



Volunteered Geographic Information

Spatial Computing – University of Minnesota



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Learning Objectives

1. Know the definition and historical context of volunteered geographic information (VGI)
2. Be able to produce VGI yourself!
3. Understand the socio-technical systems behind VGI.
4. Be qualified to assess the pros and cons of VGI for a given problem context.
5. **Technical Track:** Be able to use VGI in your apps, websites, and other systems

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2. Be able to produce VGI yourself!
3. Understand the socio-technical systems behind VGI.
4. Be qualified to assess the pros and cons of VGI for a given problem context.
5. **Technical Track:** Be able to use several types of VGI in your apps, websites, and other systems



2014

2013

2012

2011

2010

2010 **NO**

Main sources of geographic information in the year **2000**...



Statistics Statistique
Canada Canada

...and many other
government agencies

“Traditional mapping agencies have elaborate standards and specifications to govern the production of geographic information, and employ cartographers with documented qualifications.”

(Goodchild 2007)



Dr. Mike Goodchild

Professor Emeritus
UC Santa Barbara

Formerly required to produce commonly-used geographic information...



Surveying
Degree



Cartography
Degree



YOU can produce geographic information!

Search

Where am I?

Go

Way: Hyde Park (19851241)

Survey of 2014-05-05

Edited 2 months ago by Amaroussi

Version #50 · Changeset #22147523

Tags

access	yes
leisure	park
name	Hyde Park
name:he	ה'יד פארק
name:ru	Гайд-парк
name:uk	Гайд-парк
wikipedia	en:Hyde_Park,_London

