

Improving Generalization of Machine Reading Comprehension Systems

راضیه برادران، دانشگاه قم

Abstract

Machine Reading Comprehension (MRC) is an active field in natural language processing with many successful developed models in recent years. Despite their high in-distribution accuracy, these models suffer from two issues: high training cost and low out-of-distribution accuracy. Even though some approaches have been presented to tackle the generalization problem, they have high, intolerable training costs. In this talk, we investigate the effect of ensemble learning as a light approach to improve out-of-domain generalization of MRC systems by aggregating the outputs of some pre-trained base models without retraining a big model. After separately training the base models with different structures on different datasets, they are ensembled using weighting and stacking approaches in probabilistic and non-probabilistic settings. Three configurations are investigated including heterogeneous, homogeneous, and hybrid on eight datasets and six state-of-the-art models. We identify the important factors in the effectiveness of ensemble methods. Also, we compare the robustness of ensemble and fine-tuned models against data distribution shifts. The experimental results show the effectiveness and robustness of the ensemble approach in improving the out-of-distribution accuracy of MRC systems, especially when the base models are similar in accuracies.

Biography

Razieh Baradaran received her BSc and MSc degrees in the Department of Information Technology at University of Qom, Iran in 2010 and 2013 respectively. She is currently a PhD student in Information Technology at the same university. Her research interests include natural language processing, machine learning, and information extraction.

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