



CS 6474 Social Computing: Location and Mobility

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Urban Observatory

NYU CUSP Unveils First-Of-Its-Kind 'Urban
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EVENT

11/22/2014
**2014 AT&T Transit Tech Developer
Day at CUSP**

8:30 am - 5:30 pm



NEWS/BLOG

**Claudio Silva
receives...**

Nov 13, 2014



IN THE MEDIA

**A Secret Urban
Observatory
Is...**

Nov 03, 2014

Tweets from Justin Bieber's Heart: The Dynamics of the Location Field in User Profiles

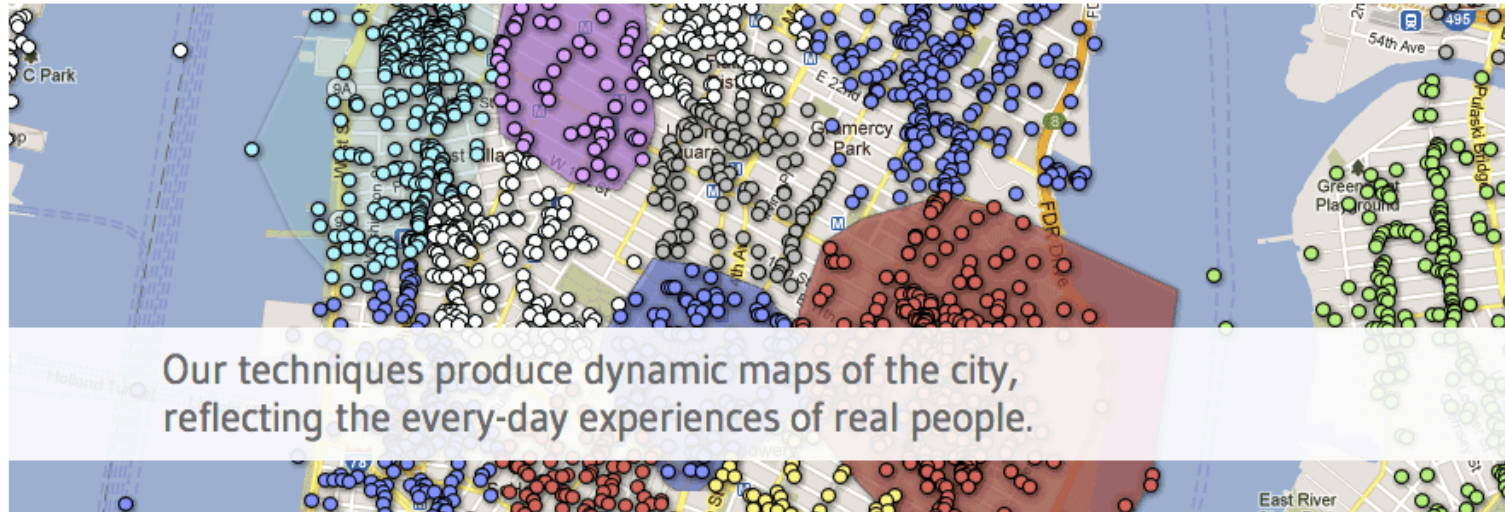
Summary

- One of the earliest analyses of self-reported location on social media
- Focused on Twitter, authors found 34% users did not provide valid/accurate location information
- Examine the relationship between location and social media behavior – whether one can identify a user's location by only looking at what that user's tweets
- Main finding: a user's country and state can be determined easily with decent accuracy, indicating that users implicitly reveal location information, with or without realizing it

The Livelihoods Project: Utilizing Social Media to Understand the Dynamics of a City

Summary

- The paper presents a methodology to capture the dynamics of urban settings, called “livehoods” using self-reported location information from the social media Foursquare.
- Main motivation – municipal neighborhoods and zipcodes do not capture the “character” of a city
- Method – a (spectral) clustering model that takes into account spatial proximity and social proximity between checked in locations
- Data – 18M checkins
- Main finding – spilling, splitting and corresponding
- Evaluation – 22 qualitative interviews with residents of the city studied (Pittsburgh)



Re-Imagining the City in the Age of Social Media

Livehoods offer a new way to conceptualize the dynamics, structure, and character of a city by analyzing the social media its residents generate. By looking at people's checkin patterns at places across the city, we create a mapping of the different dynamic areas that comprise it. Each Livehood tells a different story of the people and places that shape it.

