

## PANEL

# Crowds, Clouds, and Algorithms: Exploring the Human Side of “Big Data” Applications

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**Moderator:** Michael J. Franklin (UC Berkeley and Truviso, Inc.)

## 1. OVERVIEW

The creation, collection, analysis, curation, and dissemination of data have become profoundly democratized. Social networks spanning 100's of millions of users enable instantaneous discussion, debate, and information sharing [8]. Streams of tweets, blogs, photos, and videos identify breaking events faster and in more detail than ever before [10]. Global, *ad hoc* collaborations addressing scientific, commercial, political, and even mathematical problems make progress where individual investigators or small groups cannot [6,11,12,13,14].

This sea change is the result of a confluence of information technology advances in areas such as intensively networked systems, cloud computing, social computing, and pervasive devices.

The connectivity of billions of device-enabled people to massive cloud-computing infrastructure has created a new dynamic that is moving data to the forefront of many human endeavors, changing the way that data-centric systems must be envisioned and architected. While Human-Computer Interface and Data Visualization research has long investigated how information can be presented to and manipulated by users, the emerging crowd/cloud infrastructure is changing this relationship in a more fundamental way. People not only enter and consume information, they also play a central role, individually and in groups, throughout the entire information lifecycle.

Human participation can be *direct* such as when entering User Generated Content in blogs, microblogs, and review sites, or when knowingly participating in a crowdsourcing marketplace such as Amazon Mechanical Turk. People can also participate in *indirect* ways, simply by going about their on-line lives, when searching [2], reading content, shopping, or playing on-line games [1].

The development of hybrid Crowd/Cloud systems will be a major driver of information technology innovation going forward. Progress will require breakthroughs in Machine Learning, Query Processing, Data Integration, Distributed Computing Infrastructure, Security, Privacy, and Social Computing.

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## 2. THE PANEL

This panel explores recent results and emerging opportunities in hybrid Crowd/Cloud computing. The panelists represent a mix of viewpoints from both academia and industry. Their recent work spans a range of related topics: Recommendation Systems [2], Mass Collaboration [4], Social Network Structures [5], Social Media Analysis [9], and User-Assisted Data Integration [7].

The panel is intended to be wide-ranging and interactive, but we expect to address at least some of the following issues: Social structures and incentive schemes; collaborative data management, analysis and filtering; scaling issues for algorithms, machines and people; and new application and research opportunities.

## 3. REFERENCES

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