Lukas Treyer
Research Assistant

Telephone: +41 44 633 27 80
Email: treyer@arch.ethz.ch

Chair of Information Architecture

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Visual perception of public space and how it influences urban planning

The **visual perception** of public space is being surveyed **using web-based subversive games** that both attract people as well as define a scientific setting that allows participants to rate the visual impression of public space using images. This fits quite well in a **broader development in urban planning research** from **participative planning** towards a citizen design science approach where inhabitants are not urged to participate in planning workshops that lead to uncertain outcomes but rather result in quantitative data.

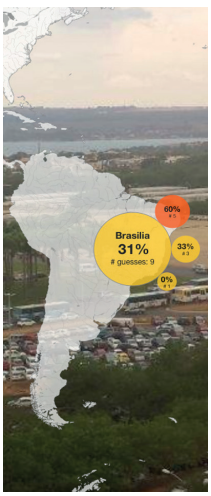
This work will focus on habitability (would you like to live here?) and social vitality (would you plan to go there in your leisure time?) as two characteristics of urbanity in order to both a) verify the data aggregation method itself by correlating it to known semantic data and/or other survey methods and b) to compare variations in the visual perception of public space to its geometric form and/or attributes. As described in the spirit of **citizen design science** this should lead to a better picture of what people prefer through **understanding their visual impressions**. In other words: market research for urban planning with a semi-automatic method using data produced by users of a web/smartphone-based game. My work evaluates the value of such a method, its use and possible applications for urban planning.

The image rating is based on a Bayesian graphical model that determines a ranking among the images by asking for a "winner" between two images. Similar image rankings have been developed by MIT in a project called Streetscore in which people were asked to rate secure looking public spaces. This particular survey was conducted in a controlled setting as opposed to a online game and the findings have not yet been systematically correlated with quantitative geometry analysis. In terms of a usability analysis for urban planning I am particularly interested in also comparing the different studies that use the same method but ask for different urban qualities. Whereas similar research has been conducted assessing issues surrounding security or density, my research **focuses more on habitability, liveability and vitality.**

Although the participants should participate voluntarily, the details on how to best motivate them to play a game which is constrained within a scientific setting still needs to be found and is also an integral part of the research. In the future participants will also be able to upload their own images adding the the photo archive. Initially the images would be taken from Google Streetview and the image set would from then gradually grow.

As many participants are needed to create a meaningful map of vitality and habitability I have limited the initial research to Zurich. Future projects will be developed and based in other cities. As preliminary tests with the first prototype have shown (images below), it appears that participants are ever more **curious to discover new places** they have never been, leading them to play for more extended periods out of their own interest. The initial results from this prototype has revealed that people seem to learn quickly through visualisations, demonstrating fast visual recognition

First prototype on display at the Migros Museum in Zurich



Images from the MOOC Database were used in an interactive game where visitors were challenged to guess the location of several cities