

Locating GeoSocial Town: digital places and urban spaces across census tract and volunteered geographic information in Florence

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Abstract

This paper is an experiment with the combined use of census tract and geo-tagged data harvested from some of the most popular social media (Twitter, Instagram, Flickr, Wikipedia), related to the city of Florence (Italy) for 1 year (2015). The first section illustrates location-based content distribution per census tract; the second section highlights a) the Hot-Spot of social media participation b) the importance of VGI data filtering. The result synthesizes the traditional ‘icons’ of public spaces such as momentary Hot-Spots of social media ‘world of place’ and the use of VGI in the evolution of geospatial data availability in urban environment.

1. The Context

Web 2.0 has changed the relationship between the user and the network into an approach characterized by strong social dimensions based on participation and sharing: people gathered information passively from the Internet while today they can contribute to the creation of content and information that is freely accessible to the online community. In this context new social spaces emerge that respond to the need for sociability and the desire for sharing to counteract the fragmented nature of contemporary life. Furthermore the recent development of location-based social media has moved social media from cyberspace to real place (Sui D., Goodchild M., 2011). Social applications (social media) on which this study focuses are particularly relevant because they are the channels towards which “the people of the Web” gravitate: their activity is the footprint of daily routines, movements, ideas and values which reveal spaces of sociability.



Figure 1. Sources of Digital Footprints from daily routine

2. Mapping 4 social media in Florence: an analysis from Twitter, Instagram, Flickr, Wikipedia

The experiment proposed here refers to the analysis of one year (2015) of geo-tagged data collected within the administrative limits of the city of Florence. We consider four popular social media: Twitter, Instagram, Flickr, Wikipedia. The contribute finally attempts to discuss the following points:

- 1) the GeoSocial data distribution and Hot-Spots detection → data function;
- 2) the importance of data filtering → data validation.

The examined datasets are as follows:

- a) 241.361 Tweet collected through the Twitter streaming API;
- b) 732.728 Instagram photo collected through the Instagram streaming API (Laboratorio Urban Gis Lab. dell'Università di Cagliari);
- c) 122.271 Flickr photo collected through the Flickr streaming API;
- d) 1.520 GeoWiki (www.Geonames.org).

A total of 1.097.880 geo-tagged data were collected and spatially analyzed per census tract.

