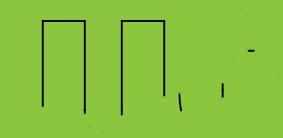
Digital Manifestations

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Abstract

We present the comparative analysis into locations of events in the city of London and the locations of tweets posted that relate to those events. Twitter, a social media site, allows users to post sentences publically (up to 140 characters) which can be seen by any other Twitter user and the location of the tweet can be identified. This paper compares the events of the first week of the London Olympics 2012 with its corresponding tweets. In relation to this, two questions are posed: are the tweeters' location correlative to the corresponding event they are talking about and how does the movement of twitter users manifest over time. By filtering users and keywords, and mapping the tweets, results show that there is a strong positive correlation to where the event is happening physically and where people are tweeting about it. By tracking user movements, trends are also identified concerning how people move around the city with four main patterns.

Two questions are asked and two hypotheses are suggested to initiate the analysis:

1) are events in the city geographically correlative to its associated digital manifestation? The hypothesis to this question is the suggestion that people do not necessarily tweet where the physical event is happening.

2)how does the movement of the digital users correlate to the constituent event? users that are using social media do not move within the city in accordance to the beginning and end of the event. The choice of medium for the research The choice of medium for the research is **twitter** and the choice of city events is the **London Olympic Games 2012** as the most recent, most internationally popular event within London.

Mapping Twitter Data

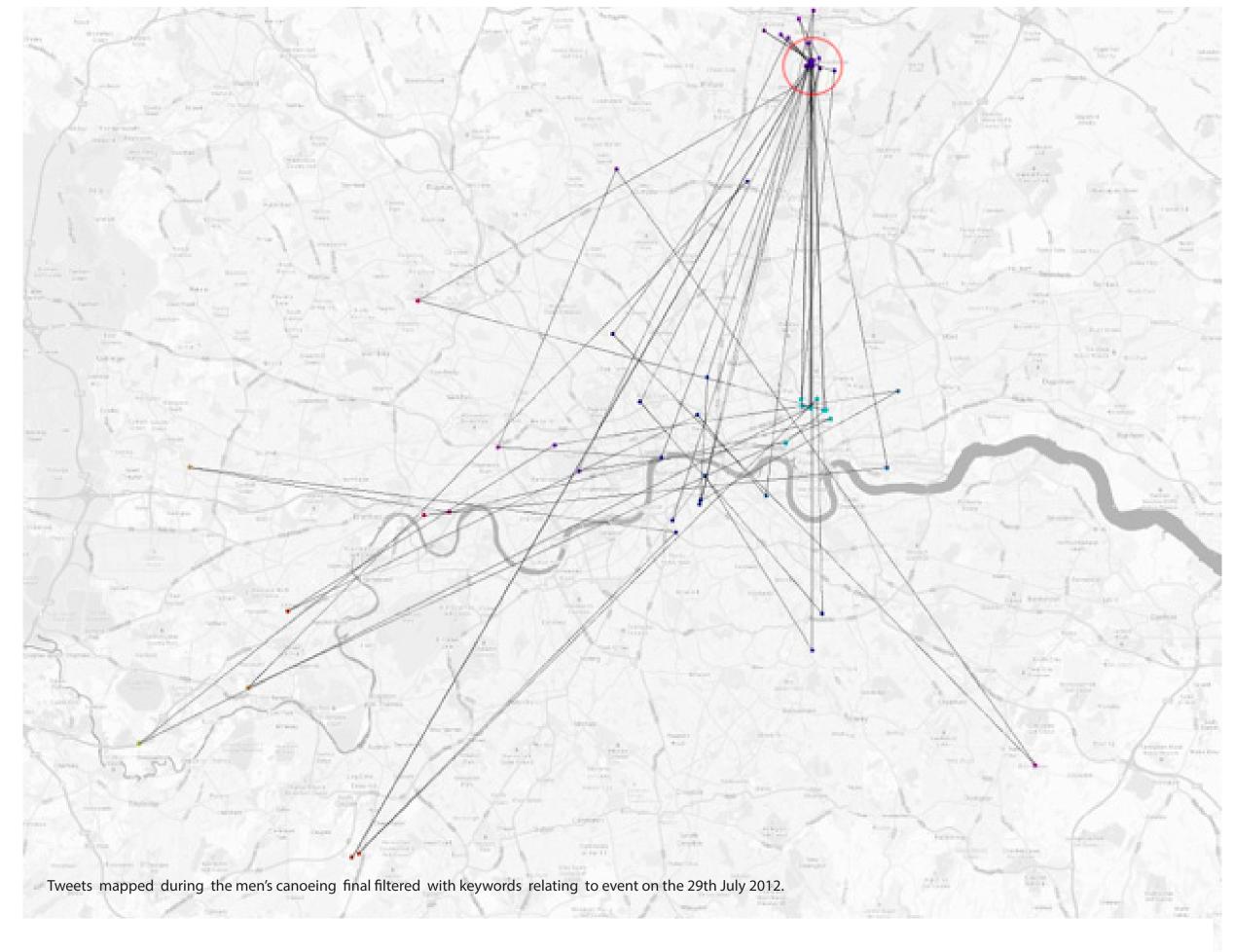
Twitter data was sourced and converted into visuals for comparative analysis. A 'file' containing all geo-located tweets within the 1st week of the Olympics was sourced with each string of data containing: username of 'tweeter, tweet itself, latitude, longitude & timestamp of the tweet.

