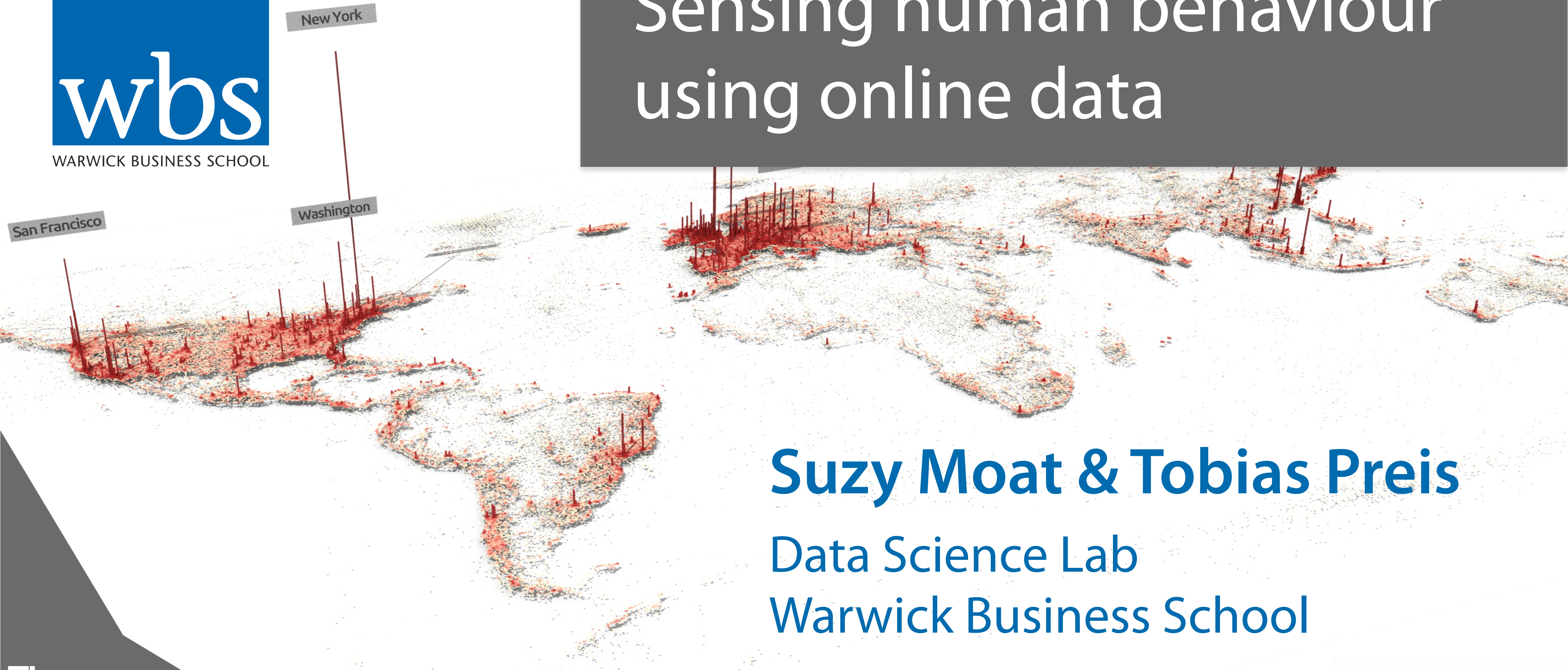
WARWICK BUSINESS SCHOOL

Sensing human behaviour using online data



Suzy Moat & Tobias Preis

Data Science Lab
Warwick Business School

@thedatascilab

The Alan Turing Institute

THE UNIVERSITY OF WARWICK

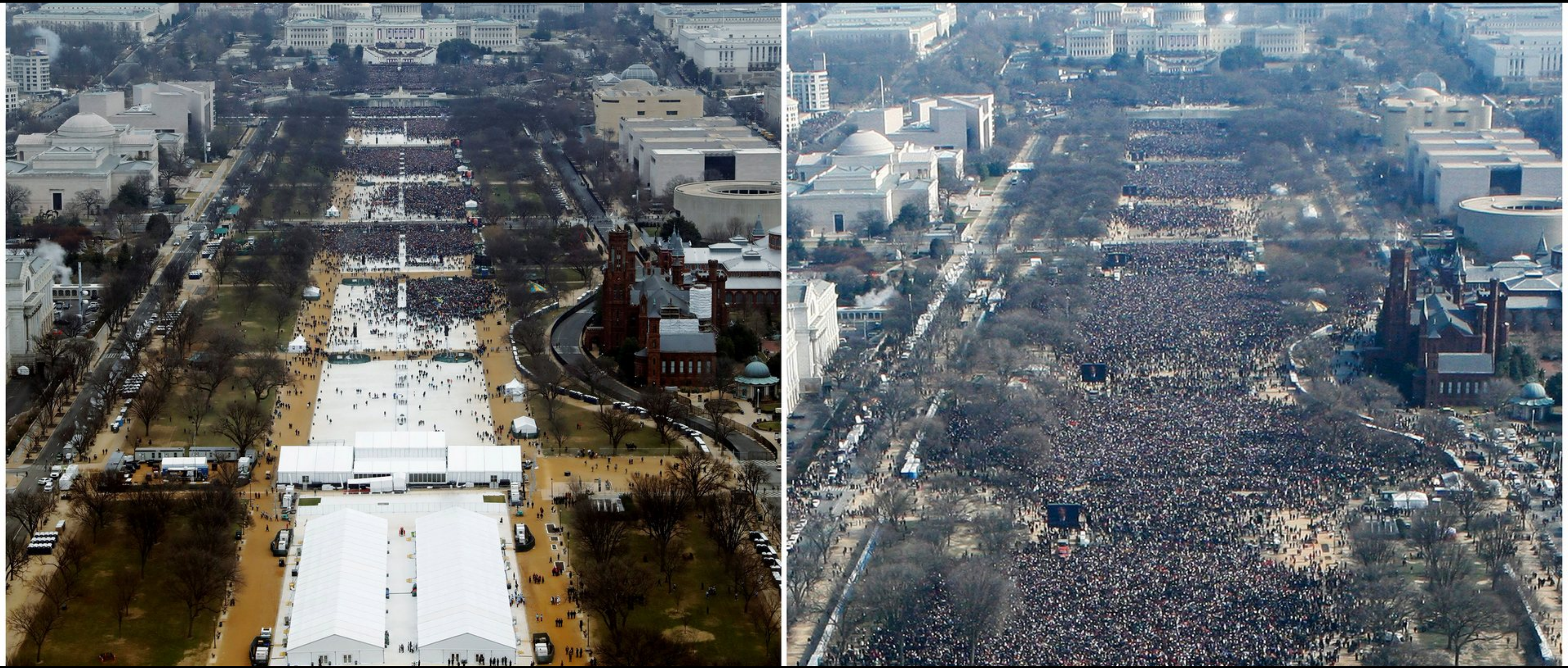
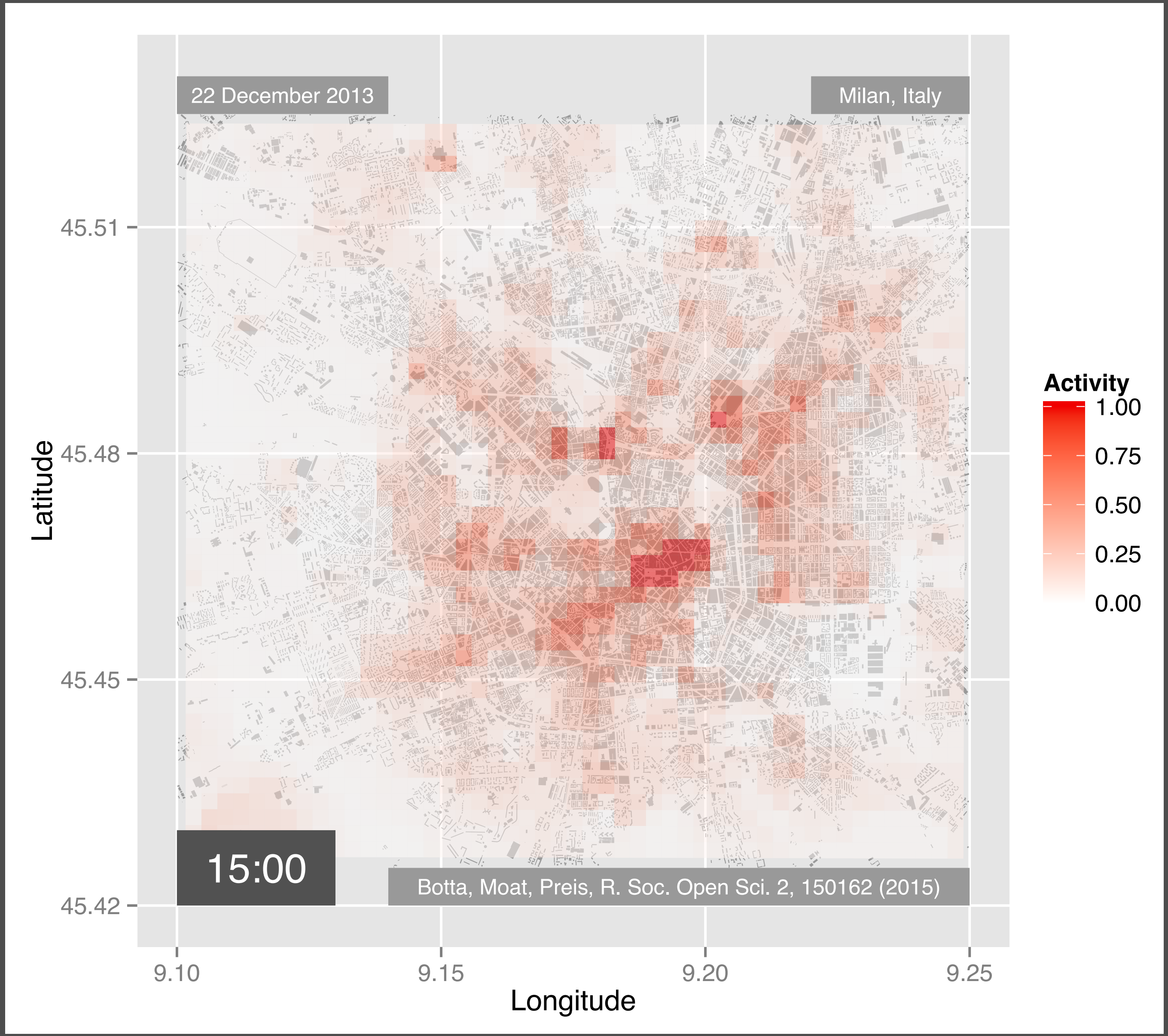
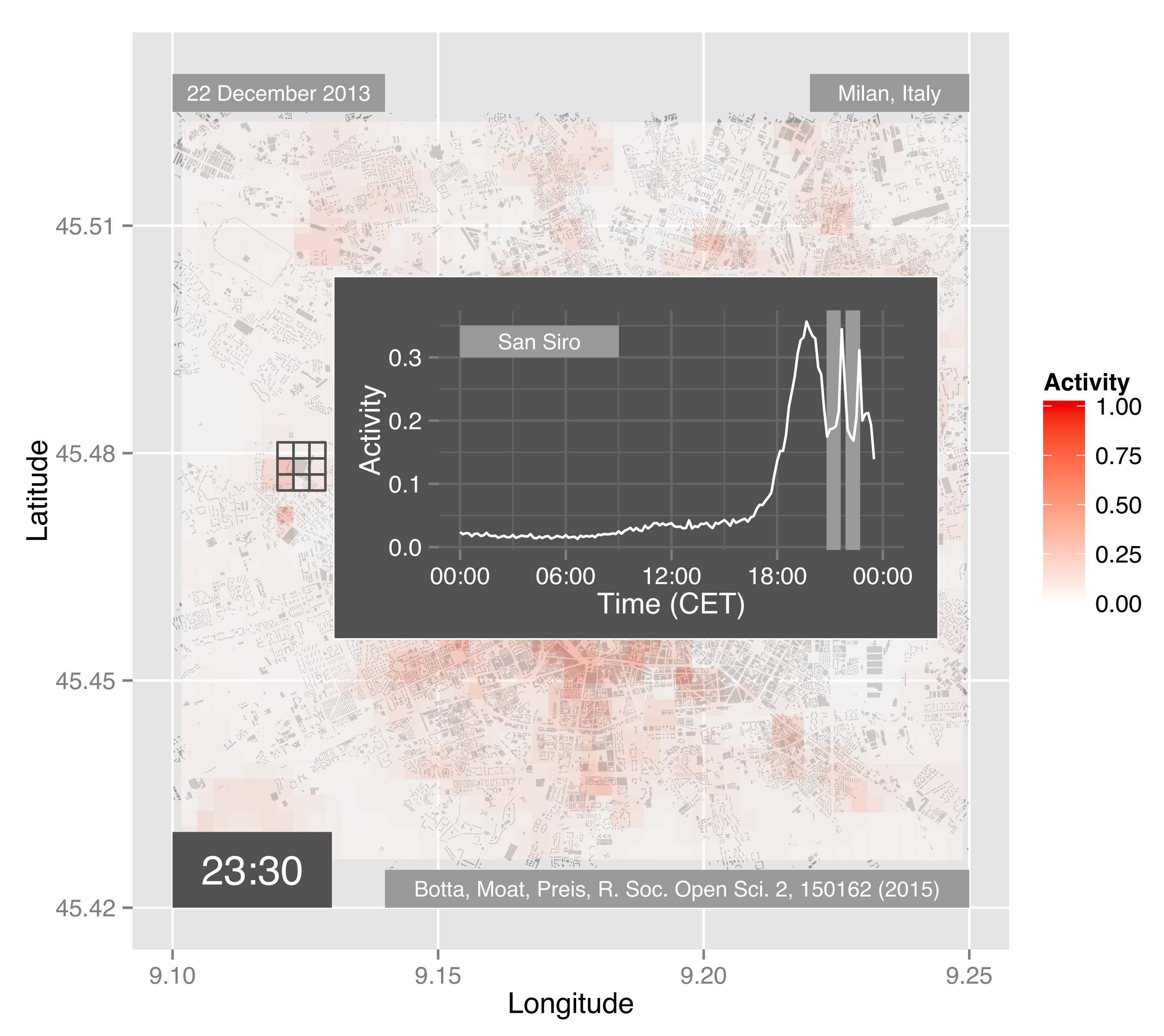


