Veracity, Validity and Ethical Challenges

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Context

- EMBERS project, supported by IARPA's Open Source Indicators (OSI) program
  - aims to develop methods for continuous, automated analysis of **publicly available data** in order to anticipate and/or detect **population-level events** such as mass violence, protests, riots, mass migrations, elections, disease outbreaks, economic instability, resource shortages, and responses to natural disasters.
- UrbComp, supported by NSF's NRT program
  - aims to train graduate students to become interdisciplinary data scientists to model cities and pose/answer urban science questions

EMBERS


EMBERS
sathappanspm
1962 Forecasts
01/01/2016
03/30/2016
Confidence: 49% - 100%
18
1944
0
742
146
43
1031
Export
<1 1-3 4-11 12-38 39- >131
Canada
United States
México
Cuba
Venezuela
Colombia
Ecuador
Perú
Brasil
Bolivia
Paraguay
Argentina
Chile
Uruguay
FK
North Pacific Ocean
South Pacific Ocean
North Atlantic Ocean
South Atlantic Ocean
Caribbean Sea
Gulf of Mexico
Sargasso Sea
Coral Sea
Tasman Sea
New Zealand
Scotia Sea
United Kingdom
Danmark
Deutschland
France
España
Italia
Mali
Niger
Nigeria
Ghana
Cameroon
Angola
Zimbabwe
Botswana
South Africa
Madagascar
Ethiopia
Sénégal
Tchad

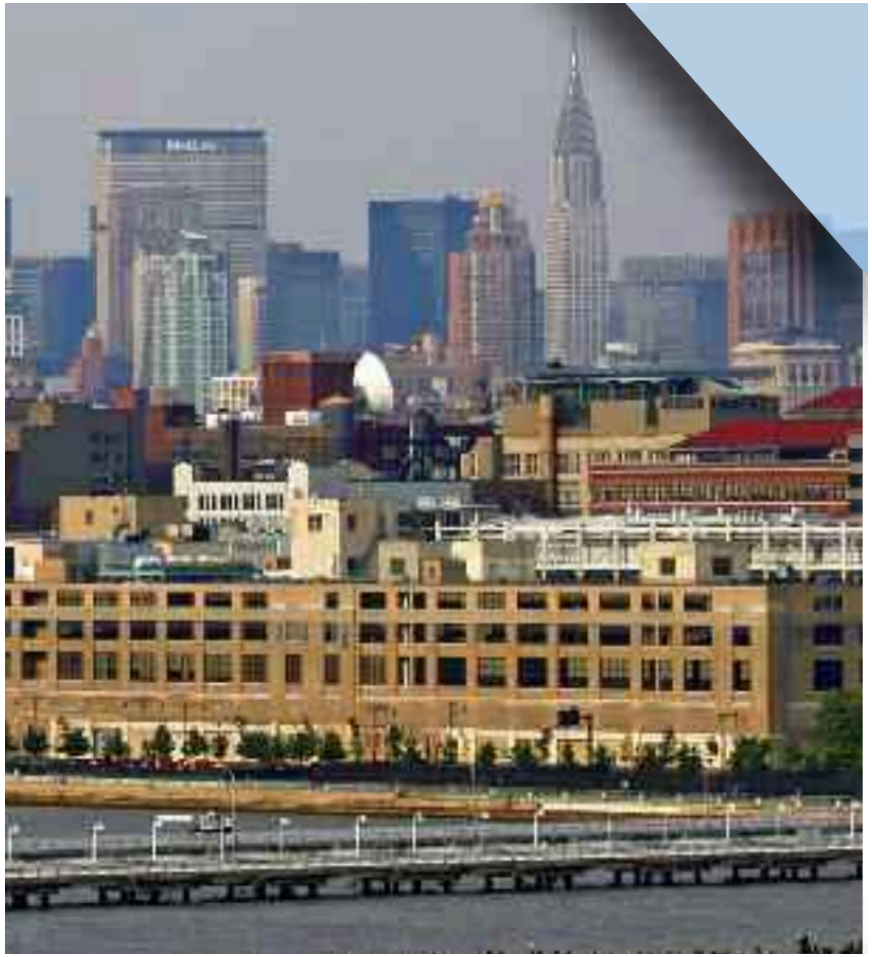
Ethical issues

- Forecasting protests has uses in
  - Supply chain monitoring, issuing travel alerts, traffic monitoring, law enforcement, prioritizing citizen grievances
- .. but also raises questions of
  - Surveillance, violations of “collective privacy”, preventative actions taken due to incorrect forecasts, misused resources

UrbComp

For the first time in history, the majority of the world's population is living in urban areas, and this proportion continues to grow. It was only a few years ago that the world's urban population started to outnumber its rural population. One hundred years ago, only 2 in 10 people in the world were living in urban areas. By 2030, 6 out of every 10 people will be city dwellers, rising to 7 out of every 10 people by 2050. According to population growth projections, virtually all global growth over the next 30 years will be in urban areas. The number of urban residents is growing by nearly 60 million every year.[1]

"The Rise of Modern Cities", WHO Report



Ethical issues

- In general
  - Use of PII is claimed to be low, but most "smart city" apps can be mapped to unique phone IDs
- Other forms of profiling do happen
  - Profiling places (e.g., predictive policing), differential or discriminatory pricing (housing, electricity), movement modeling, modeling of specific subpopulations (people on probation, children)