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MAP-BASED

SOCIAL INTERACTION

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The Other Side of Technology

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Editorial Preface

Maps are visual depictions of a subject, highlighting relationships characterizing the subject through a space based representation. As noted by Kuhn¹, "space is not just any domain of experience, but the most important one, and as such uniquely qualified as a metaphor source." Hence, maps permit the communication and sharing of knowledge and are used as boundary objects for cooperative activities. Born as media for representing, communicating and reasoning on geographic phenomena, maps evolved to represent knowledge about systems developing in space but also abstract subjects, schematizing intangible relationships through a geographical metaphor. Today, maps can also be the expression of a general social 'mood' of a part of the environment, bridging geographical metaphors with information visualization.

In the Web 2.0 age, maps become new media for knowledge creation, accumulation, distribution and sharing. They evolve to digital interactive and pro-active tools, whose content develops in time and whose physical appearance can be determined on the fly at use time. Users themselves may become coauthors of the map, directly contributing to its evolution.

Cooperative computing traditionally has been focused on collaboration for solving specific tasks; social systems extend the use of computer supported communication and collaboration for promoting friendship, for communicating thoughts and feelings to people that share common interests, and for enhancing the exploration of the social environment.

In social networking maps can greatly improve the users' perception of the social environment through the visual representation of other people's social features and of the relations inside a community. Maps improve also interaction among users, who are able to visually identify and relate each other through the perception of location, distance and grouping. Maps are useful as a real-time representation of the social environment dynamics, and for localizing events such as meeting, entertainment, public places, that can affect the virtual community evolution.

A large literature has addressed social networks and virtual communities. At our knowledge their representation with map metaphors has only been addressed for display purposes, leaving interaction related issues a field still to be analyzed.

The MapsNet workshop, Map Based Interaction for Social Networks, was held on September 10, 2007 at Rio de Janeiro, Brazil, in conjunction with INTERACT2007, 11th IFIP TC 13 International Conference on Human-Computer Interaction. It aimed at discussing the issues related to the use of maps as active mediators between the users and the social environments, and among the users of a social environment. Several open questions were proposed and debated at the workshop, here briefly recorded with hints for an answer.

How can a map representation communicate social parameters to the users?

Social networks as seen through the Web 2.0 applications do not exhibit formalized organization and structure. Free tagging and spontaneous convergence of keywords seem to characterize several communities whose users are able to self-organize their vocabulary and to coordinate themselves to gain a general understanding of their interests. Maps

¹ Kuhn W. (1996, August). Handling Data Spatially: Spatializing User Interfaces. Presentation at the 7th Int. Symposium on Spatial Data Handling, SDH'96, *Advances in GIS Research II*, IGU

can provide a firm shared ground for anchoring information related to users and coming from users, acting as a common layer all the users can agree upon for reasoning and for adding their interpretation.

How can individual parameters be integrated and interpolated in a map to visualize a social "mood" of the network?

Often the social or affective mood evaluation can be reached through a cooperative evaluation process, for example by exploiting map annotation techniques, through which users express and compare their views, comment and ranks, summarized, for example, by tags and emoticons.

How can a map facilitate the human use of the net?

Semantic web is aimed at obtaining machine inter-operability of web resources, which must be translated into a human manageable form to be consumed by human users. However, human manageable forms are not unique, because signals are interpreted by humans according to their different cultures, skills and situations. Through localization, involving not only the language of words but also the languages of symbols, layout and interaction map based representations may become an intercultural way to represent and share content.

Which is the role of maps in dealing with people physical and emotional neighborhood?

Social maps may have a direct emotional impact on users, because they may precisely relate the presence of humans, associated to information such as their profile, to the territory. The impact is augmented whenever such maps are consulted on the field, e.g., with a mobile device, in a situation where the physical limits of the user are directly related to the environment.

How can novel visualization and interaction techniques improve the user perception of the social environment?

Interactive maps can offer to the users the opportunity to have a real-time perception of the evolution of their social environment, deriving from their input, from actions of other components of the social network, even from external factors. Geographic interactive maps add the awareness of the physical locations of the social network components, permitting new interaction opportunities in the real world.

How is the development of context-aware and ubiquitous systems contributing to improve the map based interaction to discover and access social services?

Ubiquitous systems and context awareness are tightly related since the dawn of this area. In context aware systems, location has been considered for long time a privileged context descriptor, also due to the ease to acquire measures and compute spatial coordinates and discrete locations. The human ability to relate oneself to the surrounding space and the space-based nature of most human activities has boosted location awareness to its full exploitation.

The four papers collected in this special issue are extended versions of selected papers presented at the MapIsNet workshop. They respond to these questions from complementary perspectives, exploring the themes of social networks representation and interaction through maps in different application areas. Collectively they provide an ample coverage of the main issue of the workshop: the ability of map based interaction to make clear and self evident the information related to social phenomena, services and mood.

The first paper "A Design Framework for Mapping Social Relationships" by Alistair Sutcliffe describes a design framework for representing spatial data

related to social phenomena on maps and diagrams, illustrating the design approaches for social data representation. In two case studies the author pro-poses map based visualizations to compare organizational structures with social relationships and to interpret cause-effect relations in the analysis of health care data for a population.

The paper “Social Interaction through Map-based Wikis” by Andrea Marcante and Loredana Parasiliti Provenza introduces the notion of map-based wiki, a collaboration metaphor that allows users to interact each other and with information through a digital map by multimodal and localized digital annotations. The authors face also the issue of affective knowledge, introducing a set of multi-modal signs that are used for expressing the perception of the quality of the environment and that are localized according to different cultures.

The paper “Nurturing Learners’ Communities by Creating and Sharing Maps” by Sosuke Miura, Pamela Ravasio and Masanori Sugimoto presents a system that integrates outdoor and classroom activities related to the exploration of urban and nature environments with a map based approach to data creation, analysis and interaction. The authors aim at promoting, through maps, collaborative activities among the children, involving also teachers and parents as components of learning communities.

Finally, the paper “SIM: A dynamic multidimensional visualization method for social networks” by Maria Chiara Caschera, Fernando Ferri and Patrizia Grifoni describes a method of social networks visualization devoted not only to analyse individual and group social relationships, but also aimed to stimulate an active social participation. The authors analyze, in the context of a conference management scenario, the participants’ social relations along several dimensions: the individual characterization, their social position,

the spatial location, the evolution along time, providing information for interaction between users, service design and event planning.

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In addition to the articles addressing the topic of the special issue, PNJ 6(3) includes a paper by Thomas Hoff and Andreas Hauser, entitled “Applying a Cognitive Engineering Approach to Interface Design of Energy Management Systems”. The authors illustrate the ergonomic issues in designing a grid management system, and organize the suggested constraints according to the cognitive level involved (skill-, rules-, and knowledge-based control).

The Editors-in-Chief

