



CS 6474/CS4803

Social Computing:

Background

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Week 1 | August 21, 2019

Course Resources

- Course Webpage:
http://www.munmund.net/CS6474_Fall2019.html
- Reading reflection samples:
http://www.munmund.net/courses/fall2019/reflection_samples.pdf

Defining “Social Computing” / Background

"Social computing is an area of computer science that is concerned with the intersection of social behavior and computational systems. It is based on creating or recreating social conventions and social contexts through the use of software and technology."

Why Social Computing?

Interact

- Expressions
- Gestures
- Spoken Word
- Written Word



Sensitive to the people around

Humans are Social

Make decisions shaped by social context

- Choosing a restaurant
- Crossing the street

Doing what others do and following what others say

Theoretical and Infrastructure Basis of Social Computing

- Social Computing is a cross-disciplinary research and application field with theoretical foundations including both *computational* and *social sciences*
- To support social interaction and communication, it relies on:
 - Communication
 - Human Computer Interaction
 - Sociological, Psychological Economic, and anthropological theories
 - Social network analysis

Major Application Areas of Social Computing

Social computing applications are driven by the needs to:

- Develop better social software to facilitate interaction and communication among groups of people (or between people and computing devices),
- Computerize aspects of human society, and
- Forecast the effects of changing technologies and policies on social and cultural behavior

Class Activity Revisited

A) An example of a social computing system
(that exists online)

Why?

B) An example of a non-social computing
system (that exists online)

Why?

Social Computing Tools

BLOG

WIKI

Social Networks

RSS

Social
Bookmarking

VOIP

Others

- Internet Forums
- Multimedia Sharing
- Virtual Reality

people **creating**
(blogs, user-generated content and podcasts)



people **connecting**
(social networks and virtual worlds)



people **collaborating**
(wikis and open source)



people **reacting**
(to each other: forums, ratings and reviews)



people **organizing content**
(tags)



people **accelerating consumption**
(RSS and widgets)



A Brief Historical Analogy

Background

- The idea of social computing can be traced back to the 1940s in Vannevar Bush's seminal 1945 Atlantic Monthly paper "As We May Think."
- In the paper, he conceived
- a memory and communication device called a memex
- his far reaching ideas before anyone has researched on them include:
 - Augmentation
 - Groupware and Computer-supported collaborative work

"As We May Think" predicted (to some extent) many kinds of technology invented after its publication, including hypertext, personal computers, the Internet, the World Wide Web, speech recognition, and online encyclopedias such as Wikipedia: "*Wholly new forms of encyclopedias will appear, ready-made with a mesh of associative trails running through them, ready to be dropped into the memex and there amplified.*"

Background

- 1960s: J.C.R. Licklider headed the Advanced Research Projects Agency (ARPA) and cowrote a paper on “The Computer as a Communication Device” with Robert Taylor
- In this paper, Licklider and Taylor outlined methods of computer-aided group collaboration
- ARPA ultimately led to ARPANET, the predecessor to Internet.
- Meanwhile, Douglas Englebart’s lab at SRI created the first hypermedia online system, NLS (oNLine System).
- 1970s: The first collaborative software, EIES (Electronic Information Exchange System)
- 1980s: Groupware appeared

Early Efforts of Social Computing

- IBM first developed a **multiparty chat environment, Babble**, in 1997
- Babble and its Web-based successor, **Loops**, can support synchronous and asynchronous textual conversation among small to medium-sized workgroups
- Microsoft's **Wallop** project provides a tool that enables users to author lightweight content online and build conversations in the **context of their social networks**.
- In addition to Microsoft and IBM, many research labs and companies, including Intel,
- FXPAL, HP, PARC, Mitsubishi, MITRE, AT&T, Nokia, NASA, and Google, actively conduct
- social computing research

Early Efforts of Social Computing

Since 2004, Microsoft Research has hosted annual social computing symposiums to help promote this area of research.

IBM also hosted services science symposiums during the same time period, part of which has focused on **compartmentalizing social computing modules as services**

Purpose:

Social computing and online communities are *changing the fundamental way people share information and communicate*

What attracts people most, it would
appear, is other people.

— William Whyte

The Social Life of Small Urban Spaces

- Whyte led the Street Life project in the 1970s, and began investigating the various dynamics of urban spaces.
- He focused on the city, and studied New York City's parks, plazas, and various informal recreational areas like city blocks -- a total of 16 plazas, 3 small parks.
- Goal: 1) *why do some city spaces work for people while others don't*, and 2) *what the practical implications might be about living better, more joyful lives in our urban environment*.

<https://www.youtube.com/watch?v=IsVZxanrL7s>

Group Discussion

How is an understanding of street behavior relevant to the study of behaviors on social computing systems?

Group Discussion

How is an understanding of street behavior relevant to the study of behaviors on social computing systems?

What are your key observations (find two) and how do they relate to social computing systems?

Observation 1: People gathered and conversed in the most unexpected (crowded) places

Connection to social computing systems –
public social media conversations

Observation 2: People love to gossip and talk about mundane topics; they gathered in specific places and had conversations that were fairly brief or fairly long

Connection to social computing systems –
mundane short and long discussions on
social media

Observation 3: Conversations had silence and people used reciprocal gestures and movement; streets were a congenial place for expression of these activities

Connection to social computing systems –
what would be equivalent reciprocal gestures
on social computing systems?

Observation 4: Cities across the world are distinct, but on the streets people acted more or less the same despite underlying contrasts in cultures and practices

Connection to social computing systems – do people talk the same way on social computing systems, despite their contrasting socio-cultural backgrounds?

Observation 5: Public spaces designed to work very well for their initial constituency usually work very well for later ones

Observation 6: Large cities vs. small cities – differences exist in terms of density, pace, nature and types of social activities. But similarities outweigh differences.

Connection to social computing systems –
are there behavioral differences between
large and small social computing systems?
What similarities do you observe?

Summary: Urban design needs to account for creating physical places that facilitate civic engagement and community interaction