# MoveMeant: Anonymously Building Community Through Shared Location Histories

**Emily Sun**\*, **Ross McLachlan**\*, **Mor Naaman**
Jacobs Institute, Cornell Tech
{es765, rdm257}@cornell.edu, mor@jacobs.cornell.edu

## ABSTRACT

Awareness of and connections to a local community are important for building social capital, sharing resources, and providing physical support, but have been elusive to create in dense urban environments. We describe the design and implementation of MoveMeant, a system aimed to increase local community awareness through shared location traces. MoveMeant securely uses anonymized location data generated automatically by mobile devices to display aggregate, community-level location data. We report findings from interviews with residents in the Bronx, New York City who participated in a deployment of MoveMeant over a 6-week period. Our findings show that people use the anonymous information to make judgments about the people and places in their community, while opting to reveal their identity for third places where there is an opportunity to connect socially.

## ACM Classification Keywords

H.5.m. Information Interfaces and Presentation

## Author Keywords

movemeant; third places; local community; location traces

## INTRODUCTION

Social capital, weak ties and local connections have long been linked to prosperity and resilience at the individual and community level [29]. Such connections can lead to emotional and physical support, enhance resource sharing, and even contribute to civic action [24]. However, social connections have been elusive to create in dense urban environments, as pointed out by Simmel as far back as 1903 [27], despite recent research suggesting that those in urban areas could enjoy social interactions with strangers more than they expect [7].

How can technology be leveraged to encourage urban connections? One channel to potentially stimulate social interactions could be through surfacing similarities between people. Similarity is known to lead to attraction in settings [13] partially

---

\*These authors contributed equally to this work.

due to how similarity indicates other's future benevolence or compatibility. Constructural theory also suggests that similarity can lead to interactions given information of what individuals have in common [5]. A key insight we build on here is that anonymous, automatically-collected data traces, and in particular location data, can be used to expose similarity between people, leading to awareness and perhaps to establishing connections in local settings. In a dyadic (dating) context, research has shown how location overlap data allows users to infer similarity to others, and supports social interactions [17]. In small group settings, location sharing allowed people to infer moods, lifestyle and events [2]. Focusing on venues, people can determine the ambiance of a place by the profile pictures of people who frequent that establishment [23]. Indeed, such inferences may stem from that fact that venues visited by individuals could be seen as a form of cultural production and taste, where similarities are known to help in forming and sustaining weak and strong ties [16]. These findings suggest the potential of location data to create local awareness and ties.

To understand this potential, we created MoveMeant, a system designed to increase awareness through shared location traces in a local community such as a building or small neighborhood. The MoveMeant mobile app collects location data on a user's smartphone. A server collects and aggregates anonymous community-level data about the venues people visit, and exposes the data to users in the community. Further, MoveMeant allows users in each community to opt into interaction around specific venues. The awareness in MoveMeant is designed to increase perceived similarity, potentially leading to increased affinity and ties as described above. One strong design consideration was privacy, a known concern especially with location data [3]. Moreover, MoveMeant is using anonymity and non-persistent user identification for aggregating the location data. In other words, by design, even the MoveMeant server cannot connect different venues visited by the same user, yet is able to produce community-based aggregate patterns.

In this note, we detail the iterative design process of MoveMeant and its exploratory deployment over a 6-week period in the Bronx to understand how key features of the app, anonymous aggregates and venue-based interactions, were used and received by a community in the wild. Based on interviews with residents, we report on how the system increases community awareness through dissemination of local knowledge.

## RELATED WORK

Previous systems have been designed with the purpose of promoting local connections. These projects include commercial services like Nextdoor, social media designed for neighborhoods [19], Peerby,[1] a local peer-to-peer resource sharing site, and YikYak, an app for anonymous local conversation [14]. Other systems encourage more brief interactions between people in public spaces, like pressing buttons at the same time as a stranger to hear a joke [1] or meeting someone in an airport matched through Twitter [10]. All of these projects require active input from users in order to function successfully, which can affect the system's ability to grow and expand [28]. MoveMeant differs from other hyperlocal social networking services because data is automatically collected from mobile devices, with potentially different social implications.

Several systems have employed location information for social sharing, both through active checking in and passive data collection. By checking in on Foursquare and its predecessor, Dodgeball, users have contributed to a sense of commonality among people in a public space [12] and drawn inferences about local familiar strangers [25]. Whereabouts Clock was a location-tracking system for families that showed the importance of *location-in-interaction*, the location information in context that provides value to others as opposed to its technical accuracy [4]. Jabberwocky also used location information to indicate familiarity of a place based on the people who frequent that area [22]. These systems suggest the untapped potential of applying location tracking at a group level to build social awareness of local community.

