

Enhancing Neural Machine Translation with Attention Mechanisms

Recent advancements in neural machine translation (NMT) have utilized an attentional mechanism to enhance translation by focusing on certain parts of the source sentence.

This paper examines two types of attention mechanisms: global (attending to all source words) and local (focusing on a subset of words).

- Both approaches were tested on WMT translation tasks between English and German.
- The local attention method achieved a notable improvement of 5.0 BLEU points over traditional systems.
- An ensemble model that combines different attention architectures achieved a state-of-the-art result in the English to German translation task, reaching 25.9 BLEU points, surpassing previous benchmarks.

The paper analyze various alignment functions and demonstrate that attention-based models are generally better, especially for names and long sentences.

So, The paper highlighted the effectiveness of attentional mechanisms in improving NMT performance, particularly through local attention strategies and ensemble models.