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RESEARCH ARTICLE

# People as place-making coordinate: A methodology for visualizing personal spaces

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**Abstract**
The present research introduces the Activity Counter Maps (ACM) as a methodology for visualizing people's social spaces, arguing that accurate representations of these spaces are crucial for understanding the role of human activity as a place-making coordinate. The ACM were tested in two case studies conducted in Ueno Park (Tokyo). The first case study is focused on the visualization of the intensity of activity in the totality of the park. The second case study is focused in two sub-places of the park, generating representations of people's personal spaces combined into a three-dimensional "Common social space". The research concludes with the analysis of the generated visualizations and their potential for incorporating place-variables into the digital design process.



## 1. Introduction

The relationship between human activity and space is a complex one. The built environment can be understood as the scenario in which social and individual life takes place, yet is not easy to identify the clear edge between when our activities dictate how our environment should – or could – be designed, and when our environment defines how our activities occur. Built space and activity permeate each other constantly. Understanding the way in which built space and activity affect each other is essential for architecture, and while clear patterns and classifications can be observed in this space-activity relationship, – from more flexible to more rigid correlations – there is always a degree of randomness in it (Hillier and Hanson, 1988) turning the study of these correlations into a challenge.

If place can be defined as human experienced space (Casey, 1997), the correlation between space and activity is crucial for understanding places. Place-theories are usually focused on issues like history, function, character and space, but there is a lack of methodologies for studying the concrete spatial impact that we might have in a place by just *being in it*. Whyte (1980) already observed that applying minor changes

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to the layout and elements of a given public space can create major modifications in how people behave while being in them. In other words, one concrete space could become many different places depending on the way in which people stay in them. For instance, we could think that, if we are standing in a square which is crowded with people and suddenly the people move elsewhere, leaving the square almost empty, the square changes. What changes is neither the space of the square nor the personal spaces of the people that moved elsewhere, but what changes is the *space of the place that the square is in*, explained by the fact that people generate spaces when interacting with others. Hall (1966) defines different degrees of individual distances for human beings, an "anthropological space" that is generated by us being in the space and in contact with others. These distances are invisible areas around us and they represent different degrees of contact with others. Hall describes four different distances: intimate distance, personal distance, social distance and public distance. When studying these distances the main difficulty is that they are observed to exist, yet they are invisible to the human eye. These distances are rather a sense of space than a clear boundary. Can these sensed spaces be visualized as a clear boundary? This paper introduces the Activity Counter Maps (Fujii, 1972) as a methodology for visualizing people's personal spaces interacting in public places.

## 2. Visualization as a design tool

Today, architecture makes use of all sorts of visualization tools for improving or modifying the design process. We can visualize how a building will behave in terms of thermal performance, aerodynamic performance or acoustic performance, so we can modify our designs accordingly. The fact that we can turn this information into images is what makes this information meaningful for the design process: suddenly we can see how the wind "looks like", and moreover, how it looks when encountering a projected building. Digital tools can be crucial for achieving these visualizations, yet they can also be used not only for creating new approaches and possibilities to the design process, but also for revisiting old problems from a new perspective. Digital representation and visualization can generate new ways of perceiving and understanding old yet valid and relevant concepts (Ware, 2004). However, the reliability and value of a given digital visualization is always linked to the type of information which is visually represented. In Architecture, 3D modelling and image rendering is widely used for visualizing projects before they are built, yet the impact that these images and animations might have in the quality of a completed project is still a matter of debate (Day, 2002). In the pursuit of reducing the gap between projected building and built building, virtual reality promises the possibility of not only visualizing a project, but actually experiencing it in an immersive virtual environment in which even the design process could be carried out (Ye et al., 2006). Nevertheless, is important to notice that virtual environments are essentially replicating real environments, and regardless of how sophisticated some of these models and images can be they are still based on the most essential form of architectural representation: the interaction between solid and void. This raises the question if there are other essential interactions or concepts worth representation. Urban and cartographic visualization has been very effective in translating varied types and amounts of information into geographical representations. Mapping issues like migration, globalization, ethnicity and energy usage demand new approaches and abstractions in order to be accurately visualized (Bhagat and Mogel, 2008). But here we find levels of abstraction that, while being meaningful on an urban or global scale, can be quite general and incomplete on an architectural scale. For example, when looking at Flow maps, which are some of the most used types of urban visualization (Guo, 2009), we find that the core information which these maps convey – origin and destination – may not be so relevant on an architectonic scale, where a concept like *journey* could be more compelling and important to visualize. Evidently, depending on the kind of information which we want to visualize, different approaches are needed. When discussing the role of cartography, Chrisman (1978) argues that cartography is the science of representation, not measurement, and physicists have emphasized the space as a structure that needs to be measured, when the important issue lies in the efforts to identify distinctions that will allow better measurements. For instance, natural phenomena like wind or temperature are perceived by all of us, and we have developed tools that allow us to measure them and turn them into very accurate information. The sequence is quite clear; the phenomena is first perceived and measured, then translated into a visual representation that allow us to identify patterns and create models that can lead to a better understanding and use of the perceived phenomena. However, this research states that for visualizing people's personal spaces we encounter a different problem which requires, perhaps, a different sequence. A concept like personal spaces has been overlooked by most visualization methodologies, since personal space is not entirely a physical phenomenon, but an anthropological one, so we could propose the following sequence; a concept is first theoretically understood, then, based on that understanding, a visual representation is created, and only then is it possible to actually *perceive* the concept. In the case of this research, we propose a methodology for identifying and measuring distinctions which, combined with the ACM, can be used not only for visualizing information, but also for generating form based on the people's personal space.

## 3. Introduction to the activity counter maps

In order to study these personal spaces and use them as a design coordinate, first we need to find a methodology for translating them into architectonic language: a clear figure-ground relationship showing the interactions between solid, boundary and void. The Activity Counter Maps (ACM) is a digital tool that allows representation and visualization of different kinds of data in a geographical context; combined with GIS, any database containing geographical locations could be translated into ACM. For instance, a database of all the tourist attractions in Tokyo, when translated into ACM, allowed an easy visualization of clusters of tourist activity (Kubota, 2006). What the ACM does is to assign an area of influence to an object or location in the space. The radius and height of the area of influence can be assigned