Appendix: Content Summaries of Best Papers for the Natural Language Processing Section of the 2019 IMIA Yearbook

Jing B, Xie P, Xing E

On the automatic generation of medical imaging reports

Proc of ACL 2018. Melbourne, Australia; 2018. p. 2577–86

This paper presents a system for the automatic generation of medical imaging reports, which may help physicians create high-quality reports, reduce time, and assist less experienced physicians. To address these issues, the authors propose to focus on the detection of multiple heterogeneous forms of information including findings and tags, and the detection of abnormal regions in medical images. To cope with these challenges, the authors (i) build a multi-task learning framework which jointly performs the prediction of tags and the generation of paragraphs; (ii) propose a co-attention mechanism to localize regions containing abnormalities and generate narrations for them; and (iii) develop a hierarchical LSTM (Long short-term memory) model to generate long paragraphs. They demonstrate the effectiveness of the proposed methods on two publicly available datasets.

Moradi M

CIBS: A biomedical text summarizer using topic-based sentence clustering

J Biomed Inform 2018;88:53–61

This paper addresses the creation of multi-document summaries using topic-based sentence clustering. The proposed summarizer extracts biomedical concepts from the input documents and employs an Itemset mining algorithm to discover main topics. It then applies a clustering algorithm to group the sentences into clusters. Finally, the selection of sentences from all the clusters produces a summary that covers a wide range of topics of the input text. The results show that the CIBS method can improve the performance of single- and multi-document biomedical text summarization.