Photo: Reuters

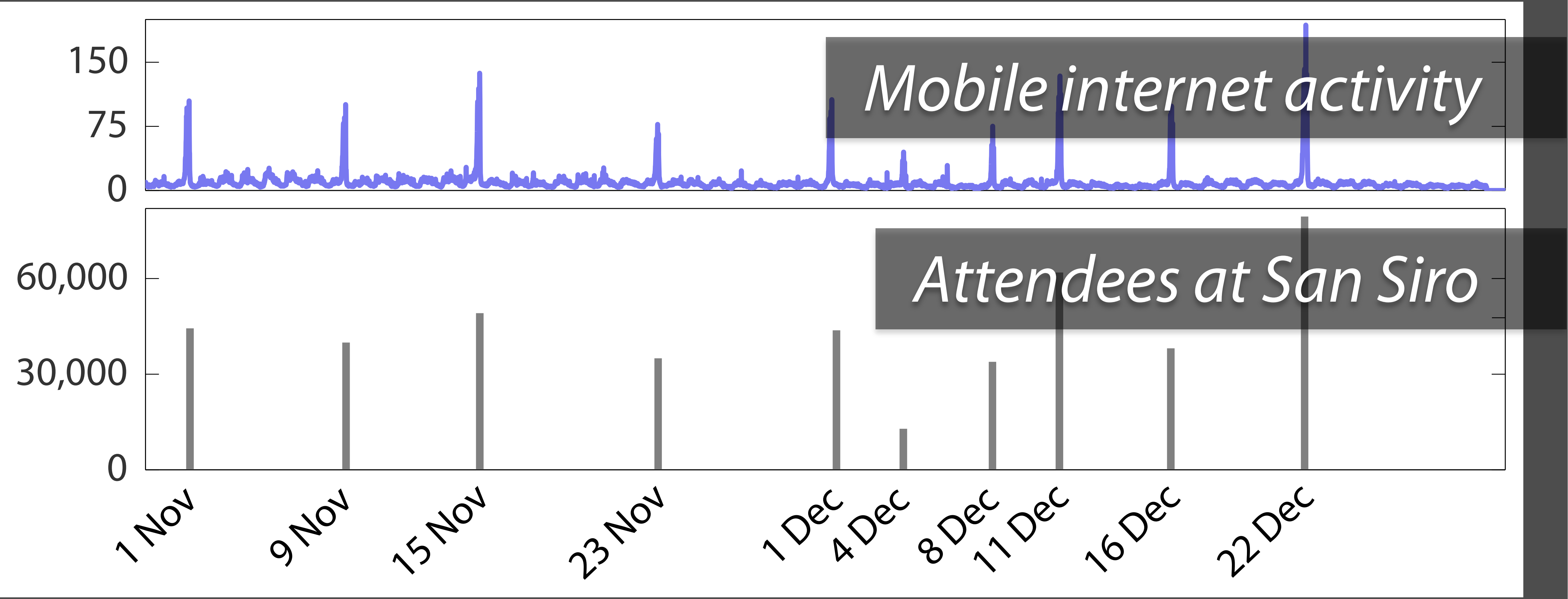
Photo: Kris Krüg



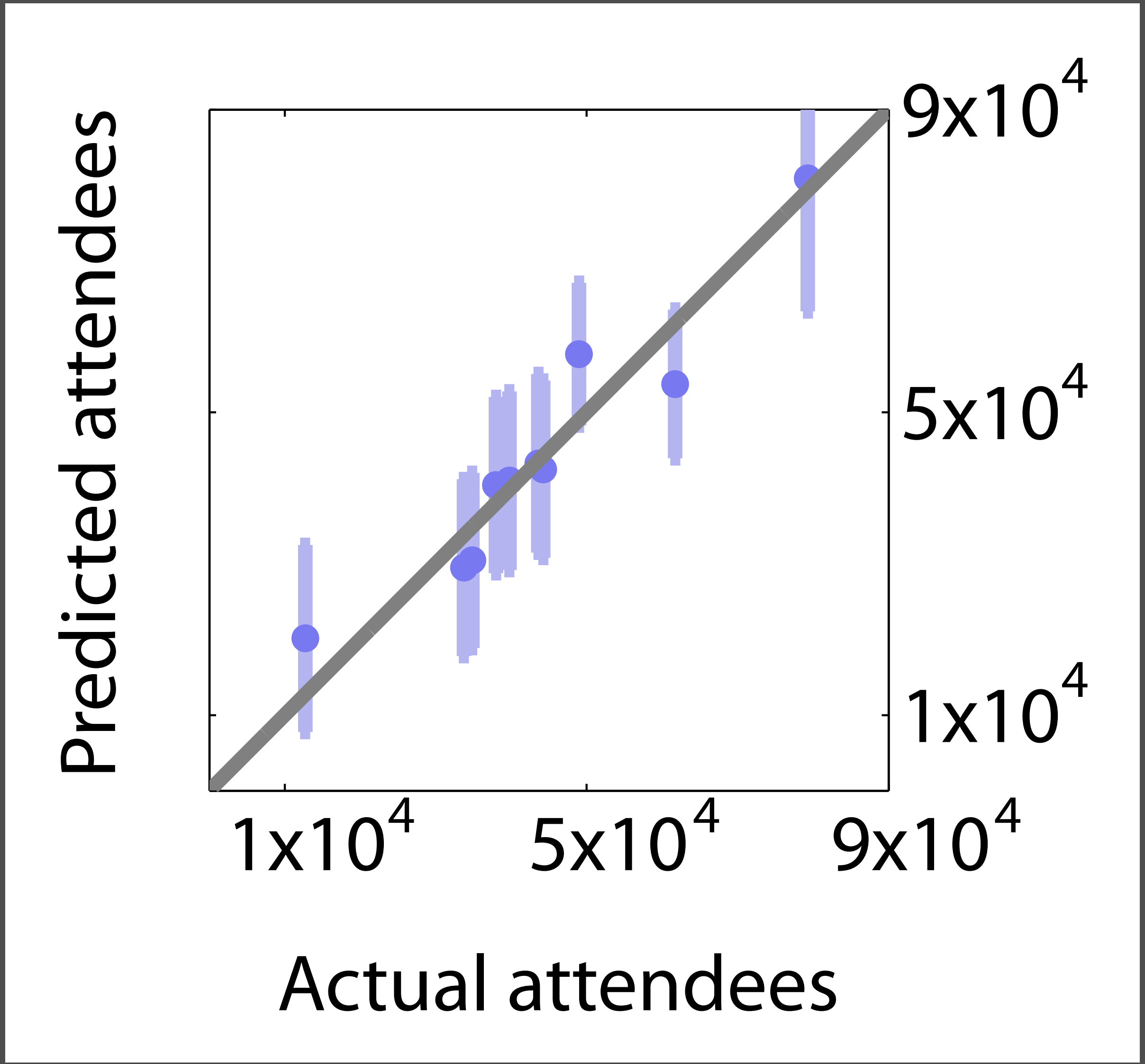
Milan
December 2013



Milan
December 2013



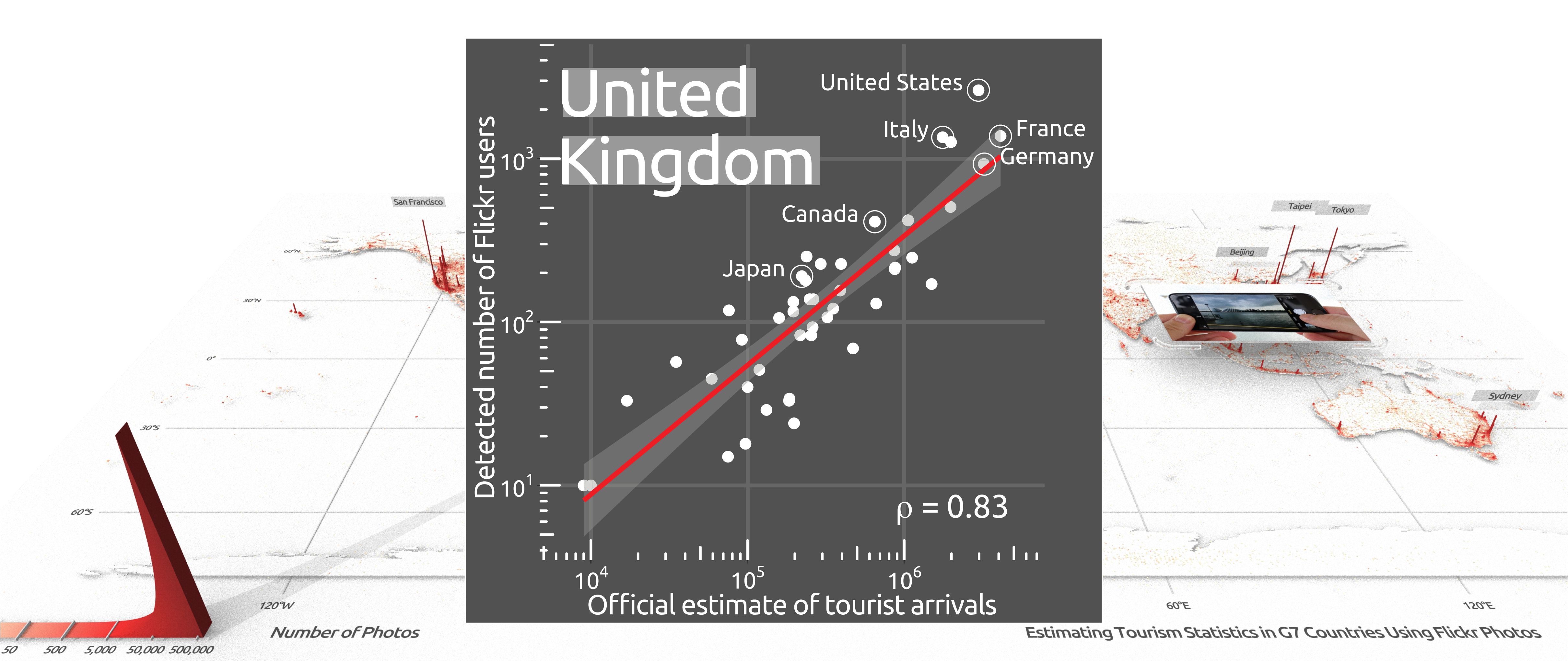
Botta, Moat & Preis (2015)



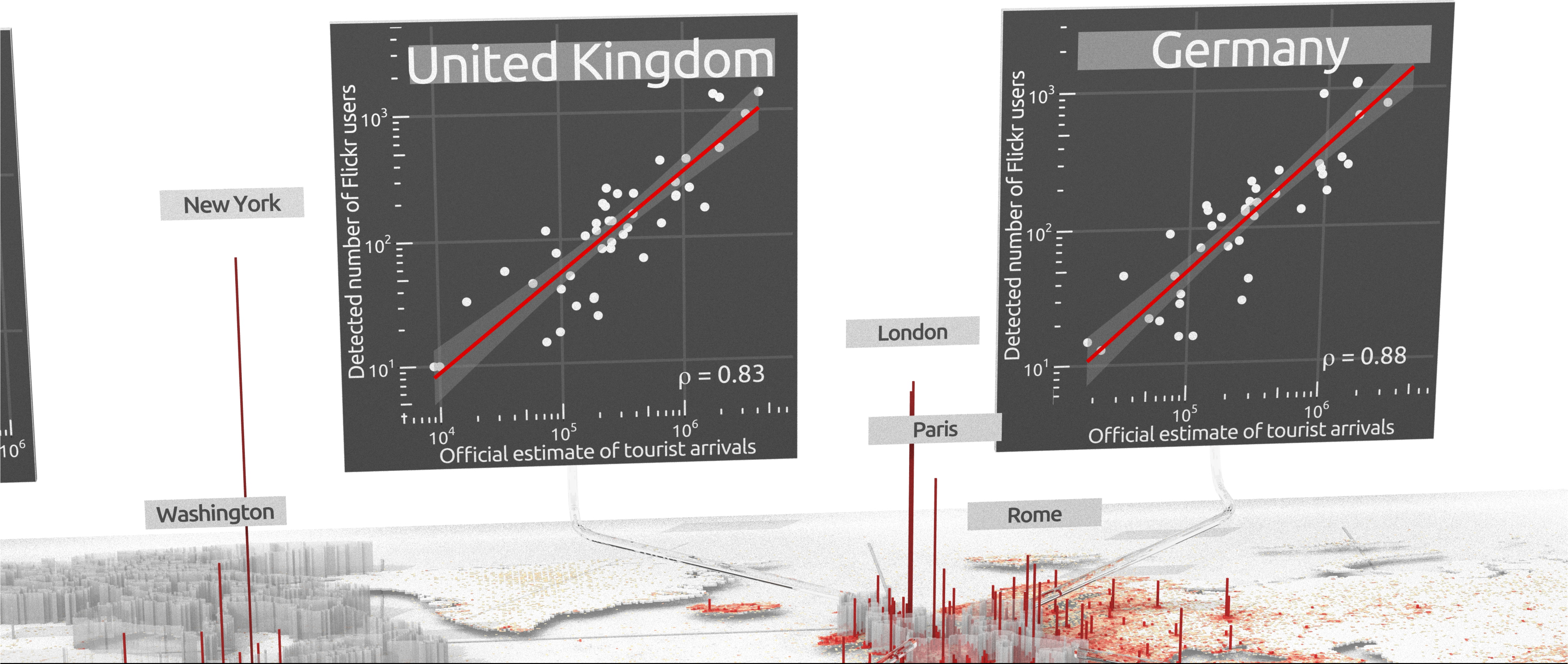
Match attendance estimated from phone activity

Botta, Moat & Preis (2015)

