

Society and Technology Res College

# Big Data, Big Consequences

### Medical Benefits and Negative Effects of Big Data in Health Industries

## > INTRODUCTION

How would you feel if your job application was rejected because your medical history was shared? This is exactly what is happening now. As data tend to be more computed-based, medical records and health information are being collected either through hospitals, insurance companies, or wearable devices and smartphone apps. The information accumulates in the huge databases and goes directly to companies and government agencies for detailed analysis. We explore both the medical benefits that Big Data can provide and the problems caused by its misuse leading to privacy concerns and social discrimination.

### > APPLICATIONS in Health Industries



### Advantages

- Carry out nontraditional data collection and analysis \*\*
  - Make medical services remote and convenient

Cellscope is a company founded in 2010 focusing on building smart mobile devices to empower families with easy access to share their health data and get advices from physicians online.

It designed an Otoscope to examine ear infections using mobile phones.

Otoscope

Diagnosis based on data will eliminate biases and errors •••

#### Prevention is better than cure

- Mobile apps are helping us to either plan our diets or make us live healthier by uploading our everyday information to the systems.



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## Disadvantages

Correlation doesn't mean causation \*\*

Second divergence in 2012-2013 for U.S.

#### Failure of **Google Flu Trend** (GFT)

Predicted flu trend using GFT vs. actual value calculated by CDC (Center for Disease Control and Prevention)

Privacy Issue \*\*



Anonymization: Failed to protect people's personal information

Companies are being dishonest and opaque in their data sharing process. For Commercial Apps:

- **40%** do not have a privacy policy;
- **30%** violated the policy by sharing information with un undisclosed third party;
- Only **10%** encrypted all of the health information during transmission.

Offensive interventions can create harm to the patient-provider relationships.

Discrimination For Individual



# **CONCLUSION**

"What turns it into a weapon of dehumanization is a shortcoming, not of big data itself, but of the ways we use its predictions"

Big Data Revolution, Thomas, Rob, and Patrick McSharry

### **Potential Solution?**

- For Government and companies
- For Individual