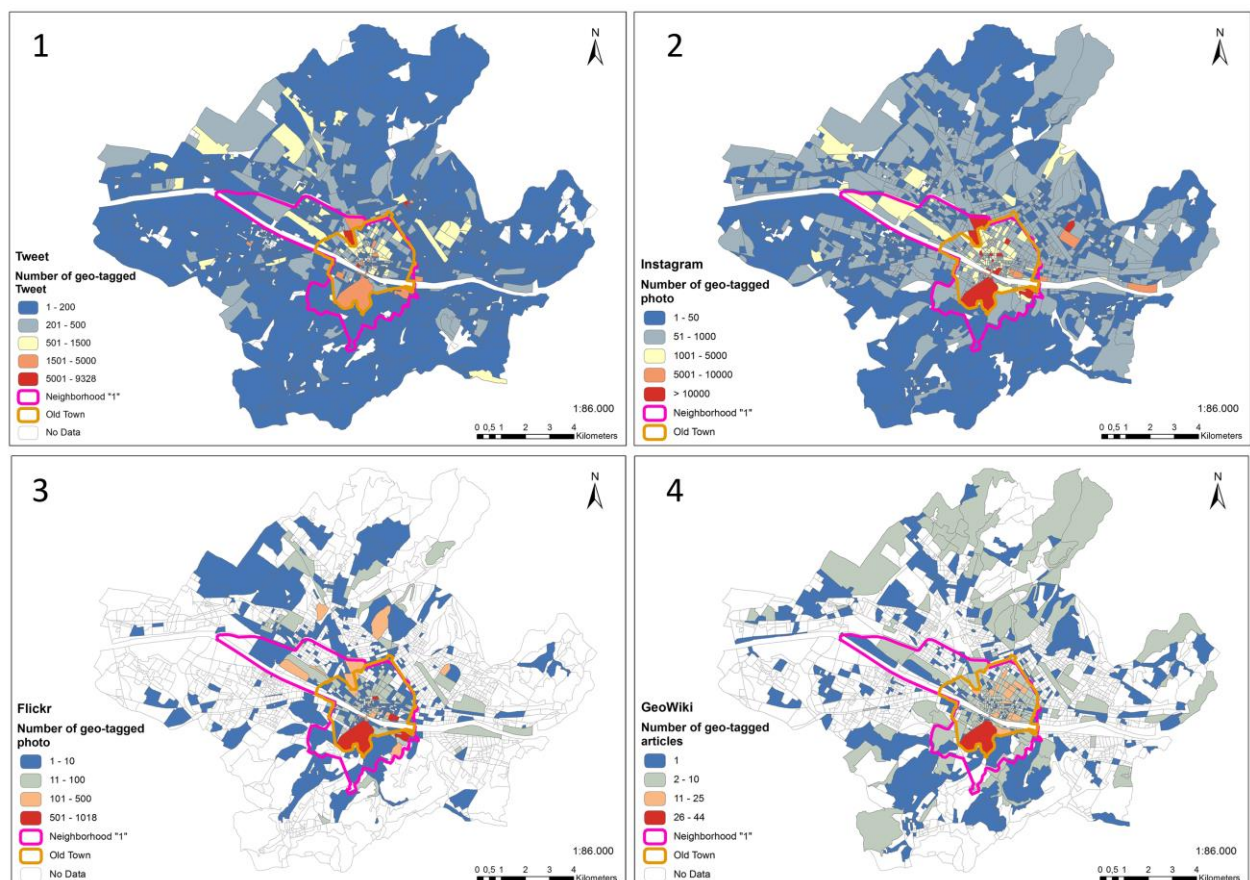


Figure 2. GeoSocial data per census tract – City of Florence, 2015. (1) Twitter, (2) Instagram, (3) Flickr, (4) Wikipedia.

3. Florence GeoSocial Town

The result of the experiment highlight a dense geography of social participation within the neighborhood 1 (Figure 3) which concentrates the 73% of the total geo-tagged data analyzed (740.924); a value of 67.000 geo-tagged data per km². What emerges is the traditional urban centralities and the icons of public spaces such as Hot-Spot of social media participation: (Ponte Vecchio), the “square” (Piazza della Repubblica, Piazza della Signoria), the football stadium, the railway station (Santa Maria Novella), monuments and museum (es. Fortezza, Uffizi, Palazzo Strozzi). It is interesting to observe that 25% of all geo-tagged data collected concentrate within the median Hot-Spot service area (Ponte Vecchio) located in the historic centre (Old Town) (Figure 4).