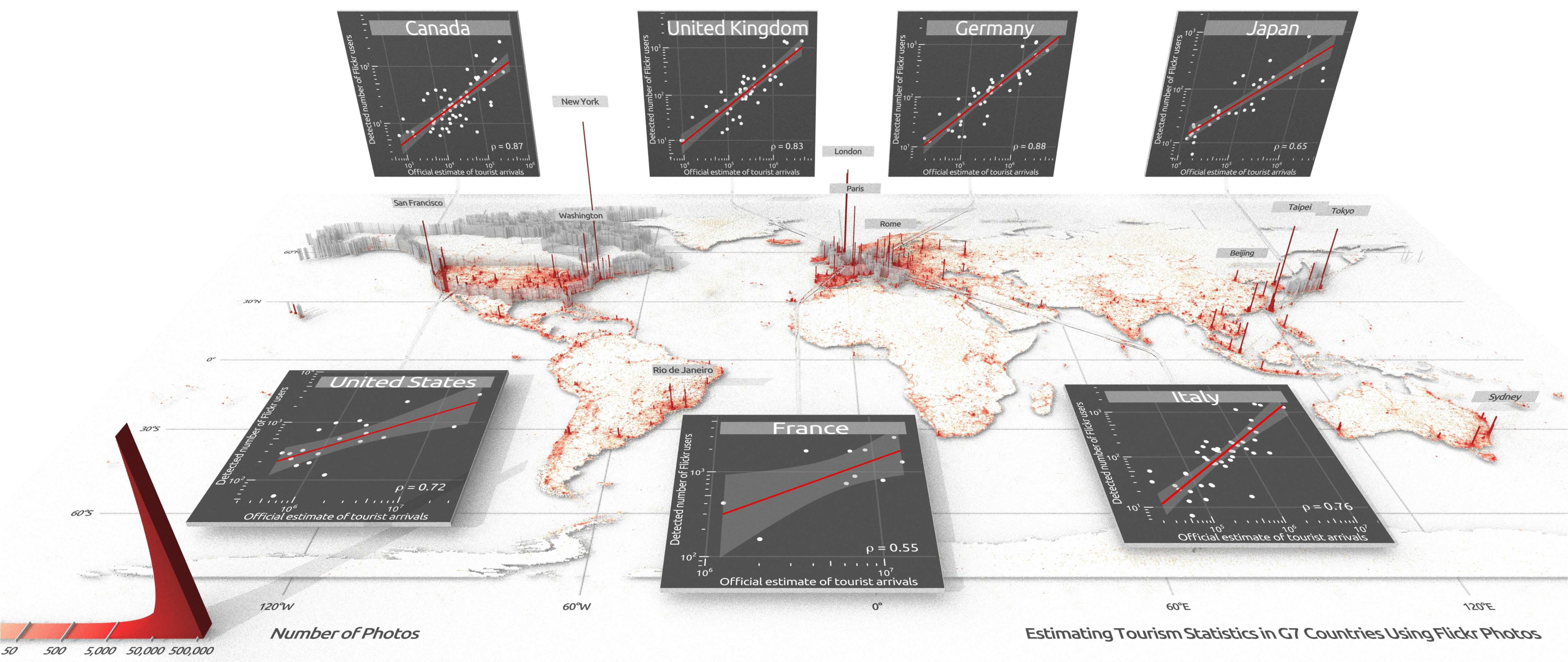

Beijing
Tokyo
Taipei
HDR
PANO
SQUARE
PHOTO
VIDEO
SLO-MO



Barchiesi, Moat, Alis, Bishop & Preis (2015)



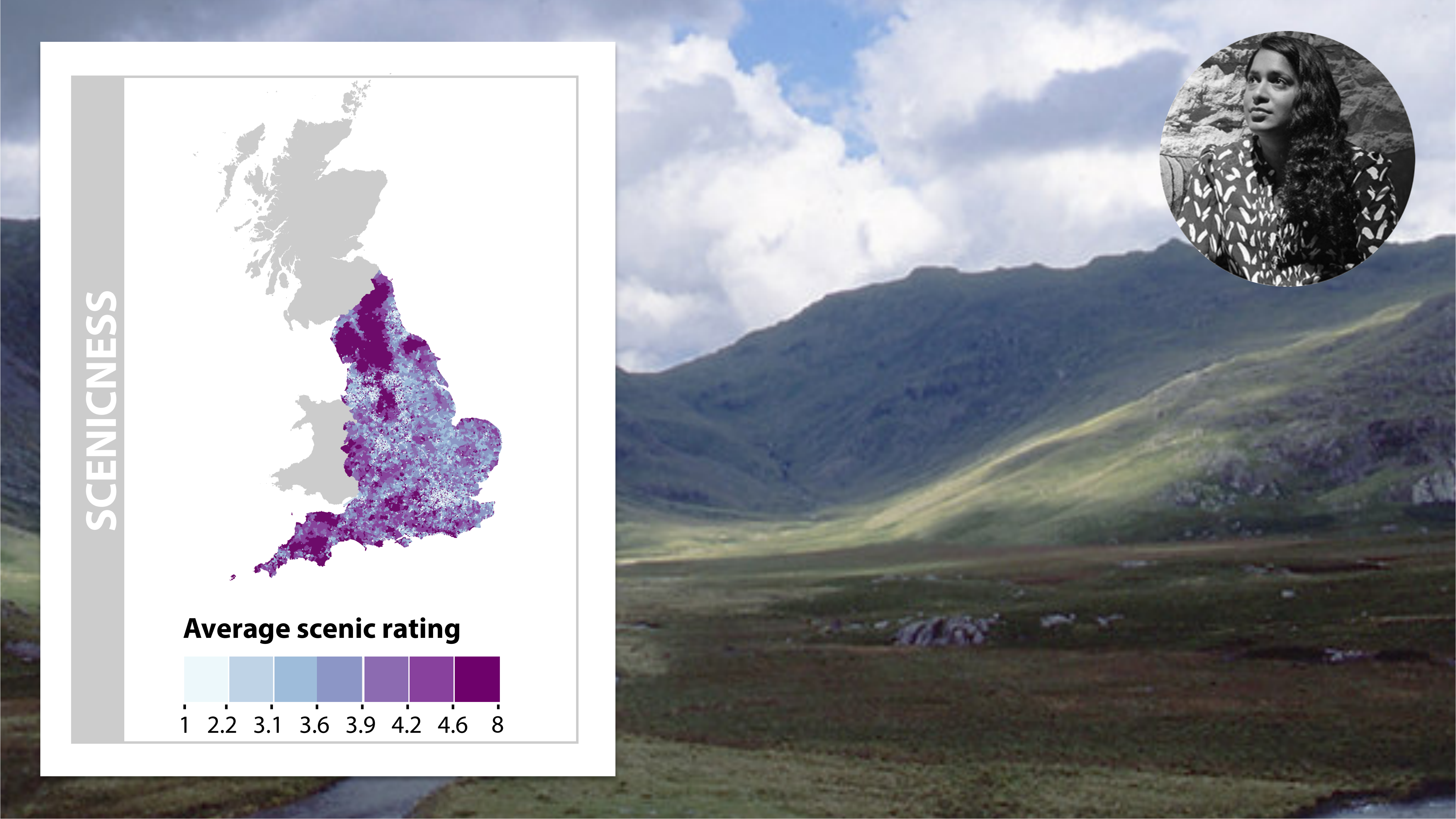
United Kingdom
Detected number of Flickr users
Official estimate of tourist arrivals
ρ = 0.83
Germany
ρ = 0.88
New York
Washington
London
Paris
Rome