## ITERATIVE DESIGN PROCESS

The design of MoveMeant followed an iterative process, refining the service based on the results from several small-scale deployments, eventually leading to the system whose evaluation is described in the next section. We begin by describing the higher-level goals of MoveMeant and how they were embodied in the first prototypes, and summarizing the results of the initial deployments.

MoveMeant is designed to increase local community awareness through shared location traces, leading to affinity and encouraging connections and ties. We had a number of design guidelines for creating the service. First, MoveMeant is designed for people in a small-size local community, for example a residential neighborhood, individual apartment building, or even large company office. Second, MoveMeant does not require continuous user-initiated explicit sharing; it is based on implicit and passive (thus easy and likely sustained) sharing. Further, user-created or any manual sharing of content is not even possible, except for revealing usernames, preventing abuse and discomfort known to occur in other local apps [19]. Finally, MoveMeant does not require people to give up their de-identifiable location logs, as we explain below.

To achieve these goals and guidelines, MoveMeant: (1) tracks participants' locations (venues visited) on their own mobile devices; (2) collects and displays anonymous aggregate community venue data; and (3) allows individuals to opt-in to
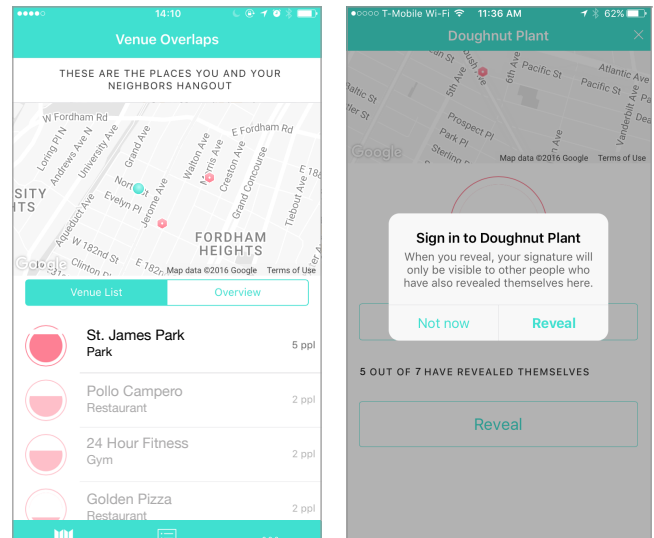
---

[1]peerby.com



**Figure 1. MoveMeant screens of the anonymous aggregate community venue data (left) and reveal dialogue for an individual location (right).**

reveal their username for a venue displayed alongside others who were there and opted-in as well. Two MoveMeant screens are shown in Figure 1.

Aggregate community data of venues visited by two or more people is shown in a dedicated screen within the app. In our initial implementation, the aggregate data was shown in a centrally-located community awareness display, but that visualization was eventually moved to the device as we explain below. A MoveMeant user's private history screen shows how many people from their community have also been to the venues they visited.

In addition, users can opt-in to *reveal* their username to others who visited the same venue and have also opted in for that venue (shown in Figure 1). This process can be termed a 'group-opt-in' (similar to the 'double-opt-in' that exists in some dating apps, such as Tinder [9, 18]). This is the only time potentially pseudonym identities are attached to a particular location on the MoveMeant server, and the only action that requires an explicit input from the user. This action will be referred to as *reveal* in the rest of the paper.

Because any kind of longitudinal location data can de-identify a user, we implemented MoveMeant with default anonymity *and* non-persistent identity. As noted above, all data is aggregate and anonymous, and venues with fewer than two visitors are never displayed. Moreover, a user's private logs are stored only on their own device, and submissions are made such that the MoveMeant server 1) does not connect an individual to a submitted location, and 2) can never recreate a log of locations for a specific individual. MoveMeant demonstrates that we could make use of this often-sensitive data without compromising people's privacy, a benefit that could be further strengthened using anonymity-preserving cryptography techniques [11].

### Refinements from Pilot Deployments

Three exploratory deployments of MoveMeant were carried out: as an integrated demo at CSCW, an international HCI

conference (described in a demo submission [20]); at Cornell Tech, a small urban university campus; and at AOL, a tech corporation based in NYC. The goal of these deployments was to refine the design and explore ways of keeping users engaged with the app to help enable future long-term deployments.

