<start-recap>
twitter

top-using city

London
Tracking Gross Community Happiness from Tweets [CSCW]

$r = 0.350$ word count $r = 0.365$ MaxEnt
Talk of the City [ICWSM]

- social media
- environment
- sports
- health

- Royal wedding
- Spanish/Portuguese celebrity gossips
Problem

Model (predict) the flow of people between $i$ and $j$. 
What is a gravity model?

\[ T_{ij} = k \frac{P_i^\alpha P_j^\beta}{d_{ij}^\gamma} \]
build a gravity model ~ flow of passengers
gravity works: $r = 0.72!$
Where the model **fails to fit** well
unexplained bit: prevailing socioeconomic factors?
Hypothesis 1

Where the model **fails to fit** well
unexplained bit: prevailing socioeconomic factors?
We look at (gravity)**Residuals**
Reading List

Q6) Top 1000 strongest edges

Using the gravity model the network is largely clustered according to their geography.
Q6) Top 1000 strongest edges

Communication

[ Garcia-Gavilanes et al. Twitter ain't without Frontiers, CSCW 2014 ]
5K country – country pairs
interactions

481 country – country pairs
with social, economic and
cultural features

Distance +
Economics +
Social +
Cultural

10 weeks

Garcia-Gavilanes et al. Twitter ain't without Frontiers, CSCW 2014
The combination of features improves the prediction

Higher accuracy at high communication volumes with worse performance as the communication decreases.
Reading List


Twitter ain't Without Frontiers. CSCW 2014.
A city consists of streets, squares and buildings that exist in objective, geographic space. But there is also a psychological representation of the city that each inhabitant carries around in his head. When a man comes to a strange city, at first he does not know his way around. He sticks close to a few known reference points, such as his hotel or the main shopping street, and quickly feels disoriented if he strays from these few familiar paths. With increasing experience, he begins to build up a picture in his mind of how the streets connect with one another, the relationship among paths, and specific turns he must take to move from one point to another. He acquires a representation of the city which we may call a psychological map. A psychological map is the city as mirrored in the mind of an individual. The acquisition of an adequate representation of the city may be a slow process, filled with confusion, and inevitably only partial in its achievement. Very few individuals, if any, have a total grasp of all of the streets and intersections of a major metropolis, but each of us holds at least the fragment of such a map.

In this paper, we shall describe a psychological map of New York City constructed by our research team. But before going further, I would like to raise some general questions about psychological maps and review some of the work that has been carried out in this field. We start with the notion that the person has a psychological representation of some features of the environment. The first question, then, in constructing a mental map, concerns the units of the environment that are to be mapped. In previous research, the scale of maps has varied from those of small campuses to the maps people have in their head of the entire world (Saarinen, 1971; Hooper, 1970; Stea, 1969; Gould, 1967). There is an important difference, of course, in acquiring a mental map of one’s campus and that of the world. The campus map is mediated by direct experience, moving about the university buildings and piecing scenes together into some cognitive structure. The image of the world is learned not from direct exposure, but through formal schemas of it as represented in maps and atlases.

Once we have decided what units of geography are to be mapped, we need to decide which psychological features are of greatest interest. The most basic question
Psychological Maps
Where is this?

Choose Your Answer’s Precision:  
Tube Station  
Borough  
Don’t know

Guess the tube stations close to this picture. 
The closer, the more points (max 100).

The closest London tube station is

View larger image
Recognizability
Recognizability

\[ R = f(C \cdot D) \]

- centrality (exposure)
- distinctiveness

[MIILGRAM 72]
Recognizability vs Distinctiveness
Recognizability vs Exposure
Datasets

- flickr
- foursquare
- twitter
- tube passengers
visibility & well-being
<end-recap>
Aesthetic Capital: What Makes London Look Beautiful, Quiet, and Happy?
FACEMASH

Click to Choose

or

[Two images of people]
What Starbucks Gets that Architects Don’t

Or why I left the architecture profession
UrbanGems: Crowdsourcing Quiet, Beauty and Happiness

Which place do you find more beautiful?
How to rank images based on partial pairwise comparisons?
1) *win-loss ratio*. Mapping the Inequality of Urban Perception. PLOS ONE.
2) Wiki surveys: Open and quantifiable social data collection
1. (r,g,b)
2. [Park] Efficient use of local edge histogram descriptor
3. SURF Speeded Up Robust Features
colors

Beauty

Quiet

Happiness
1. \((r, g, b)\)

2. [Park] Efficient use of local edge histogram descriptor

3. SURF Speeded Up Robust Features
1. \((r,g,b)\)
2. [Park] Efficient use of local edge histogram descriptor
3. **SURF** Speeded Up Robust Features
cor(surf_features, beauty_score)
Visual objects
victorian & red-brick

public gardens
253 patterns of good urban design (1977)
“Cars give people wonderful freedom and increase their opportunities. But they also destroy the environment, to an extent so drastic that they kill all social life.”
cars aren’t always bad
“Isolated buildings are symptoms of a disconnected sick society”

“There is evidence to show that high buildings make people crazy”
glassed offices

tall buildings aren’t always bad

landmarks
happy city

Social capital 😊

cars 😞 | isolated & tall buildings 😞
Evidence-based Design
Whys meet Why nots

Why top-down star architects
Why not bottom-up residents

Why efficiency only
Why not fit for(human) purpose
Why urban sociology|web
Why urban sociology+web
Emotiv (low-cost mobile EEG)

short-term excitement, frustration, engagement, arousal, & meditation level
Class projects

- Teams of 3 people
- Work on one of the proposed projects or on your own
- April 27: Mid-term presentation of project results

1. Predicting urban beauty with social media
2. Mapping neighborhood data for global cities (1+ teams)
3. Mapping crowd-funding transactions across countries
4. What makes tweets from health apps engaging?
5. Analyzing tweets about nuclear disasters

(more info about the projects on the class page)
THANK YOU!
Questions