What does Social Media Say about Your Stress?

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**Challenges: Measuring Psychological Stress via Social Media**

- Stress is composed of two key factors: stressor and stress level.
- Stressor, comprising of stressor event and stressor subject, triggers stress.
- Measuring stress via social media is complicated:
  - Stressor subject detection
    - Stressor events happening to other subjects can also be someone’s stress trigger.
    - Social media postings are usually informal and ambiguous
  - Stressor event detection
    - Stressor events are correlated
  - For some specific event categories, such as death, there are insufficient training samples

**Solutions: A Hybrid Model Combining CNN and Multi-Task Learning**

- Description component that extracts features from input tweets;
- Detection component that integrates handcrafted and CNN features with Multi-Task Learning (MTL) for stressor event and subject detection
- Measurement component leveraging a psychological stress scale to estimate the stressor and the corresponding stress level.

**Evaluation**

- Figure (a) shows the performance of stressor event detection with Precision, Recall, and F1 scores for different models.
- Figure (b) presents the performance of stressor subject detection with similar metrics.
- Figure (c) illustrates the measurement of stress level with Mean Squared Error (MSE) for different models.

**Publications:**
Huijie Lin, Jia Jia, etc., Moodee: An Intelligent Mobile Companion For Sensing Your Stress From Your Social Media Postings. (AAAI2016)
Huijie Lin, Jia Jia, etc., User-Level Psychological Stress Detection from Social Media Using Deep Neural Network. (ACMM2014)
Huijie Lin, Jia Jia, etc., Psychological Stress Detection From Cross-Media Microblog Data Using Deep Sparse Neural Network. (ICME2014)