

Why Do You Feel This Way? Summarizing Triggers of Emotions in Social Media Posts



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Motivation

Reddit Post

- 1: My sibling is 19 and she constantly goes places with her friends and to their houses and its honestly stressing me out.
- 2: Our grandfather lives with us and he has dementia along with other health issues and my mom has diabetes and heart problems and I have autoimmune diseases & chronic health issues.
- 3: She also has asthma.
- 4: Its stressing me out because despite this she seems to not care about how badly it would affect all of us if we were to get the virus.
- 5: And sadly I feel like its not much I can do she literally doesn't respect my mom and though I'm older she doesn't respect me either.
- 6: Its so frustrating.

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Emotions and Abstractive Summaries of Triggers

Emotion: anger

Abstractive Summary of Trigger: My sister having absolutely no regard for any of our family's health coupled with the fact that I can't do anything about it is so aggravating to me.

Emotion: fear

Abstractive Summary of Trigger: My sibling, who, in spite of our family's myriad of issues that all make us high-risk people, continuously goes out and about, which makes her likely to get infected. I am scared for all of us right now.

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New Task: Emotion Detection and Trigger Summarization

Emotion Detection

- Detecting perceived emotions in text



Trigger Summarization

- Synthesizing an *abstractive* summarization of triggers for each detected emotion

Dataset: *CovidET*

- **1,883** posts (train/dev/test splits = 1,200/285/398) from the subreddit r/COVID19_support spanning from June 2021 to January 2022
- Annotators: Expert linguists (test set) & trained MTurk workers (train/dev sets)
- CovidET is **human validated and expert cross-validated** with good results



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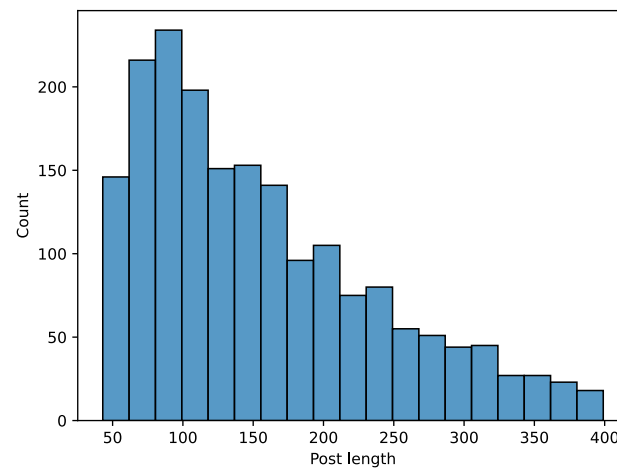