[> MORE](#)

Using Machine-Learning to Study Cities

Our research hypothesis is that the character of an urban area is defined not just by the types of places found there, but also by the people that make it part of their daily life. To explore this idea, we use data from approximately 18 million check-ins collected from the location-based social network foursquare, and apply clustering algorithms to discover the different areas of the city.

[> MORE](#)

Current Maps



[> New York City](#)



[> San Francisco](#)



[> Pittsburgh](#)



[> More Maps](#)

Semi automated cluster tuning with human feedback

Generalizability

The fact that more than a fifth of Twitter locations were inaccurate (Hecht et al.) is alarming in many ways. It questions the design of these systems in many ways. As a designer, what would be your takeaways?

The papers focus on inferring attributes of urban settings based on social media reported locations. What are some example situations where this information could be used?

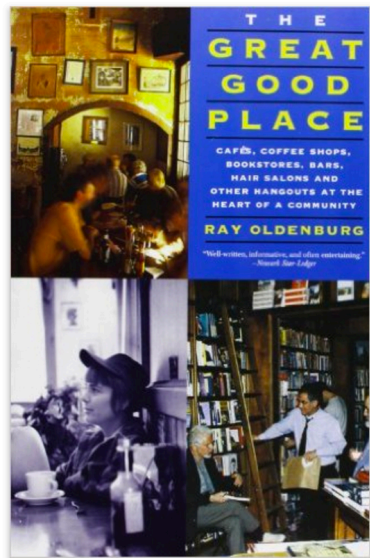
The Third Place

The Great Good Place: Cafes, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community 3rd Edition

by [Ray Oldenburg](#) (Author)

★★★★☆ 40 customer reviews

Look inside ↓



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The Great Good Place argues that "third places" - where people can gather, put aside the concerns of work and home, and hang out simply for the pleasures of good company and lively conversation - are the heart of a community's social vitality and the grassroots of democracy.

[Report incorrect product information.](#)



