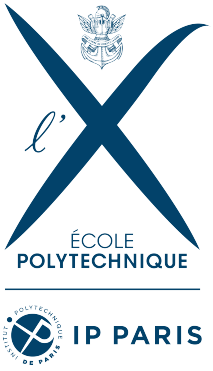

École Polytechnique

BACHELOR THESIS IN COMPUTER SCIENCE

Emotion Recognition in Conversation through Emotion Flow

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Abstract

Emotion Recognition in Conversation (ERC) is a very important domain, which has been gaining more attention in recent years, especially within NLP. In the scope of Emotion Recognition, identifying emotions in dialogues plays an essential role. This is because most of the emotional text data collection happens in the context of a conversation between two or more parties (e.g. customer service survey). In this paper we discuss the limitation of previous approches to the ERC task, while also evaluating an original approach to the same problem using Causal learning, which we identify as the Emotion Flow and attention mechanisms. (initial version)

Contents

1 Introduction

Emotions can be defined as one's psicological state, which can be caused by internal or external factors of an individual. Whereas studying internal factors, such as mental state and background, can be difficult, understanding external factors for the emotion of an individual is a very interesting problem, and also tends to be much more viable. For instance, the textual context in which a dialogue occurs plays a significant role in how each of the conversation parties will both absorb the same information, which may derive different reactions, or emotions.

(INSERT DIAGRAM EXEMPLIFYING THE ABOVE)

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Emotion Recognition in Conversation (ERC) is a growing field within Natural Language Processing (NLP) which tackles the task of identifying emotions in conversation. This increasing importance is partially explained by the need of companies to process and evaluate the level of customer satisfaction, which allows them to offer better services, and to be more competitive in the market. In fact, the collection of this kind of data through a conversation framework provides a kind of information that kind be explored in very interesting ways (e.g. a slight change in the tone of speach, which could evidenciate frustration).

Even from a human perspective, identifying emotions can be very difficult, especially when we cannot rely on other factors such as voice tone, gestures, facial expressions etc. In fact, even the classification of emotions can be considered ambiguous sometimes. For instance, joyfulness, happiness, and love are generally considered similar, and sometimes only being distinguished in terms of intensity. This disambiguouity is what imposes the challenges in ERC, motivating many different approaches for this task.

Previous researches have extensively studied how different model architectures affect the performance of the models. (ADD EXAMPLES OF ARCHITECTURES).

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However, as of today, there is not much reasearch on how the Emotion Flow can affect

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(ADD PICTURE DEPICTING EMOTION FLOW)

2 Related Work

3 Discussion (name subject to change)

4 Datasets used

5 Limitation of our approach

6 Our Approach / Methodology (Absolutely going to change this title)

7 References

[1] Alan M. Turing. On computable numbers, with an application to the entscheidungsproblem. *Proc. London Math. Soc.*, s2-42(1):230–265, 1937.

A Appendix