During the deployments, we explored two implementations for the aggregate awareness data. For the deployments at the conference and campus, a large display was used to show the aggregate community data. In a later deployment in the tech corporation, a weekly email digest was used to send aggregate community data to users. The goal of the public awareness display was to drive interest in the app with non-users in the community as a way of building a user base, as the display would necessarily be visible to both users and non-users. The weekly email digest was an alternative, used to explore a strategy that would be easier to deploy, as no hardware was required to be installed and maintained.

Feedback from pilot participants suggested that the information in the digest emails and public display was compelling enough for users to want to have more regular access to it, prompting us to create a dedicated "awareness screen" within the app to display the aggregate community data, (shown in Figure 1). This major addition to the app, as well as various other more minor improvements like improved location accuracy and reduced battery drain were implemented, and an updated version of MoveMeant was made available via the Apple App store, to be used in our final deployment.

## EVALUATION
Eighteen participants from the Bronx, New York used Move-Meant over a 6-week period between August and September 2016. This deployment aimed to understand how people might use shared location traces to gain awareness of their community, and how it might lead to connections and ties. We used a mix of convenience and snowball sampling to recruit participants who live in the Bronx, a low-socioeconomic area where the benefits of awareness, support, and connections could be high. Participants were compensated $10 for downloading and installing MoveMeant. In total, MoveMeant passively logged a total of 775 unique venues visits from the 18 participants. Users were active during the 6-week deployment, with an average of 92 weekly application opens (SD=20.02) with 10 average weekly active users (SD=3.22). Three users revealed their identity for 11 venues like buildings on a college campus, fitness centers, parks and restaurants. Other venues participants visited included pharmacies, train stations, and hospitals.

We recruited a subset of the users for semi-structured interviews, aiming to conduct interviews in two rounds, after two weeks and six weeks of deployment. Interview questions covered participants' feelings towards their neighbors, geolocation apps, and experience with MoveMeant. We performed interviews with nine users (three Female) ages 26-35 (M=29.8). Seven participants took part in the 2-week interviews and six took part in the 6-week interviews (four participated in both). Participants were compensated an additional $10 for each interview in which they took part. While we attempted to recruit more broadly, the MoveMeant participants, and especially

those that agreed to be interviewed, were primarily students, though all were long-time residents of the community having lived there for an average of 10.12 years (Min=4 years, Max=22 years).

Interviews were audio-recorded, transcribed verbatim, and anonymized and imported into Dedoose. Two researchers agreed on themes of anonymity/privacy, judgments about people and places and opportunities for social interaction. The themes were derived from the goals of MoveMeant and notes taken during the interviews. Two independent coders read through and analyzed the interviews based on these themes, which were then discussed by the research team.

## FINDINGS
The main themes from our interviews are reported below. In the text, participants are labeled to include their demographic information as '<Gender><Age>', e.g. M35.

### Place Discovery and Awareness
Six of the participants indicated an interest in using the app to find out about places in their area, particularly those that might be easily missed otherwise. While finding new places is a common feature of other apps like Foursquare and Yelp, MoveMeant does not require checking in or exposing one's individual identity. M35 described, *"There might be a mom and pop shop that I passed by... but you would never notice it otherwise. Things like that can be useful, 'cause there's a ton of things around here and you could kind of just go through them... You find out about it through somebody else's experiences."* F26 interpreted a supermarket with a high number of visitors to be one that might have superior products or sales. As M29 explained, aggregate community data can expose locations of special interest: *"On the outside it just looks like a regular building, but fifty people have been here in the past month. That would indicate that something's there."* F27 described how MoveMeant helped her to find a place she could not previously locate: *"There was a place that I wanted to go and I'd heard about it, but I wasn't exactly sure where it was at. I knew it was close by,... Actually I was able to find it on the app."* M26 suggested that seeing a place with a high number of aggregate visits that he was unfamiliar with could lead him to ask a neighbor about it to find out what it is.

### Community Inferences
Instead of using location information to draw inferences about an individual person [17, 25], MoveMeant participants made community-level judgments. Participants expected the aggregate data to reflect the people in that neighborhood. F32 explained that the app could help provide information on if *"this area is more for hipsters, or more for college kids, or more for single people. Then it would be good too, because that way you're more...easy just to find people who are in more similar situations."* M35 expanded on how the locations could indicate the strength of a community when he said, *"If I'm looking at [zip code] and I'm noticing there is all these locations that are not in the area that are on this list, then my initial thought off the bat is maybe it's not a strong community, everybody is going outwards and not bringing anything back home."* Given the high elderly population in his neighborhood,

M26 was surprised not to see the local community center in the aggregate community data. He also did not expect his college would be as frequently visited since most people that live in his area tend to attend community college.