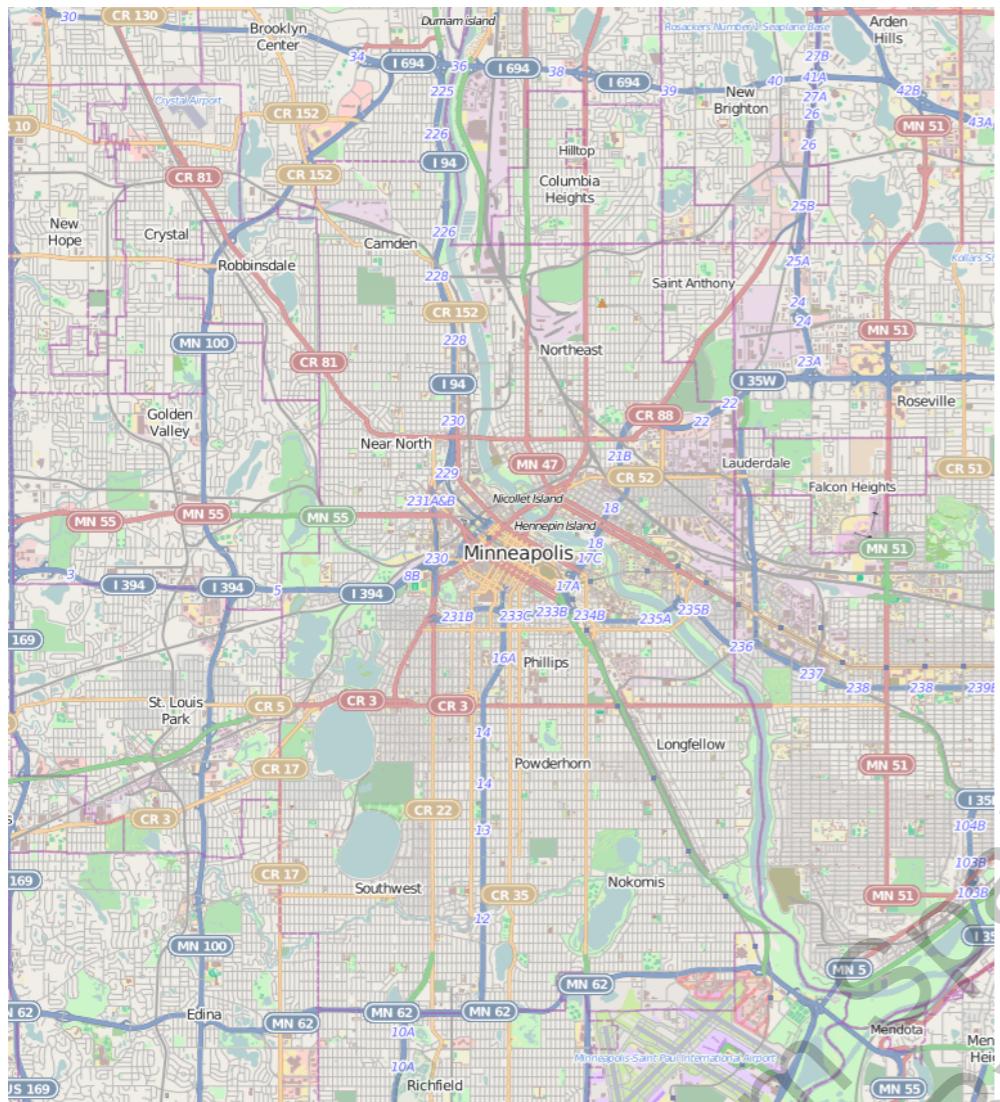
Nodes

207610513

671350287 (part of way

52995452)





Apple Maps

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GroupLens – Google Maps

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Slides from Spatial Computing MOOC (By Brent Hecht)

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Amundson Hall

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Earth

Google

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W University of Minnesota - ... +

en.wikipedia.org/wiki/University_of_Minnesota,_Twin_Cities

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University of Minnesota

From Wikipedia, the free encyclopedia
(Redirected from University of Minnesota, Twin Cities)

This article is about the oldest and largest campus of the University of Minnesota. For the entire system, see [University of Minnesota system](#)

See also: [U of M \(disambiguation\)](#)

The University of Minnesota, Twin Cities (Minnesota, U of M, or The U) is a public research university located in Minneapolis and St. Paul, Minnesota, United States, with the Minneapolis and St. Paul campuses being approximately 5 miles (8.0 km) apart.^[4] It is the oldest and largest campus within the University of Minnesota system and has the sixth-largest main campus student body in the United States, with 51,853 students in 2012–2013. The university is broadly organized into 19 colleges and schools, and it has sister campuses in Crookston, Duluth, Morris, and Rochester.

Minnesota's athletic teams are known collectively as the Minnesota Golden Gophers and compete in the NCAA's Division I, as members of the Big Ten Conference.

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- 1 Campuses
 - 1.1 Minneapolis campus
 - 1.1.1 East Bank
 - 1.1.1.1 East Bank notable architecture
 - 1.1.2 West Bank
 - 1.1.3 Getting around
 - 1.1.4 Campus safety
 - 1.2 St. Paul campus
 - 1.3 Commuting between Minneapolis and St. Paul campuses
- 2 Organization and administration
- 3 Academics
 - 3.1 Rankings
 - 3.2 Big Ten Committee on Institutional Cooperation
- 4 Greek Life, Professional and Honor Societies
- 5 Media

University of Minnesota, Twin Cities



Seal of the Regents of the University of Minnesota

Motto *Commune vinculum omnibus artibus* (Latin)

Motto in English A common bond for all the arts

Established 1851

Type Public Flagship University

Land-Grant
Sea-Grant
Space-Grant

Endowment US\$2.494 billion in 2012 (systemwide)^[1]

President Eric W. Kaler

Provost Karen Hanson

Academic staff 3,374^[2]

Students 51,853^[3]

Search

Coordinates:  44°58'31"N 93°14'03"W

the entire system, see [University of](#)

“Geotag”

Geographic Article

▼ Search[Search](#)

