MoodSwipe: A Soft Keyboard that Suggests Messages Based on User-Specified Emotions

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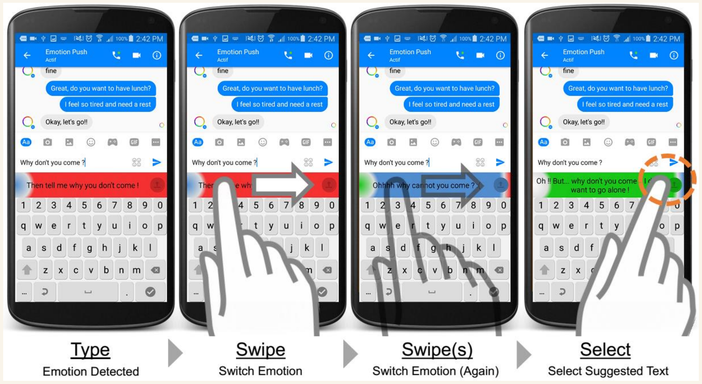
Introduction

- Helping user express appropriate emotion.
- Though there are many tools utilizing visual cues to help users, **text** is the key point.
- We introduce **MoodSwipe**, a soft keyboard, that suggests text according to user-specified emotions.



Emotion	Color	Suggestion
Anger	Red (#F43131)	I'm in a pissy mood. I'm sorry.
Joy	Yellow (#E1D500)	I'm doing fine.
Sadness	Navy Blue (#518CCF)	I'm upset, but I'm fine.
Fear	Green (#17C617)	(no suggestion)
Anticipation	Orange (#E78300)	Oh, I'm fine, I'm widw awake. What's up?
Tired	Purple (#C350DF)	I'm working.
Neutral	White (#FFFFFF)	I'm fine.

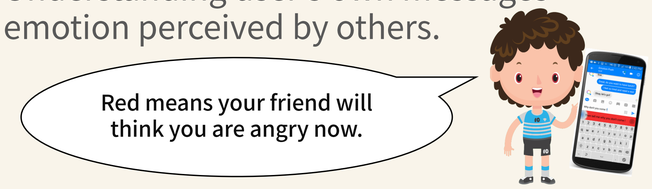
Suggested texts of **"How are you?"**

Contributions

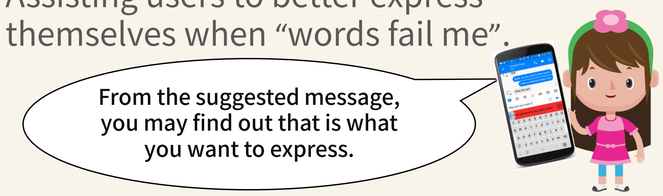
- Collecting **self-reported emotion labels** for dialog messages.
- Closing the loop of bi-directional interactive emotion sensing, by **giving emotion cues when sending messages.**
- Introducing a new interaction paradigm, where **users explicitly provide feedback to system about why select this suggested response.**

Use Cases

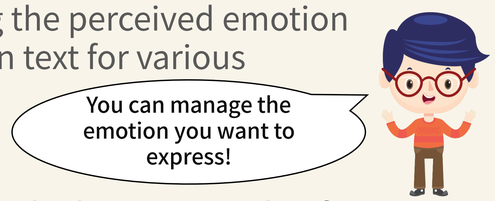
- Understanding user's own messages' emotion perceived by others.



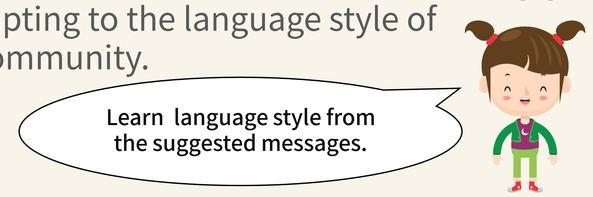
- Assisting users to better express themselves when "words fail me".



- Alternating the perceived emotion in their own text for various purpose.



- Adapting to the language style of a community.



Experimental Material

- EmotionPush Dataset
  - 162,031 Facebook message logs
  - 8,818 emotion labeled messages
- LJ40K
  - 1,000 LiveJournal blogs for each of the 40 emotions
  - Mapped into 7 emotions
- Twitter Dataset
  - Using hashtags of the 40 emotions as a filter to collect tweets from Twitter
  - A total of 19,480 tweets were collected and then categorized into 7 emotions

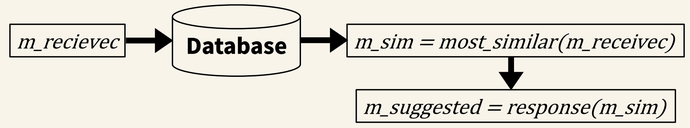
Backend System and Experiment

- **Emotion Classification**

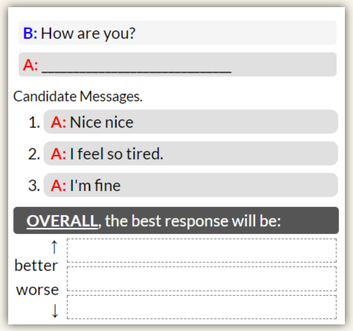
Model	Joy	Anger	Sadness	Neutral
(Wang et al., 2016)	.779	.771	.853	.323
CNN[1]	.832	.960	.750	.513
CNN[2]	.645	.942	.503	.222
CNN[3]	.905	.962	.973	.820
LSTM[1]	.230	.967	.963	.222
LSTM[2]	.596	.959	.516	.222
LSTM[3]	.906	.965	.964	.816

Accuracy of the emotion classification task tested on dialog data while trained on blog[1], tweet[2] and dialog[3] data.

- **Sentence Suggestion**



[Baseline] : m_suggested
[+Emotion] : m_suggested have to express the user-specific emotion.



Sentence suggestion task

Setting	Clarity	Comfort	Responsiveness
Rank of Messages and Suggested Texts			
Input	1.522	1.570	1.531
Baseline	2.245	2.220	2.244
+Emotion	2.233	2.210	2.225
Good Suggestion Rate (%)			
Baseline	26.12	28.38	26.44
+Emotion	26.09	28.65	26.70

Human evaluation result

Good Suggestion Rate (%)			
Setting	Anger	Anticipation	Fear
Baseline	40.36	21.29	31.39
+Emotion	37.49	20.32	25.28
Setting	Joy	Sadness	Tired
Baseline	25.35	29.31	27.45
+Emotion	28.18	26.56	29.41

Good suggestion rates of comfort for messages of different emotions.

Conclusion

- We have developed the sender side **MoodSwipe** to cooperate with the receiver side applications and complete the emotion sensitive communication framework.
- In MoodSwipe, data are labeled automatically
- according to frond-end cues in the background.
- MoodSwipe is available at Google Play.

The figure of children and men are designed by Freepik.