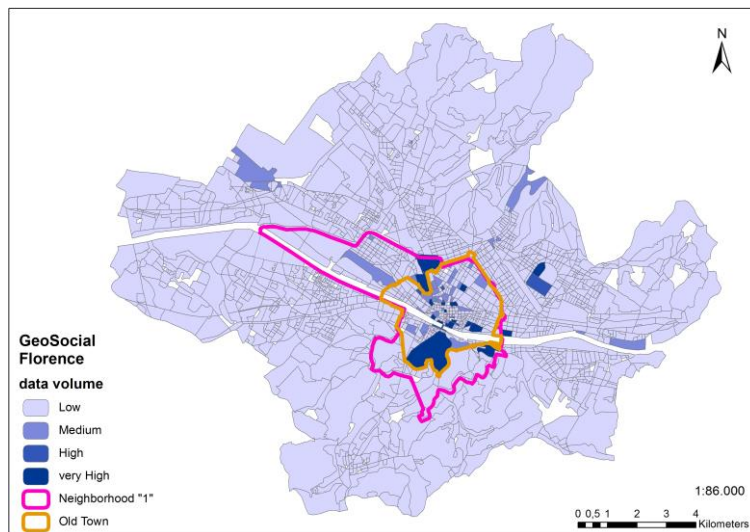


Figure 3. GeoSocial Hot-Spots in the city

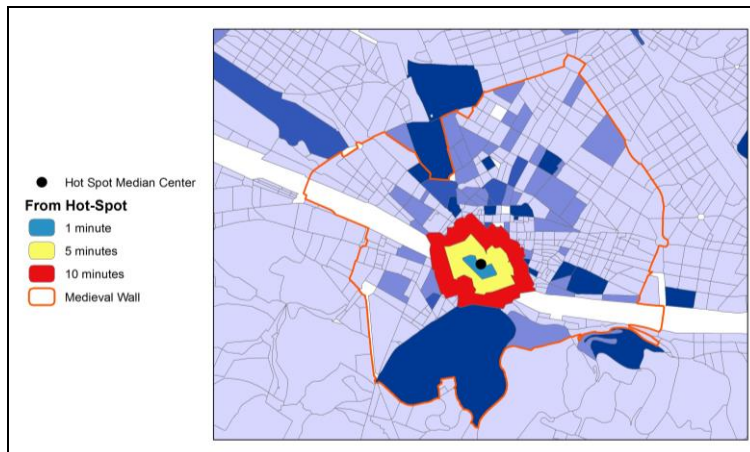


Figure 4. Service area from the median center Hot-Spot

The final aspect concerns the importance of data filtering. The quality of Geographic Information is measured as the difference between the data and the world they represent and becomes poorer as the data and corresponding reality diverge (Maué and Schade, 2008).

As the example, figure 5 shows an area in the north Florence with a large concentration of pictures (16% of the entire dataset) which despite being tagged just #Florence, refers to other areas of the city.

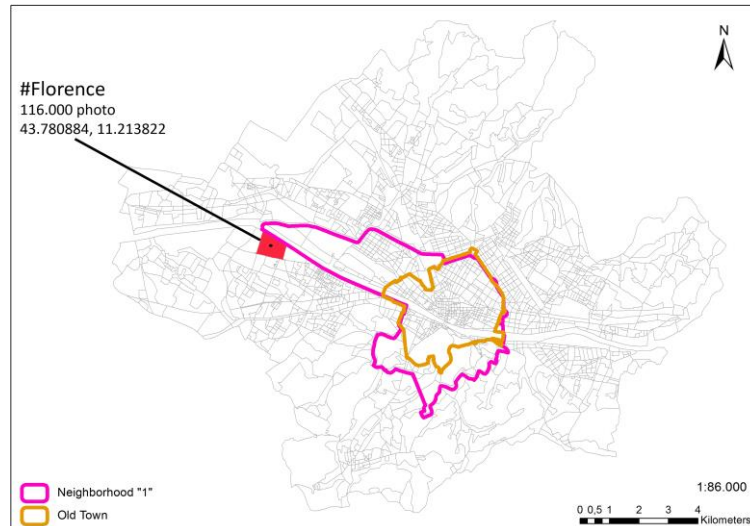


Figure 5. Difference between VGI data and the world they represent on Instagram

4. Conclusions

The development of Web 2.0 and the rise of social applications in the last years on one hand have created social networks more and more participated, on the other hand have helped to create a huge amount of data unthinkable, up to recently years, for volume, variety and velocity. What in a few years it has changed in this context, is not only the birth and the spread of innovative social applications, but is also the contextual opportunities and profitability analysis of this proliferation of information whose reading allows analysis, such as the city of Florence, increasingly detailed. The experiment proposed here tried to highlight the presence of multiple layers of digital geographic information strongly linked to the urban physical spaces of the city and identify social media Hot-Spots such as patterns of activity in both the geographical and social dimensions.

References

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