# Computational and Analytical Approaches to Emotion Detection

# Importance of our project

- Vocal Assistant
- Chatting Platforms
- Social Medias





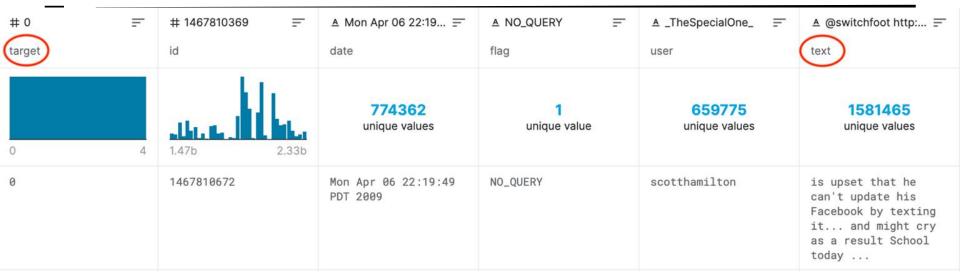


## Question that our project will address

- How will the computational model interpret human emotion?
- Differences between how human understand the emotion and how computational model understand the emotion
- Whether to expand the CRUM to include the emotion

# Part 1: Human participant Procedure

- 1. Provide Survey to the participants
- 2. Participants will read the given sentences
- 3. Classify emotion of given sentences as positive or negative
- 4. Provide the thoughts and reason behind the decision
- 5. Compare the classification with computational result
- 6. Analyze the difference and reasons based on cognitive science model



training samples and evaluate the performance using the validation and test samples

4. Apply early-stopping when the model starts to overfit

## **Evaluation**

#### **Validation Accuracy:**

- 81.8%

#### **Test Accuracy:**

- 81.3%

```
Input: this is a great movie
P(negative) = 0.12
P(positive) = 0.84
Input: what an awful day
P(negative) = 0.91
P(positive) = 0.09
Input: Nice perfume.
P(negative) = 0.31
P(positive) = 0.65
Input: Nice perfume. How long did you marinate in it?
P(negative) = 0.49
P(positive) = 0.46
Input: I'm glad I had the genius idea of getting a car wash the one day it's supposed to rain
P(negative) = 0.39
P(positive) = 0.53
```

## **Discussion**

- We use embodied cognition for our model
- We discussed and studied our project from the perspectives of:
  - Language comprehension
  - Memory
  - Learning
  - Reasoning

# **Findings**

- Humans' ability of emotion recognition involves memorization and learning.
- Mistakes human made could be because of mis-matching between context and sensory motor
- Human's bias affects their judgement

### Limitation

- Hard to determine whether participants have bias on different context
- Hard to measure how much bias they have. If we could, then we can study how bias affect cognitive behavior in emotion
- Participants' feedback is subjective, and such feedbacks conduct result inaccuracy