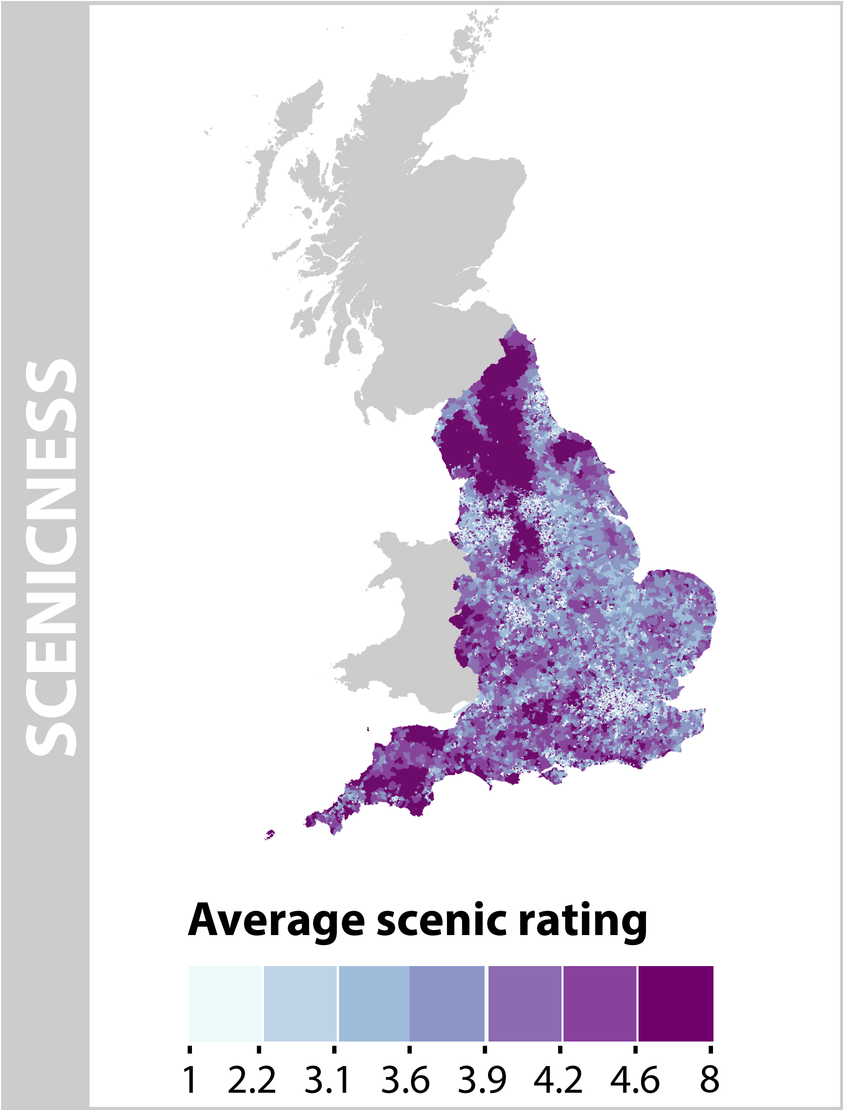


Canada
United Kingdom
Germany
Japan
United States
France
Italy
Detected number of Flickr users
Official estimate of tourist arrivals
ρ = 0.87
ρ = 0.83
ρ = 0.88
ρ = 0.65
ρ = 0.72
ρ = 0.55
ρ = 0.76
New York
London
Paris
Rome
San Francisco
Washington
Taipei
Tokyo
Beijing
Rio de Janeiro
Sydney
60°N
30°N
0°
30°S
60°S
120°W
60°W
0°
60°E
120°E
Number of Photos
50
500
5,000
50,000
500,000
Estimating Tourism Statistics in G7 Countries Using Flickr Photos

Photo: Tom Richardson

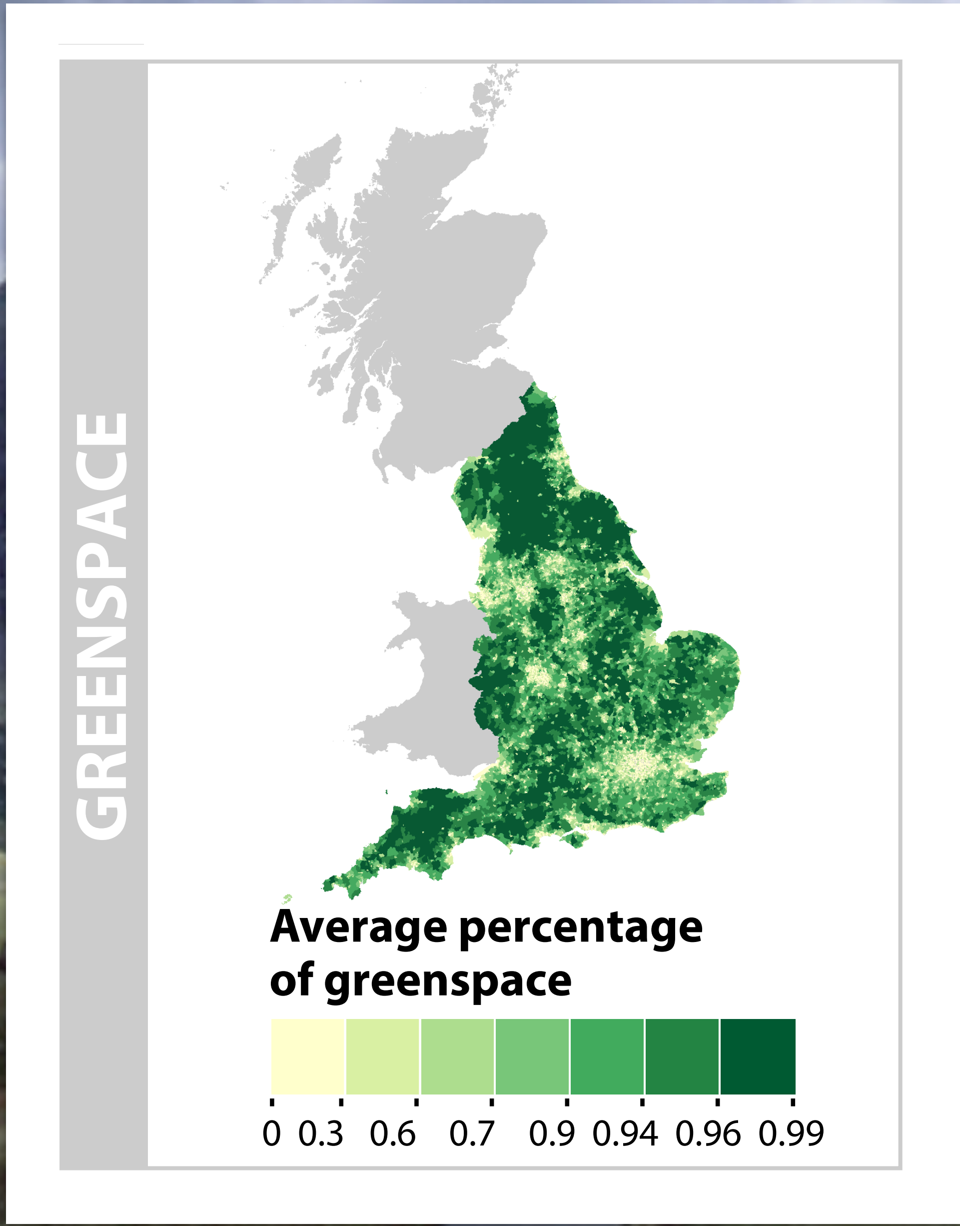

SCENIC OR NOT
Rate Great Britain's pretty places
VOTING BOARD
- click numbers below to vote -
Not Scenic
1 2 3 4 5 6 7 8 9 10
Very Scenic
Home
FAQ
Leaderboard
ScenicOrNot helps you to explore every corner of England, Scotland and Wales, all the while comparing your aesthetic judgements with fellow players.
Photo by David Wild (Licence)