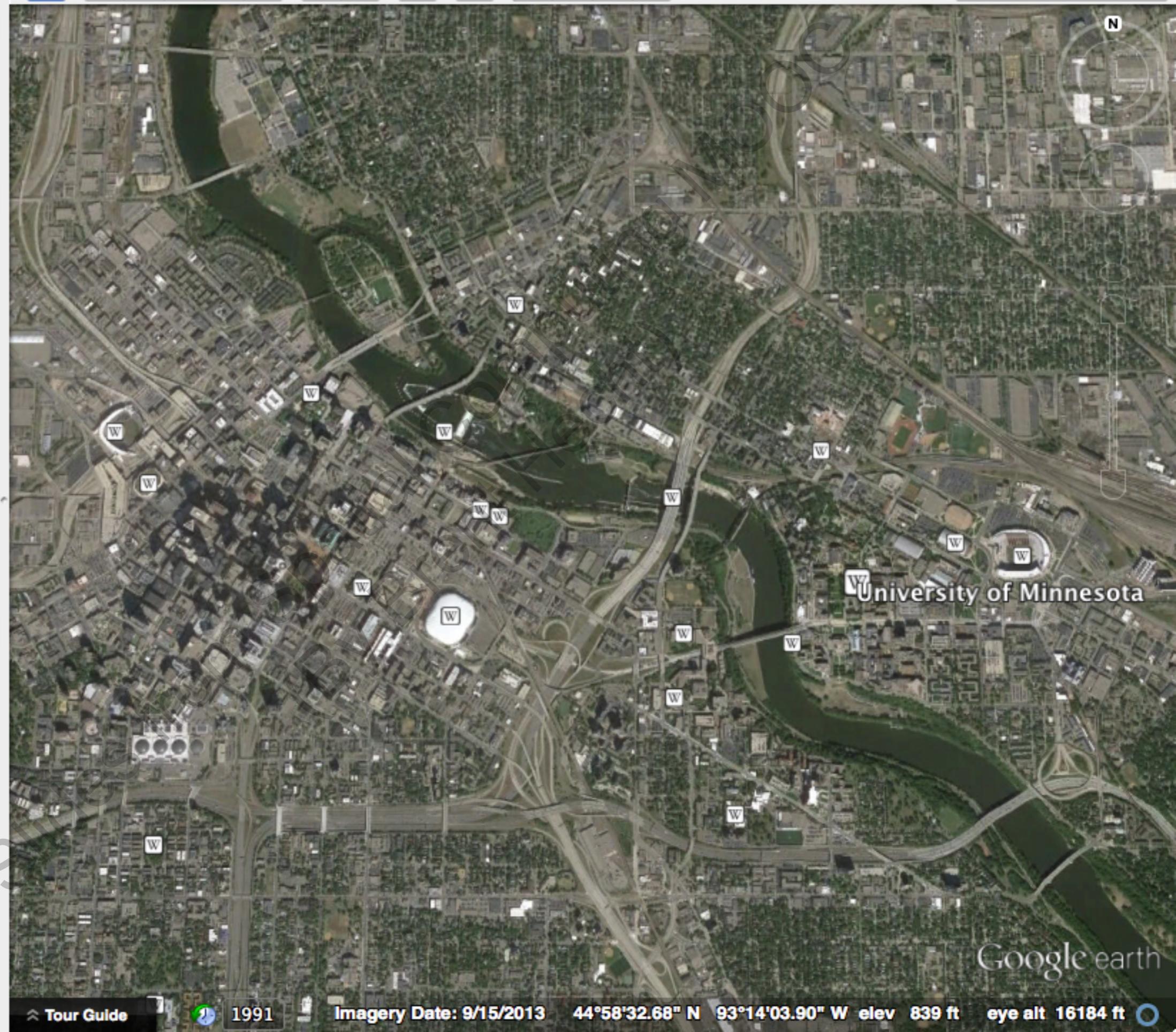
ex: Museums in New York, NY

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 - Transportation
 - Traffic
- Wikipedia
- DigitalGlobe F...
- Spot Image
- DigitalGlobe C...



Google earth

[Tour Guide](#)

1991

Imagery Date: 9/15/2013

44°58'32.68" N 93°14'03.90" W elev 839 ft

eye alt 16184 ft

Latitude = 46.777931

Longitude = -92.124996



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https://www.flickr.com/photos/organize/?batch_geotag=1&ids=14611837321

Google

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flickr Your Photostream Batch Organize Albums & Collections Print & Create Groups Map

Drag and drop your photos or videos on to the map!

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3000 km 2000 mi

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NORTH AMERICA UNITED STATES OF AMERICA MEXICO VENEZUELA COLOMBIA SOUTH AMERICA

