ASMMC-MMAC 2018: The Joint Workshop of 4th the Workshop on Affective Social Multimedia Computing and first Multi-Modal Affective Computing of Large-Scale Multimedia Data Workshop

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ABSTRACT

Affective social multimedia computing is an emergent research topic for both affective computing and multimedia research communities. Social multimedia is fundamentally changing how we communicate, interact, and collaborate with other people in our daily lives. Social multimedia contains much affective information. Effective extraction of affective information from social multimedia can greatly help social multimedia computing (e.g., processing, index, retrieval, and understanding). Besides, with the rapid development of digital photography and social networks, people get used to sharing their lives and expressing their opinions online. As a result, user-generated social media data, including text, images, audios, and videos, grow rapidly, which urgently demands advanced techniques on the management, retrieval, and understanding of these data.

CCS CONCEPTS

• **Information systems → Sentiment analysis**; • **Human centered computing → Social media**;

KEYWORDS

Affective computing; social multimedia; large-scale multimedia data

1 INTRODUCTION

Social multimedia is fundamentally changing how we communicate, interact, and collaborate with other people in our daily lives. Comparing with well-organized broadcast news and professionally made videos such as commercials, TV shows, and movies, social multimedia computing imposes great challenges to research communities. Social multimedia contains much affective information. Effective extraction of affective information from social multimedia can greatly help social multimedia computing (e.g., processing, index, retrieval, and understanding). Although much progress has been made in traditional multimedia research on multimedia content analysis, indexing, and retrieval based on subjective concepts such as emotion, aesthetics, and preference, affective social multimedia computing is a new research area.

The affective social multimedia computing aims to proceed affective information from social multi-media. For massive and heterogeneous social media data, the research requires multidisciplinary understanding of content and perceptional cues from social multimedia. From the multimedia perspective, the research relies on the theoretical and technological findings in affective computing, machine learning, pattern recognition, signal/multimedia processing, computer vision, speech processing, behavior and social psychology. Affective analysis of social multimedia is attracting growing attention from industry and businesses that provide social networking sites, content-sharing services, distribute and host the media. This workshop focuses on the analysis of affective signals in social multimedia (e.g., twitter, weichat, weibo, youtube, facebook, etc).

Most of the existing works on multimedia analysis focused on cognitive content understanding, such as scene understanding, object detection, and recognition. Recently, with a significant demand for emotion representation in artificial intelligence, multimedia affective analysis has attracted increasing research efforts from both academic and industrial research communities. Affective computing of the user-generated large-scale multimedia data is rather challenging due to the following reasons. As emotion is a subjective concept, affective analysis involves multidisciplinary understanding of human perceptions and behaviors. Furthermore, emotions are often jointly expressed and perceived through multiple modalities. Multi-modal data fusion and complementation need to be

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explored. Recent solutions based on deep learning require large-scale data with fine labeling. The development of affective analysis is constrained by the affective gap between low-level affective features and high-level emotions, and the subjectivity of emotion perceptions among different viewers with the influence of social, educational and cultural factors. Recently, great advancements in machine learning and artificial intelligence have made large-scale affective computing of multimedia possible.

2 SCOPE OF THE WORKSHOP

The workshop seeks contributions on various aspects of affective computing in social multimedia on related theory, methodology, algorithms, techniques, multi-modal affective computing of large-scale multimedia data and its applications. It targets a mixed audience of researchers and product developers from several communities, i.e. multimedia, machine learning, psychology, artificial intelligence, etc. The topics of interest include, but are not limited to:

- Affective human-machine interaction or human-human interaction
- Affective/Emotional content analysis of images, videos, music, metadata (text, symbols, etc.)
- Emotional implicit tagging and interactive systems
- User interests and behavior modeling in social multimedia
- Affective analysis of social media and harvesting the affective response of crowd
- Affective generation in social multimedia, expressive text-to-speech and expressive language translation
- Affective tagging, indexing, retrieval and recommendation of social media
- Human-centered emotion perception prediction in social networks
- Group emotion clustering and personality inference
- Psychological perspectives on affective content analysis
- Weakly-supervised/unsupervised learning for affective computing
- Deep learning and reinforcement learning for affective computing
- Fusion methods for multi-modal emotion recognition
- Benchmark dataset and performance evaluation
- Affective computing-based applications in entertainment, advertisement, education, etc.

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5 KEYNOTE

The workshop will be kicked off with an insightful keynote by Prof. Jia Jia from Tsinghua University, titled "Mental Health Computing via Harvesting Social Media Data". Dr. Jia Jia is an associate professor in Department of Computer Science and Technology, Tsinghua University. Her main research interest is affective computing and human computer speech interaction. She has been awarded ACM Multimedia Grand Challenge Prize (2012) and Scientific Progress Prizes from the National Ministry of Education twice (2009, 2016). She has authored about 70 papers in leading conferences and journals including T-KDE, T-MM, T-MC, T-ASLP, T-AC, ACM Multimedia, AAAI, IJCAI, WWW etc. She also has wide research collaborations with Tencent, SOGOU, Huawei, Siemens, MSRA, Bosch, etc. The abstract is as follows:

Psychological stress and depression are threatening people's health. It is non-trivial to detect stress or depression timely for proactive care. With the popularity of social media, people are used to sharing their daily activities and interacting with friends on social media platforms, making it feasible to leverage online social media data for stress and depression detection. In this talk, we will systematically introduce our work on stress and depression detection employing large-scale benchmark datasets from real-world social media platforms, including 1) stress-related and depression-related textual, visual and social attributes from various aspects, 2) novel hybrid models for binary stress detection, stress event and subject detection, and cross-domain depression detection, and finally 3) several intriguing phenomena indicating the special online behaviors of stressed as well as depressed people. We would also like to demonstrate our developed mental health care applications at the end of this talk.

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