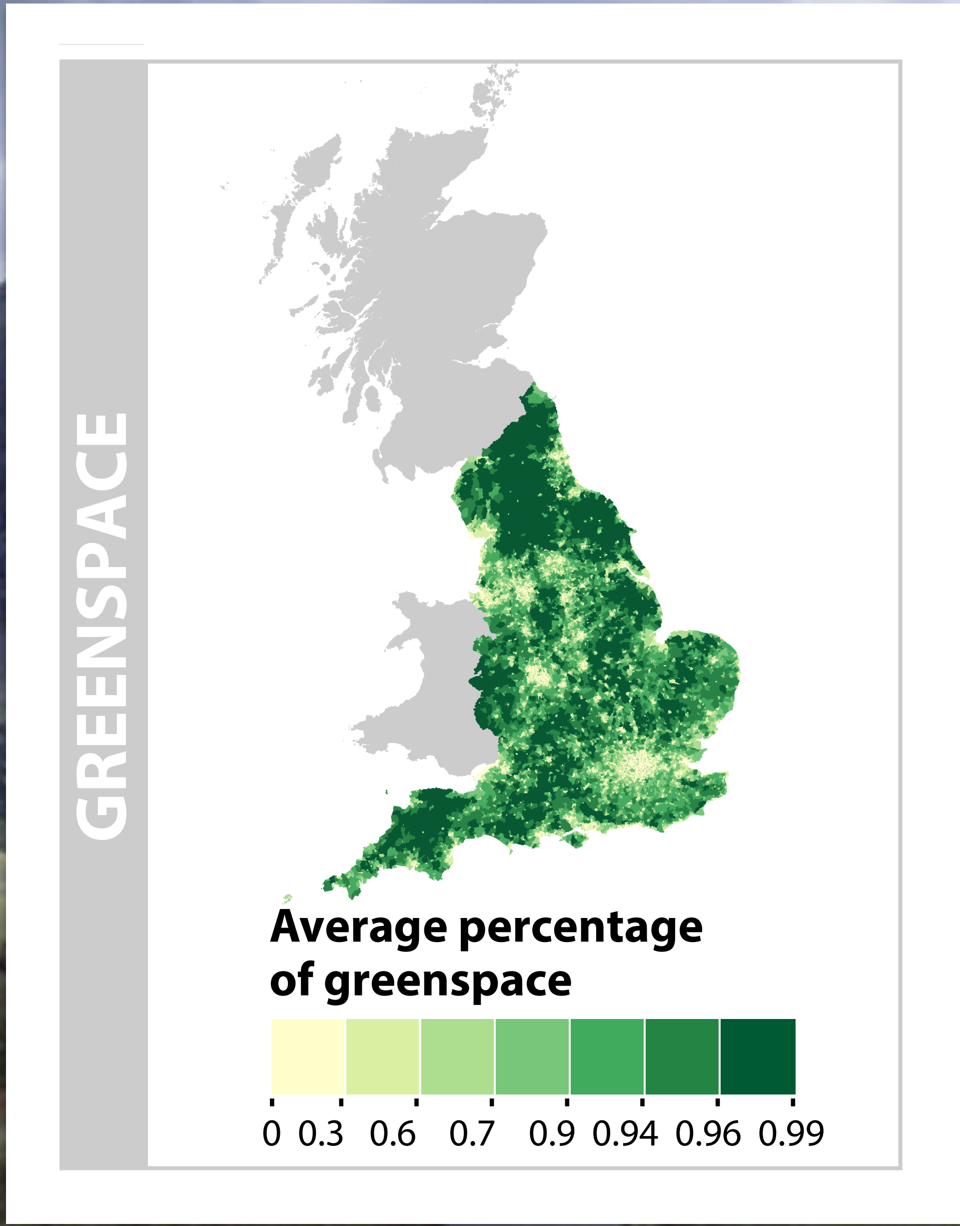

SCENICNESS
Average scenic rating
1
2.2
3.1
3.6
3.9
4.2
4.6
8



People who live in more scenic locations report better health

Seresinhe, Preis & Moat (2015)


GREENSPACE
Average percentage of greenspace
0 0.3 0.6 0.7 0.9 0.94 0.96 0.99


GREENSPACE
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0
0.3
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0.7
0.9
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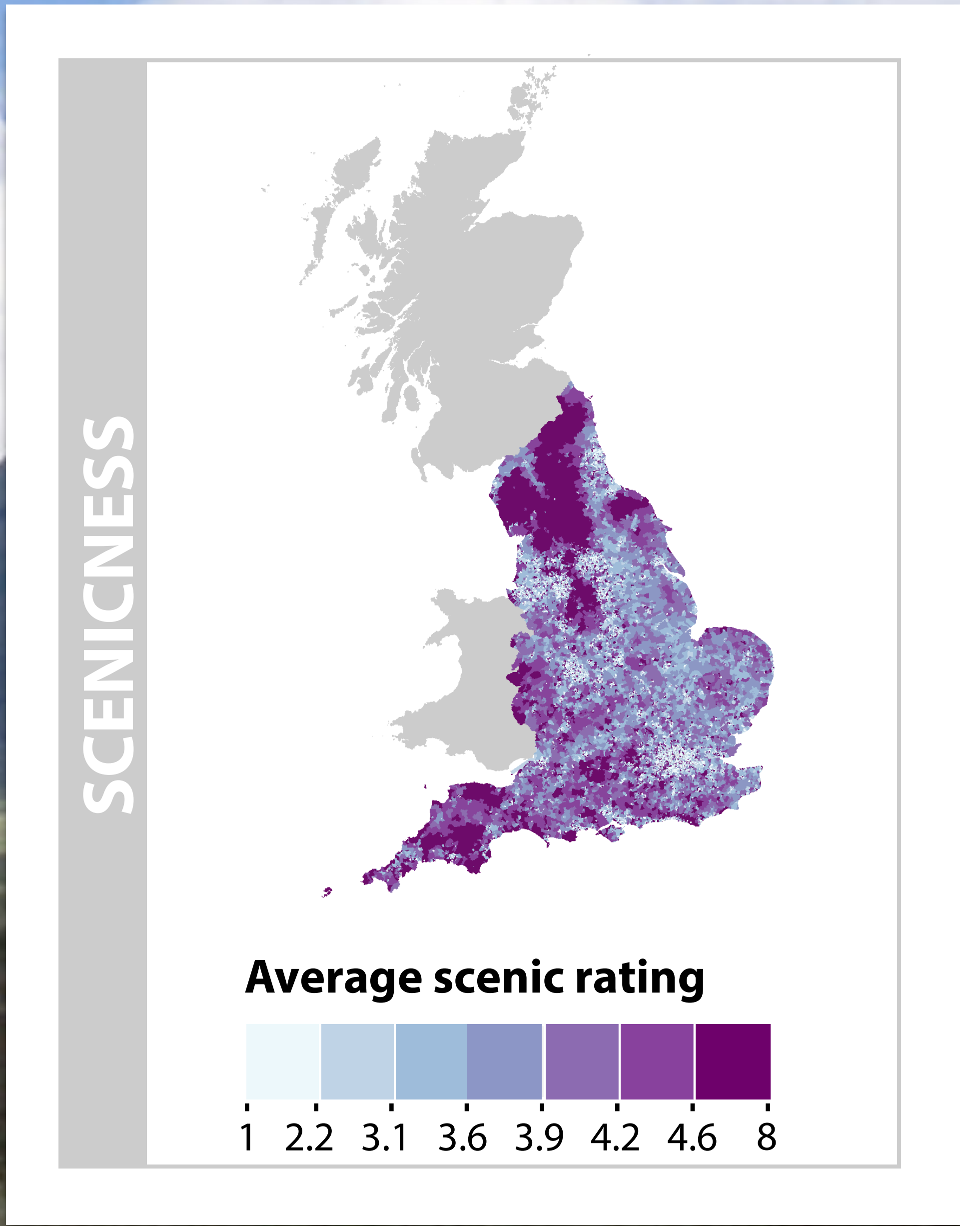
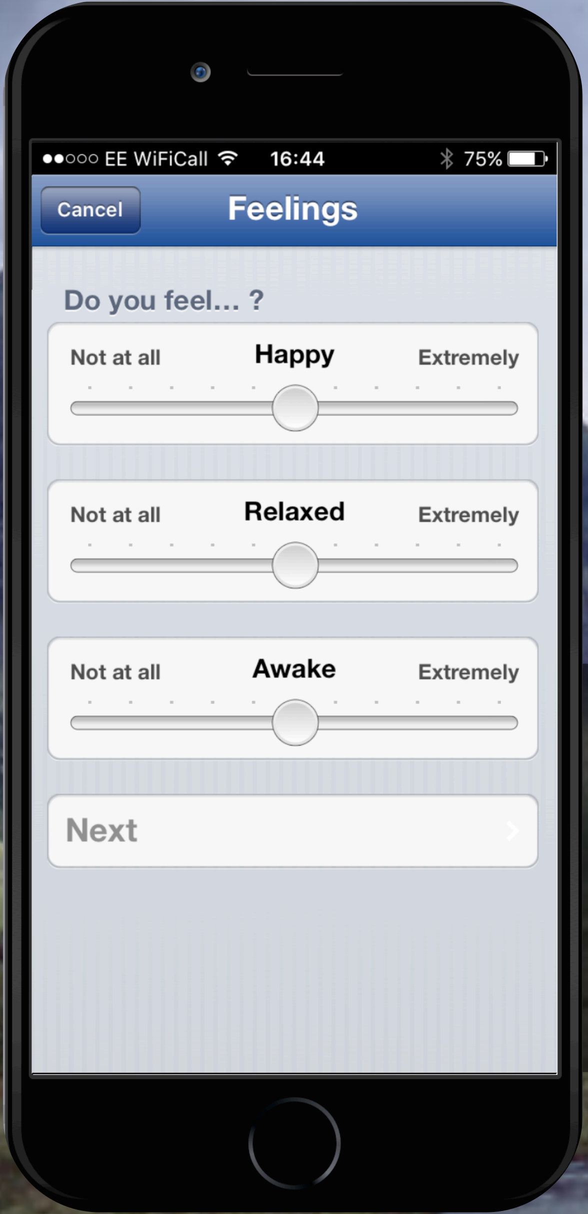
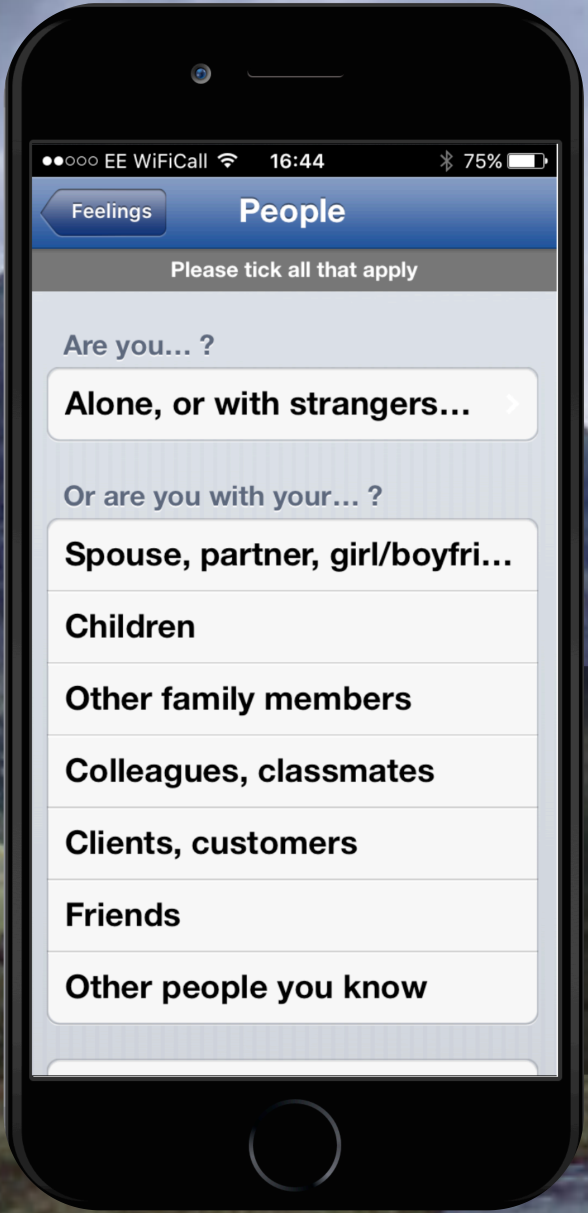
0.96
0.99