DSC05914 from brentosj

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The one million tweet map

powered by 

Tweets since page load

 - 2 0 5 3 8

Legend



Filters

cluster view heatmap view keywords filter

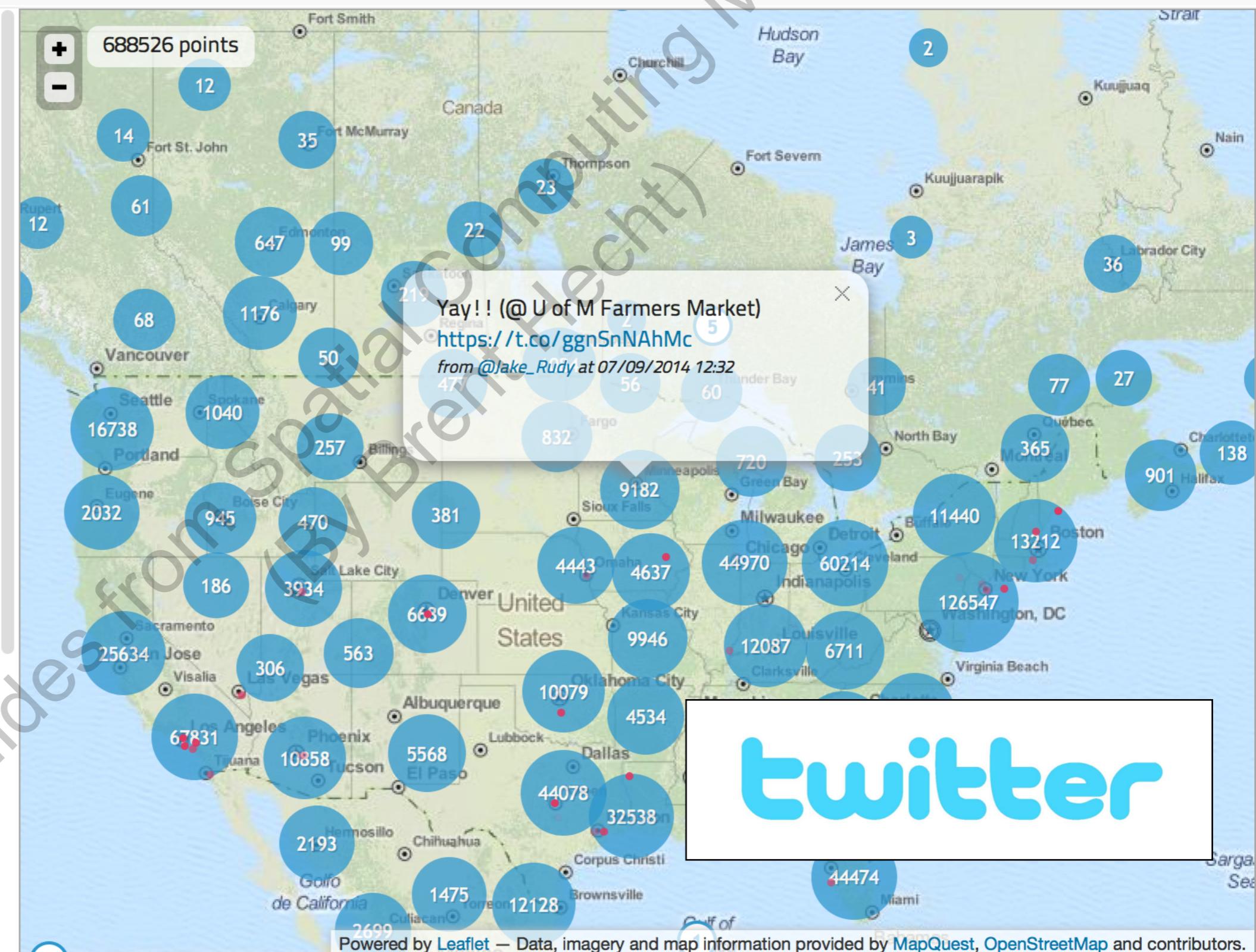
hashtags filter

5 most popular hashtags

job (6390) jobs (4894) arg (3478)

tweetmyjobs (3159) wcw (2553)

No Time Filtering

If you want to start with a blank map,
click on reset map button (reload the
page to see all tweets again).

“The vast amounts of data shared on social media reflect people’s attitudes, attention, activities and interests, offering unique opportunities to analyze and reason about our world and our society. With associated geotagged information, these social media items allow us to understand, for the first time, what people are paying attention to, and where they pay attention from, in real time. This data can prove hugely valuable to a diverse set of applications, such as improving city management, marketing, journalism, tourism, health and many more.”



