“Familiar Strangers” in Beijing:

Implications, Visualization and Determinants

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FAMILIAR STRANGER
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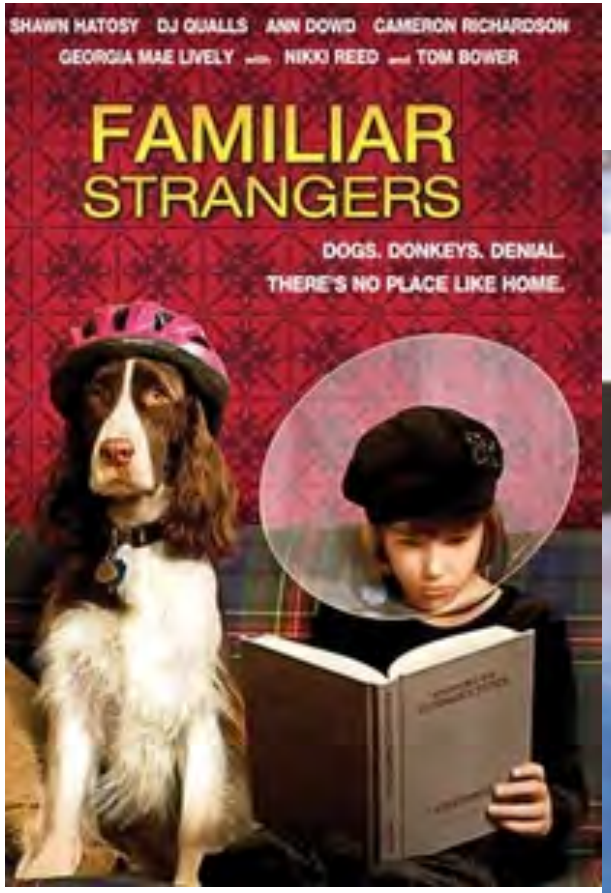
Richard Nebesky

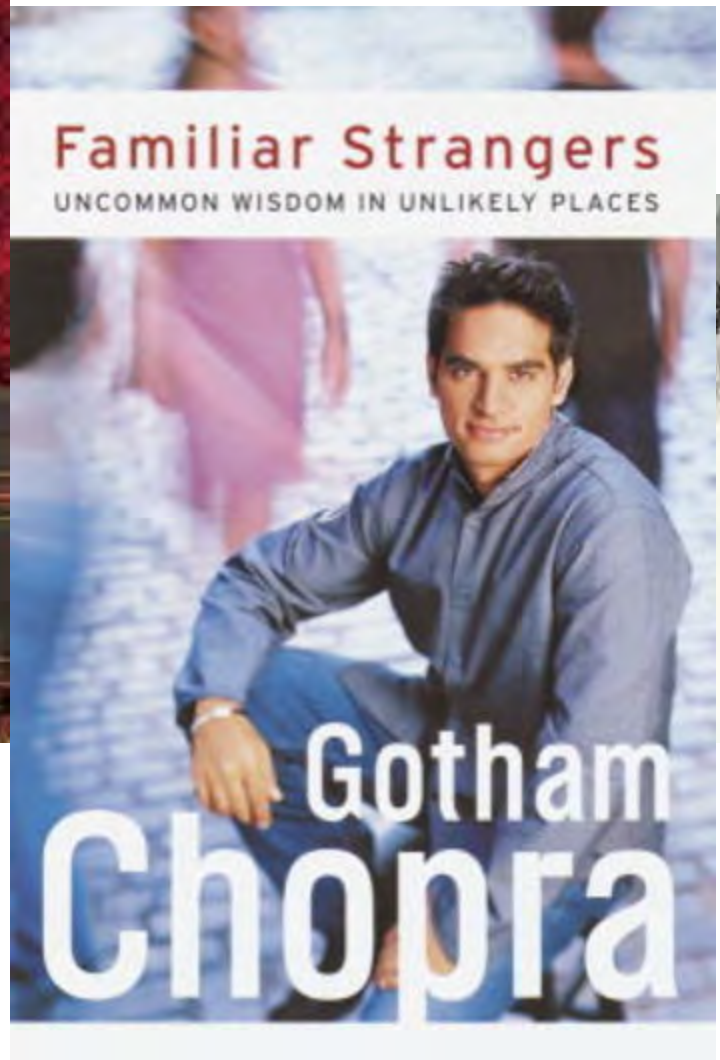
Outline

- Familiar strangers: A long-standing phenomena and concept
- Significance of familiar strangers
- Existing studies
- Familiar strangers in Beijing’s metro-served areas: Visualization/Determinants
- Conclusions and discussion

Familiar strangers

- Those people encounter and observe at various locales in their respective neighborhoods or cities


SHAWN HATOSY DJ QUALLS ANN DOWD CAMERON RICHARDSON
GEORGIA MAE LIVELY with NIKKI REED and TOM BOWER
FAMILIAR
STRANGERS
DOGS. DONKEYS. DENIAL.
THERE'S NO PLACE LIKE HOME.


