

## Hand Drawn Spatial Data: Machine Learning and Automated Data Processing

Traditional search query strings based on pre-formed lines in a map, i.e. zip code, street name, or block number offer enormous amounts of data and context from website users. The increased use of automation and machine learning allow more insight into a user's connection to specific time, space and place. In this brief statement you will read how contextual data mapping and processing offers more detail than more commonly used municipal pre-drawn lines.

Animation used for cartographic purposes adds “another dimension to cartography – time” (Thrower, 1959, pg. 10). Wilson, in *New Lines*, explains how Norman Thrower attempted to “reclaim the ‘animated drawing’ from the clutches of entertainment, to add temporal dimensionality to cartographic representation” (Wilson, 2019, pg. 97). Machine learning is vastly robust and when combined with automation, offers the most contextual capture of a user's space – “precise, geometric, and geolocated” – and place – “something less easily defined: contingent on experience, defined by meaning, and susceptible to changing social designations” (Loukissas, 2019, pg. 20).

Loukissas' definition of machine learning – “algorithmic techniques devised to train computers to recognize expected patterns of speech, using large example data sets rather than explicit rules” – is used to make user experiences “feel more intuitive [and] more natural” (Loukissas, 2019, pg. 104). According to sources (Ng, 2019; Wikipedia, 2019), Arthur Samuel first used the term “machine learning” when he wrote about programming a machine to play checkers. Samuel states “Programming computers to learn from experience should eventually eliminate the need for much of this detailed programming effort” (Samuel, 1959). Samuel's ideal world involves humans living vicariously through the use of automated algorithms such as those seen from websites like Zillow or Redfin to search for homes.

While useful, traditional use of query strings to offer results using pre-drawn lines that are often sketched around municipal locations offer a limited context to a user's interest. “Zillow shows how interfaces recontextualize data” (Loukissas, 2019, pg. 3). Loukissas goes on to say that Zillow processes data for users in three ways, “visual, discursive, and algorithmic” (pg. 130). However, the “Draw” feature within sites like Zillow and Redfin provide a new context to a user's interest by allowing them to create a sort of “cognitive map” or specific orientation to their area of interest within a mapped area (Loukissas, 2019; Pang, Lee, & Vaithyanathan, 2002).

Time, space and place all offer context that automation and machine learning help provide to websites such as Zillow and Redfin when searching for homes using the “Draw” feature. Traditional search query strings based on pre-formed lines in a map, i.e. zip code, street name, or block number offer enormous amounts of data and context from website users. This brief statement offers insight into how contextual data mapping and processing offers more detail than more commonly used municipally drawn lines.

*This is a brief explanation of the direction the research and discussion could take; however, it is neither complete nor vetted.*

Bio:

Since my background does not involve purchasing a home of my own, my perspective comes from apartment rentals and interest in more efficient ways of searching for residences. My experience in deep, quantitative query strings is very limited, yet I have a background in marketing automation and understand how web scraping of IP address interactions on websites are utilized and provide incredible data sets and traffic insights.

## Reference

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