

## **Engaging Data**

### **First International Forum on the Application and Management of Personal Electronic Information**

Hosted by

SENSEable City Lab, Massachusetts Institute of Technology

Oct. 12-13, 2009

Massachusetts Institute of Technology

Cambridge, MA USA

<http://senseable.mit.edu/engagingdata>

#### **Call for Papers**

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Over the past decade, the development and use of digital networks has produced an increasing wealth of new data. Handheld electronics, locative media, telecommunications networks, and a wide assortment of tags and sensors are constantly collecting a rich stream of real-time information on various components of our lives and the environment we inhabit, including our movements, purchases, social interactions, Internet activities, and many more.

These data afford a wide range of research opportunities in the social and natural sciences that will create a multitude of beneficial information and services. Affected areas range widely and include, among others, workplace efficiency, traffic management, tourism, marketing, logistics, e-commerce, entertainment, urban and architectural planning, disaster response, security, environmental sustainability, and social interaction.

Advances in this field are progressing cautiously, however, as the public, commercial and social entities, and the government are only just beginning to understand this new condition of pervasive sensing and data mining as well as the associated framework required to manage it. Conflicting standards on privacy and fear of entering upon uncharted territories hinder companies, researchers, and others from engaging in activities that make responsible use of potentially sensitive data. Moreover, regulation has not kept pace with the changing digital infrastructure, and as a result different stakeholders currently face different restrictions on data usage. In short, we still lack a complete understanding of the societal value in this data and the influence on society by its use, and much still remains unexplored.

It is becoming imperative to develop a new framework of standards and best practices for collecting, storing, analyzing, reporting, sharing, and protecting valuable electronic data created by new technologies and services.

The Engaging Data: First International Forum on the Application and Management of Personal Electronic Information is the launching event of the Engaging Data Initiative, which will include a series of discussion panels and conferences at MIT. This initiative seeks to address the above issues by bringing together the main stakeholders from multiple disciplines, including social scientists, engineers, manufacturers, telecommunications service providers, Internet companies, credit companies and banks, privacy officers, lawyers, and watchdogs, and government officials.

The goal of this forum is to explore the novel applications for electronic data and address the risks, concerns, and consumer opinions associated with the use of this data. In addition, it will include discussions on techniques and standards for both protecting and extracting value from this information from several points of view: what techniques and standards currently exist, and what are their strengths and limitations? What holistic approaches to protecting and extracting value from data would we take if we were given a blank slate?

These issues and questions will be addressed through invited talks, paper presentations, and panel discussions. The forum will serve as a platform to exchange ideas, discuss the latest developments in this field, address significant issues, and create visions for the future.

The forum is seeking original contributions in the form of both position papers and technical papers. Of particular interest are papers that open new paths for research, express a creative vision for the future, and contribute to a lively debate.

## Topics

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Papers are solicited that propose principles and approaches to building a viable social ecosystem for using information mined from human interactions with digital networks. Each paper must touch on the technical, security, social, legal/political, and financial aspects of the issue, although it is expected that papers will concentrate more on some aspects than on others.

Topics of interest within these aspects include, but are not limited to, the following:

### *Technical*

Uses and concerns associated with data collection and mining:

1. Information mined by an endpoint party to a communication, including:
  - Types of information mined from consumer devices by endpoint parties (e.g. VoIP routers and radio handsets)
  - Accuracy and use of location analyses based on IP addresses, Internet traceroutes, etc.
  - Sharing of mined data with third parties
  - Methodologies to analyze and visualize this data
2. Collection, storage, and use of information gathered from wireless networks, including:
  - Location-based tracking and other forms of mobile sensing
  - Mobile phones, cordless phones, walkie-talkies, wireless microphones
  - Femtocells
  - RFID systems
  - Wi-Fi Networks
  - Implications for “white spaces” signal-sensing devices
  - Increased personalization of communications (i.e. device is commonly unique to a particular individual)
  - Sharing of data with third parties
3. Collection of information on traffic flow patterns in fixed networks, including:
  - How uses and concerns vary based on whether flows are segregated by endpoint, time-of-day, bandwidth usage level, application type, etc.
  - Optical and non-optical networks
  - Broadband networks
  - Personal area networks (PAN), Local-area networks (LAN), Wide-area networks (WAN), etc.
4. Information collection inside the network
  - Packet inspection, e.g. collection of IP addresses, HTTP cookies, etc.
  - Significance of IPv6 in providing static IP addresses that may be specific to particular devices and/or their locations
5. Soundness of data
  - Veracity, completeness, etc. of data collected from multiple perspectives, e.g. multiple sensors and/or points inside the network
  - Algorithms and other tools to deal with incomplete, contradictory, and incorrect data
6. Data protection
  - Effectiveness and adequacy of encryption, anonymization, aggregation, hashing algorithms, and level of accuracy of information at ensuring customer privacy
  - Metadata standards and preservation formats

## *Financial*

1. Business and incentive models/structures

## *Security*

Social issues associated with data collection and mining:

1. Consumers and Privacy
  - Privacy concerns and countervailing interests concerning the authentication of electronic identities and transactions
  - Consumer awareness, e.g. how common it is for people to read privacy policies
  - Consumer access to, control of, and awareness of information collected about them
  - Ethical considerations and implications of data mining for both individuals and society
  - Social norms and expectations of privacy

Legal and political issues associated with data collection and mining:

1. Standards for protecting and extracting value from data
  - Strengths and limitations of existing standards
  - "Blank slate," holistic approaches to protecting and extracting value from data
  - Applicability of set standards, e.g. EC Data Protection Directive, to the US, developed vs. developing countries, globally
2. E-government services
  - Appropriateness of permitting private entities preferential rights of access or redistribution of such data
  - Conformity with citizen expectations and assurances of the privacy of such data
3. Legal and regulatory concerns
  - Requirements, if any, for prior review and approval of proposed collection and use of data (IRB, etc.)
  - Acceptable methods of obtaining consent for the use of various types of information
  - Requirements of consent from parties related to the information, e.g. from only one party related to the information or from all parties related to the information
  - Responsibilities to disclose mining of information (who must disclose such activities and to whom must disclosure be made, e.g. direct customer of service, correspondents of direct customer, etc.)
  - Role of regulation in the exposure of information collected on network activities
4. Risk and Mitigation
  - Evaluation and mitigation of risks of research, government, and commercial activities involving data collection and mining
  - Methods of risk avoidance

## **Author Guidelines**

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Position papers must be 4-6 pages in length, technical papers 6-8 pages in length. Papers must be written in English and follow the standard IEEE format (two-column, single-spaced, 10-point font, on US Letter size paper). Please submit papers in PDF format. Templates can be found under:

<http://www.ieee.org/web/publications/pubservices/confpub/AuthorTools/conferenceTemplates.html>.

Each submitted paper will be peer-reviewed in a double-blind fashion. Please remove any mention of author names and affiliations in the entire submission, and if referencing previous work of the authors, use the third person. Papers will be evaluated according to originality, relevance, technical soundness, significance, and clarity.

At least one author must register for the conference to have the paper published in the proceedings.

The most exceptional papers in each category will be presented at the conference and published in the conference proceedings. All papers will be handled electronically and should be submitted online. An electronic submissions system will be available shortly. Please visit [senseable.mit.edu/engagingdata](http://senseable.mit.edu/engagingdata) for further details.

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**Important Dates**

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Deadline for submission of full papers:	<b>July 13, 2009</b>
Notification of acceptance:	<b>August 10, 2009</b>
Camera-ready papers due:	<b>August 31, 2009</b>
Early registration:	<b>August 31, 2009</b>
Conference dates:	<b>October 12-13, 2009</b>

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**General Chairs and Program Committee**

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