

CS 4873: Computing, Society & Professionalism

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Week 8: Algorithmic Surveillance
February 24, 2020

Midterm – next week Mar 2

- Material through today (Feb 24, Algorithmic Surveillance)
- Midterm prep in the discussion section this week
- http://www.munmund.net/courses/spring2020/Midterm_review_exercises.pdf





EMMA WATSON TOM HANKS

THE CIRCLE

KNOWING IS GOOD.
KNOWING EVERYTHING IS BETTER.

4.28.17

Privacy and ethics in the backdrop of surveillance

* Promises of technology and the Internet

- Networked technologies
 - horizontal communication among citizens
 - drastically lowering the costs of organizing and access to information
 - Social movements
 - Interactivity in the public sphere/citizen empowerment

Engineering the public: Big data, surveillance
and computational politics
by Zeynep Tufekci

* However, big data also needs to be examined as a political process involving questions of power, transparency and surveillance

* *Computational politics* refers applying computational methods to large datasets derived from online and offline data sources for conducting outreach, persuasion and mobilization in the service of electing, furthering or opposing a candidate, a policy or legislation.

Computational politics is defined by the significant *information asymmetry* — those holding the data know a lot about individuals while people don't know what the data practitioners know about them

Computational politics

- Computational politics predated the spread of the Internet
 - “selling of the President” by collating magazine subscriptions or car type purchases
- Contrast with today:
 - does a magazine subscription truly signal a voter preference?
 - Aggregate vs. individualized
 - Apparent data vs. latent
 - Political communication becomes less and less public as individuals are manipulated outside of the public sphere



Engineering the Public - Tufekci

1. The rise of big data
2. The shift away from demographics to individualized targeting
3. The opacity and power of computational modeling
4. The use of persuasive behavioral science
5. Digital media enabling dynamic real-time experimentation
6. The growth of new power brokers who own the data or social media environments

3. Power of computational modeling

- Combining otherwise “benign” pieces of data
- Multiple types of data aggregated together
 - Mental health prediction
 - Target incident
- Individualized modeling
 - Facebook “likes” is sufficient to model and accurately predict a striking number of personal attributes including “sexual orientation, ethnicity, religious and political views, personality traits, intelligence, happiness, use of addictive substances, parental separation, age, and gender” (Kosinski, et al., 2013)
 - Identify “likely voters”, beyond surveys like Gallup

3. Power of computational modeling

→   theguardian.com/news/2018/mar/17/cambridge-analytica-facebook-influence-us-election



**The Cambridge
Analytica Files**
Cambridge Analytica

Revealed: 50 million Facebook profiles harvested for Cambridge Analytica in major data breach

Whistleblower describes how firm linked to former Trump adviser Steve Bannon compiled user data to target American voters

- **'I made Steve Bannon's psychological warfare tool': meet the data war whistleblower**
- **Mark Zuckerberg breaks silence on Cambridge Analytica**

4. Behavioral science

- Habermas' (1989) ideal of the public sphere imagined status-free actors carrying out rational conversations based on merit, political practitioners have long recognized that the “rational voter” model did not correspond to their experience in the world.
- Fear tactics appeal to the irrational, but have rarely been successful in the past
 - Fear tactics can be creatively manipulated
- Persuasion models (targeting the “irrational”) using big data to sway public opinion
 - Obama campaign found white envelopes signaled credibility
 - Wage disinformation campaigns

4. Behavioral science

← → ↻ thewire.in/tech/deepfake-videos-machine-learning-politics-porn



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TECH

Deepfakes Threaten Politics Like Nothing Else – and Indians Are Pioneers

If not regulated, deepfakes have the potential to not just rewrite history but drown us in a toxic politics that will thrive on our inability to distinguish the real from the unreal.