Figure 1: Distribution of post lengths

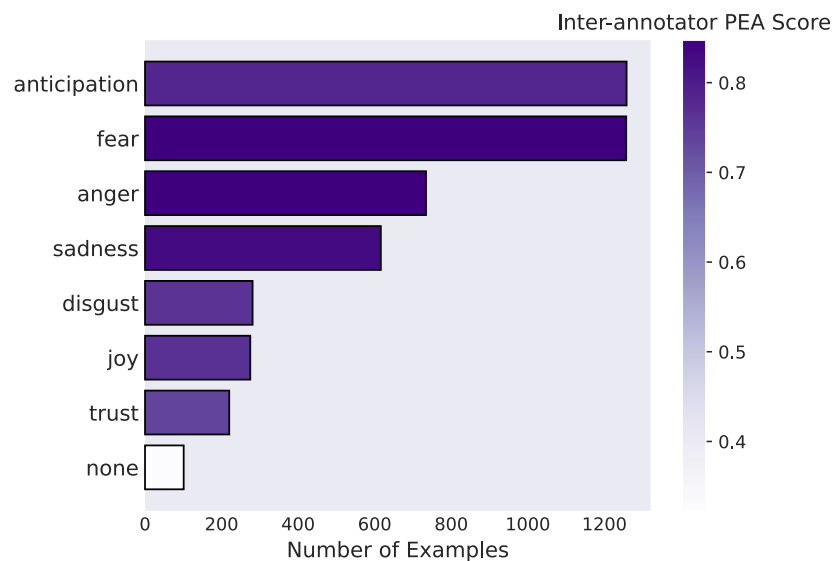


Figure 2: Emotion distribution

Methods

Joint Emotion Detection and Trigger Summarization

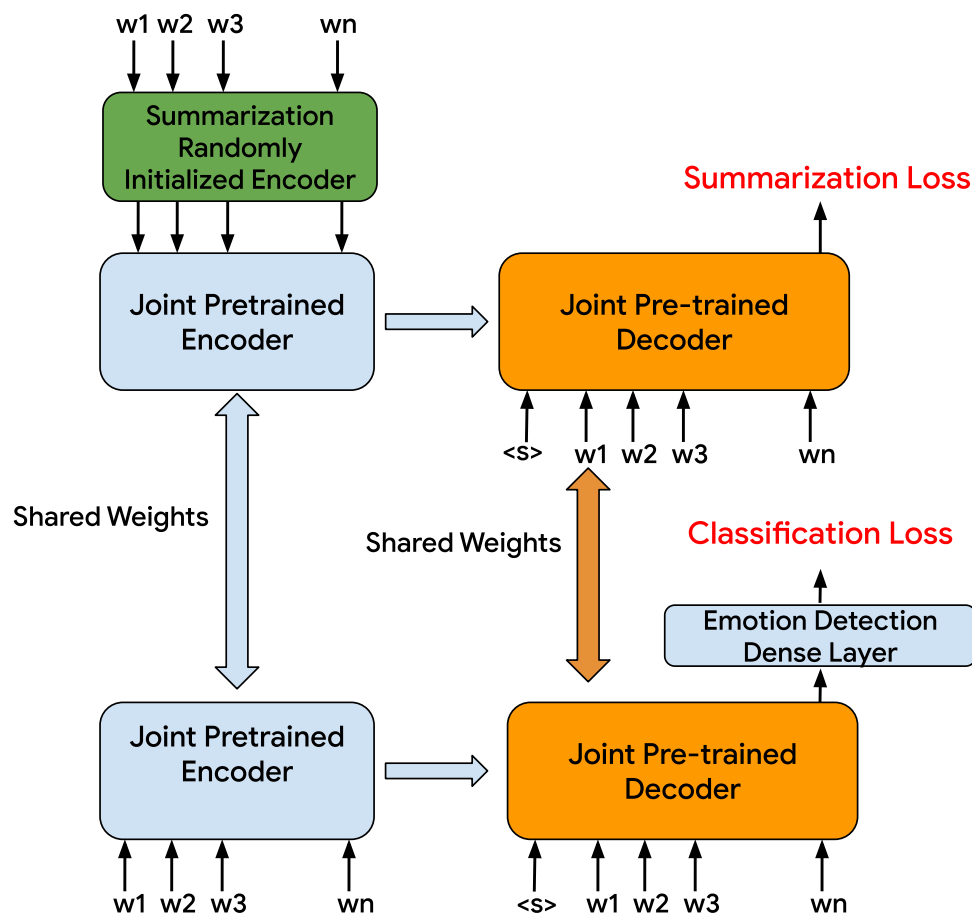


Figure 3: Architecture of our joint emotion detection and trigger summarization model

- **Objective:** simultaneously perform emotion detection and abstractive trigger summarization for a particular emotion e using a multitasking framework
- **Model:** BART pre-trained on CNN/DailyMail, where we add a single linear layer for emotion classification
- **Setting:** fine-tuning on CovidET

