Sensing Emotions in Text Messages: An Application and Deployment Study of EmotionPush

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**INTRODUCTION**

**EmotionPush**
- A system that displays colored icons on push notifications to signal emotions conveyed in received messages.
- Powered by machine learning technologies with state-of-the-art performances and built on top of the long-lasting development of emotion detection.

**EmotionPush** is available at

- Chinese Version.
- English Version.

**SYSTEM**

**Visualizing Emotions**
- EmotionPush applies a categorical representation of emotions.
- The 7 main emotions were compacted from the LJ40K 40 emotions.
- The colors were assigned according to the Plutchik’s Emotion Wheel color theme.

**Emotion Classification**
- Represent each post by summing up the corresponding 300-dimensional word vectors trained on Google News.
- Designed as binary classifiers that indicates if the current message belongs to one of the 7 compacted emotions.
- Train on LJ40K corpus.

**INTERFACE AND ARCHITECTURE**

**DEPLOYMENT STUDY**

**Experiment Setup**
To test whether EmotionPush can change the priority of interactions in instant messages on mobile devices.
- Recruited 8 native English speakers.
- Recorded their chat behavior for 12 days. We turned the color feedback off for the first 5 days and on for the latter 7 days.

**Questionnaire**
The user also required to fill up four questionnaires to reveal their opinions for **EmotionPush**.
- The Social Anxiety Interaction Scale (SIAS)
- The Internet Use (IU)
- The EmotionPush User Experience Survey (UX)
- The Conversation Quality Evaluation (CQE-14)

**EmotionPush** can predict emotion colors correctly. (2.375 / 4)
Wrongly predicted emotions would harm their chatting experience. (1.375 / 4)

**Prioritize Interactions Analysis**
After the emotion colors were pushed, user's behavior changed.
- **Joy** was read more slowly;
  **Sadness and Anger** was read more quickly.
- **Joy** was responded more quickly;
  **Sadness and Anger** was responded more slowly.