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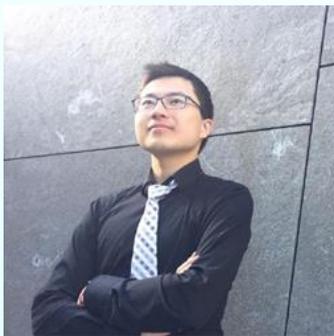
Department of Biomedical Engineering



Time: 11:00 am, 7 November 2019 (Thursday)

Venue: Room 702, William M.W. Mong Engineering Building

Multi-stage and Multi-task Learning for Multi-choice Question Answering with Applications in Medical Textbooks



Mr. Di Jin, PhD candidate

**Computer Science and Artificial Intelligence Laboratory (CSAIL),
MIT**

Abstract

Machine Reading Comprehension (MRC) for question answering (QA), which aims to answer a question given the relevant context passages, is an important way to test the ability of intelligence systems to understand human language. It can be widely applied to various biomedical scenarios, such as a system that can answer questions from patients by comprehending large-scale medical textbooks.

Multiple-Choice QA (MCQA) is one of the most difficult tasks in MRC because it often requires more advanced reading comprehension skills such as logical reasoning, summarization, and arithmetic operations, compared to the extractive counterpart where answers are usually spans of text within given passages. Moreover, most existing MCQA datasets are small in size, making the learning task even harder.

We introduce MMM, a Multi-stage and Multi-task learning framework for Multi-choice reading comprehension. Our method involves two sequential stages: coarse-tuning stage using out-of-domain datasets and multi-task learning stage using a larger in-domain dataset to help model generalize better with limited data. Furthermore, we propose a novel multi-step attention network (MAN) as the top-level classifier for this task. We demonstrate MMM significantly advances the state-of-the-art on four representative MCQA datasets. In future work, we will apply this model to biomedical multi-choice question answering tasks, such as MedQA and BioASQ benchmark datasets.

Biography

Mr. Di Jin is a fifth year PhD student in the Computer Science and Artificial Intelligence Laboratory (CSAIL) at MIT working with Prof. Peter Szolovits. He works on Natural Language Processing (NLP) and its applications into biomedical and clinical domains. Previous works focused on sequential sentence classification, transfer learning for low-resource data, and unsupervised text style transfer.

***** ALL ARE WELCOME *****

For enquiries, please contact Ms. Joyce Chan, Department of Biomedical Engineering at 3943 8278