SCENICNESS
Average scenic rating
1
2.2
3.1
3.6
3.9
4.2
4.6
8



George MacKerron's Mappiness

mappiness.org.uk

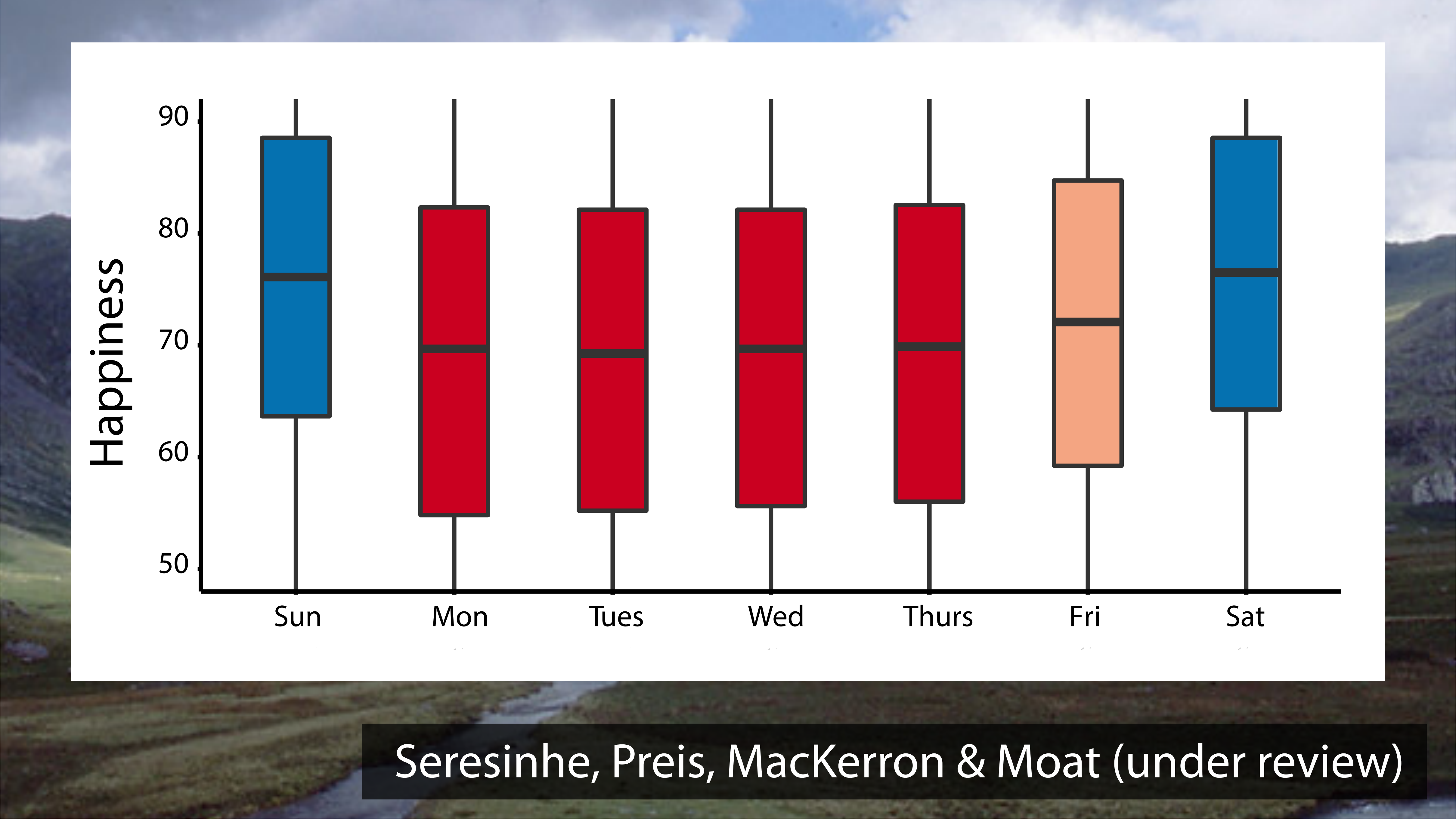


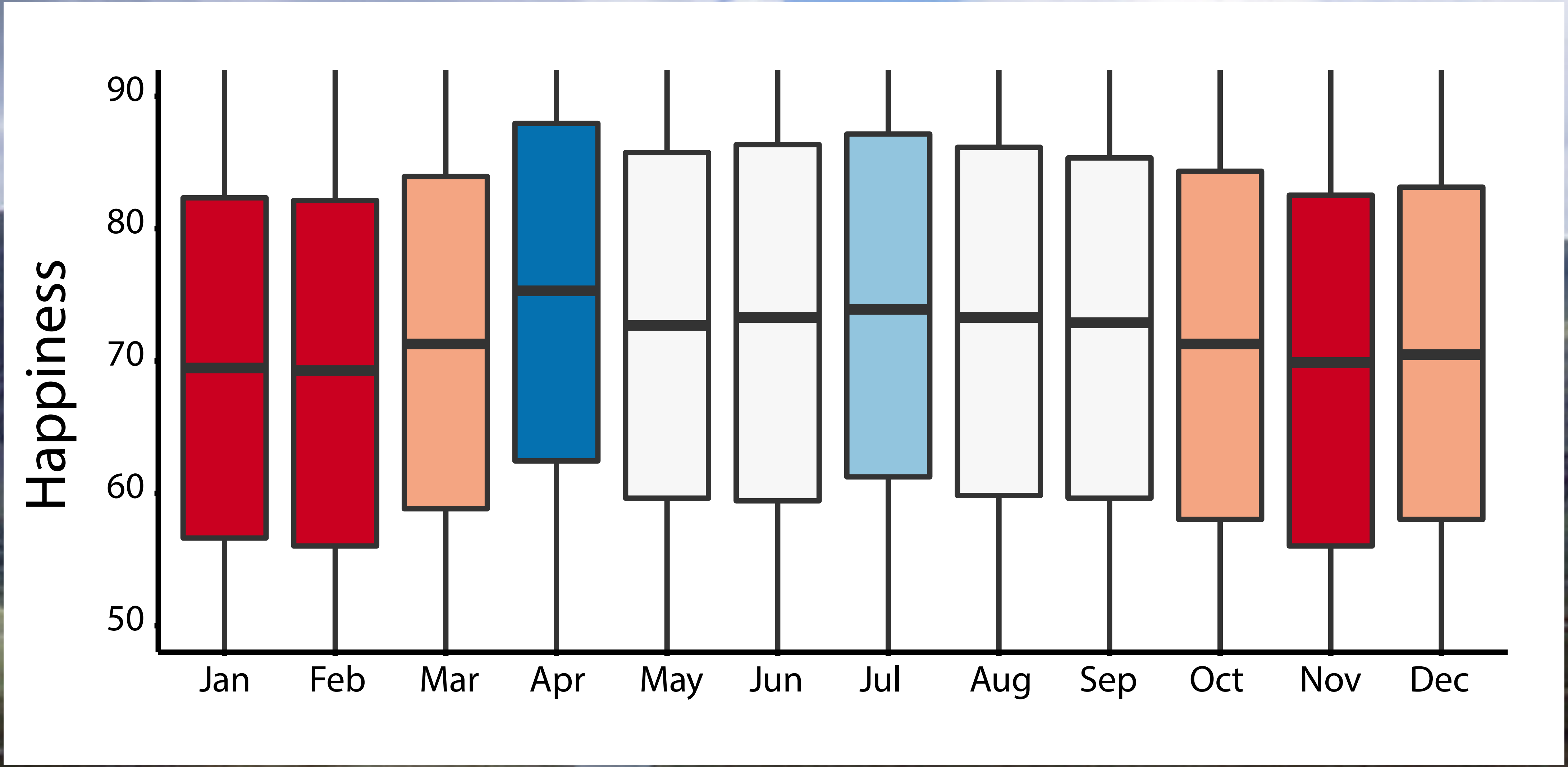
George MacKerron's Mappiness

mappiness.org.uk

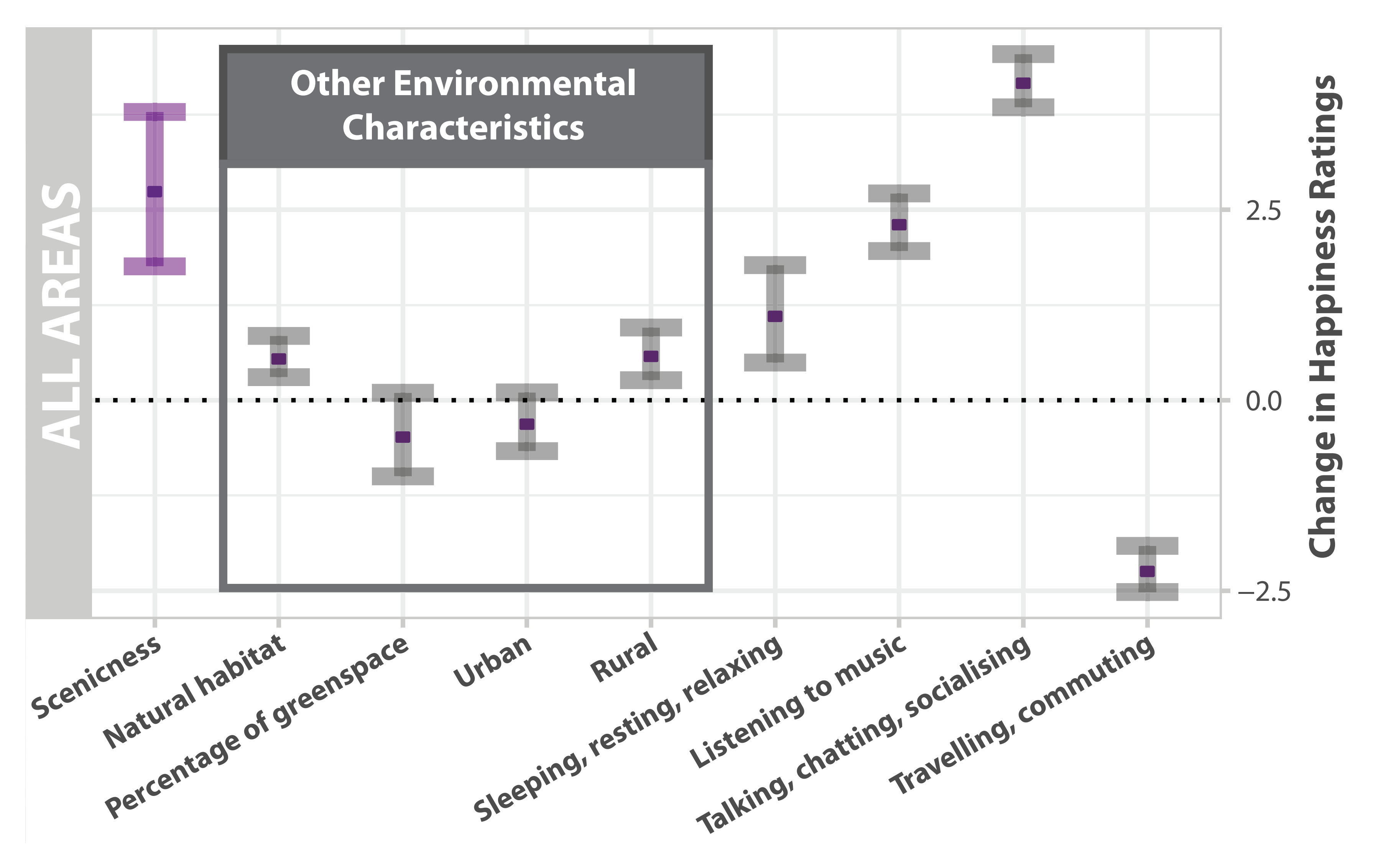
George MacKerron's Mappiness

mappiness.org.uk


Happiness
90
80
70
60
50
Sun
Mon
Tues
Wed
Thurs
Fri
Sat
Seresinhe, Preis, MacKerron & Moat (under review)



