Population Health Data Mining with a Real-time Social Network Map

October 24th, 2017

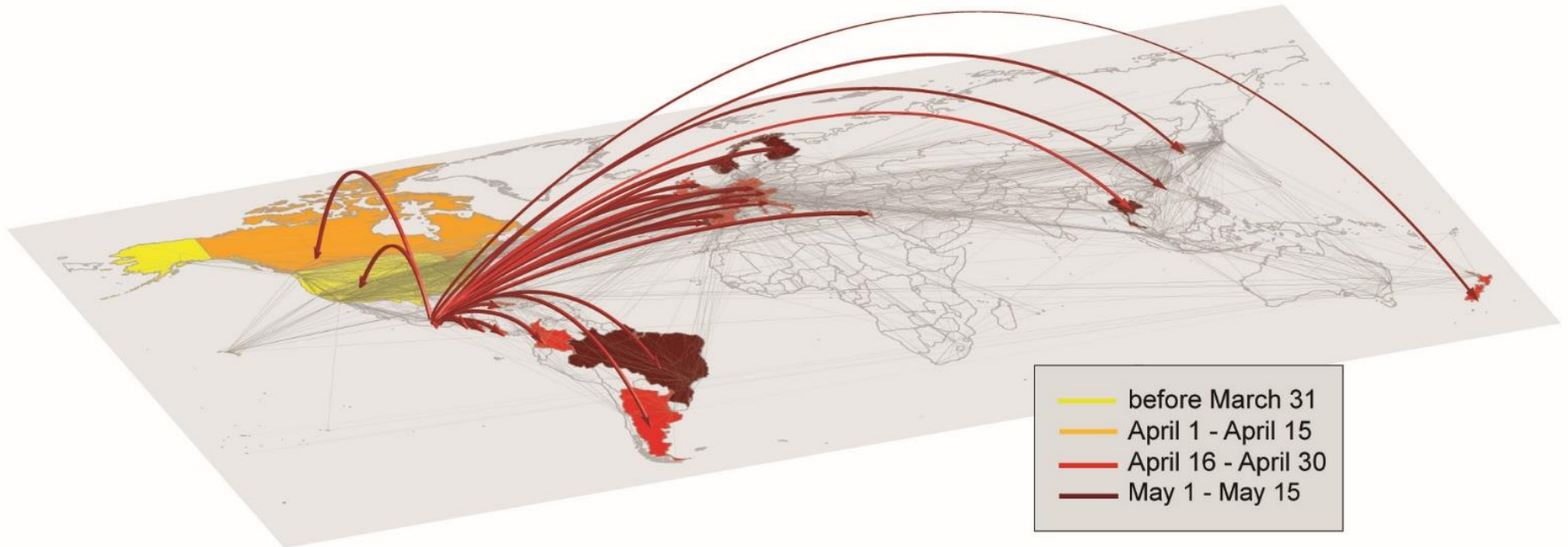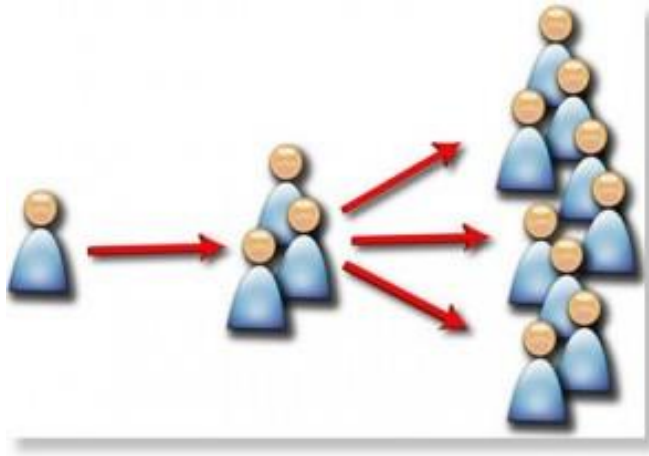## Sunghoon Lim

slim@psu.edu

The Department of Industrial and Manufacturing Engineering

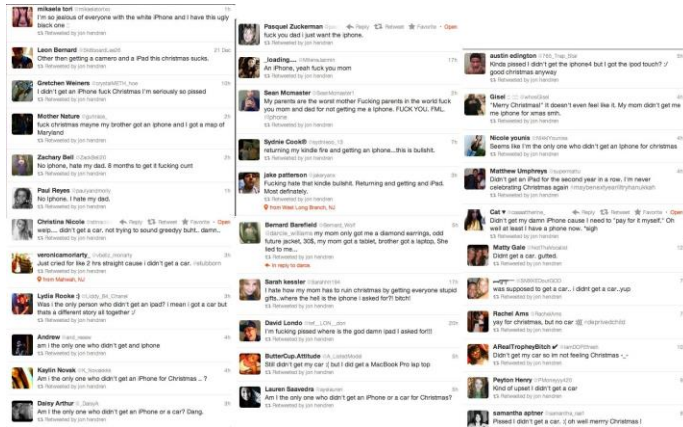*The Pennsylvania State University*

Population Health Management (PHM)

PHM improves the health outcomes of a group by monitoring and identifying individual patients within that group.

Communicable Diseases

	before March 31
	April 1 - April 15
	April 16 - April 30
	May 1 - May 15

Social Media Data

Large-scale
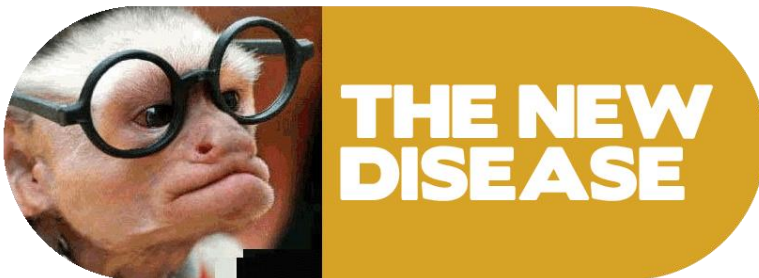

Easy-to-use

Low-cost

Real-time

Limitation: Search Keywords

Possible disease-related keywords

"zika", "virus", "fever", …

Symptom-related Expressions

	Terms	Synonyms
Symptom	1. cough	cough
		bark
		…
	…	…
Body part	1. chest	chest
		breast
		…
	…	…
Pain location	1. upper	upper
		up
		…
	…	…
Sickness/Medical expressions		sick
		pain
		…

Real-time Social Network Map

Lim, Sunghoon, Conrad S. Tucker, and Soundar Kumara. "An unsupervised machine learning model for discovering latent infectious diseases using social media data." *Journal of biomedical informatics* 66 (2017): 82-94.

http://www.chot.psu.edu

Thank You.