Experiments

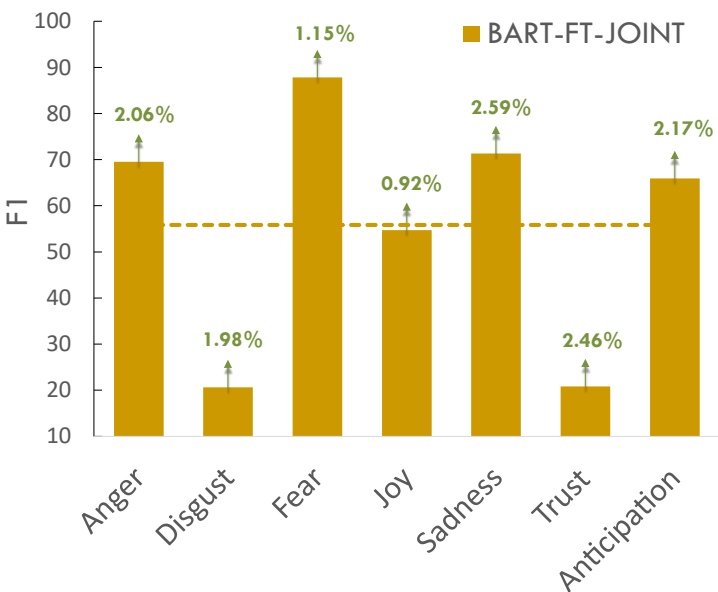


Figure 4: F1 performance of our joint model with percentage increase to BERT finetuned on CovidET on the subtask of Emotion Detection

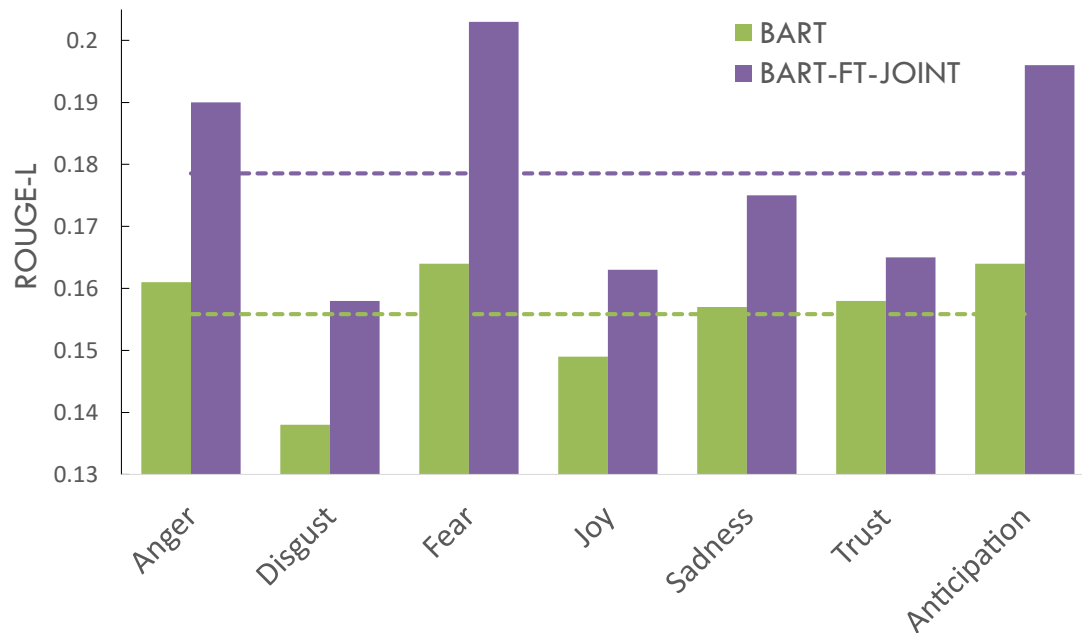


Figure 5: ROUGE-L performance of our joint model compared to the generic BART pre-trained on CNN/DailyMail on the subtask of Trigger Summarization