The Amazon Book Review

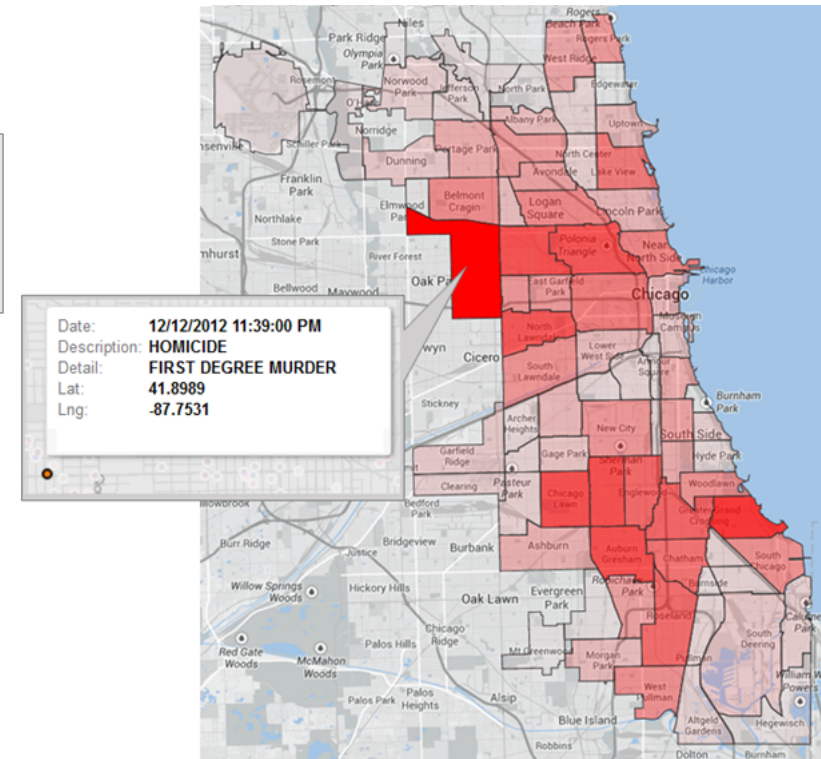
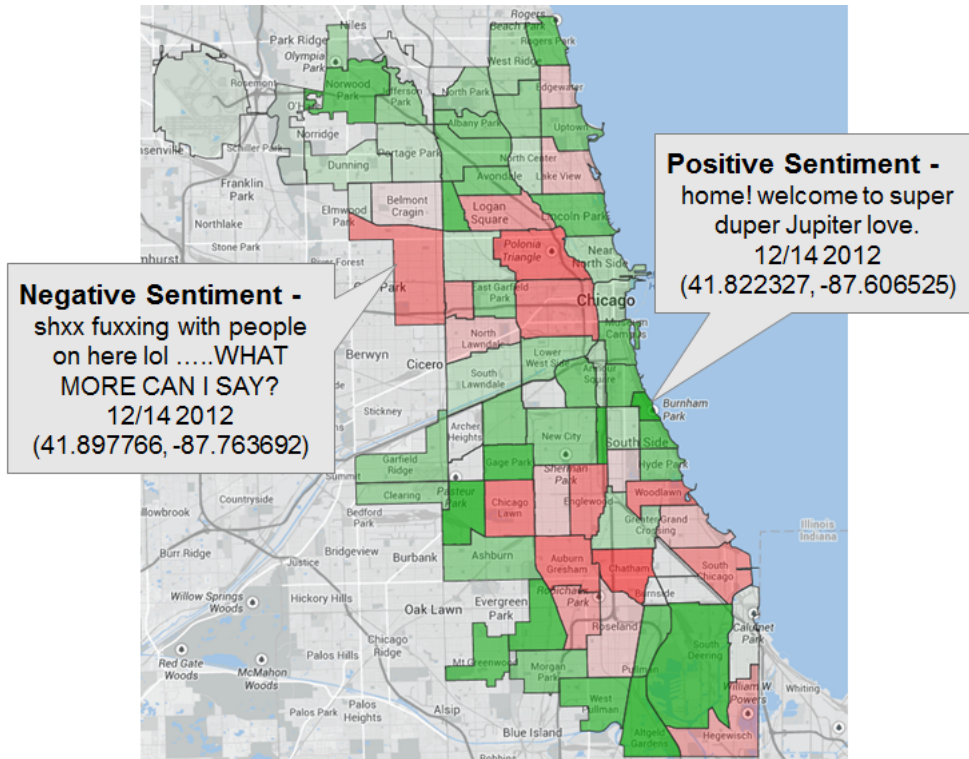
Author interviews, book reviews, editors picks, and more. [Read it now](#)

Self-reported social media locations have many issues. First, there's no way to distinguish between locals and tourists. How would this lack of information impact the algorithms we covered today?

Neighborhood inference using social media can be challenging due to the digital divide and other linguistic, cultural factors. Cite some cities/case examples where social media locations may not indicate true neighborhoods.

Characterizing spatial routes with social media location information

Beyond beautiful and pleasing routes...



Kim, Cha, Sandholm (2014). "SocRoutes: Safe Routes Based on Tweet Sentiments"

What can social multimedia reveal to us about location?

Mapping the World's Photos

Crandall, Backstrom, Huttenlocher, Kleinberg, 2009



Location and Social

Finding Your Friends and Following Them to Where You Are

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ABSTRACT

Location plays an essential role in our lives, bridging our online and offline worlds. This paper explores the interplay between people's location, interactions, and their social ties within a large real-world dataset. We present and evaluate Flap, a system that solves two intimately related tasks: link and location prediction in online social networks. For link prediction, Flap infers social ties by considering patterns in friendship formation, the content of people's messages, and user location. We show that while each component is a weak predictor of friendship alone, combining them results in a strong model, accurately identifying the majority of friendships. For location prediction, Flap implements a scalable probabilistic model of human mobility, where we treat users with known GPS positions as noisy sensors of the location of their friends. We explore supervised and unsupervised learning scenarios, and focus on the efficiency of both learning and inference. We evaluate Flap on a large sample of highly active users from two distinct geographical areas and show that it (1) reconstructs the entire friendship graph with high accuracy even when no edges are given; and (2) infers people's fine-grained location, even when they keep their data private and we can only access the location of their friends. Our models significantly outperform current comparable approaches to either task.



