Deep Neural Language Generation with Emotional Intelligence & External Feedback

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Challenges:
❖ Dull Responses
❖ Ungrammatical
❖ Lack of Coherence
❖ Lack of Emotional Intelligence

References:

Chatbots:
• Change ways in which customers interact with the companies
• Used in eCommerce, Health Care Systems and so on.
• Very difficult to generate sensible emotional responses to make interactions as effective as possible.

Architecture Details:
• Bidirectional RNN Seq2Seq Encoder-Decoder with Bahdanau attention mechanism.
• Use of Maximum Mutual Information Objective function.
• RL tuner system with internal and external rewards to fine-tune the Seq2Seq model to generate diverse and emotional responses.

Tasks:
• A Conversational Bot to give emotionally appropriate responses that is trained using Cornell Movie Dialog Corpus.
• A Review Completion Bot that could complete the restaurant review and is trained on Yelp Restaurant Review Dataset.

Conclusion & Future work:
* Could achieve diverse and emotionally appropriate responses
* Can use this architecture for other NLG tasks.

Sample Responses:
Conversation Prompt: it is just the strain again, the stress. we will take a vacation.
Response: i appreciate that.

Review Completion Prompt: when the grand lux in our mall in co closed, we lost our favorite happy hour place. now we fly to vegas once a year to enjoy some asian nacho goodness and potato spring rolls. we love being able to enjoy a date night dinner of delicious.
Response: great staff, great portions, good wine!! it's a must if and in vegas for a week and came to this restaurant three times. the pad thai is amazing!!! i had the steak kabob and it was tasty and juicy.

Minimising Affective Dissonance between the input and generated response

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Useful Score as an External Feedback

Human Evaluation:
Emotional Appro. Score for conversational agent is 1.44
Emotional Appro. Score for review completion agent is 1.73

References: