Goal: Fact Checking

“Unemployment in the US is 42%”

unemployment(US, 42%)

query

What is the stance of HRC on immigration?

stance(HRC, immigration, X)

Machine Reader

Goal: Understanding Scientific Publications

What models exist for question answering?

Method A outperforms method B for task C

Method A outperforms (A, B, C)

SemEval 2017 ScienceIE (organiser), ACL 2017, ConLL 2017
What models exist for question answering?

What is the stance of HRC on immigration?
What models exist for question answering?

Method for task (QA)

“Immigrants welcome!”

Evidence

Machine Reader

query

query

retrieval

“We introduce a RNN-based method for QA”

“Immigrants welcome!”
What models exist for question answering?

- method_for_task(QA)
- RNN, method-for, QA

We introduce a RNN-based method for QA

What is the stance of HRC on immigration?

stance(HRC, immigration, X)

“Immigrants welcome!”
What models exist for question answering?

Methods based on RNNs are widely used.

HRC is in favour of immigration.

"We introduce a RNN-based method for QA."

"Immigrants welcome!"
Task: Stance Detection

Document: “... Led Zeppelin’s Robert Plant turned down £500 MILLION to reform supergroup. ...”
Headline/Target: “Robert Plant Ripped up $800M Led Zeppelin Reunion Contract”
-> Confirming

Task: How do sequences relate to one another? (e.g. for, against, neutral)

Problems:
• Interpretation depends on headline/target
• Target not always seen in training set
  • However, overlap between target + document

Fake News Challenge 2017
Task: Stance Detection

Tweet: A foetus has rights too!

Target: Legalization of Abortion, Atheism, Pro Life, ...

Task: How do sequences relate to one another? (e.g. for, against, neutral)

Problems:
- Interpretation depends on target
- Target not always mentioned in tweet
- No training data for test target -> target-independent / unseen headline approach needed

SemEval 2016 Stance Detection, EMNLP 2016
Task: Scientific Paper Summarisation

- Extractive summarisation
  - **Binary classification** task: for each sentence, is it summary statement or not?
- Fine neural encoding of current sentence
- Simple, coarse features for paragraph and global (e.g. location) features
Paper title: Statistical estimation of the names of HTTPS servers

Author-Written Highlights (= Summary Statements!)
- We present the domain name graph (DNG), which is a formal expression that can keep track of cname chains and (...)
- ...

Summary statements highlighted in main text:
In this work, we present a novel methodology that aims to (...)
The key contributions of this work are as follows.
We present the domain name graph (DNG), which is a formal expression that can keep track of cname chains (challenge 1) and (...)

Research Challenges

- Small Datasets
  - Weak supervision, multi-task learning, semi-supervision

- Computational cost of neural machine reading
  - Makes small benchmark datasets more attractive for research
  - Few datasets with large or multiple documents

- Proliferation of datasets, some toy tasks or not well designed
  - E.g. small vocabulary, easy to “game”
Thank you!
Questions?


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