### Social Opportunity

Revealing for a venue carried social weight and was interpreted to mean *"that people actually want to meet someone there"* (F32). Participants were often interested in seeing the list of revealed people for public places like bars, but not ones that would be visited alone. M26 explained, *"I wouldn't give away [reveal] people like my dentist. People don't need to know which dentist I go to necessarily but definitely public places."* M29 said, *"I go there [gym] frequently so I'd like to see if there are other people in the neighborhood."* M35 described how he would be interested in using the reveal feature to find out about hyperlocal social groups. *"That would be perfect- to put a flag up and say here I am and I am interested in said group [flag football]."* However, F26 suggested that if too many people revealed themselves for a particular location, the long list might deter people from looking at the individual names. She said, *"For anyone to sit there and look through 30 people… chances of them looking through it is really slim."*

### Privacy

Privacy was a concern for users regarding certain features of the MoveMeant app. While selection bias may have deterred the inclusion of participants who were uncomfortable having their locations tracked, three interviewees brought up concerns around privacy. Revealing was perceived to have significantly more implications for privacy than anonymous tracking. For instance, F32 was unwilling to reveal for locations, with the exception of those with ample security. She described, *"This is my job. There's a lot of security, and a lot of … surveillance. It's easier for me to do it [reveal] here than to do it at a bar or a lounge."* M35 was not willing to reveal himself in any locations, but was comfortable with tracking. He explained, *"It sounds personal because you know they're going to that exact spot, but not really because you don't know who it is."* M29 echoed the same distinction between tracking and revealing when he said, *"Especially if it's not being attached to me specifically but it's being seen anonymously then I don't have problem with that… If it's just saying, 'Someone using this app is at Pine Bar & Grill', then that's fine."*

### DISCUSSION

Our deployment of MoveMeant, and subsequent interviews and analysis, suggest the potential for MoveMeant to increase local community awareness through dissemination of local knowledge and discovery of venues, with the possibility of building connections to neighbors.

### Signals from Implicit Data

Our findings suggest the potential usefulness of signals generated from passively-collected, aggregate community data. Participants suggested finding the location information as a useful channel for gathering local neighborhood knowledge, learning about good and bad places in the neighborhood, as well as about the neighborhood more broadly. Importantly,

since the data was anonymized, this information was not seen as breaching privacy, while still being able to provide a signal to others. As opposed to apps like Foursquare or Facebook that require explicit check-ins, MoveMeant relies on passive location tracking. Check-ins on other location-based systems are often performative, allowing users to show off that they were in a particular exclusive or special venue [12, 15]. In contrast, MoveMeant also captures mundane venues like supermarkets and banks that would not contribute to a person's self-presentation and are not part of a constructed social identity [26], thus increasing the coverage of the collected data. Venues that are not necessarily tied to one's identity could be considered a type of non-place, relating to other recent HCI work on building asynchronous community in non-places [6]. Similar to the location-tracking dating app happn, the data collected by MoveMeant was interpreted as an honest signal [17], in this case about a community.

### Social Opportunity in Third Places

By identifying popular local venues, participants were able to use the location data from MoveMeant as a way of becoming aware of a neighborhood's third places. Oldenburg argued that third places, like cafes, bars, and gardens, are crucial to a community's social vitality since they "host the regular, voluntary, informal, and happily anticipated gatherings of individuals beyond the realms of home and work" [21]. Our work suggests that even though venues considered third places might be popular, there is currently no way to be able to identify whether one's neighbors are the people going there. Additionally, third places often have a low profile and are characterized by their regular clientele. MoveMeant helps to increase awareness of these venues which may not be surfaced otherwise. Other location-based mobile technology has also caused third places to evolve. In her case study of Dodgeball, Humphreys suggests that instead of having one location that acted as a third place, where regulars meet at one corner bar or cafe, the ease of coordinating with people allowed for multiple physical locations to become third places [12]. As opposed to the formation of new third places, the aggregate community data of MoveMeant increased awareness of third places. The dissemination of knowledge about third places can help extend participation in community life for those not currently included. A sense of community has been shown to increase participation in venue-based technologies [8].