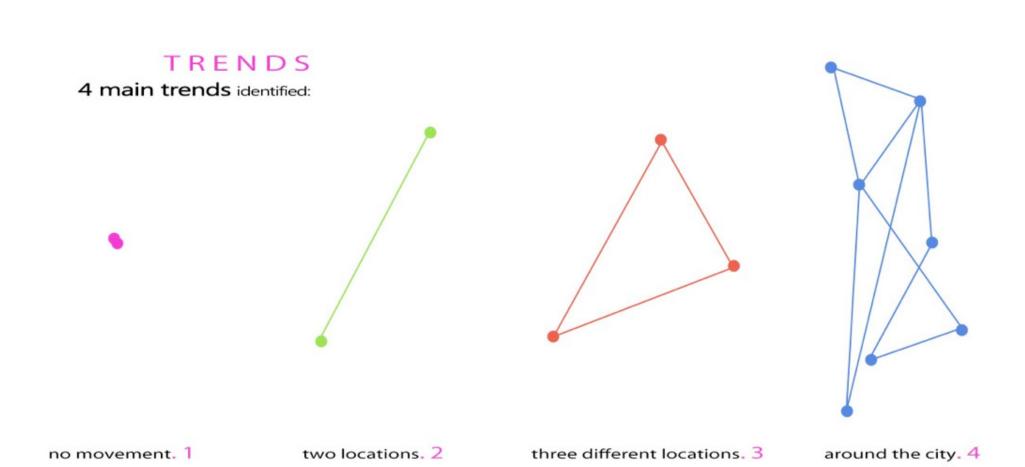
Two research methods were devised:

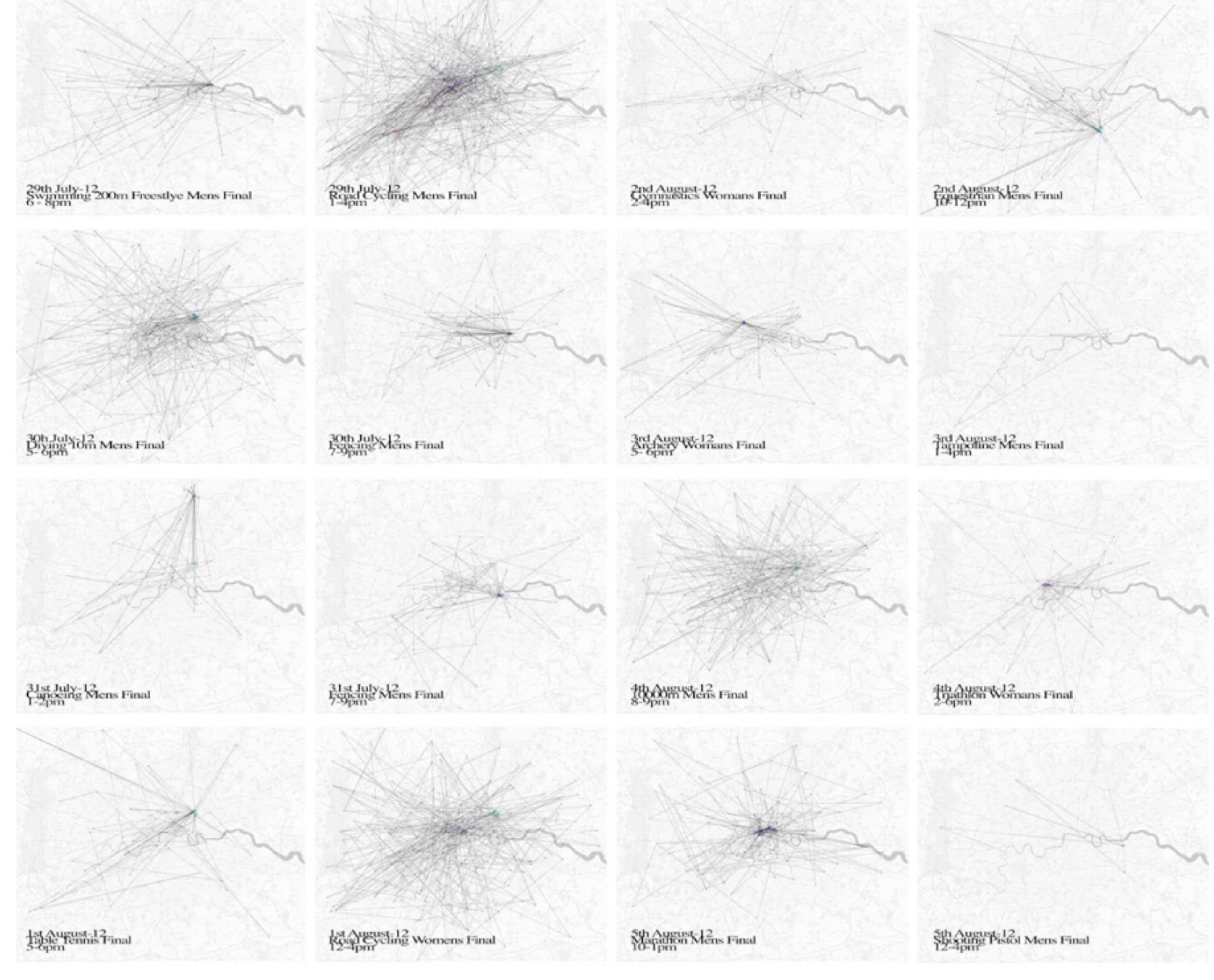
- 1) tweets were mapped in relation to their position, time sequentially and at the time of the physical event itself.
- 2) The more advanced task of tracking users and their tweets was instigated to investigate the correlation of user movement from twitter and the physical event. This method would require a more sophisticated initial filtering of tweets to 'departmentalise' the data into its constituent users.

System architecture for visualising the geolocation of tweets is split into:

- 1) Import Twitter data (CSV file),
- 2) Split relevant data into arrays (time, latitude, longitude, tweet string),
- 3) Split 'tweet string' and filter arrays according to string content (e.g. keyword),
- 4) Map data according to timestamp and position at time of event.







Results

The results, presented clear trends in how people are using Twitter in relation to the event. From observing the resulting mapped data, four patterns of movement during the events emerged:

i. The static user: most users (79%) tended to tweet in only one location (their house, place of work etc). This is shown as the lines connecting each tweet are in the same place.

ii. Two locations: five percent of the users recorded and mapped tended to tweet in two specific locations. Almost all of these were a location within London and the location of an Olympic event. Almost all of this data set also showed that users tweeted at the random location (their home, work etc) first and then the event after.

iii. Three locations: the second most common pattern was where users moved and tweeted in three specific locations. One would be in an area primarily housing (their home), one most commonly in the City (their work) and the last in a built-up area of London (maybe a place of 'play' or relaxation).

iv. The last trend consisted of users that tweeted in many locations around the city. With no common pattern and erratic in nature, these people seem to be travelling around Tweeting within the city consistently.

References

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