Familiar Strangers
UNCOMMON WISDOM IN UNLIKELY PLACES
Gotham
Chopra


Familiar
STRANGERS
ERIK R. SCOTT

Stanley Milgram

"The Familiar Stranger: An Aspect of Urban Anonymity"

Stanley Milgram

- “The Milgram Experiment”: The human tendency to obey commands issued by an authority figure
- “Six Degrees of Separation”

Significance of familiar strangers

- An important attribute of cities and/or urban life, which is characterized by anonymity (Lawrence and Payne, 2004)
- Representation of more complex and meaningful social interactions that are crucial to a healthy community/city (Gehl, 1987)
- Occasional helper (Jacob, 1961)
- Shaping the social identity and social network of different individuals of our society (Hogg, 2006; Agarwal et al., 2009)
- Helping spread of infectious diseases, if certain conditions are met, for instance, there are physical contacts (Reed et al., 2008)
- Affecting diffusion/spreading process (Sun et al., 2013)
- Influencing innovations

Question Of The Week: Anonymity And Urban Life

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怎么看待时下自媒体直播？

时下全民直播很火，人人都可以当网红的节奏，呈现出一种比较公平公正的创业新模式的现象，最近也去下载了一个直播软件——映客，很明显的现象就是大部分主播都是女生，在校女大学生尤其多，当然打扮得很漂亮啦，即便没有才艺表演陪着粉丝聊聊天也能轻轻松松赚映票（映票即钱，按一定比例兑换）。这不是重点，重点是好多人都没有素质，粉丝骂主播（丑啊，唱歌难听啊...整容啊）、主播骂粉丝（滚啊，草...）粉丝骂主播主播骂粉丝，总之让人不堪耳目 ，若是这样下去，自媒体的前程不一定锦绣吧

15% 0.9K/s 1.2K/s

1 个回答

杂草敏
Web前端

首先，我还是很看好自媒体方式的全民直播，作为一种全民互动的娱乐方式，不仅能与他人互动还能见识到各路牛人神人，而且自媒体嘛，当然以自己为中心来向他人展示才艺、魅力、美貌等等，只要你能说敢说，就会有人来与你互动，圈粉多的还可以作为一份自己的副业收入，有时间有精力有想法有能力何乐而不为呢？

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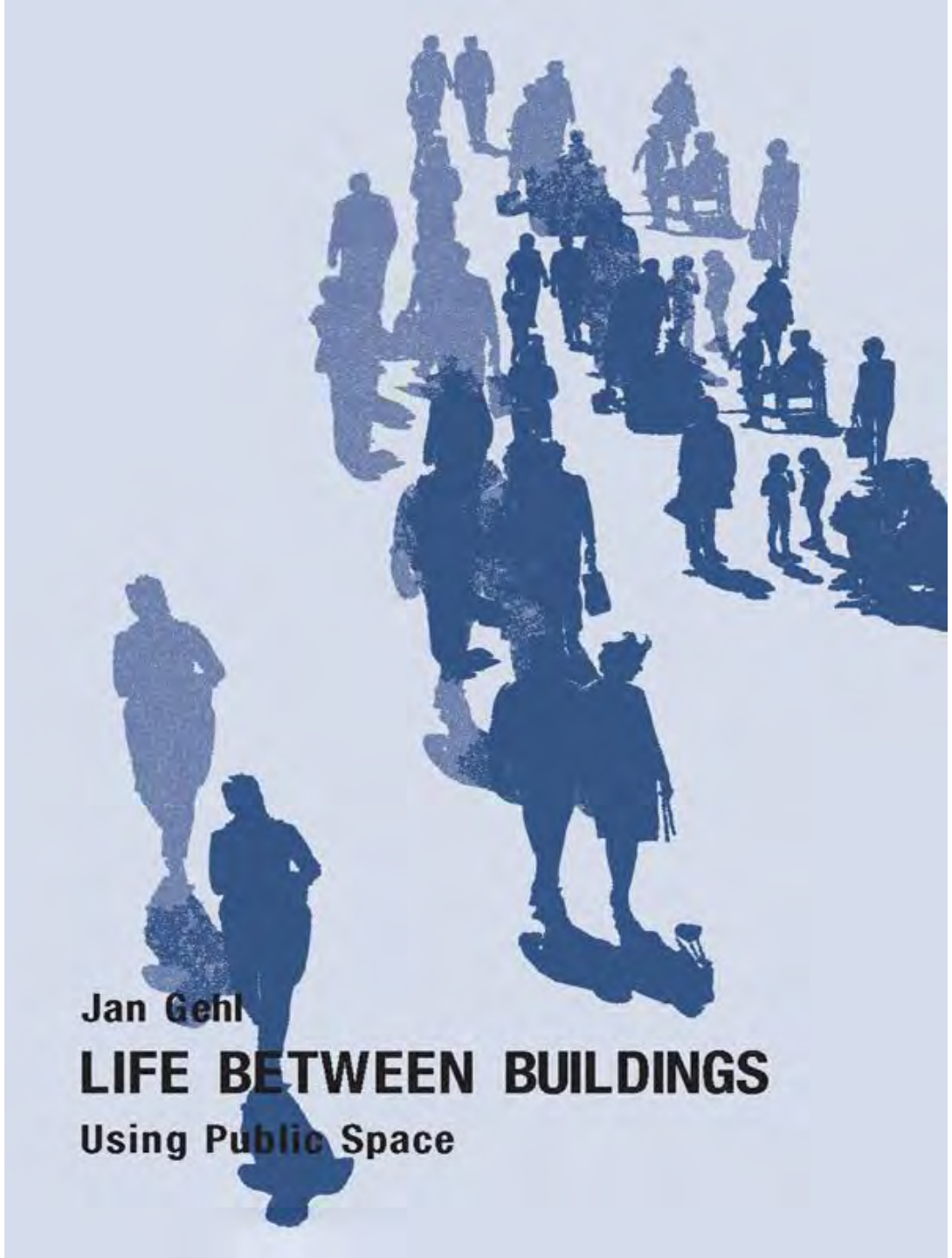

Jan Gehl

LIFE BETWEEN BUILDINGS

Using Public Space

Jan Gehl

Cities for people

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'This book is an attack on current city planning and rebuilding . . .' Jane Jacobs nails her colours firmly to the mast at the launch of the most exciting polemic to have been written on town-planning in the last twenty-five years. Mounting a frontal attack on Ebenezer Howard, the Garden City movement and fashionable 'decentrists' (like Mumford, Stein and Bauer), she offers systematic evidence that cities as they have grown do 'work' – overcrowded buildings, narrow streets and all.

