the

proposed approach over the traditional HMM/CRF based models which are already

performing better? The authors argue that the results in the previous work are

not directly comparable to theirs. In that case, I would have liked to see how

a CRF based approach with standard IE features with addition of basic domain

specific features from tools like cTakes or MetaMap would perform. It would

have been nice if the authors have conducted experiments on the performance of

the vanilla RNN, LSTM, and BiLSTM in addition to the LSTM-CRF model.

Furthermore, since this task is in the clinical domain, I wonder why the

authors have not used/trained any domain specific word embeddings (they also

mentioned this point in future work). My last comment is about the

presentation. I think while the authors spend too much space on explaining the

related work and RNNs, they don't provide much details about the more important

parts of the model which is joint training of their LSTM-CRF model. Overall, I

consider this as a work in progress where there are some good ideas, but the

current execution of the ideas leaves some important questions unanswered.

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