Unfolding the Interplay of Self-identity and Expressions of Territoriality in Location-based Social Networks

Konstantinos Papangelis
Xi'an Jiaotong-Liverpool University
Suzhou, Jiangsu, P.R. China
K.papangelis@xjtlu.edu.cn
K.papangelis@liverpool.ac.uk

Yiyang Sheng
Xi'an Jiaotong-Liverpool University
Suzhou, Jiangsu, P.R. China
Yiyang.Sheng09@xjtlu.edu.cn

Hai-Ning Liang
Xi'an Jiaotong-Liverpool University
Suzhou, Jiangsu, P.R. China
HaiNing.Liang@xjtlu.edu.cn

Alan Chamberlain
University of Nottingham
Nottingham, NG81BB, UK
Alan.Chamberlain@nottingham.ac.uk

Vassilis-Javed Khan
Eindhoven University of Technology,
Eindhoven, the Netherlands
v.j.khan@tue.nl

Ting Cao
Xi'an Jiaotong-Liverpool University
Suzhou, Jiangsu, P.R. China
Ting.cao@xjtlu.edu.cn

Abstract
Self-identity in mobile location-based social networks (LBSN) is a relatively underexplored topic. In this paper, we present our initial understandings on the role that LBSN play in the self-identity of its users and introduce a relationship between self-identity and expressions of territoriality in LBSN. Our work presented in this paper is based on a six-week study using a novel LBSN called GeoMoments. Our primary purpose is to draw attention to the importance of potential perceived power facilitated by identity claims over an area, and to the temporal nature of the layered meanings of physical places in LBSN so they can be drawn upon as a resource for design.

Author Keywords
Location-based social networks, self-identity, self-presentation, impression management

ACM Classification Keywords
H.1.2 User/Machine Systems: Human Factors; K.8 Personal Computing: General.

Introduction
As the number of mobile location-based social media networks (LBSN) and games grows, we are confronted with new representations of individuals, social relationships and the places they inhabit. The studies that have explored these issues have mainly focused on impression management [5], self-identity and self-representation [6], and perceived presentations of
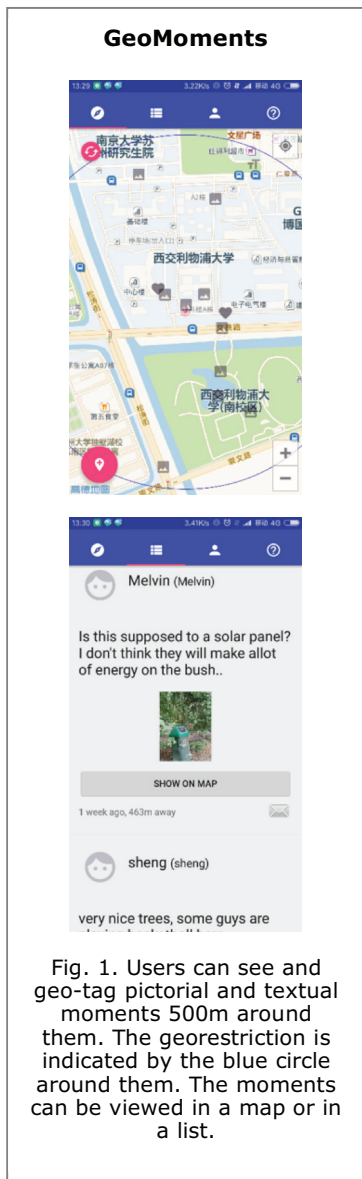
GeoMoments

Fig. 1. Users can see and geo-tag pictorial and textual moments 500m around them. The georestriction is indicated by the blue circle around them. The moments can be viewed in a map or in a list.

place and space [7] through the lenses of physical location of users, identity performance in the virtual and/or the real world, and (to a very limited extend) theoretical frameworks. This paper expands upon that growing body of work, and aims to bring attention to the importance of the hybridity of the virtual/real world and the temporal nature of the multiplicity of meanings of physical places in LBSN by introducing and discussing the relationship between the interplay of self-identity and the expression of territoriality in LBSN. Such an understanding is important as it can used as: i) a new lens to revisit location-based data, and re-evaluate the geocoded traces in terms of their social functions, intentions, contexts, and situations under which they are produced, and ii) as a resource for designing location based systems and services.

Related Work
Terms such as "net locality" [2] have been used to describe the overlay of physical space, digital information, socio-spatial relations and contexts that occur through LBSN. Expressing "where you are" over LBSN does not only inform others of your location, but may also signal mood, lifestyle, or life events and maintain or support social relationships [1]. Additionally, the manner in which certain locations or activities are annotated and communicated are performative and are part of an ongoing negotiation and presentation of identity that is both directed at their friends but is also part of a conscious effort to control and curate a narrative of identity that is stable, affirms the users' self-identity, and presents this "self" on the users' terms with regard to location [5]. Nagy and Neff [4] refer to these as "imagined affordances" which "emerge between users' perceptions, attitudes, and expectations; between the materiality and functionality of technologies". Discussing self-identity and self- representation accordingly necessitates mentioning embodiment, as "[*the] body is something we are, we have and we do in daily life; the body is crucial to an individual subject's sense of self, as well as the manner in which the self relates and interacts*

with others" [3]. As such, coming in line with the literature in analyzing the role of embodied LBSN use on self-identity and expressions of territoriality, this work i) conceptualizes the use of LBSN as a conscious indicator of a deliberate choice of integration of LBSN into both performance of identity to others, and self-identity, and ii) considers the main facilitator of this narrative the account of activity of users. [5, 6, 8].