The wit and gravity, the verve and precision that Jane Jacobs brings to her attack caused Sean Kenny to exclaim: 'Jane Jacobs cannot shout too loud for me.' And if any reader doubts his capacity to become absorbed in the importance of pavements, he should read her opening chapters.

Four out of five people in Britain today can be classed as urban dwellers. The principles of city-planning, put forward in this lively study, are, as John Connell noted, 'extremely apposite to conditions in the U.K. – to Leeds, for example, Manchester, Birmingham, Dundee, Southampton and Portsmouth'.

Cover photograph by Max Yavno

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a Pelican Book

The Death and Life of Great American Cities

The Failure of Town Planning

Jane Jacobs

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ShannonShorr
devopoker
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MattGlantz
KristyArnett
SavagePoker
scott_seiver
bluffmagazi
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Colloquium

The simultaneous evolution of author and paper networks

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[†]School of Library and Information Science and Departments of [§]Computer Science and [¶]Psychology, Indiana University, Bloomington, IN 47405

There has been a long history of research into the structure and evolution of mankind's scientific endeavor. However, recent progress in applying the tools of science to understand science itself has been unprecedented because only recently has there been access to high-volume and high-quality data sets of scientific output (e.g., publications, patents, grants) and computers and algorithms capable of handling this enormous stream of data. This article reviews major work on models that aim to capture and recreate the structure and dynamics of scientific evolution. We then introduce a general process model that simultaneously grows coauthor and paper citation networks. The statistical and dynamic properties of the networks generated by this model are validated against a 20-year data set of articles published in PNAS. Systematic deviations from a power law distribution of citations to papers are well fit by a model that incorporates a partitioning of authors and papers into topics, a bias for authors to cite recent papers, and a tendency for authors to cite papers cited by papers that they have read. In this TARL model (for topics, aging, and recursive linking), the number of topics is linearly related to the clustering coefficient of the simulated paper citation network.

The model provides a grounded mechanism for modeling the "rich-get-richer" phenomenon for paper citation networks as an emergent property of the elementary networking activity of authors reading and citing articles and also the references listed in read articles. The generalized rich-get-richer phenomenon is also known as the Mathew effect (8), cumulative advantage (9), or preferential attachment (10).

The growth of scientific publications and citations is governed by two underlying processes: growth and aging (11). Growth seems to be important for the development of scale-free networks. Aging is an antagonistic force to preferential attachment. Even highly connected nodes typically stop receiving links after time has passed. The bias to cite newer papers frequently prevents a scale-free distribution of connectivity (12). In the proposed model, an aging bias offsets the rich-get-richer phenomenon for paper citation networks.

A 20-year data set of articles published in PNAS is used to validate the model in terms of major network properties of the interlinked coauthor and paper citation networks.

The subsequent sections review related research on descriptive and process models of coauthor and paper citation networks,

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Understanding metropolitan patterns of daily encounters

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Understanding of the mechanisms driving our daily face-to-face encounters is still limited; the field lacks large-scale datasets describing both individual behaviors and their collective interactions. However, here, with the help of travel smart card data, we uncover such encounter mechanisms and structures by constructing a time-resolved in-vehicle social encounter network on public buses in a city (about 5 million residents). Using a population scale dataset, we find physical encounters display reproducible temporal patterns, indicating that repeated encounters are regular and identical. On an individual scale, we find that collective regularities dominate distinct encounters' bounded nature. An individual's encounter capability is rooted in his/her daily behavioral regularity, explaining the emergence of "familiar strangers" in daily life. Strikingly, we find individuals with repeated encounters are not grouped into small communities, but become strongly connected over time, resulting in a large, but imperceptible, small-world contact network or "structure of co-presence" across the whole metropolitan area. Revealing the encounter pattern and identifying this large-scale contact network are crucial to understanding the dynamics in patterns of social acquaintances, collective human behaviors, and—particularly—disclosing the impact of human behavior on various diffusion/spreading processes.

With the help of sensors and online networks, data describing close proximity in real-world situations sheds light on encounter patterns and spreading dynamics in contact networks other than diary-based surveys (4). However, these data collection systems are generally embedded in limited samples in spatially small-scale settings such as schools (6), conferences and exhibitions (5, 7), and even in prostitution (8). On a large scale, we still lack empirical data describing examples of both individual regularity and joint encounter patterns (other than simulating mobility and behavior patterns individually, relying on computational and agent-based models) (22–24). Thus, given data limitations, studies on individual mobility regularity and collective interactions are traditionally conducted separately: the mechanisms driving our daily encounters remain unclear.