5. Experimental science in real-time environments

- Much campaigning in the past was directed by “tacit knowledge,” “gut feel,” and deference to traditional expertise and punditry (Issenberg, 2012)
 - Field experiments were costly and time consuming to conduct
 - face-to-face canvassing was most effective for turnout, published 3 years after the experiment in 2001
- The online world has opened up the doors to real-time, inexpensive and large-scale testing of the effectiveness of persuasion and political communication, a significant novelty to political campaigns
- The cultural shift in emphasizing metrics came fully of age with the 2008 and 2012 Obama campaigns which were notable for their “data-driven culture”
 - In 2007, the campaign created 24 different button and media combinations for its splash page

6. Power of platforms and algorithmic governance

- Much political and civic speech occurs in the “fifth estate”
 - Data owned by private corporations
 - Platforms operate using opaque algorithms
 - Proprietary algorithms assess visibility of content
- Political “apps” of the 2012 Obama and Romney campaigns
 - Political actors’ attempts to “game” these algorithms (Tufekci 2013) or wondering how to censor them (Lotan 2011)
 - (Political) groups without funds to promote their content will become hidden from public view, or will experience changes to their reach that are beyond their ability to control
- A biased platform could decide to use its own store of big data to model voters and to target voters of a candidate favorable to the economic or other interests of the platform owners
 - E.g., Bond et al 2012 - next

* 6. Power of platforms and algorithmic governance

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Letter | Published: 12 September 2012

A 61-million-person experiment in social influence and political mobilization

Robert M. Bond, Christopher J. Fariss, Jason J. Jones, Adam D. I. Kramer, Cameron Marlow, Jaime E. Settle & James H. Fowler 

Nature **489**, 295–298(2012) | [Cite this article](#)

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Editorial Summary

An off-line side to online social networking

Online social networks are everywhere. They must be influencing the way society is developing, but hard evidence is scarce. For... [show more](#)

6. Power of platforms and algorithmic governance

- What if one day Facebook decides to suspend from its site a presidential campaign or a politician whose platform calls for things like increased data privacy for individuals and limits on data retention and use?
- What if it decides to share data with one political campaign and not another?
- What if it gives better ad rates to candidates who align with its own interests?

Avoiding being subject to computational politics?

- Should we all just leave Facebook?
 - That may sound attractive but it is not a viable solution.
 - In many countries, Facebook and its products simply are the internet.
 - Some employers and landlords demand to see Facebook profiles
 - There are increasingly vast swaths of public and civic life — from volunteer groups to political campaigns to marches and protests — that are accessible or organized only via Facebook
- Facebook creates “shadow profiles” of non-users anyway

Two case studies

Automatic Crime Prediction using Events Extracted from Twitter Posts

Xiaofeng Wang, Matthew S. Gerber, and Donald E. Brown

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Once Upon a Crime: Towards Crime Prediction from Demographics and Mobile Data