Typical third places like restaurants and cafes were also the ones that participants indicated the most interest in *revealing*, showing the potential for using this information and MoveMeant to create social connections. The flag football example given by M35 suggests that similar interests or shared hobbies could be surfaced by MoveMeant that might lead to future communication with neighbors.

### LIMITATIONS AND CONCLUSIONS

We designed MoveMeant, a system intended to increase community awareness through passive location tracking. Our findings from a 6-week deployment show that participants used the anonymized aggregate community data to make judgments about the people and places in their community, and were interested in revealing their identity for third places where

there was an opportunity to connect socially. A key limitation of our study is the interview population. While we purposely attempted to recruit non-tech-savvy users of an underserved community, our final interviewees sample had a majority of students. Nevertheless, our findings may generalize to other demographics.

While in the current work we "hard coded" a definition for community (e.g., the company office, the Bronx local neighbors), future work would allow users to define a community and its boundaries, a known challenge for location-based applications [19]. Further, future work will also explore the value proposition or dynamics that could lead to a wider adoption of MoveMeant. Indeed, such larger-scale adoption would allow us to explore how MoveMeant is used in communities of different sizes and locales, and measure its direct effect on local social connections over time.

### REFERENCES
1. Mara Balestrini, Paul Marshall, Raymundo Cornejo, Monica Tentori, Jon Bird, and Yvonne Rogers. 2016. Jokebox: Coordinating Shared Encounters in Public Spaces. In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing (CSCW '16)*. ACM, 38–49. DOI: http://dx.doi.org/10.1145/2818048.2835203

2. Louise Barkhuus, Barry Brown, Marek Bell, Scott Sherwood, Malcolm Hall, and Matthew Chalmers. 2008. From Awareness to Repartee: Sharing Location Within Social Groups. In *Proceedings of the 26th SIGCHI Conference on Human Factors in Computing Systems (CHI '08)*. ACM, New York, NY, USA, 497–506. DOI: http://dx.doi.org/10.1145/1357054.1357134

3. Alastair R Beresford and Frank Stajano. 2003. Location privacy in pervasive computing. *IEEE Pervasive computing* 2, 1 (2003), 46–55.

4. Barry Brown, Alex S Taylor, Shahram Izadi, Abigail Sellen, Joseph Jofish Kaye, and Rachel Eardley. 2007. Locating family values: A field trial of the Whereabouts Clock. In *International Conference on Ubiquitous Computing*. Springer, 354–371.

5. Kathleen Carley. 1991. A Theory of Group Stability. *American Sociological Review* 56, 3 (1991), 331–354. http://www.jstor.org/stable/2096108

6. Justin Cranshaw, Andrés Monroy-Hernández, and S.A. Needham. 2016. Journeys & Notes: Designing Social Computing for Non-Places. In *Proceedings of the 34th SIGCHI Conference on Human Factors in Computing Systems (CHI '16)*. ACM, New York, NY, USA, 4722–4733. DOI: http://dx.doi.org/10.1145/2858036.2858573

7. Nicholas Epley and Juliana Schroeder. 2014. Mistakenly Seeking Solitude. *Journal of Experimental Psychology: General* 143, 5 (2014), 1980.

8. Shelly D Farnham, Joseph F McCarthy, Yagnesh Patel, Sameer Ahuja, Daniel Norman, William R Hazlewood, and Josh Lind. 2009. Measuring the Impact of Third Place Attachment on the Adoption of a Place-Based Community Technology. In *Proceedings of the 27th SIGCHI Conference on Human Factors in Computing Systems (CHI '09)*. ACM, 2153–2156.

9. Alan Feuer. 2015. On Tinder, Taking a Swipe at Love, or Sex, or Something, in New York. *New York Times* (13 February 2015).

10. Catherine Grevet and Eric Gilbert. 2015. Piggyback Prototyping: Using Existing, Large-Scale Social Computing Systems to Prototype New Ones. In *Proceedings of the 33rd SIGCHI Conference on Human Factors in Computing Systems (CHI '15)*. ACM, New York, NY, USA, 4047–4056. DOI: http://dx.doi.org/10.1145/2702123.2702395

11. Susan Hohenberger, Steven Myers, Rafael Pass, and others. 2014. ANONIZE: A large-scale anonymous survey system. In *2014 IEEE Symposium on Security and Privacy*. IEEE, 375–389.

12. Lee Humphreys. 2007. Mobile social networks and social practice: A case study of Dodgeball. *Journal of Computer-Mediated Communication* 13, 1 (2007), 341–360.

