ABSTRACT
This paper examines how the use of geolocational data can be the source of both social good and bad. Foursquare, SCVNGR, Tweet My Location, and Gowalla! are some of the newest social networking enterprises, where users can reveal where in the world they are at any given moment, and find things to do as well as people to meet up with nearby. Users reveal data location for the sake of the game. We explore the prevalence and pervasiveness of geolocational data in everyday data transmission, as well as potential legal and scientific uses for publicly posted geolocational data. The question becomes: how public is information that is openly posted on the Internet? Does geolocation data’s usefulness outweigh its potential to cause harm and violate privacy?

KEYWORDS
Geolocation, gaming, social networks, locational privacy.

1. INTRODUCTION
From Myspace to Livejournal to Facebook to Twitter, social networking sites have evolved significantly in a short period of time, often in order to accommodate quicker, increasingly interconnected methods of communicating. Geolocational services, which use locational data to situate users and share that information with others, are gaining popularity – sites like Foursquare, SCVNGR, and Gowalla are establishing themselves in the social networking vocabulary. The Pew Internet & American Life Project recently found that eight percent of online 18-29 year-olds use geolocation games (Zickuhr & Smith). They are the next big thing: Foursquare, for example, is adding an incredible 20,000 new users per day for a total of 4.5 million users since its launch in March 2009. Why are they on the rise?

2. AN OVERVIEW OF GEOFACING
2.1.1 Geosocial gaming
First of all, they are fun. There is a geolocation game to suit everyone. SCVNGR markets itself as the “game layer on top of the world.” Users complete “challenges” like folding origami shapes out of leftover burrito foil, and share pictures of their creations with friends. Gowalla offers different walking tours tailored to the user’s city attractions, and creates a virtual passport where all can see the user’s trip history. Foodspotting empowers foodies to take their gourmet standards wherever they go, rating different dishes with “noms” at restaurants and posting photos to their profiles. Foursquare allows users to “check in” at different locations and earn points and badges, with the ultimate goal of becoming “mayor.” These accomplishments are displayed on the user’s profile and unlock discounts at participating venues.

Naturally, financial reward plays a huge role. Businesses, big and small, have begun to use geosocial games as a marketing tool. Although statistics are still emerging as to how many businesses use location services, the numbers can only be increasing: the rewards are too great to pass up. Foursquare is the latest fad, and so
improves a company’s public brand. What’s more, participating businesses can not only earn a loyal clientele, but can also collect valuable data about their customer demographic and preferences inexpensively.

Another use is to get information: these games double as review websites on the go. When someone checks in to a venue, they can see what their friends have written – often just hours or minutes ago – about today’s black bean soup or raspberry smoothie. Geosocial games translate word-of-mouth recommendations into a virtual setting, providing users with an efficient and entertaining way to access that information.

Facebook Places and Twitter, on the other hand, target the purely social aspect. Checking in allows users to see who is nearby and at what venue. As such, these sites argue, people have a new and easy method to connect with friends. While that is a charming idea, a more plausible explanation for the success of those location services is similar to their parent websites’ success: exhibitionism. People are naturally competitive and attention-seeking – so they show off by checking-in in exotic locations. Facebook Places could also be seen as a natural extension of the social networking site itself, which has become its own social necessity with 250 million users logging in daily.

2.2 A technical look at geotagging

It would seem that social networking sites have only recently introduced geolocation into the picture, but the truth is that this data has always been there for us to use and extract information from. The data we transfer through text messages, emails, and basic Internet usage already communicates basic information about who created the file, what device they are using, what software is on it, and when the data was modified - we are usually not aware that there is underlying data about the data we are constantly transmitting.

The website I Can Stalk U, describes the pervasiveness of metadata succinctly:

In the case with many popular image/picture formats, the list of possible metadata is quite extensive. With the expanded options for metadata in JPEG images, we have the ability to record the photographer, camera settings (ISO, Aperture, Flash, lens type), processing software and location.

(Jackson, “I Can Stalk U”)

Certain browser plug-ins and software programs such as Exif Viewer for Firefox and OPanda IExif for Internet Explorer can actually determine the location of where the data originated, communicating that information to anyone who wants to see it (Sileo). Considering the accessibility of meta data, it is interesting that purposefully revealing personal information and location has become a new past time for a growing population of Internet users.

The prevalence of Wi-Fi and smartphones enabled with GPS means that personal geolocational methods have also become at once widespread and accurate. The technological evolution of GPS and its inclusion in an increasing number of gadgets means more geolocation data is being recorded in more accurate ways. The pervasiveness of this technology has encouraged more individuals to share personal location with others in exchange for information about where we are (Sileo, Jackson).

What is unique about modern geolocational applications is how they combine locational data with information about our surroundings (restaurants, entertainment, businesses, transport, etc.), and are an example of how more of the same technology can mean something completely different in the world of innovation (Ionescu). Geolocation apps depend on the user’s permission, but more and more people are willing to surrender online privacy for the sake of convenient and enjoyable applications.