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POLICING THE FUTURE

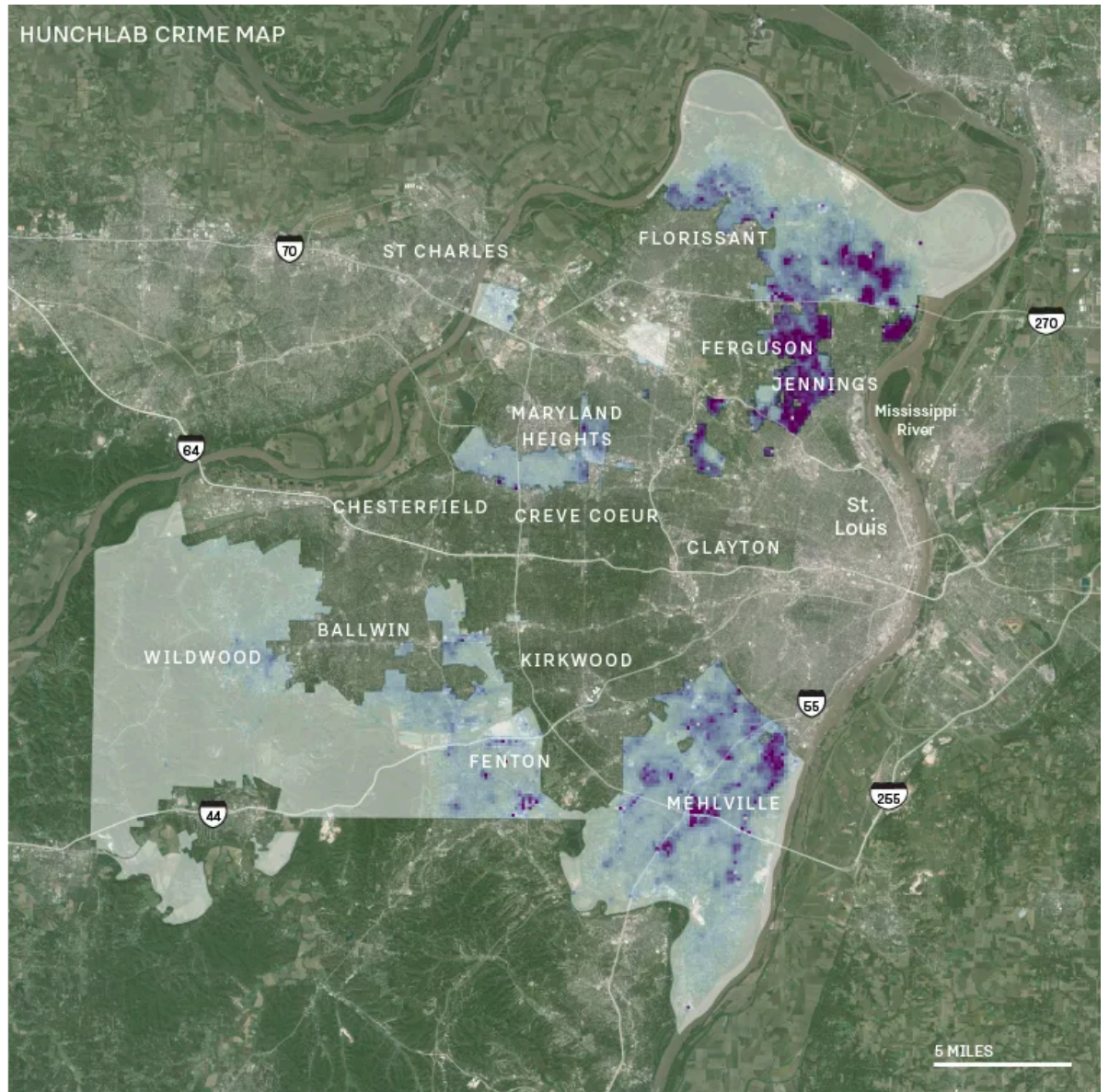
In the aftermath of Ferguson, St. Louis cops embrace crime-predicting software

By Maurice Chammah, with additional reporting by Mark Hansen

Photography by Whitney Curtis

Just over a year after Michael Brown's death became a focal point for a national debate about policing and race, Ferguson and nearby St. Louis suburbs have returned to what looks, from the outside, like a kind of normalcy. Near the Canfield Green apartments, where Brown was shot by police officer Darren Wilson, a sign reading "Hands Up Don't Shoot" and a mountain of teddy bears have been cleared away. The McDonald's on West Florissant Avenue, where protesters nursed rubber bullet wounds and escaped tear gas, is now just another McDonald's.

Half a mile down the road in the city of Jennings, between the China King restaurant and a Cricket cell phone outlet, sits an empty room that the St. Louis County Police Department keeps as a substation. During the protests, it was a war room, where law enforcement leaders planned their responses to the chaos outside.



Class Discussion

Do you think use of softwares like HunchLab can indeed minimize unjust police brutality incidents toward people of color? Why or why not?

