ABSTRACT

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Human motion prediction aims to forecast the most likely future frames of motion conditioned on a given sequence of frames. Because of its importance to many applications especially robotics, human motion prediction has received a lot of interest and has become an active area of research. Recently, deep learning methods have been dominant in many tasks due to their successful results. Particularly, Recurrent Neural Networks (RNNs) have shown excellent performance on human motion prediction task and other tasks that depend on sequential data, where preserving the order of the sequence items is crucial. The well-known Sequence-to-Sequence (Seq2Seq) architectures have been used for sequence learning where two RNNs namely the encoder and the decoder work cooperatively to transform one sequence to another. In the context of neural machine translation, the use of attention decoders yields state-of-the-art results. This work attempts to assess quantitatively the use of a bidirectional encoder and an attention decoder in human motion prediction. The experiments of this work have shown that using attention decoder has achieved state-of-the-art results after 160 milliseconds of motion prediction. In contrast with earlier works, the quality of predictions doesn't deteriorate and remains stable even after more than 1 second of motion prediction.