13. Ted L Huston and George Levinger. 1978. Interpersonal Attraction and Relationships. *Annual Review of Psychology* 29, 1 (1978), 115–156.

14. Ruogu Kang, Laura Dabbish, and Katherine Sutton. 2016. Strangers on Your Phone: Why People Use Anonymous Communication Applications. In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing (CSCW '16)*. ACM, New York, NY, USA, 359–370. DOI: http://dx.doi.org/10.1145/2818048.2820081

15. Janne Lindqvist, Justin Cranshaw, Jason Wiese, Jason Hong, and John Zimmerman. 2011. I'm the Mayor of My House: Examining Why People Use Foursquare - a Social-driven Location Sharing Application. In *Proceedings of the 29th SIGCHI Conference on Human Factors in Computing Systems (CHI '11)*. ACM, New York, NY, USA, 2409–2418. DOI: http://dx.doi.org/10.1145/1978942.1979295

16. Omar Lizardo. 2006. How Cultural Tastes Shape Personal Networks. *American Sociological Review* 71, 5 (2006), 778–807. http://asr.sagepub.com/content/71/5/778.abstract

17. Xiao Ma, Emily Sun, and Mor Naaman. What Happens in happn: The Warranting Powers of Location History in Online Dating. In *Proceedings of the 20th ACM Conference on Computer-Supported Cooperative Work & Social Computing (CSCW'17)*.
http://dx.doi.org/10.1145/2998181.2998241

18. Christina Masden and W. Keith Edwards. 2015. Understanding the Role of Community in Online Dating. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems (CHI '15)*. ACM, New York, NY, USA, 535–544. DOI:
http://dx.doi.org/10.1145/2702123.2702417

19. Christina A Masden, Catherine Grevet, Rebecca E Grinter, Eric Gilbert, and W Keith Edwards. 2014. Tensions in scaling-up community social media: a multi-neighborhood study of Nextdoor. In *Proceedings of the 32nd SIGCHI Conference on Human Factors in Computing Systems (CHI '14)*. ACM, 3239–3248.

20. Ross McLachlan, Claire Opila, Neha Shah, Emily Sun, and Mor Naaman. 2016. You Can't Always Get What You Want: Challenges in P2P Resource Sharing. In *Proceedings of the 34th CHI Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA '16)*. ACM, New York, NY, USA, 1301–1307. DOI:
http://dx.doi.org/10.1145/2851581.2892358

21. Ray Oldenburg. 1989. *The Great Good Place: Café, Coffee Shops, Community Centers, Beauty Parlors, General Stores, Bars, Hangouts, and How They Get You Through the Day*. Paragon House Publishers.

22. Eric Paulos and Elizabeth Goodman. 2004. The Familiar Stranger: Anxiety, Comfort, and Play in Public Places. In *Proceedings of the 22nd SIGCHI Conference on Human Factors in Computing Systems (CHI '04)*. ACM, 223–230.

23. Miriam Redi, Daniele Quercia, Lindsay T Graham, and Samuel D Gosling. 2015. Like Partying? Your face Says It All. Predicting the Ambiance of Places with Profile Pictures. *arXiv preprint arXiv:1505.07522* (2015).

24. Catherine E Ross and Sung Joon Jang. 2000. Neighborhood disorder, fear, and mistrust: The buffering role of social ties with neighbors. *American Journal of Community Psychology* 28, 4 (2000), 401–420.

25. Raz Schwartz. 2013. The Networked Familiar Stranger : An Aspect of Online and Offline Urban Anonymity. *Mobile media practices, presence and politics : the challenge of being seamlessly mobile* (2013).

26. Raz Schwartz and Germaine R Halegoua. 2014. The spatial self: Location-based identity performance on social media. *New Media & Society* (2014), 1461444814531364.

27. Georg Simmel. 1950 (Original work published in 1903). *The metropolis and mental life*. New York: Free Press.

28. Emily Sun, Ross McLachlan, and Mor Naaman. TAMIES: A Study and Model of Adoption in P2P Resource Sharing. In *Proceedings of the 20th ACM Conference on Computer-Supported Cooperative Work & Social Computing (CSCW'17)*.
http://dx.doi.org/10.1145/2998181.2998202

29. Trevor Tompson, Jennifer Benz, Jennifer Agiesta, Kate Cagney, and Michael Meit. 2013. *Resilience in the Wake of Superstorm Sandy*. Associated Press-NORC Center for Public Affairs Research.