GeoMoments
In order to explore the interplay of self-identity and territoriality we have developed a location based social network called *GeoMoments*. GeoMoments allows the user to create textual and pictorial geo-located posts (called moments) and interact with other users through comments on posts around them. See figures 1 to 5 for screenshots of the various functions of GeoMoments. We chose to design and implement a new location-based social network instead of using Foursquare (or similar) for our study for two reasons: i) because Google Maps and other services are either not available at all or can be only used in a very limited way in China and ii) to control the numerous variables that emerge from the interplay between the design and use of LBSN.

Methodology
After developing and testing GeoMoments we conducted a six-week study with 42 participants (20 males, 22 females) with average age of 27 years in Suzhou, Jiangsu, China. During the six-week study the users generated 582 textual and pictorial moments, with 480 being pictorial moments and 102 being textual moments around the city of Suzhou. The participants used GeoMoments for six weeks and were interviewed post trial.. The interviews were transcribed verbatim, and subjected to a grounded theory type approach involving data reduction and inductive content analysis.

Findings
During the first few days of the study a handful of moments were posted. Participants posted more as the
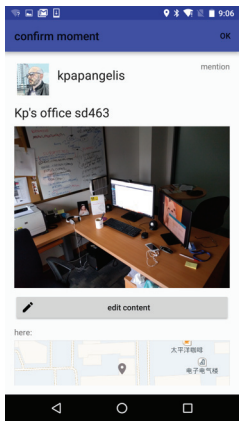
Fig. 2. Users can edit or delete their moments even if they are not physically near them.
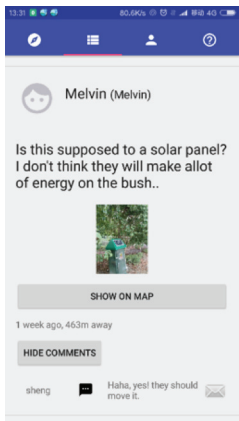

Fig. 3. Users can leave comment on other users' moments.

time went on. Most of these moments were clustered near each other (e.g. their neighborhood) and were very similar in content for the most part (e.g. strolling at night). After around two weeks of usage participants started posting moments outside of these clusters. When asked, one Participant said: "*I was unsure about what to post […] Once I saw that others liked my photos – and noticing that M, and X was using GeoMoments I wanted to post things that make me appear cool*". Through this quote it becomes clear that after the participants noticing that a relevant potential audience was using GeoMoments, an ongoing negotiation and presentation of identity was initiated. This was both directed towards other users and it was also part of an effort to control and curate a narrative of identity that potentially affirms with their self-identity and represents this "self" in regard to this location. Saker [6] has previously described this process as "*the affirmation of identity through the potential of surveillance*". We also observed that individuals, for the most part, were only posting moments in certain areas and avoiding others. When we inquired about those posting patterns it emerged that they were posting moments mainly in areas they had parochial ties with, or areas that they perceived were considered of high value (e.g. malls) to others, in order to "*claim areas*" as their own to make sure "*everyone knew that they were locals in this area*", and avoided areas posting moments or "*claiming* areas" that would make them "*seem uncool*". This illustrates that: i) some participants understood their connection to certain places as observed by other users in GeoMoments as being representative of a certain lifestyle and, ii) that the moments they post are seen as part of an ongoing narrative of the self. It should be noted that the term 'local' and 'claim' when discussing about an area' was used extensively from the participants. This conceptualization is quite interesting as it insinuates relationship with and ownership of with an area through GeoMoments. It should be noted that GeoMoments does not have a way for participants to articulate identity claims over places as such the