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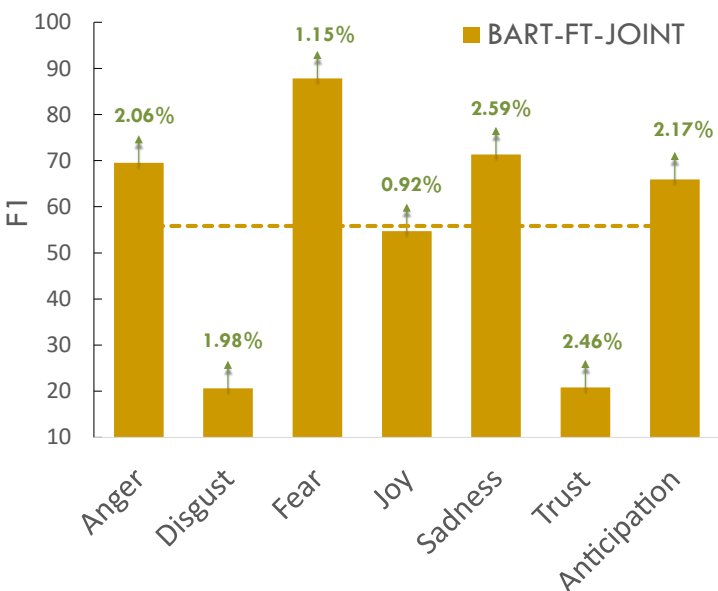


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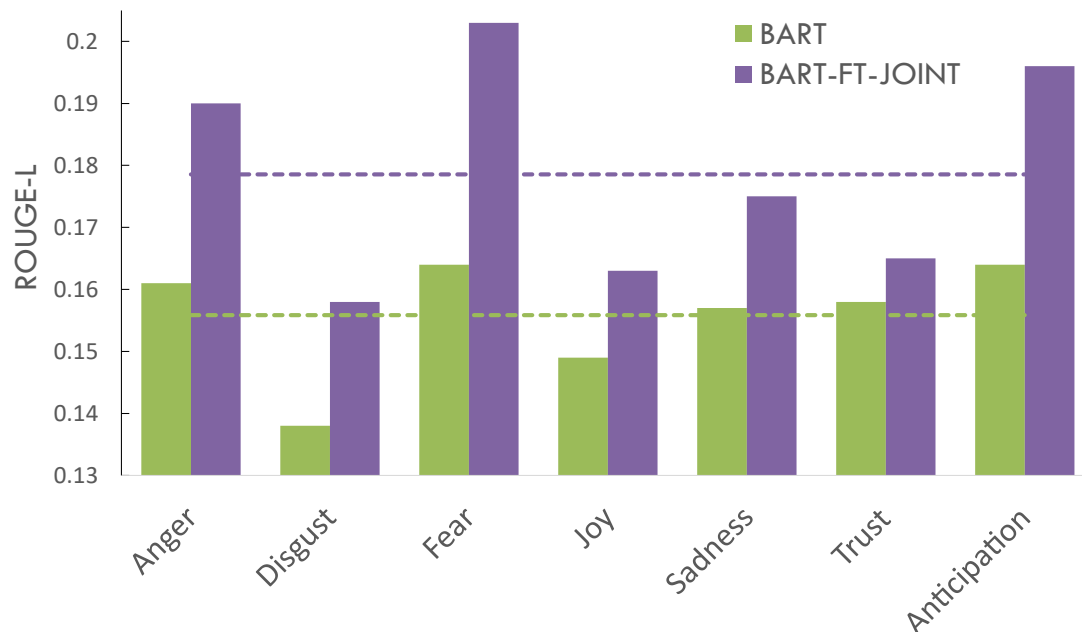


Figure 5: ROUGE-L performance of our joint model compared to the generic BART pre-trained on CNN/DailyMail on the subtask of Trigger Summarization

Experts prefer BART-FT-JOINT model generated summaries than a general BART summarization model:

- Generic summaries tend to be word-to-word extractive of the original post, and do not capture the triggers of the emotions