AI for Human-Computer Interaction

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PROJECT OBJECTIVE

This project aims to improve the existing dialogue system models and incorporate emojis into the traditional implementation to further enhance the human-computer interaction. In this study, further fine-tuning was made to the Generative Pre-trained Transformer 3 (GPT-3) to attain a model capable of performing both tasked-oriented dialogue (TOD) and non-tasked-oriented dialogue (non-TOD) seamlessly. On the other hand, Bidirectional Long Short-Term Memory (BiLSTM) was employed to obtain a model capable of predicting the emoji to use. Consequently, both models were fused together into a pipeline to produce a final model capable of performing TOD and non-TOD while sounding human-like. This enhancement of dialogue systems will improve the overall user experience in human-computer interactions
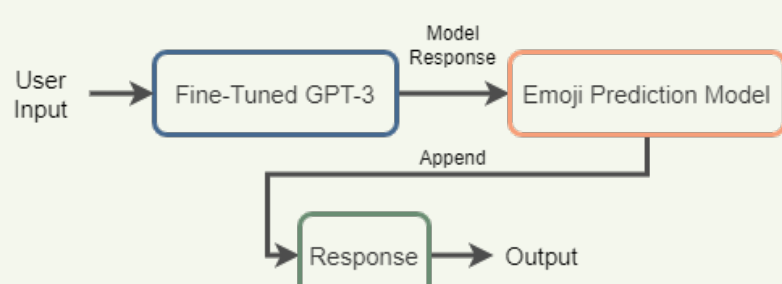
MODEL

Fine-Tuning GPT-3
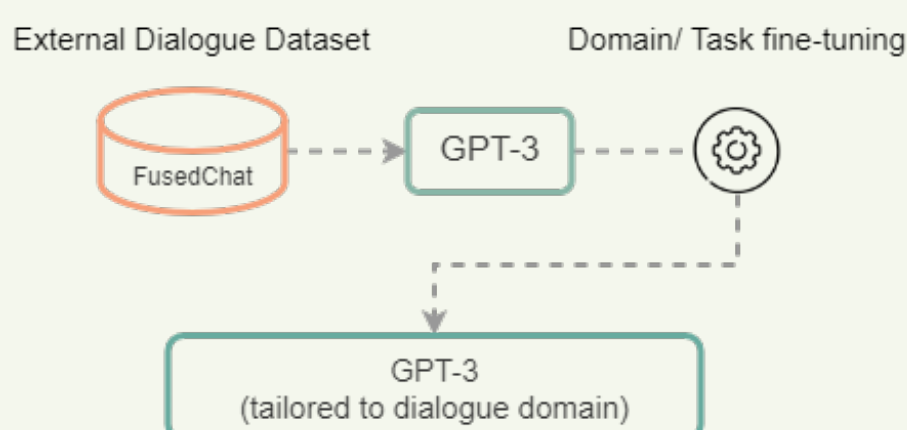
Emoji-prediction Model
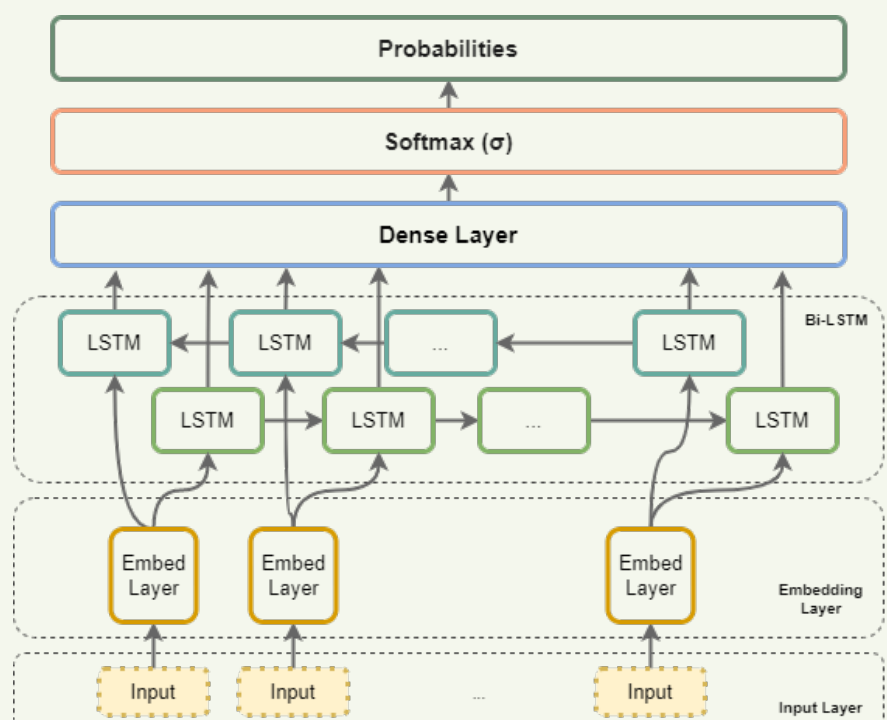
Overview of the Architecture

RESULTS

Comparison of Generation Results on MultiWOZ

Model	Inform	Success	BLEU	Combined
Fine-tuned GPT-3	82.30	70.09	15.12	91.32
Baseline	71.29	60.96	18.8	84.93

Emoji Prediction Results

Accuracy	Precision	Recall	F1 Score
0.93	0.96	0.99	0.98

Overarching Model Results

Accuracy	Precision	Recall	F1 Score
0.980	0.995	0.990	0.992