Seresinhe, Preis, MacKerron & Moat (under review)



Seresinhe, Preis, MacKerron & Moat (under review)

Places365 Categories	*0.293*	Valley
	0.203	Lake Natural
	0.128	Mountain
SUN Scene Attributes	*0.856*	Natural Light
	0.081	Open Area
	0.058	Sailing / Boating

Seresinhe, Preis & Moat (2017)


Lake natural
+
Seresinhe, Preis
& Moat (2017)

Lake natural

Valley

Seresinhe, Preis & Moat (2017)

Lake natural

Industrial area

Valley

Seresinhe, Preis & Moat (2017)

Lake natural

Industrial area

Valley

Hospital

Seresinhe, Preis & Moat (2017)


Cottage
+
Seresinhe, Preis
& Moat (2017)

Cottage

Viaduct

Seresinhe, Preis & Moat (2017)

Cottage

Trees

Viaduct

Seresinhe, Preis & Moat (2017)

Cottage

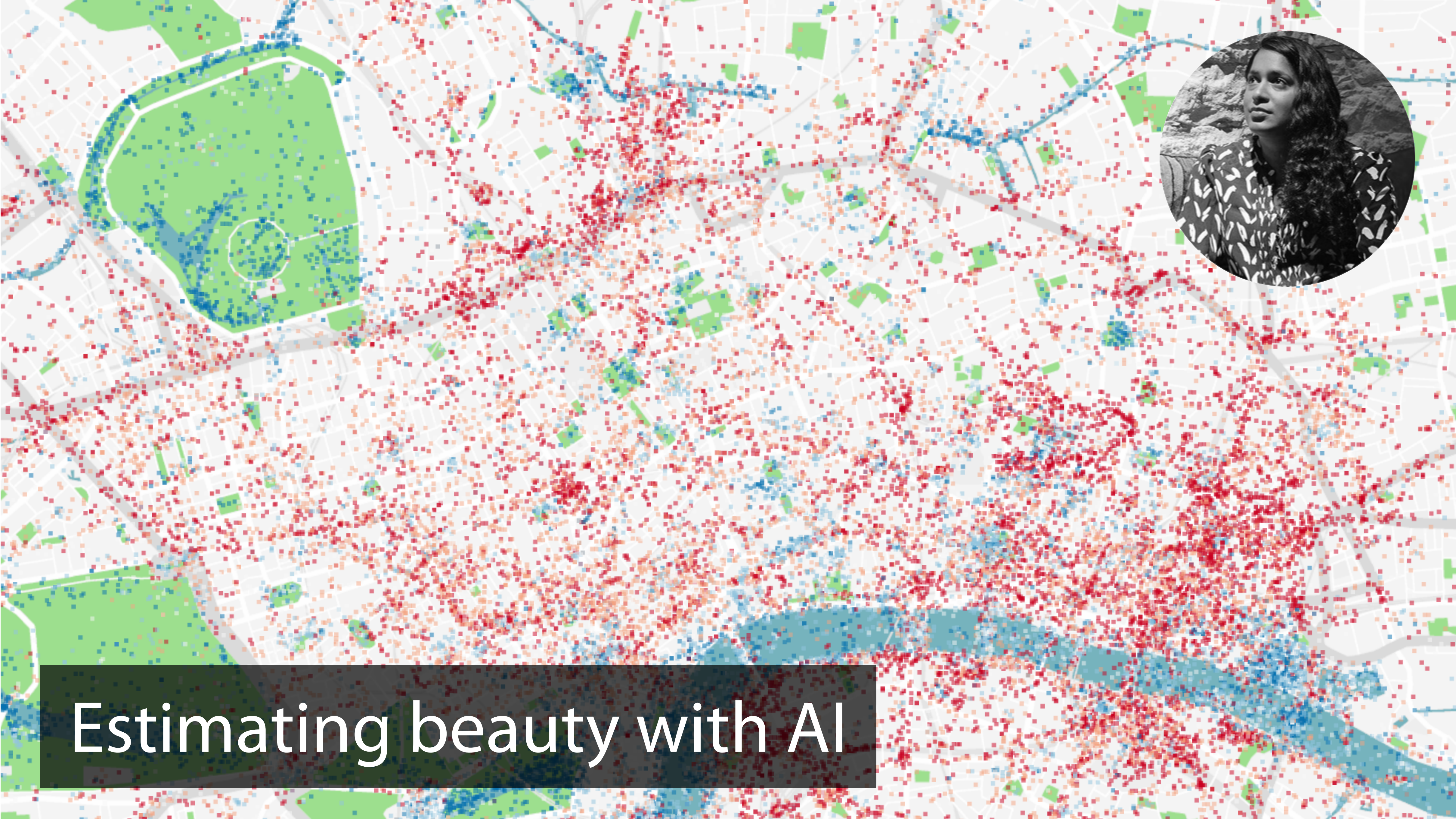
Trees

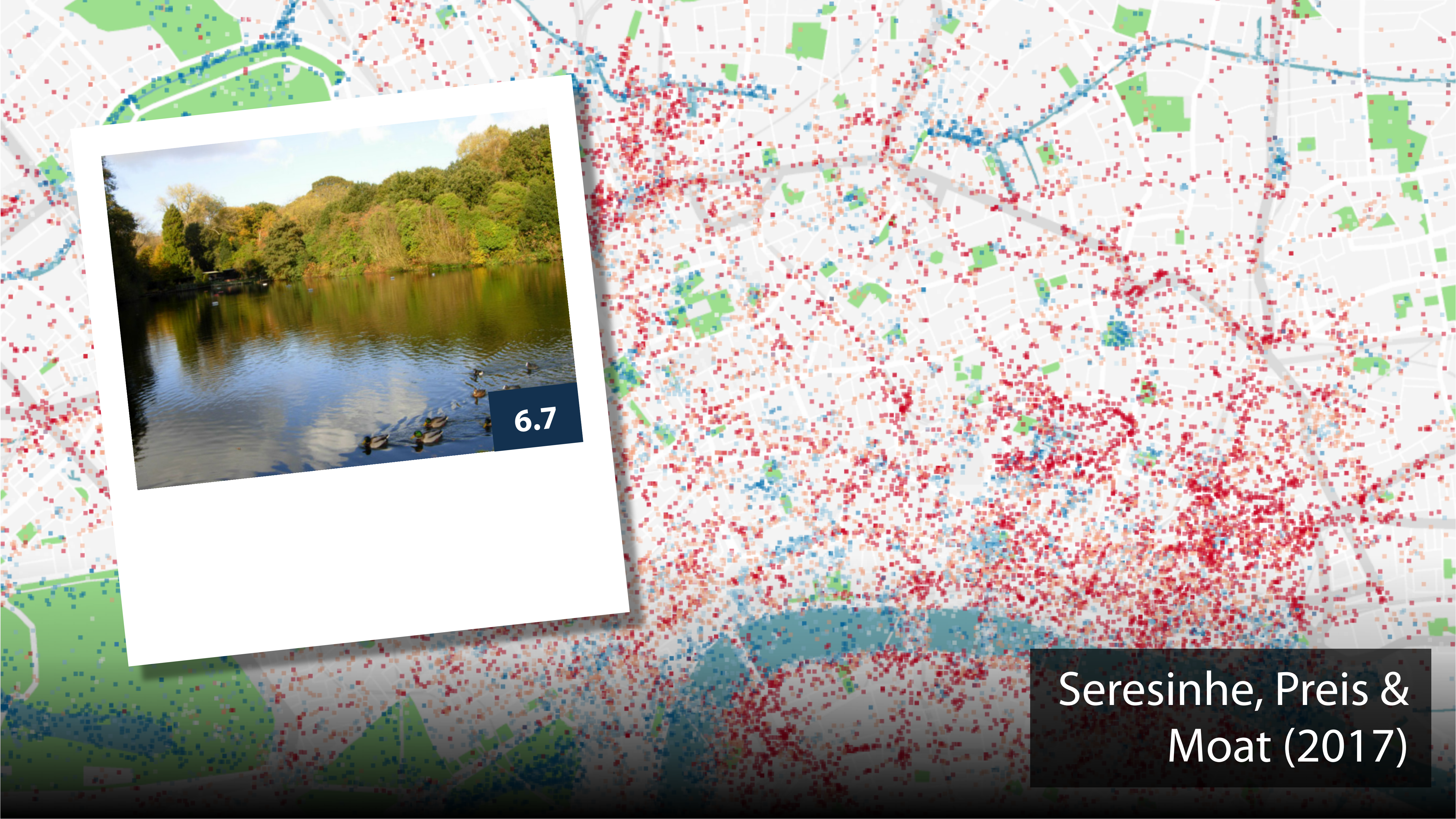
Viaduct

Grass

Seresinhe, Preis & Moat (2017)

Estimating beauty with AI

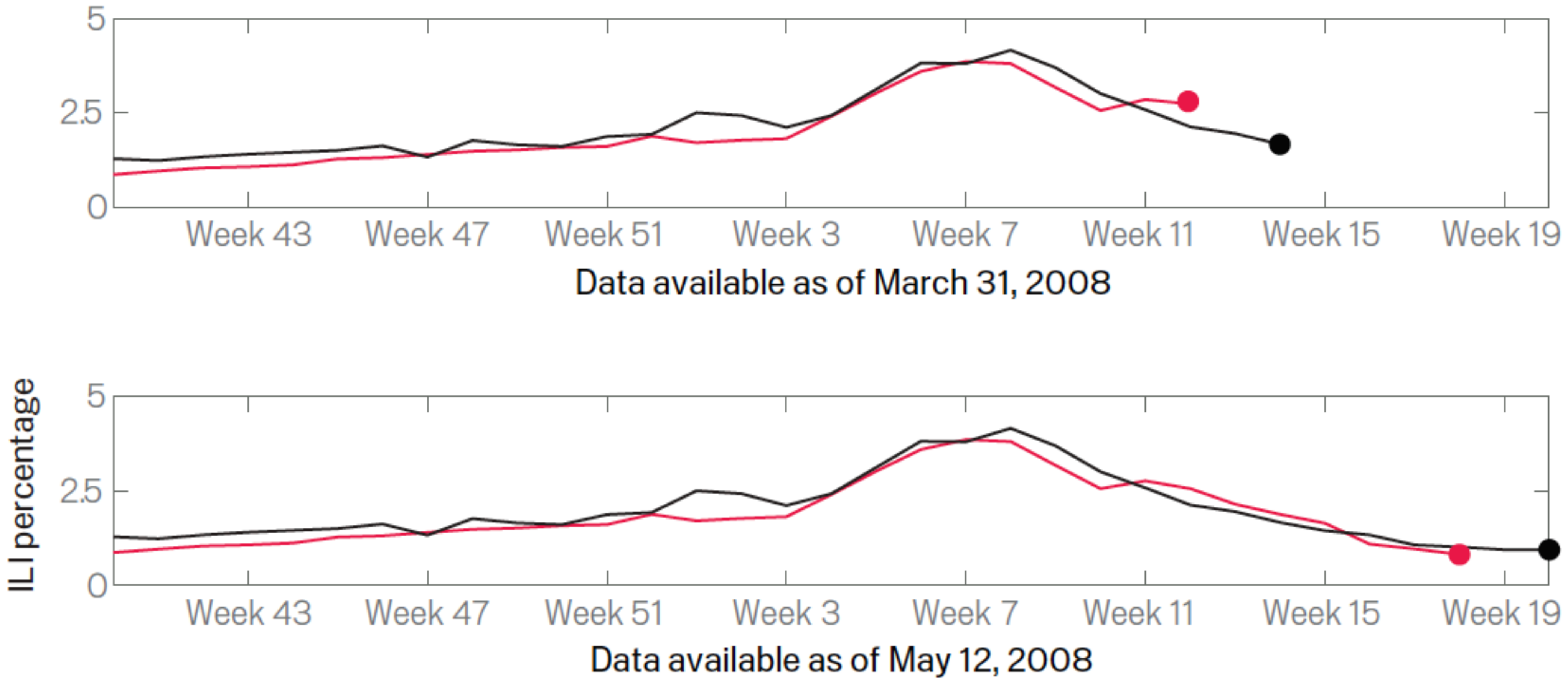



6.7
Seresinhe, Preis & Moat (2017)


4.5
Seresinhe, Preis & Moat (2017)

Seresinhe, Preis & Moat (2017)