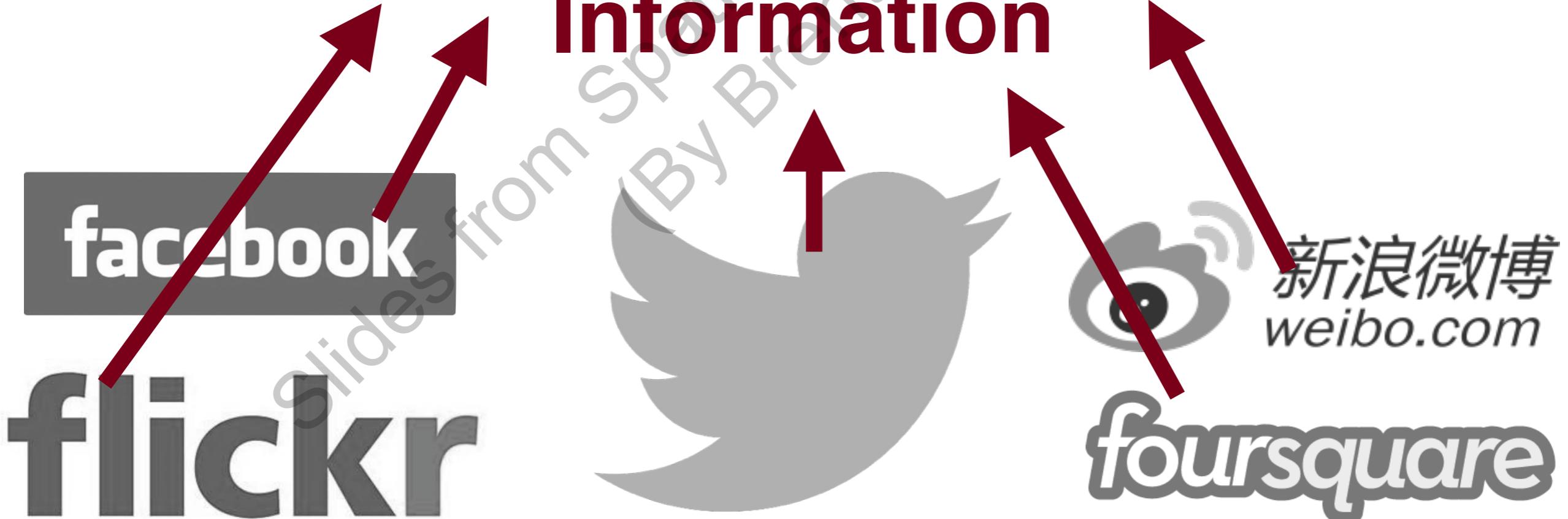
Dr. Mor Naaman

Associate Professor
Cornell Tech, New York City

Co-founder + Chief Scientist
Seen (<http://www.seen.co>)



Volunteered Geographic Information



“[Volunteered geographic information is] the widespread engagement of large numbers of private citizens, often with little in the way of formal qualifications, in the creation of geographic information, a function that for centuries has been reserved to official agencies. They are largely untrained and their actions are almost always voluntary, and the results may or may not be accurate. But, collectively, they represent a dramatic innovation that will certainly have profound impacts on geographic information systems (GIS) and more generally on the discipline of geography and its relationship to the general public.”

(Goodchild 2007)



Dr. Mike Goodchild

Professor Emeritus
Dept. of Geography
UC Santa Barbara, USA

**“[VGI is] a profound transformation in
how we know the world.”**

(Elwood et al. 2012)



Dr. Sarah Elwood

Professor
Dept. of Geography
Univ. Washington, USA

**What's this
“Volunteered
Geographic
Information”?**



Spatial Computing, circa **2000**

Slides from Spatial Computing MOOC
(By Brent Huff)

**We need a
module on
Volunteered
Geographic
Information!**



Spatial Computing, circa **2014**

Slides from Spatial Computing
(By Brent Hecht)

Q: How did this BIG
change happen?

A: Enabling technologies!



Global Positioning System (GPS)

A: Enabling technologies!

The collage includes:
1. Book cover for "Spatial Databases: A TOUR" by Shashi Shekhar and Sanjay Chandra, rated 5 stars.
2. Wikipedia logo with the text "WIKIPEDIA The Free Encyclopedia".
3. A screenshot of a Wikipedia edit page for the article "Editing Miroslav Klose", showing the "Edit" button highlighted with a cursor.

Web 2.0

“VGI requires rethinking many of the important concepts that geographers have previously used to understand geographic information, its uses, and its impacts.”

(Elwood et al. 2012)



Dr. Sarah Elwood
Professor
Dept. of Geography
Univ. Washington, USA

Further Reading

Goodchild, M.F. 2007. Citizens as sensors: the world of volunteered geography. *GeoJournal*. 69, 4 (Nov. 2007), 211–221.

Elwood, S., Goodchild, M.F. and Sui, D.Z. 2012. Researching Volunteered Geographic Information: Spatial Data, Geographic Research, and New Social Practice. *Annals of the Association of American Geographers*. 102, 3 (2012), 571–590.

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