Therefore, with the increasing quantity and range of human mobility, a central task is to explore social interaction patterns along with mobility regularity. However, previous data collection techniques fail to offer high-resolution information on collective interactions on a large scale (across the population). In this context, individual-based passive data collections embedded in our daily life, such as credit cards and smart cards transactions, can be advantageous. At present, transit use might be the best

Significance of familiar strangers

- Influencing traffic congestion (?) e.g., Lots of passengers‘ concurrent presence at the same metro station in the AM peak
- Influencing innovations (?) and agglomeration (?) e.g., Silicon Valley, concurrent presence of entrepreneurs/inventors who often see one another at different occasions

Existing studies

- Familiar strangers in the virtual world are increasingly common as those in the physical world, most studies focus on them
- Few studies on familiar strangers in the physical world based on non-traditional data (one exception, Sun et al., 2013)


1 号线 Line 1
4 号线 Line 4
1 号线 Line 1
卫生间 Toilets
A 西北口 North-West Exit
E 西南口 South-West Ex
出 EXIT
B 北口 North Exit
D 东南口 South-East Exit
C 东北口 North-East Exit
出 EXIT
CLARINS

Familiar strangers in Beijing

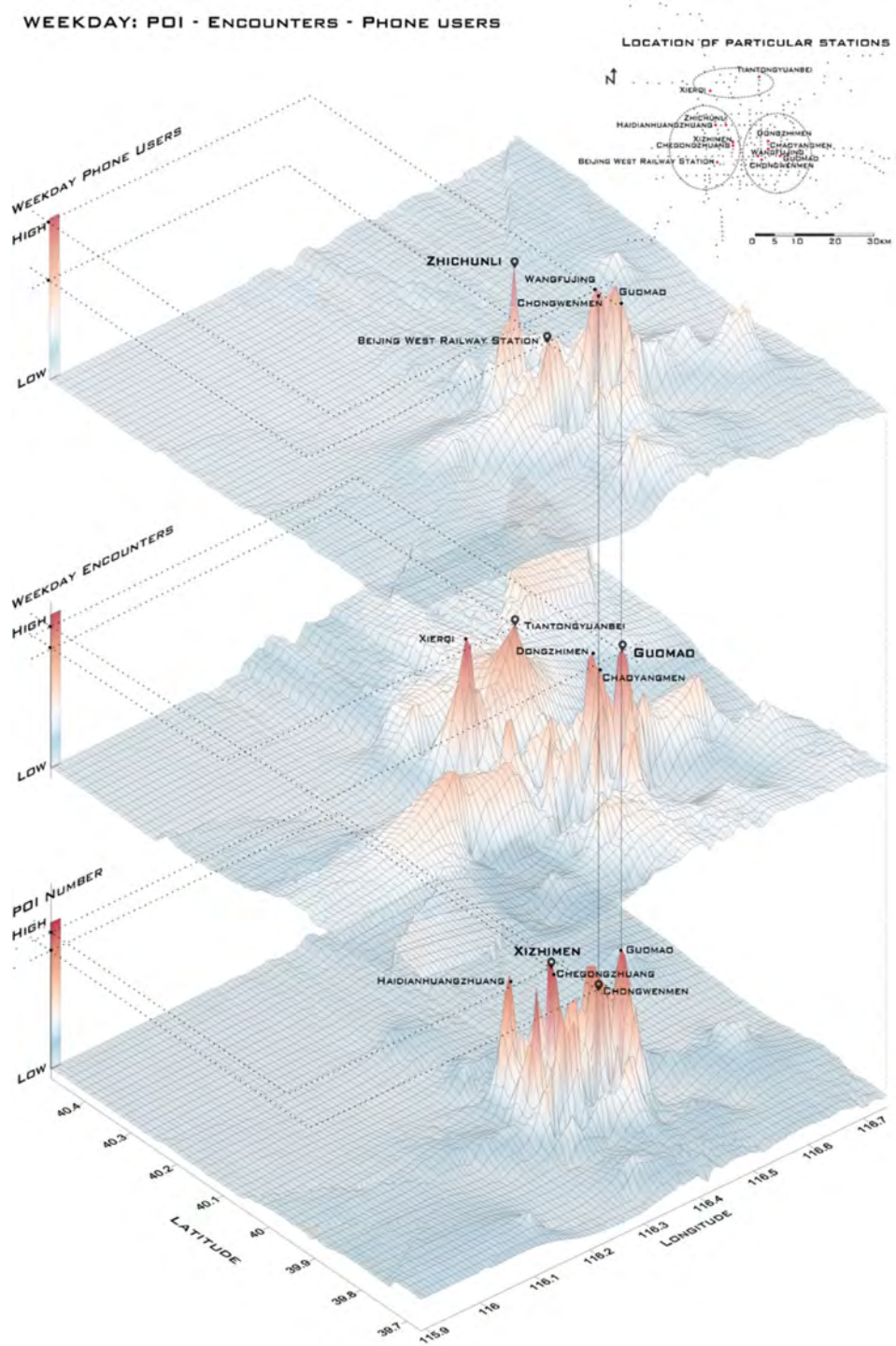
- Focus on metro-served areas first
- Data used: Cellular/Smartcard data (August 10-14, 2015), POI data (scrapped from Baidu, annual average), and OSM road network (2015)
- Work completed: “Descriptive” visualization/statistics; Some quantitative analyses about the determinants of familiar strangers

