Social navigation: from the web to the mobile

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Abstract

Social navigation is the alternative way of looking upon navigation in the virtual world: e g instead of navigating the web by maps and hierarchies and search engines, you would navigate it by where others have gone before you. There are several examples of where this has been successfully employed, such as amazon.com recommending books by how popular they are with respect to what you and others like you have chosen in the past. Social navigation was inspired by how people navigate the real world. Now, with the development of mobile technology, we are taking the concept back into the real world: what happens when we overlay the real world with virtual traces of where others have gone before us? Can we enhance social navigation in the real world through merging it with the virtual?

Social Navigation

The term *navigation* conjures up images of maps, compasses and guidebooks. These may be things we use to get around from time to time, but are they how we usually find our way? When people need information, they will often turn to other people rather than use more formalised information artefacts. When navigating cities people tend to ask other people for advice rather than study maps (Streeter and Vitello, 1985), when trying to find information about pharmaceuticals medical doctors tend to ask other doctors for advice (Tiimpka and Hallberg, 1996), if your child has red spots you might phone your mother or talk to a friend for an opinion. Even when we are not directly looking for information we use a wide range of cues, both from features of the environment and from the behaviour of other people, to manage our activities. Alan Munro observed how people followed crowds or simply sat around at a venue when deciding which shows and street events to attend at the Edinburgh Arts Festival (Munro, 1999). We might be influenced to pick up a book because it appears well thumbed, we walk into a sunny courtyard because it looks attractive or we might decide to see a film because our friends enjoyed it. Not only do we find our ways through spaces from talking to or following the trails of crowds of people, we also evaluate the things we find in these spaces through understanding them in a social context. We put them in a framework of relevance.

The idea of social navigation is based on these observations that may seems really obvious and simple: that people are inspired by the activities, interpretations, navigational choices, when choosing where to go themselves. Much of the information seeking in everyday life is performed through watching, following, and talking to other people. Why not create systems were we could watch, follow and talk to other people rather than navigate the space spatially in order to find what we are looking for?

Background

The concept of social navigation was introduced by Dourish and Chalmers in 1994. They saw social navigation as *navigation towards a cluster of people* or *navigation because other people have looked at something*. In parallel with their work, Hill and Holland while working at Bell in 1992, developed the first recommender system, *Tapestry* (Hill et al., 1995). By collecting the likes and dislikes of a large number of people, an individual can specify one or two things that they like or dislike and the system recommends others based on the data collected from other people.

Hill and Holland continued to work along the lines of allowing various trails of previous users to be visible in the interface, even if they did not use the term social navigation to describe their work. They did, for example, design a "community-enhanced Mosaic[1] Interface" where users could rate different URLs. Their ratings were then collected and formed a rating expressed as a set of stars next to the link. Hill and Holland proposed that this rating should be standard for all web pages of the web. They also proposed an interesting idea that has unfortunately not really picked up among designers, namely "read wear" (Hill et al., 1992). Their idea was that the way a document was read should be reflected in its interface. Their solution was to make the scroll bar reflect which lines in the document had been read. The more general idea was to make objects carry some of their history – make the look worn in places where many people had read/touched/worked with them.

Later, Dieberger widened the scope set up by Dourish and Chalmers (Dieberger, 1997). He also saw more direct recommendations of e.g. web-sites and bookmark collections as a form of social navigation. He was inspired by the remarks made by Tom Erickson in 1996 that the web could be characterized as a social hypertext. Erickson writes: "The nodes – at least some of them – were becoming representations of people. And this, in turn, enables another critical feature to emerge: links from a personal page often point to socially salient pages. A common feature of the personal page is a list of pointers to "interesting people and places." What and who counts as interesting? That depends on the person, and hence also tells us more about the person. Thus, the links, as well as the page itself, participate in the personal portrayal; in a sense, they embody a sort of social logic, providing us with a view of that person's network of friends, colleagues, and concerns."

Dieberger also picked up on the ideas of read wear from Hill and Holland and discussed various forms of read *ware* – that is ways by which things could look worn.

Since then the concept of social navigation has broadened to include a large family of methods, artefacts and techniques that capture some aspect of navigation (Höök et al., 2003). Several systems that apply social navigation to web-based systems have been built, such as *Kalas* where a space of food recipes is navigated (Svensson et al., 2001), *Babble* where social encounters at web-pages are enabled (Erickson et al., 1999), and *Footprints* aiding navigation through web-pages (Wexelblat, 1999). Initial user evaluation studies indicate that users find these kinds of trails helpful and also interesting beyond their most urgent needs to find their way through information spaces (Svensson et al., 2003).

Can social navigation be mobile?

As we now move from desk-based IT to all sorts of information technology embedded in mobile devices, artefacts, or even ubiquitous computing, a natural question to ask is whether there are

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[1] Mosaic was one of the first web browsers.

forms of computed social navigation that can be on the "real" world and thus aid people beyond what they can see from others activities? If context sensitive systems, automatically log and distribute context information about users, devices and usage to other users (friends and family), how will this create social awareness or presence, and how will this affect social life and communication? At the same time, how can we allow automatic capturing of context information about users, usage and context, while still maintaining user control, privacy and a sense of social comfort?

A couple of systems have been implemented that explore some aspects of social navigation through mobile devices. One such system is *GeoNotes* that allows users to mass-annotate physical locations with virtual 'notes', which are then pushed to or accessed by other users when they come into the vicinity of the location (Persson et al., 2003). GeoNotes allows for tourist applications, digital graffiti, place-based reminders and other location based-information systems. To prevent information overload GeoNotes makes use of social filtering and recommender systems.

Perhaps even more interesting in GeoNotes is its system for defining which location, which place, to attach notes to (Fagerberg et al., 2003). In the system, users can name places themselves within WLAN-base station areas. In a user study performed during one month, users would not only name physical locations, but also included virtual places and places covering several WLAN-base stations.

Another example is the e-graffiti system (Burrell and Gay, 2001). Similar to GeoNotes, E-graffiti allows users to annotate space with notes. In both systems, users struggle to understand the location-related limitations as well as understanding the genre of communication envisioned in the system. Is it a chat, an email service or something else?

While these systems are early examples of annotations of real space with virtual information, there is still plenty of room for innovation. None of them really allows for enhancing *navigation* in a strict sense, but focus on new forms of communication. In one of our current projects, we propose a mobile service that "picks up the wibes" by gathering information from the places and people that its user encounters. Users will carry along the history of where they have been, what they did at that location, and whom they met. These history trails will be used to predict or suggest where to go next, and what to do. The history trails will be exchanged between users through ad-hoc connections between devices.

The environment where the users move around is not a fixed, unchangeable structure but will be affected by the users being and acting there. Users are also able to explicitly express their feelings about places and activities in the environment. Our aim is to combine this service with public displays and web interfaces showing activities in the space.

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