Communities of Collocation

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Abstract

This project aims to exploit the temporal rhythms of the city and the periodic, incidental encounters between urban dwellers. Pervasive Computing technologies will be applied to detect collocation events and enable the distribution of information between these co–present individuals. This information channel will provide a localised source of ambient, background knowledge within a community, which may be a useful means of building social capital, maintaining community awareness and providing a starting point for further social interactions.

1 Introduction

Urban cities are traditionally places of anonymity: places where 'no one knows your name'. This proliferation of strangers in our modern world is due to the increased possibilities for relationships that a modern city can offer. In particular, efficient transport systems mean that our friends are not, necessarily, our neighbours. However, as the locus of our social life moves away from the neighbourhood, we lose the connections necessary to disseminate news, raise issues and gauge views within our local communities. This decay of neighbourliness is further exasperated by the absence of a city 'sidewalk life', the serendipitous contact between neighbours, customers in corner shops and passers-by which reinforces a neighbourhood identity[2]. The modern city may discourage neighbourly relations but it positively encourages the growth of *Familiar Stranger* relationships. Familiar Strangers are those individuals that we observe, repeatedly, over a certain time period but without any interaction[4]. Familiar Strangers are often encountered during our morning commutes since, despite the outward appearance of chaotic motion, urban inhabitants possess strong temporal, spatial and intentional patterns. They travel with a purpose; to work in the mornings, home in the evenings, to meet friends at a café or pick up the children from school. Additionally, these activities have a strong temporal ordering around particular intervals, particularly the 'rush hour' periods in the morning and evening, and cultural conventions for shopping, meals and leisure activities.

2 Collocation

The development of a Familiar Stranger relationship depends on how noticeable the individual is. In Milgram's study of familiar strangers, 80% of participants remembered a single, obviously striking, individual: "she wore a miniskirt constantly, even in the coldest months". Paulos, undertaking a similar study, also discovered socio–metric stars including "a man in a wheelchair, a flower vendor with a lavish display, and a long-haired homeless man" [5]. Since Familiar Stranger relationships are highly subjective, they cannot be defined or captured by digital technologies. In contrast, personal area networks (such as Bluetooth) are ideally suited for capturing *collocation events* between individuals within a 10m range. An analysis of these collocation events, over a suitable period of time, can reveal the patterns of collocation and the existance of *collocation relationships*. Since

an individual may belong to many different communities (their local neighbourhood, work, sport clubs), these relationships can be seen as a representative cross–section of people from the individual's various communities. Even transitory, but regular, encounters during the morning commute imply that the individuals are both members of a common community: users of public transport or a particular public space.

This definition of a community does not have strict spatial boundaries that can be drawn on a map but, rather, it is an emergent property of the people we encounter during our mundane daily activities. A community is not a static entity: Community membership may change over time but, more interestingly, the entire community may disband at regular intervals. For example, bankers may frequent a financial district during the day but disperse along commuter arteries to suburban neighbourhoods at night. Just as neighbourhoods define a community with a spatial boundary or researchers define them through common professional interests ('Communities of Practice'), a community can also be defined by the collocation relationships of its members ('Communities of Collocation').

3 Information Dissemination

This exploration of collocation relationships is not just a purely ludic activity like that represented by Paulos' Jabberwocky devices[5]. These relationships can be exploited as an information dissemination mechanism, similar to Kortuem's Wearable Communities[3], to provide an ambient communication mechanism. During each collocation encounter, the individual's device can exchange content with the recipient. Ideally, this content would be of particular relevance to the local communities in which the individual participates: local news, gossip, photos from the school fête or blog–style diaries. This localised, ambient transfer of content provides a potential alternative to the global audience afforded by the Internet, and will help to create a background awareness of the lives behind the faces we encounter every day. In addition, the content can flow between disparate communities through the joint participation of a single individual, akin to Granovetter's notion of weak ties in social networks[1].

4 Current Work

The ultimate goal of this project is to build a software application to share information within 'Communities of Collocation' and deploy this on consumer hardware in a limited field trial. However, in order to make informed design decisions about the dissemination protocols, it is necessary to understand the characteristics of collocation relationships in the real world. Since a large–scale experiment to collect collocation data from a population is infeasible, work is in progress creating a simulation of an urban environment. This simulation uses agents to model pedestrians moving about a generated "city" according to an internal stochastic model of realistic daily activities. The properties of this model are, where possible, derived from existing statistical studies and observational experiments. After the evaluation of the simulation, the generated data will be used to drive the development of the software application. The use of this simulation is intended to increase the value and effectiveness of the subsequent field trial.

References

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