Key concepts

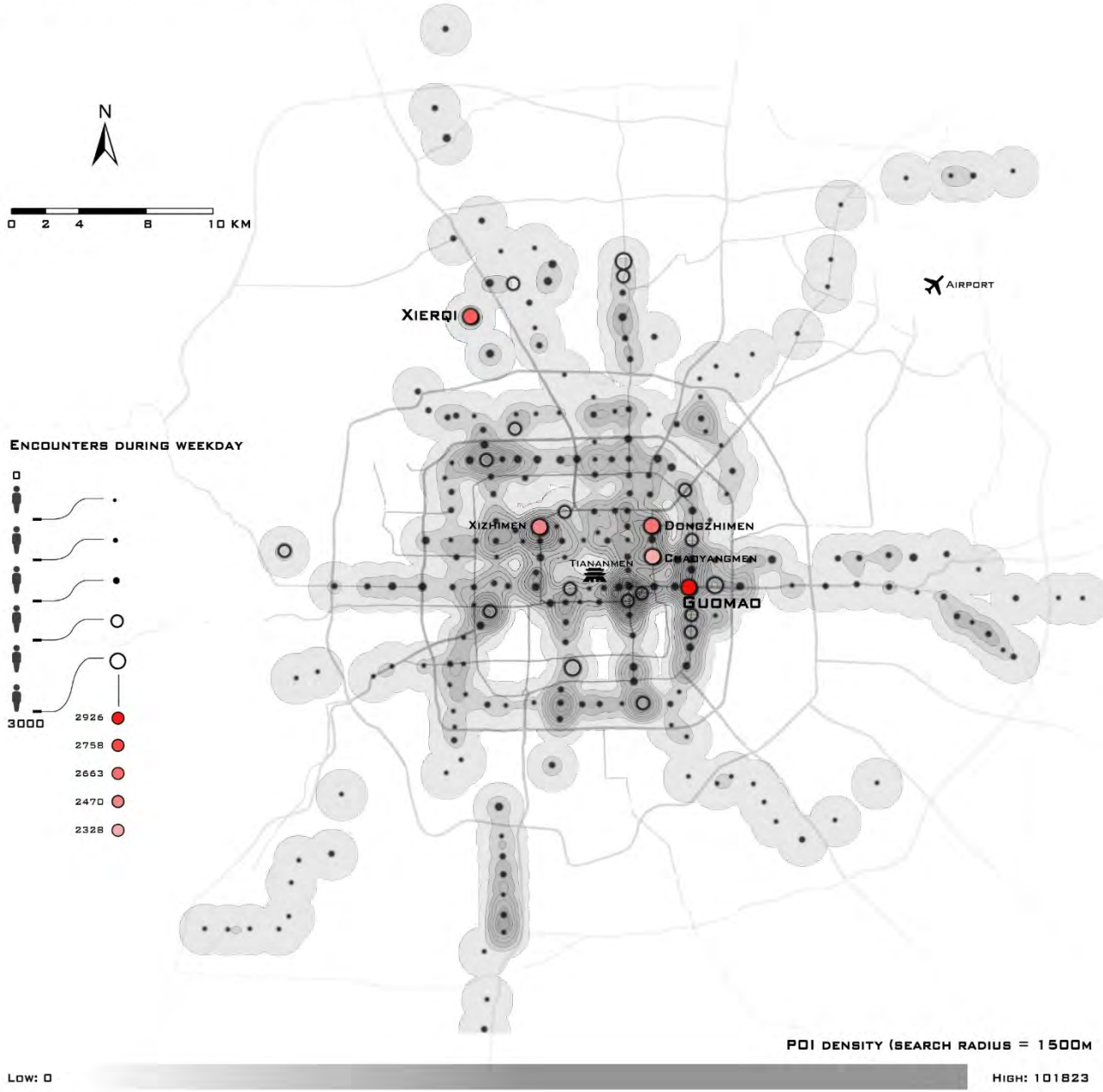
- Metro-served areas (MSA): areas within 800 meters of a metro station
- Familiar strangers (“encounters”) at MSA: those swiped their smartcard into the same metro station within the same hour on the same day at least twice for the week we have data

Some sample visuals

- 3D visuals: FS per hour, POI and phone users per hour
- 2D visual: FS vs phone users
- 2D visual: FS vs POI
- 2D visuals: FS vs various sDNA values (e.g., accessibility of a MSA)
- Clusters of MSAs by FS
- ……


WEEKDAY: POI - ENCOUNTERS - PHONE USERS
LOCATION OF PARTICULAR STATIONS
N
TIANTONGYUANBEI
XIERQI
ZHICHUNLI
HAIDIANHUANGZHUANG
XIZHIMEN
CHEGONGZHUANG
BEIJING WEST RAILWAY STATION
DONGZHIMEN
CHAOYANGMEN
WANGFUJING
GUOMAO
CHONGWENMEN
0 5 10 20 30KM
WEEKDAY PHONE USERS
HIGH
LOW
ZHICHUNLI
WANGFUJING
CHONGWENMEN
GUOMAO
BEIJING WEST RAILWAY STATION
WEEKDAY ENCOUNTERS
HIGH
LOW
TIANTONGYUANBEI
XIERQI
DONGZHIMEN
GUOMAO
CHAOYANGMEN
POI NUMBER
HIGH
LOW
XIZHIMEN
GUOMAO
HAIDIANHUANGZHUANG
CHEGONGZHUANG
CHONGWENMEN
40.4
40.3
40.2
40.1
40
39.9
39.8
39.7
LATITUDE
115.9
116
116.1
116.2
116.3
116.4
116.5
116.6
116.7
LONGITUDE