3. USES OF GEOTAGGING IN SOCIETY
3.1 Social research tools

Geolocation has gained significant popularity among social researchers as well. Users of social media are remarkably candid about their status updates, shown by sites such as PleaseDontRobMe.com and ICanStalkU.com. Though much debate has revolved around users’ lackadaisical concern over privacy, social researchers are discovering that social networks can be tapped into for information, and may even be more informative than a formal survey.

Social networks themselves have proved themselves to be a useful tool, and incorporating geolocational information could make them much more accurate at predicting human behavior. The Twitter Mood Map, for example, compiled positive and negative emotive words from tweets, and determined the general emotion of the “Twitterverse”. A study conducted by Johan Bollen at Indiana University found that periods of calmness expressed by the Twitter Mood Map were able to accurately predict changes in the Dow Jones Industrial average. Incorporating geolocational data into this study would have made the results more nation-specific and accurate, and would create more reliable tool for scientists to use (Reckoning). The question becomes whether or not to use the geolocational information people post publicly to their profile. Is this information that is up for grabs once it is posted publicly?

3.2 Legal uses

The legal world caught on quickly to the possibilities that geotagging can offer. Law blogs and websites are trumpeting the use of geolocation information in the courtroom. Imagine the consequences that a typical use of Foursquare could imply: a user goes out with friends, and checks in at bars as the night goes on. The evening ends with a misspelled, drunken, obscene check-in. If the user happens to get in a fight that night, those same check-ins made for the social scene could suddenly become evidence in court. A legal blog, The Claims Spot, uses exactly that example as viable evidence in a claims case (Steigmaier)!

In fact, the waters are muddy when it comes to accessing locational data in court. Its relationship with the Fourth Amendment - requiring search warrants to be judicially sanctioned only with suspicion of probable cause - presents a new problem that policymakers must face. The most prominent case addressing the geolocation issue is US vs. Maynard, where the FBI placed a tracking device on the bumper of the defendant’s car. The location was updated every ten seconds for one month. The federal court convicted the defendant, but that ruling was overturned by the DC Circuit, who stated that a search warrant was required as this was a direct surveillance of privacy. The camps are clearly divided, but it is still unclear who will win.

Aside from these isolated cases and academic discussions of the morality behind legal geolocation tracking, there is little legal documentation about geolocation gaming or websites; this delayed response is most likely because of the high speed at which these apps are increasing in popularity. Geolocation data laws are still in their infancy, dealing with issues on a case-by-case basis, and are struggling to keep up with the development of technology. Perhaps the most telling quotation from the US vs. Maynard case confirms that the courts are unprepared to litigate the implications of constant geolocation: "When it comes to privacy...the whole may be more revealing than its parts (EFF).”

These legal ambiguities give rise to a larger social issue: how is our privacy affected by geolocation?

4. LOCATIONAL PRIVACY

Many people do not even realize that they are giving away their location. One Pew study found that 11% of all cell phone users are not even sure if their phone uses apps (Purcell et al). The fine print is often too fine to scrutinize. Many privacy settings are automatically set to the most public option: YouTube uses geolocational metadata attached to videos unless explicitly set otherwise, as does the Apple iPhone. A UC
Berkeley study found that 4.3% of all 158 million images – almost 7 million photos – uploaded to Flickr were geotagged (Friedland & Sommer). Unless the function is disabled, a smartphone automatically embeds location information in the photo metadata; if that photo is then shared on a social networking site, anyone can access it by simply looking in the file information.

It is reassuring to learn that there are bodies fighting hard to defend our locational privacy. The Electronic Frontier Foundation is one group at the forefront of this battle, aiming to educate the online public about related issues. Most geolocation games are built using the WC3 Geolocation API specification, which sets privacy and control standards for game developers. The World Wide Web Consortium (WC3) also put into place the Platform for Privacy Preferences (P3P), a host of rules that mandate that websites diffuse their privacy policies in XML and “human” format (URI) as well as “enumerate the types of data or data elements collected, explain how the data will be used, indicate whether and what access rights are available, and identify the data recipients (Popescu)”.

5. CONCLUSION

In this paper, we introduce the concept of geosocial gaming and give a brief overview of how geotagging works. We describe ways in which geotagging can be exploited for the user’s benefit and harm, in the context of social and legal research, and discuss what its implications could be on society as it continues to evolve. This brings us to our last point: where do we go from here?

While it may be disconcerting to imagine the ways in which our privacy is threatened by geosocial services, it is unlikely that they will get completely out of hand. Privacy policies are constantly updated to better reflect user needs and demands. The EFF suggests several ways to improve existing location services, such as the use of cryptography to prevent the user’s personal data from being used, while proving their validity as a client (not a spammer), and then using the location only from there.

Finally, a Pew Research Center study in 2010 found that only 4% of American adults online use geosocial services – a small number considering the media attention these games receive (Zickuhr & Smith). For all the hype that geolocational services are getting, they have yet to be adopted by the masses. The best approach that we can recommend is to be conscious of developments in technology as they take place, and take it one check-in at a time.

REFERENCES