participants manifested their projection of identity over areas by posting high amount of moments in areas. This created friction and often participants were competing over who will post the most moments to claim an area. The content of these moments varied and included (amongst others) informative posts (e.g. the bus stop has moved), selfies, and posts mocking other users. When someone threatened a 'claimed' area, one of the principles that prompts a defense of that area is whether the claimer was perceived as having a legitimate claim on the place. A participant explains: "*I used to have the most moments around the linkcity mall […] in restaurants, Starbucks etc. Everyone knew I was local. Now K came here and started posting moments. She didn't have a single post before. Now she has 12 and I have 21. She thinks that she is better than me.*" Such a behavior was evident among most of the participants when someone challenged their ownership by posting moments in their claimed area. In some cases, it led to individuals in taking extreme measures, for example, a participant posted a selfie holding a piece of paper and claiming an area and declaring it a "no moments zone" for everyone else. Places that were highly contested were often places where: i) the others' claim was seen as illegitimate and ii) were perceived by the majority of users as of high value to 'own' to other users'. For example, a participant described how "*he came and stole my post and my area. […] I wrote about the bus stop not working. Why he had start posting his selfies here? Obviously, I post important things and he is not*". Several participants mentioned similar things especially with regards to moments containing information. This illustrates that a subset of participants perceived hierarchy over an area not only based on the parochial ties with that area or the perceived value of the area to others but also based on the usefulness of the information one is providing through their claims on an area. It should be mentioned that 16 out of 42 participants used the word "steal" when talking about other users "taking" their area from them. This suggests that it speaks to the perceived legitimacy of
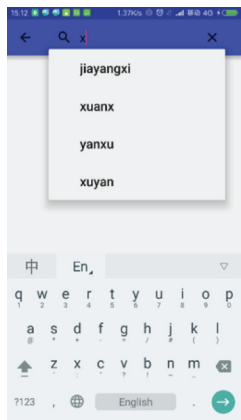
Fig. 4. Users can tag other users to posts. Doing so results in the moment being viewable and interactable by the tagged user even if s/he is not nearby.
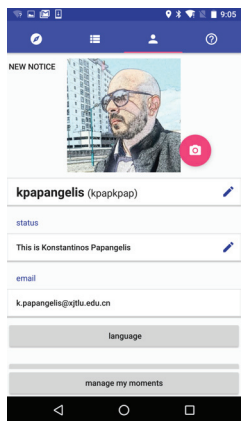

Fig. 5. Users have a publicly visible profile page.

someone's claim to a particular place, that it confers value, worthy of theft, and that it suggests the stealing of a hierarchical position from which one can make a claim over a place.

Discussion and conclusion

Our results indicate that there is relationship between self-identity and expressions of territoriality in LBSN. Individuals in our study claimed areas with parochial ties to them or areas that they perceived was of high value to others with textual and pictorial moments. When their 'claimed' areas where challenged the participants exhibited highly antagonistic behavior that included posting more moments in their area to legitimate and communicate their claim, or making posts directly communicating that they have claimed this area. For the most part the interplay between self-identity and territoriality we observed in our study can be viewed as narratives, performances of embodiment and experience of place, which people perform their online identity and manage self-representation in LBSN for a potential audience [4]. In our study this demonstration of one's connection to a place interlinked with the self-representation of online identity of the participants, and, for the most part, manifested through territorial claims. This illustrated the interplay between self-representation of one's identity and the various potentialities for power within an area. Such an understanding: i) complements research that that suggests LBSN in public do not socially isolate individuals in urban public spaces but can be a catalyst for interaction (e.g. [7, 8]), and ii) can be used as a critical way and a new lens through which one can look and to revisit location-based data, and re-evaluate the geocoded traces in terms of their social functions, intentions, contexts, and situations under which they are produced. By designing and developing a LBSN and based on the findings of our study we propose the following initial design implications for LBSN: 1) Enable individuals to articulate identity claim over places, 2) when doing so consider the potentialities of power within an area and design to reinforce them or not

based on the desired experience by 3) enabling/disabling the ability of users to actively perform aspects of their identity to others.

Through this work, we wish to draw attention to the importance to the interplay of self-identity and territoriality in LBSN, start a discussion, and encourage further research of other human behavioral patterns and habits and how they affect individuals and might be leveraged in the design of LBSN. Future research will focus on further exploring this relationship, and on defining additional design implications in order to assemble a framework to guide and support the design of LBSN to create engaging, user-centered enjoyable experiences.

References

1. Barkhuus, L., Brown, B., Bell, M., Sherwood, S., Hall, M. and Chalmers, M. From awareness to repartee. Proceeding of the 26th annual CHI conference on Human factors in computing systems - CHI '08, (2008).
2. Elliott, A. Concepts of the self. Polity, Cambridge, UK [etc], 2014.
3. Gordon E and de Souza e Silva A. Net locality: why location matters in a networked world. Choice Reviews Online 49, 02 (2011).
4. Nagy, P. and Neff, G. Imagined Affordance: Reconstructing a Keyword for Communication Theory. Social Media + Society 1, 2 (2015), 205630511560338.
5. Saker, M. and Evans, L. Locative Media and Identity: Accumulative Technologies of the Self. SAGE Open 6, 3 (2016).
6. Schwartz, R. and Halegoua, G. The spatial self: Location-based identity performance on social media. New Media & Society 17, 10 (2015), 1643-1660.
7. Sutko, D. and de Souza e Silva, A. Location-aware mobile media and urban sociability. New Media & Society 13, 5 (2011), 807-823.
8. Papangelis, K., Metzger, M., Sheng, Y., Liang, H., Chamberlain, A. and Khan, V. "Get Off My Lawn!": Starting to Understand Territoriality in Location Based Mobile Games. Proc. of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems – CHI EA '17 (2017).