WEEKDAY: Encounters - Phone users



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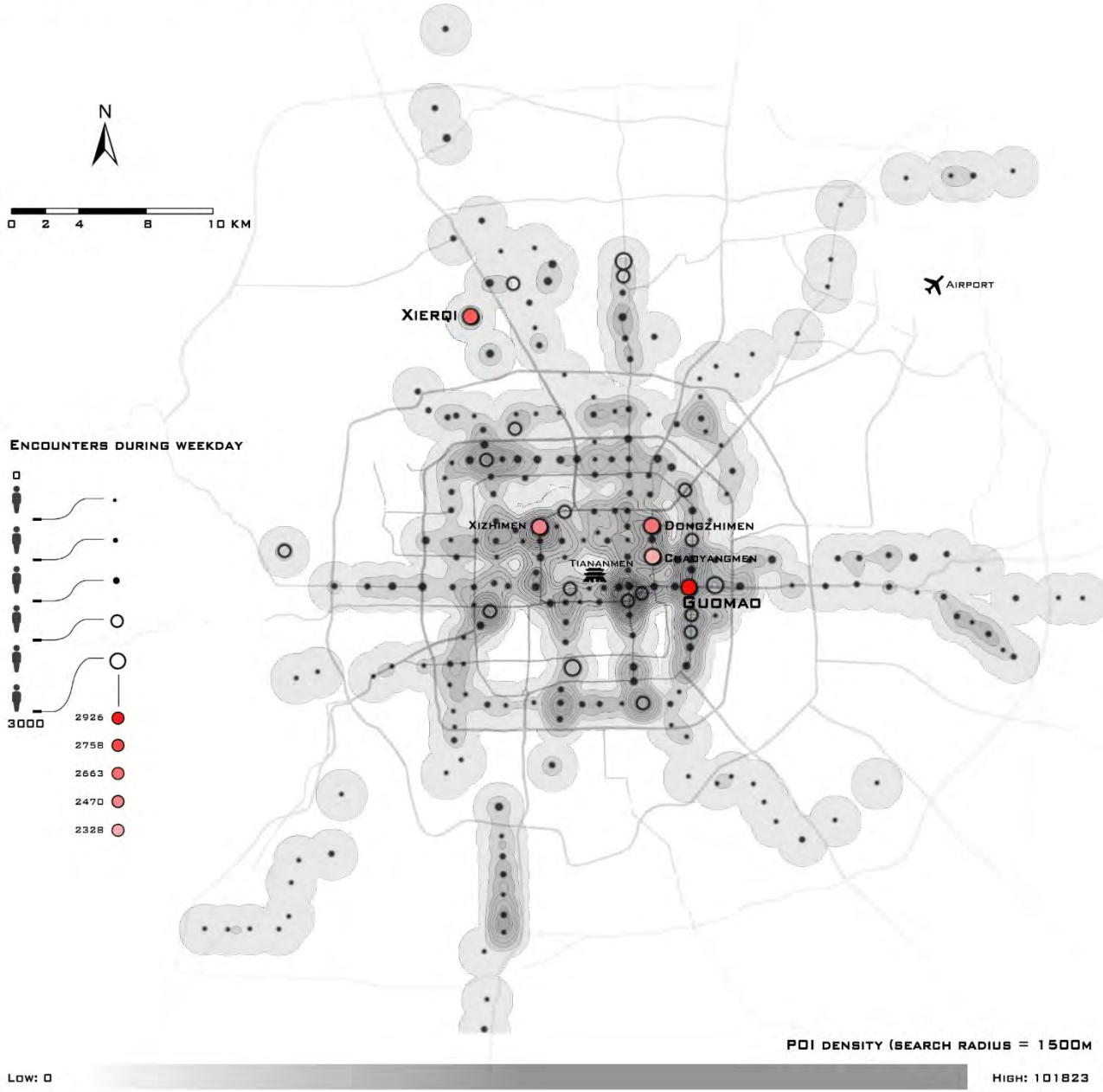
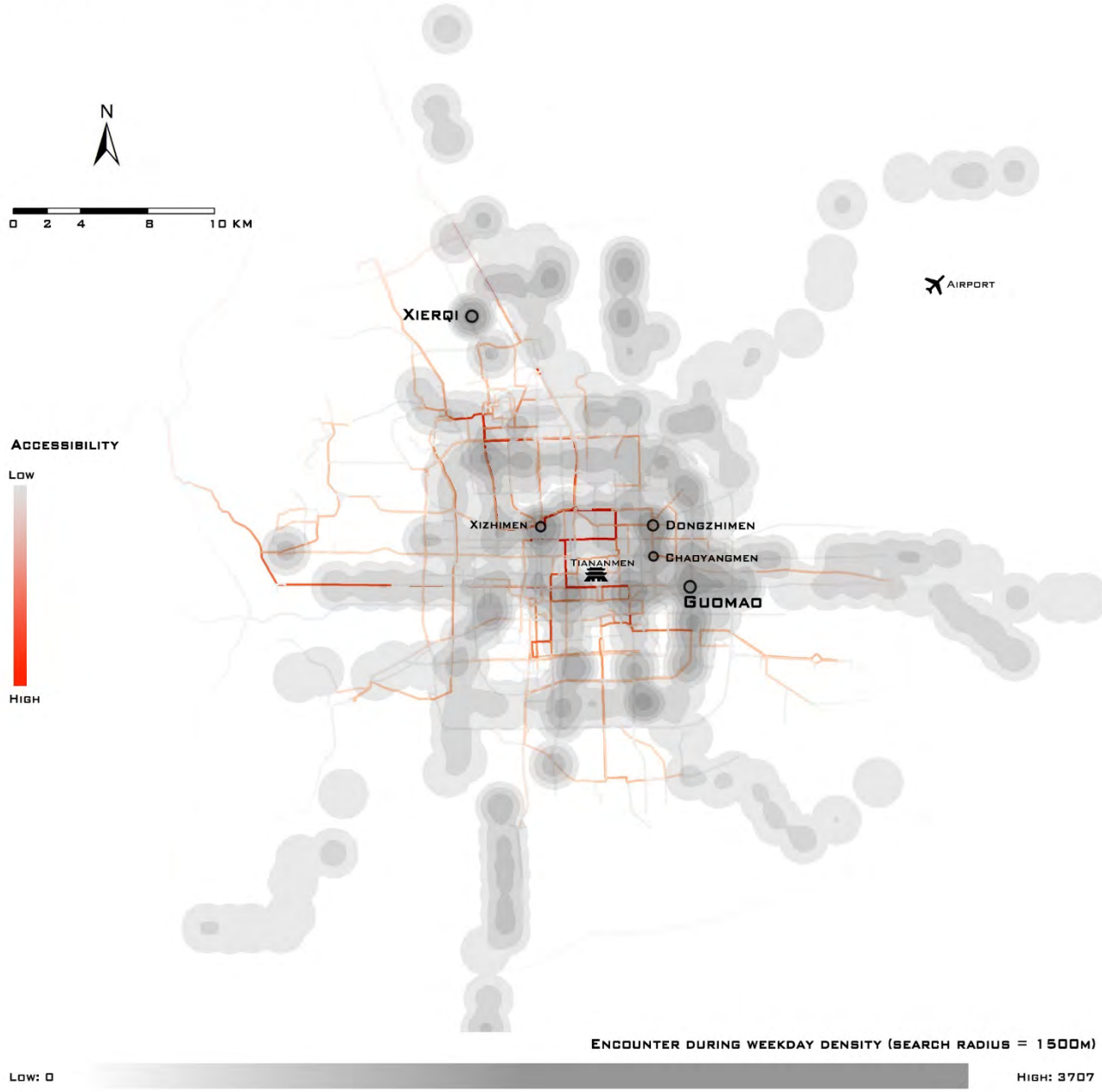
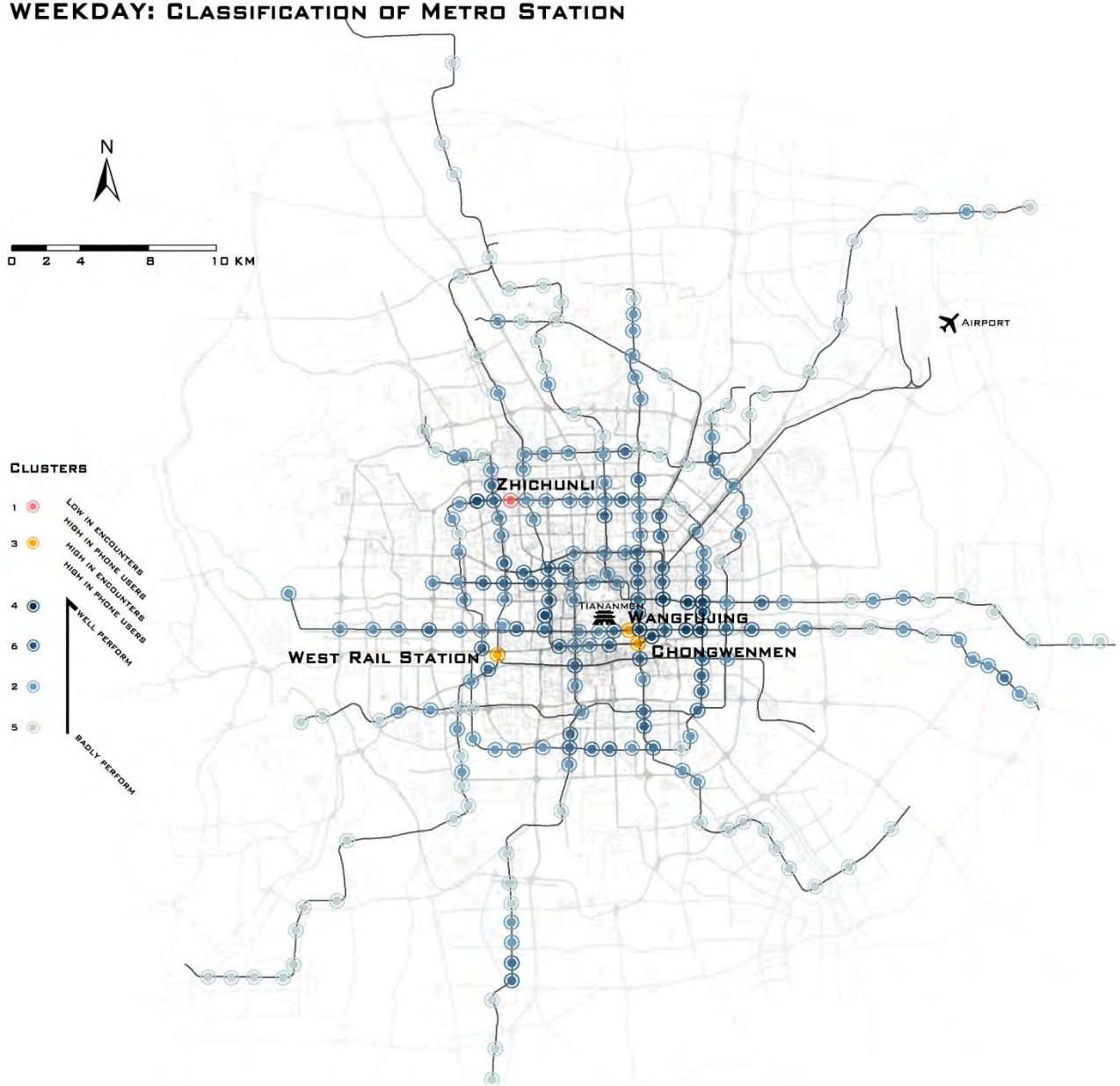