Technology

Colleges are turning students' phones into surveillance machines, tracking the locations of hundreds of thousands

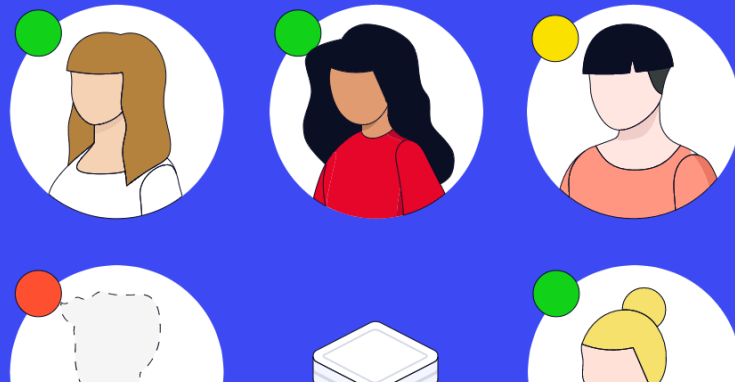
Solutions

Success Stories

Spotter

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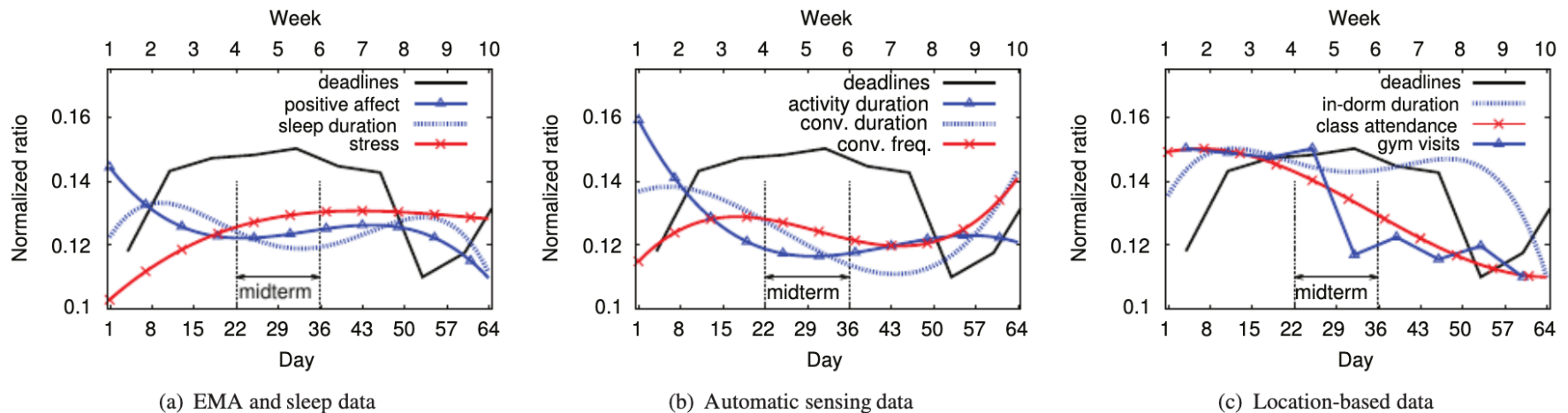


An automated attendance monitoring and early alerting

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StudentLife: Assessing Mental Health, Academic Performance and Behavioral Trends of College Students using Smartphones

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(a) EMA and sleep data

(b) Automatic sensing data

(c) Location-based data

Figure 5. Dartmouth term lifecycle: collective behavioral trends for all students over the term.

Technology

Parkland school turns to experimental surveillance software that can flag students as threats



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Class Discussion

Contrasting the three types of school/college student behavioral monitoring: 1) Attendance surveillance; 2) Mental health surveillance; 3) Violence surveillance

- Is one less or more (un)ethical than the other? Which one and why?
- Analyze from a utilitarian and social contract theory perspective.