

Depicting perceived cityscapes:

Investigating Health and Urban Geography through User Generated Content

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General framework and general aims:

Urban design and planning literature stresses the role of and need for meaningful urban public spaces for the experience of public life and social interaction. How to determine relationships between specific public places, their physical characteristics and the patterns of social activities they support, in order to promote meaningful innovation in terms of urban design and planning? How can we discover denizens' perceptions that are affecting their urban experience? From what observations can we deduce what makes denizens satisfied? How do we get to situated everyday patterns, trends, social relations and possibilities? How can we see the relationships between these patterns and cultural and ethnic groups within and across cities?

Can geo-referenced User Generated Content (UGC) shared over social online platforms be useful for the creation of meaningful, real time indicators of urban quality, as it is perceived and communicated by the citizens? Is it possible to use real-time text mining and conversational analysis methods on UGC in order to draw a series of maps depicting the very many and co-existing mental images of a city? How does an urban semantic layer - the meanings we attach to places - look like? How are well-being and happiness linked to places and how can we map them in real-time?

My PhD research aims at designing, testing and deploying new methods and technologies to collect, analyze and represent real-time data at the urban scale, to determine how people and places are defined and made visible from the digital traces they leave. The research is first experimenting a method for crossing and inquiring the digital traces able to enlighten potential answers to unsolved urban questions, in order to improve decision-making processes at urban scale. A fundamental further part of the research is the design of new visual languages that could enable the understanding of urban phenomena and the discovering of patterns of behaviors. Aiming at offering meaningful and immediate interpretable collective urban stories, the final goal is to create new languages that applied into dynamic visualizations can be capable to extract new insights on cities and citizens through the visualization itself.

Focus: Health and Urban Geography? / a possible field of application.

Among the several urban questions that such data can help answer to, since the very nature of the data (profile and attitude of people sharing contributions via mobile devices), some promising fields of applications are enlightened as follows:

- Political Attitudes: (acceptance - feeling toward local policies and urban interventions: understanding how new urban policies are evaluated);
- Behavioral Mechanisms: (emergent programs: discovering possible emergent structures and bottom-up initiatives responding to uncovered needs and desires as well as predicting gentrification areas);
- Signs of Community (identity: definitions of territories);
- Place names: (delimitation of territories: discovering meaningful relationships and connections between places, people and uses);
- Tourism (temporary inhabitants profile, patterns of mobility, needs and desires);

- Planning the cultural offer of the city (which places are named together with ontologies related to culture, emergent local and global net of places related to cultural activities, cultural influencer);
- Temporary citizens (emergent ethnic groups: who they are, where they are, how they use the city);

In such fields some on-going experiments are already in progress within different Research Centres all around the world.

According to previsions the number of geo-referenced contribution and the smartphone diffusion is increasing dramatically, reaching a consistent part of the world population in the near future.

Thus, a much more promising field of research could explore the possibility to determine relationships between health and urban geography through User Generated Content:

Is it possible to determine urban quality and well-being indicators of specific areas relying on User Generated Content?

How to investigate users' perception about an area? Which are the most suitable data to use and how to analyse them?

How these perception varies among different groups of people (residents, temporary users, tourists, local, migrants, ...)?

How to validate the insights we gather with actual people through on-field experiments?

How to investigate such open questions integrating them with former categories and findings from "conventional" geographical studies?

This is a first set of open questions that I will explore through specific projects and experiments during a 6 months period the New York Parsons Institute for informational mapping.

(<http://piim.newschool.edu/>), where I'll be a visiting researcher from August 2012 to February 2013.

As a researcher in design, my main contribution is on making sense out of information coming from different fields.

How to inquire the data? Which are the most suitable ones for specific purposes? How to cross different sources of information? How to build meaningful and reliable indicators? How to reveal and communicate the patterns we find? How to properly design and implement dedicated visual interactive interfaces? Moreover, how to connect interests and opinions from different professionals to produce new knowledge?

I propose to present my research and this specific topic with first results and open question to the VGI workshop within the GIScience. A list of the on-going activities of my research follows on next page.

Ongoing activities:

(experiments) I'm currently experimenting on Twitter, Flickr, Instagram and Foursquare geo-referenced contributions within the city of Milan in order to understand what is particularly interesting to ask to people generated digital traces, depending on the very nature of such data.

A preview of my urban experiments can be found here:

[urban experiments](#)

(interviews and work with stakeholders) I'm currently talking with urban planners, policy makers and private stakeholders interested urban phenomena. My aim is to identify which are the most meaningful urban questions we can answer through an analysis and interpretation of those data. A report of my findings can be read here: [urban questions](#)

(interviews and work with social media experts and computer scientists) Moreover, I'm trying to deeply understand and organize the information we can extract from the diverse social media. I'm working on a matrix able to cross urban questions with the answers those data can provide. (more will follow on my [research blog](#))

(real-time inquirable platform) With Accurat, (my Italian design company) we've just been selected for a 2 years funded project whose aim is to build a platform that extracts real-time patterns of use of the city, applying text mining and conversation analysis to geolocated User Generated Content, providing meaningful indexes and dynamic maps which could be real-time inquired from stakeholders. The abstract and the index of the proposal can be found here: [urban sensing proposal](#)

(visual taxonomies) During the past months I've been collecting a wide range of case studies that deeply rely on interactive visualizations and visual narratives to extract insights on the city. [Here's](#) the repository. I'm currently working on a visual taxonomy in order to produce a framework able to suggest design strategies for narrative visualization at the urban scale, including promising under-explored approaches (like giving users the possibility to visually interact and sketch with data). (more will follow [here](#))