WEEKDAY: Accessibility - Encounters



WEEKDAY: Classification of Metro Station



Preliminary findings (based on visuals)

- CBD saw the most FS.
- The second to fifth most significant MSAs: Jianguomen, Xierqi and Tiantongyuanbei.
- The density of POIs is only positively correlated to FS at the CBD whereas Jianguomen, Xierqi and Tiantongyuanbei did not enjoy a high density of POIs as compared to other MSAs but were still among the top five sites for encounters.

Preliminary findings (2)

- Cellphone users can be used to well predict FS at MSAs in or around the CBD whereas they cannot do so at Xierqi, Tiantongyuanbei and Dongzimen.
- Interestingly, too many FS may be annoying to metro users. Tiantongyuanbei, for instance, on the hand is a popular site for FS, on the other hand is arguably a nightmare for many metro users during rush hours (Branigan, 2014).

Determinants of FS (Hypotheses)

Familiar Stranger

Built Environment

Certain BE characteristics would influence FS odds, e.g., urban-design quality of a MSA

Street Network

City street is a place to generate **casual interaction** with strangers.

The walkability and attractiveness level of the street affect FS

Population Distribution

The gathering of people will call for a rapid pace of social life development and **a higher chance of inter-face connection.**

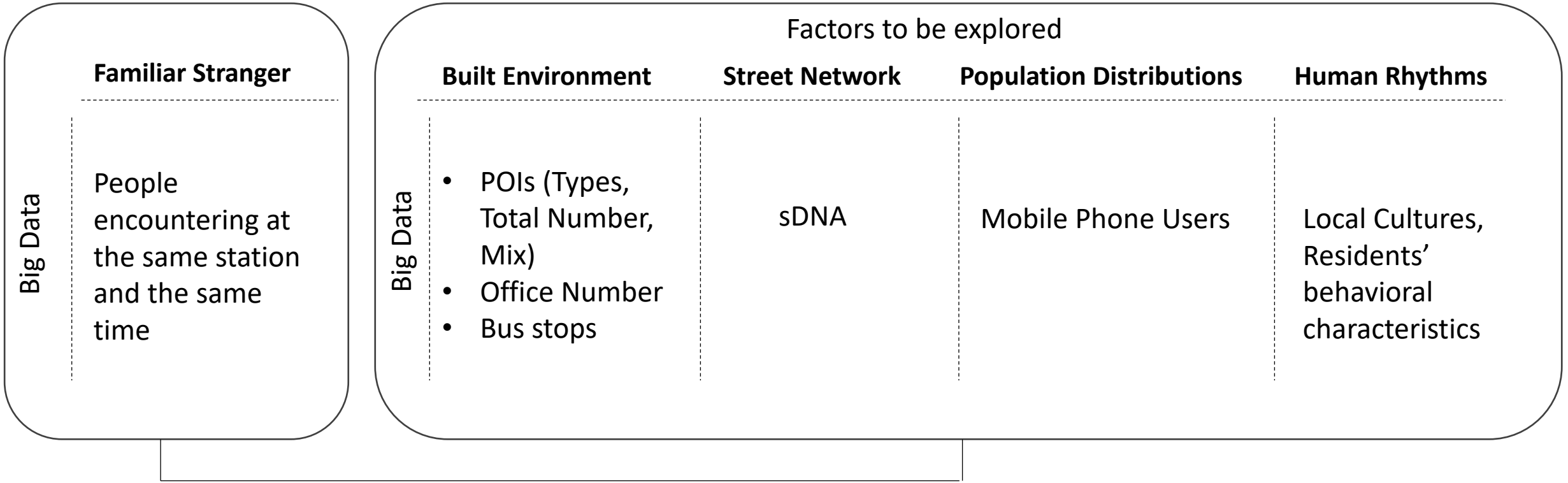
With larger population density and limited energy, **it's impossible to interact with all people passing by.**

Human Rhythms

People may go to some places at the same time for the same/similar purpose, e.g., commuting at a MSA

Factors to be explored

Methodology



Regression, clustering analysis, non-recursive models, structural equation models…

Sample models

Variable	mean	std	Correlation with weekend encounter
Weekday Encounter	751.344576	530.518128	1.000
POI number	227.99183673	231.448698275	0.574
Weekday Phone Users	17089.30634429	11590.490806628	0.504
Public Service	.1878797	.07904242	0.011
Junction number	167.71	89.441	0.382
Mean Crow Flight Distance	388.9766775515	30.99871221775	-0.122

Preliminary findings

Weekday Encounter = 0.574 * POI number + 0.504 * Weekday Phone Users – 1303.251 * Public Service+ 0.382 * Junction number – 2.044 * Mean Geodesic Length + 1197.56

All variables produce $R^2 = 0.432$, Significant F = 0.000.

Preliminary findings (2)

- Built environment (esp. junction number) and population do have significant impacts on FS
- POIs have mixed impacts on FS
- Network effects (i.e., various sDAN values) remain to be explored.

Conclusions and discussion

- FS is a old but intriguing phenomenon and concept
- We only know some of its significance/implications based on discrete arguments or evidences in existing studies, more need to be explored
- FS may be correlated to many other important social phenomena and concepts (including planning/policy ones, e.g., MSA, TODs and innovations)
- More need to be done about the above to gain more insights and countermeasures to deal with pros and cons of FS (e.g., traffic congestion caused by FS at MSAs)

Acknowledgements

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