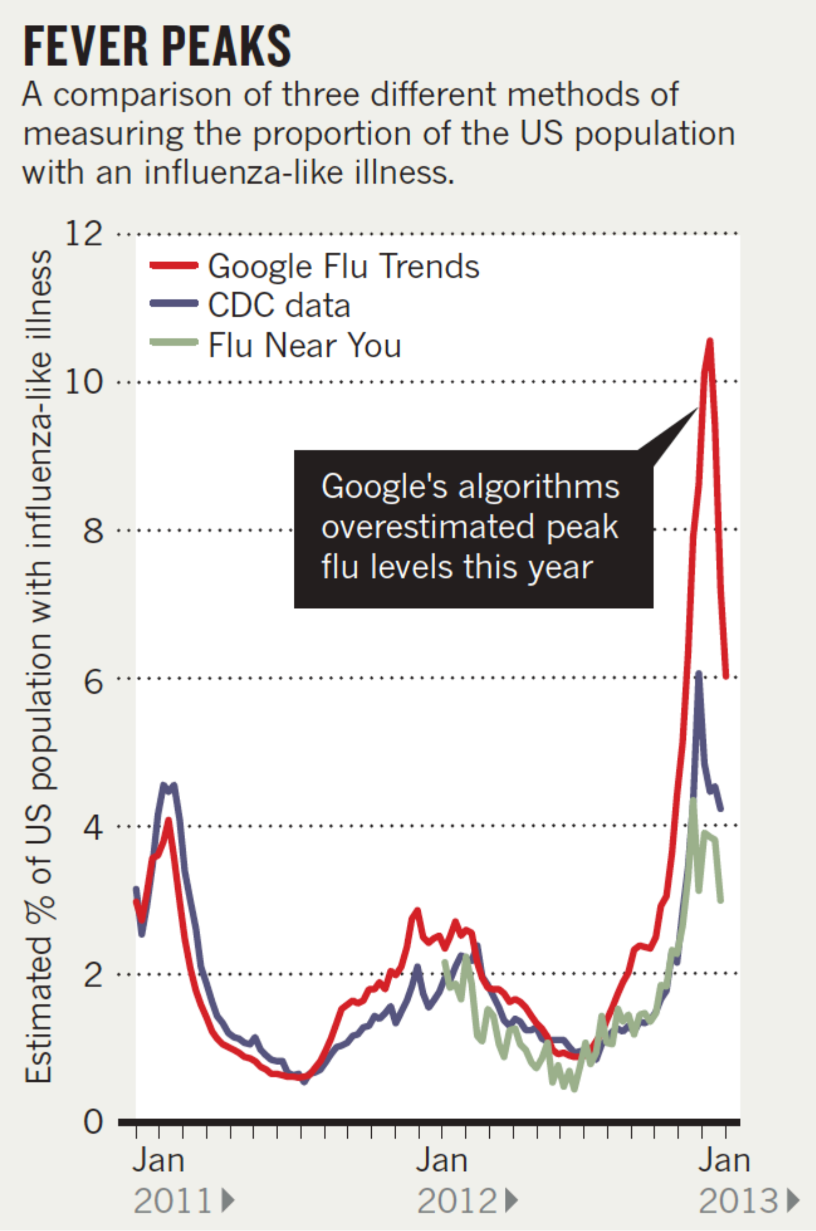

Google
MacBook Pro



Flu data

Google Trends estimate

Ginsberg *et al.*, *Nature* **368**, 1012 (2009)



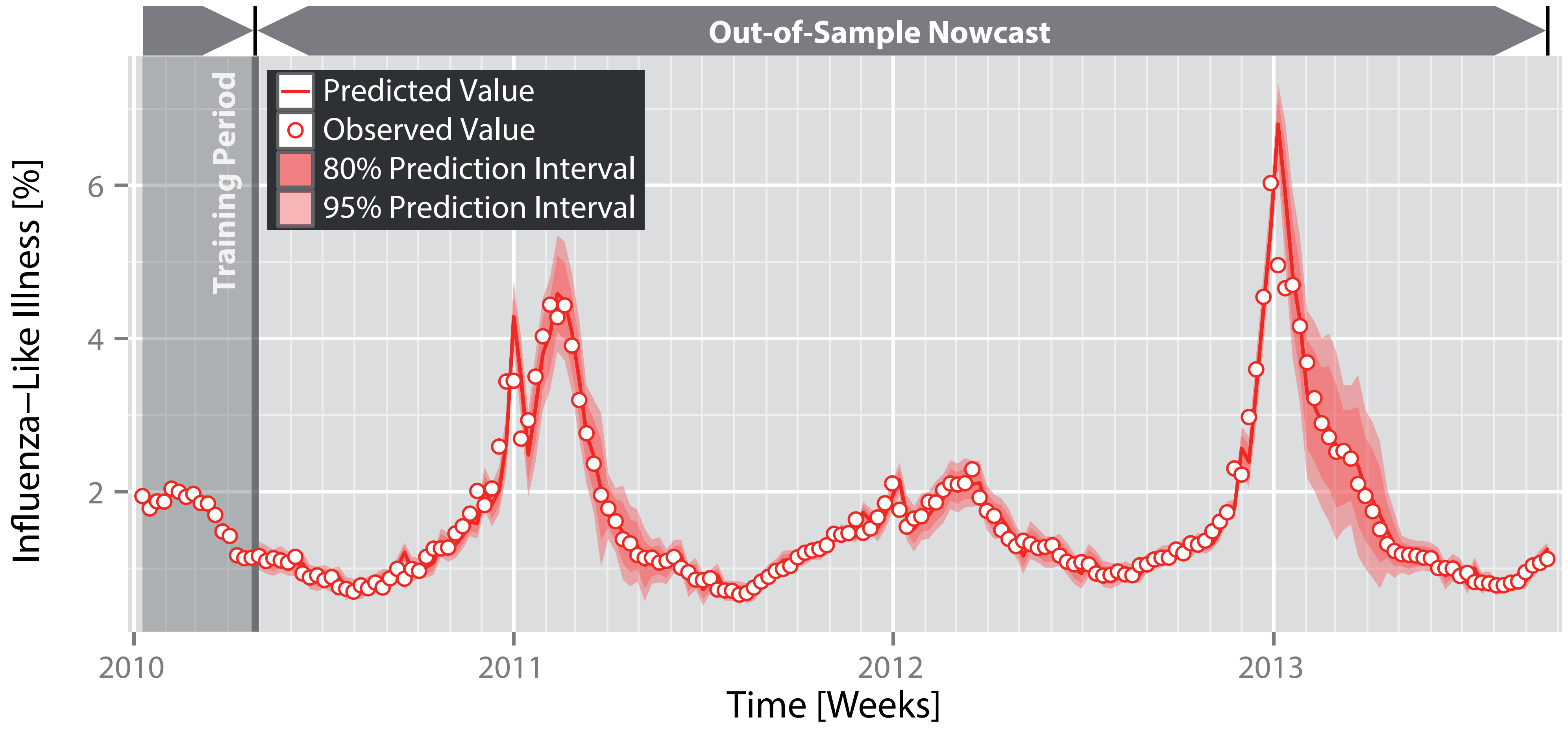
EPIDEMIOLOGY

When Google got flu wrong

US outbreak foxes a leading web-based method for tracking seasonal flu.

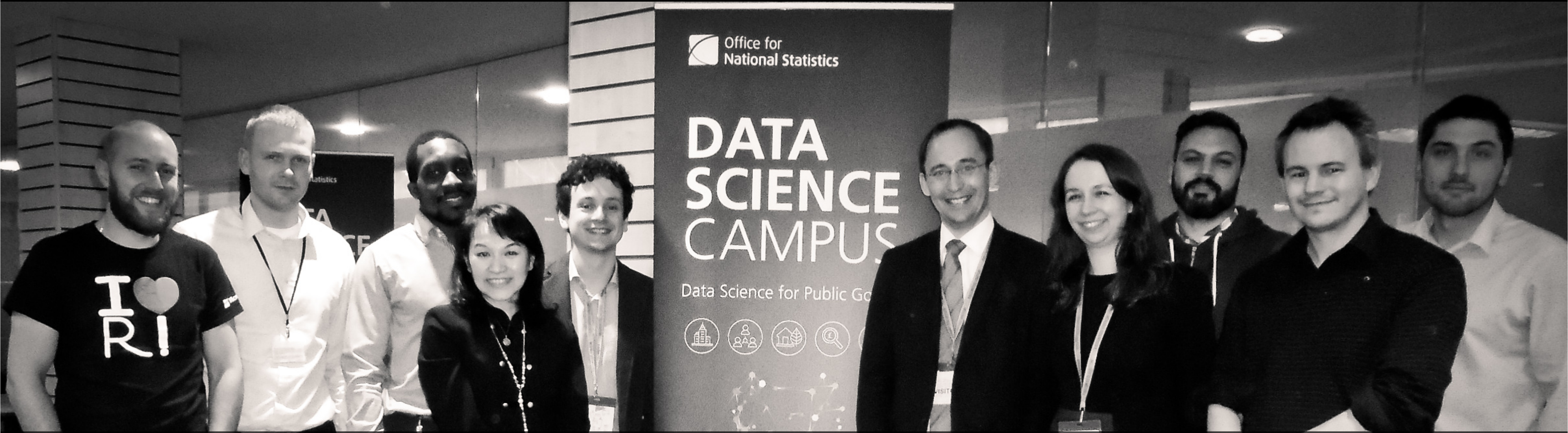
“The press reports may have triggered many flu-related searches by people who were not ill.“

Butler, *Nature* **494**, 155 (2013)



Flu estimate errors reduced by between 16% and 53%.

Preis & Moat (2014)



Online data may help us measure behaviour that was previously expensive, time-consuming or impossible to capture

wbs
WARWICK BUSINESS SCHOOL

Data Science Lab

The Alan Turing Institute

EPSRC
Engineering and Physical Sciences Research Council

Digital Economy
Transforming Business and Society

E·S·R·C
ECONOMIC & SOCIAL RESEARCH COUNCIL