Challenges in Providing Automatic Affective Feedback in Instant Messaging Applications

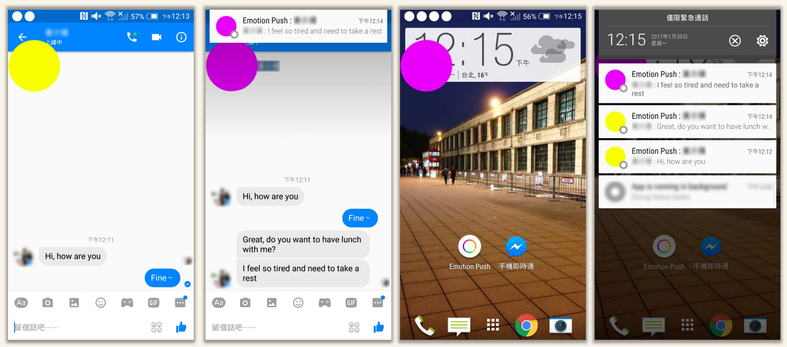
Chieh-Yang Huang[1], Ting-Hao (Kenneth) Huang[2] and Lun-Wei Ku[1]

[1] Academia Sinica, Taipei, Taiwan. {appleternity, lwku}@iis.sinica.edu.tw [2] Carnegie Mellon University, Pittsburgh, PA, USA. tinghaoh@cs.cmu.edu

Introduction

- To understand the feasibility of text-based affective computing in the era of mobile devices, we introduced **EmotionPush**.
- **EmotionPush** is a mobile application that automatically detects the emotion of the text message that user received via Facebook Messenger, and provides emotion cues by colors in real-time.
- While prior work has shown that identifying emotions based on text is possible, we detail the challenges emerged from the deployment of such a s[illegible]

Anger	Sadness	Anticipation	Neutral
Joy	Fear	Tired	



Use Case of EmotionPush

The goal of EmotionPush is to enable end-users to understand better of emotions of their conversational partners.

- Emotion Management
- Interacting with People of Little Acquaintance
- Fun Topics to Have

The Continuum of Emotion

- Lack of capability of expressing continuum of emotion because EmotionPush uses **categorical representation**.

Multi-User Conversations

- There are 22.46% of messages recorded in multi-user chatting groups, which is known as **Group** or **Channel**.
- Providing emotion cues on top of a multi-user conversation would make it difficult for users to concentrate on the running dialog.

Different Dynamics Between Different Users

- Classifying emotions solely based on text causes the risk of neglect of user context, which is known to have strong correlations with user behavior.

EmotionPush work better between strangers

Conversations between friends often contain informal expressions

Misclassification of Emotions

- Even for the best emotion category **Anger**, 34.4 % of messages are wrongly categorized.
- Wrongly-predicted emotion **are not harmful** to participants' chatting experiences. (average rating = 0.85)
- Correctly-predicted emotions are **helpful**. (average rating = 2.5)

Unconventional Content

- **Multiple Languages & Code Switching**
  All these technologies require sufficient labeled data for training. As a result, technologies are not capable of processing unseen languages.

- **Emoji, Emoticons and Stickers**
  Graphic symbols are widely used in instant messages for expressing emotions. However, it is infeasible to deal with every newly created graphic symbols.
- **Paragraph-like Long Messages**
  Use multiple sentences to express complex issues or emotions, which made it difficult to conclude the message with one single emotion.

Conclusion & Future Work

- We describe challenges in deploying an emotion detection system, **EmotionPush**, for instant messaging applications.
- In the future, we plan to design a mechanism which encourages users to contribute their contents and feedback their emotions.

EmotionPush - Zh **EmotionPush - En**

The figure of children and men are designed by Freepik.