

# Hazarding A Guess: The Dangers of Mining Big Data



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# Transformation through Automation



- Data mining involves more than the rationalization of an existing, more ad hoc procedure; instead, it tends to change the activity to which it is applied
  - e.g., the profound change policing experienced with the introduction of profiling: from a general concern with crime reduction (efficacy) to a narrower concern with the likelihood that each police action would result in crime detection (efficiency) (Harcourt 2007)
- Which is to say that data mining simultaneously allows an organization to pursue certain goals more effectively while changing those goals in the process

# Errors and Bias



- **Matching errors**
  - e.g., Ted Kennedy
- **Type I and type II errors**
  - Trade-offs between false positives and false negatives
  - Assumptions concerning the distribution of variance
  - Benefits outweigh the costs
    - ✦ Proportionality?
- **Nonuniversal generalizations and non-distributive group profiles**
- **Concept and population Drift**

# Costs of Non-Erroneous and Lawful Discrimination



- **Discriminatory by design**
  - Non-erroneous discrimination?
  - Lawful discrimination?
    - ✦ Absence of animus
- **Fairness**
  - extend different options and opportunities to individuals and groups according to their estimated value
    - ✦ produce unequal access to information, goods, and services
- **Inequality**
  - Constrain life chances
  - Exacerbate historical inequalities
- **Ratchet effect (Harcourt 2007)**
  - Stratification
  - Stigmatization

# Constrained Worldview and Behavior



- **Soft cage of customization**
  - The primacy of historical correlations
- **Self-reinforcing feedback loop**
  - Paradoxically, individuals may lose control of their own preferences by relying on a system that attempts to cater to them

# Frustrating the Fair Information Practice Principles



- ‘Personal data’ as the trigger for protection
- Latent facts
  - Ability to infer sensitive details from seemingly innocuous information
  - The challenges of providing notice
    - ✦ “you must first discover what you would want to hide” (Hildebrandt 2009)
- The fundamental incompatibility of purpose specification and use limitation
- Trade-off between transparency and accuracy
- The uselessness of anonymity

# Substantive Regulations



- Supplement privacy with other normative concerns
  - Autonomy
  - Non-discrimination
  - Fairness
- But even these might be insufficient as the distinction between equality of opportunity and equality of outcome begins to blur
  - From procedural fairness to distributive justice?