Summary Abstract for the 1st ACM International Workshop on Personal Data Meets Distributed Multimedia

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Abstract

Multimedia data are now created at a macro, public scale as well as individual personal scale. While distributed multimedia streams (e.g. images, microblogs, and sensor readings) have recently been combined to understand multiple spatio-temporal phenomena like epidemic spreads, seasonal patterns, and political situations; personal data (via mobile sensors, quantified-self technologies) are now being used to identify user behavior, intent, affect, social connections, health, gaze, and interest level in real time. An effective combination of the two types of data can revolutionize multiple applications ranging from healthcare, to mobility, to product recommendation, to content delivery. Building systems at this intersection can lead to better orchestrated media systems that may also improve users' social, emotional and physical well-being. For example, users trapped in risky hurricane situations can receive personalized evacuation instructions based on their health, mobility parameters, and distance to nearest shelter. This workshop bring together researchers interested in exploring novel techniques that combine multiple streams at different scales (macro and micro) to understand and react to each user's needs.

Categories and Subject Descriptors

H.5.1 [**Multimedia Information Systems**], D.3.3 [**Information Systems**]: World Wide Web – *Social Networks*

Keywords

Personal Data, Distributed Multimedia, Situation Recognition, Social Networks, Reality Mining, Sensor Networks.

1. INTRODUCTION

We are living in an age of abundance [1]. Humanity is more connected than ever before. With the growth trends in *social media*, *multimodal mobile sensing*, and *location driven sensing*, increasingly larger parts of human life are getting digitized and becoming available in the Cloud for sense making.

A primary purpose of data is to meet user needs based on the

evolving situations [2]. An accurate understanding of the user's needs depends on a combination of the macro situation and the rich personal context [3]. While both threads have been studied separately in different context before, this workshop aims to bring together the researchers working in the two areas onto a common platform to develop synergistic techniques. Multimedia community has a long standing expertise in dealing with heterogeneous data and is the one of the only communities that has dealt with concept recognition across both space and across time. Multiple concepts in multi-scale data analysis, information fusion, real-time data indexing, spatio-temporal analysis, situation recognition, personalization, user persuasion, and recommendation algorithms related to the workshop are of interest to the Multimedia research community.

Table 1: Some potential applications at the intersection of personal data and distributed multimedia.

Category	Recommendation Task:	Personal Data	Macro Data
Food/Drink	Food/Drink	Preferences, eating history, hunger level, calorie count	Raw material provenance, Eco-friendliness, Restaurant reviews e.g. Yelp.
Mobility	Walking/ driving/ jogging route	Preferences, exhaustion, sensitivity to pollution, pollen etc.	Pollen count, pollution level, disease risk, traffic congestion
Health	Gym, physical activity, medicine, hospital	Heart rate, activity rate, mood, calories burnt.	Disease spread, medicine availability, appointment wait times.
Emergency response	Move to safe location, contact emergency service	Health, mobility, insurance, social ties	Hurricane, water, flood, snow, wind, disease impact, shelter/hospital availability
Lifestyle	Event or Place recommendation	Preferences, social ties, events (e.g., birthday)	Local trends, waiting time, weather, crime rate
Product recommendation	Advertisements, social coupons	Interests, behavioral preferences e.g. via gaze, bank balance, distance to travel	Local trends, global demand, online prices
Media personalization	Music, movies, lighting, ambient settings in home	Preferences, mood, body vitals, location	Countrywide popularity, local trends, social uploads, weather

It builds upon the recent trends on using multimedia approaches for rich personal sensing (e.g. [5, 6]), as well large-scale concept analysis (e.g. [4]). Based on a confluence of enabling technologies (mobile phones, internet-of-things), trends (media blogging e.g. Vine, Instagram, Twitter, novel sensors e.g. Fit-bit, Q-sensor, Google glasses, Apple iWatch), and research interest, this is an opportune time to organize this workshop for the first time. Table 1 presents a list of sample applications, which can benefit from this intersection of personal data and distributed multimedia data.

2. TOPICS OF INTEREST

Topics of interest for the workshop include, but are not limited to:

- Frameworks for information integration across macro and personal data
- Multi-scale data analysis
- Cross-modal information fusion
- Combining ego-networks with global network features
- Spatio-temporal data indexing
- Situation modeling and situation recognition
- Personalization based on sensor media
- Architectures for personal data management
- Privacy issues in combining personal and public data
- User persuasion through multimodal data presentation
- Social approaches for information integration
- Economic models of information utility
- Applications in different areas incl. mobility, advertisements, healthcare, media recommendations.

2. PROGRAM COMMITTEE

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