Figure 1: A snapshot of a heatmap animation of Twitter users' movement within New York City that captures a typical distribution of geo-tagged messaging on a weekday afternoon. The hotter (more red) an area is, the more people have recently tweeted from that location. Full animation is at <http://cs.rochester.edu/u/sadilek/research/>.

1. INTRODUCTION

Our society is founded on the interplay of human relationships and interactions. Since every person is tightly em-

Hyperlocal Events and Trends

Hu, Farnham, Monroy-Hernandez (2013). Whoo.ly: Facilitating Information Seeking For Hyperlocal Communities Using Social Media

Whoo.ly

Capitol Hill Seattle, U.S.A.

1.2 Active Events

Active Events

- 8/12/2012
 - Grill Broadway
- 8/9/2012
 - Cash Timothy Instant Forex System St
 - Bike Theft
 - Invasion Elderly
- 8/8/2012
 - Hill Mexican Restaurant
- 8/3/2012
 - Bakery
 - Cider Sights Gluten Kitchen Dedicated Sets Free Bar
- 8/2/2012
 - Gas Leak Pike Blocked Pine St 10Th
 - Surreal Landscape Sam Wall Red Capitol Hill
 - Promote Research Drum Company Answer #Citysmartsea

1.1 Recent Tweets

Recent Tweets

- Les Sterling** @lessterling 8/12/2012 3:39:14 PM
Tippy Rose Lee blows audience away again!! @ The Grill on Broadway <http://vt.co/vHnNr40p3> WfzN
- Les Sterling** @lessterling 8/12/2012 3:37:17 PM
Amanda gives us an accidental tribute to the Olympics!! @ The Grill on Broadway <http://vt.co/vHnNr40p3>
- Les Sterling** @lessterling 8/12/2012 3:13:54 PM
You know thats The One and Only Mama Tits! @ The Grill on Broadway <http://vt.co/vKhFg7R1s>
- Craig Falvo** @craigfalvo 8/12/2012 3:12:30 PM
RT @bettinahansen: March for Nuns blocking 10th and Pike in <http://vt.co/v0vi65gTx>
- Sal N Pepsi** @salnpepsi 8/12/2012 3:09:05 PM
Salt N Pepsi: New bitches that's Miss Ursula at Mimosas With Mama! @ The Grill on Broadway <http://vt.co/vPAfRtri>
- Jessegusgus** @jessegusgus 8/12/2012 2:53:58 PM
On vacation. No editing needed. @ Fort Stevens State Park <http://vt.co/vfVGEp2hL>
- Les Sterling** @lessterling 8/12/2012 2:52:54 PM
Mimosas With Mama! #mimosas @ The Grill on Broadway <http://vt.co/vw8ON6lIr>
- Les Sterling** @lessterling 8/12/2012 2:35:50 PM
<http://vt.co/vDFjA8iL>
- Christina Ratkus** @cRATKUS 8/12/2012 2:34:45 PM
Wow to all the Seattle men with deep v necks on right now!! I didn't know men could have cleavage. #capitolhillseattle
- chelsy west** @ChelsyMWest 8/12/2012 2:24:41 PM
Lake Stevens! <http://vt.co/v1xGihzDV>

1.3 Top Topics

Top Topics

cap (134) madison (86) park (82) free (51) neighborhood (59) pike (51) day (48) gas (48) grill (47) st (28) block (36) leak (35) bar (36) bike (35) beach (30) time (33) lake (31) market (27) pine (29) party (29) tonight (29) love (28) food (28) home (27) cider (27) night (24)

1.4 Popular Places

Popular Places

- Starbucks (132)
- Seattle-Tacoma International Airport (87)
- 24 Hour Fitness (33)
- Capitol Hill Neighborhood (29)
- Counterbalance Park (29)
- City Target (27)
- Uptown Seattle (21)
- Dick's Drive-In (20)
- Walgreens (19)
- Lawrence Lofts (17)
- McDonald's (17)
- Pussy Palace (16)

1.5 Active People

Active People

- jseattle (145)
- Seattle (77)
- Seattle Newsy (41)
- Mikal Tait (41)
- Capitol Hill (37)
- CHSfeed (35)
- Seattle CP (25)
- Seattle (25)
- mon (25)

What are the risks of location inference from social media data?

“Gaming” locations on social media;
identity deception