Data and Society
Lecture 11: IoT Governance and Ethics

4/29/16
Announcements

• Op-Eds due today

• Section 3 Exam next week, data roundtable after (please stay for the entire class)
Today (4/29/16)

• Lecture 11: IoT Governance and Ethics
• L10 Data Roundtable
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Section</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>January 29</strong></td>
<td>Class introduction; Digital data in the 21st Century (L1)</td>
<td>Section 1</td>
<td>Data Roundtable / Fran</td>
</tr>
<tr>
<td><strong>February 5</strong></td>
<td>Data Stewardship and Preservation (L2)</td>
<td>Section 2</td>
<td>L1 Data Roundtable / 5 students</td>
</tr>
<tr>
<td><strong>February 12</strong></td>
<td>Data-driven Science (L3)</td>
<td>Section 2</td>
<td>L2 Data Roundtable / 5 students</td>
</tr>
<tr>
<td><strong>February 19</strong></td>
<td>Future infrastructure – Internet of Things (L4)</td>
<td>Section 2</td>
<td>L3 Data Roundtable / 5 students</td>
</tr>
<tr>
<td><strong>February 26</strong></td>
<td>Section 1 Exam</td>
<td>Section 3</td>
<td>L4 Data Roundtable / 5 students</td>
</tr>
<tr>
<td><strong>March 4</strong></td>
<td>Paper assignment description</td>
<td>Section 2</td>
<td>Section 1 Data Roundtable / 5 students</td>
</tr>
<tr>
<td><strong>March 11</strong></td>
<td>Data and Health: Phil Bourne guest lecture (L5)</td>
<td>Section 2</td>
<td>Section 2 Data Roundtable / 3 students</td>
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<tr>
<td><strong>March 18</strong></td>
<td>Spring Break / no class</td>
<td>Section 2</td>
<td>Section 2 Data Roundtable / 5 students</td>
</tr>
<tr>
<td><strong>March 25</strong></td>
<td>Data and Entertainment (L6)</td>
<td>Section 2</td>
<td>Section 2 Data Roundtable / 5 students</td>
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<tr>
<td><strong>April 1</strong></td>
<td>Big Data Applications (L7)</td>
<td></td>
<td>Privacy Panel / 6 students</td>
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<tr>
<td><strong>April 8</strong></td>
<td>Data in the Global Landscape (L8)</td>
<td></td>
<td>L7 Data Roundtable / 5 students</td>
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<tr>
<td><strong>April 15</strong></td>
<td>Digital Rights in the U.S. (L9)</td>
<td></td>
<td>L8 Data Roundtable / 5 students</td>
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<tr>
<td><strong>April 22</strong></td>
<td>Bulent Yener: Review of Privacy, Anonymity, and Cryptocurrency (L10)</td>
<td></td>
<td>Digital Rights Forum / 6 students</td>
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<tr>
<td><strong>April 29</strong></td>
<td>Digital Governance and Ethics (L11)</td>
<td></td>
<td>L10 Data Roundtable / 5 students</td>
</tr>
<tr>
<td><strong>May 6</strong></td>
<td>Section 3 Exam</td>
<td></td>
<td>L11 Data Roundtable / 5 students</td>
</tr>
</tbody>
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We made it!
“If you torture data long enough, it will confess to anything you’d like.”

R.H. Coase, British economist
Lecture 11: IoT Governance and Ethics
“Stone Age” of The Internet of Things

Internet of Things (IoT) – interconnected environment that integrates devices, systems, humans and organizations to intuit and respond to a spectrum of needs

Enabling environment or Lord of the Flies? How should the IoT be managed / organized?

• Who develops its “laws”?
• Who enforces them?
• Who do they apply to?

Social Rules for Robots

• Over 50 years ago, Isaac Asimov introduced 4 laws of robotics:

0. A robot may not harm humanity, or, by inaction, allow humanity to come to harm.

1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.

2. A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.

3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws.

• Asimov’s rules create a social framework for robot behavior

• How do we create a social framework for group social behavior and IoT governance?

Image from http://hereandnow.wbur.org/2014/10/07/artificial-intelligence-strickland, iRobot, 20th Century Fox
Social Structure will be needed to get the best from the Internet of Things

- IoT will increasingly blend cyber systems, the physical/natural environment, and biological entities.
- Social rules needed for this complex structure that promote individual rights, the public good, and a sustainable environment.
- Vehicles for creating this include policy and regulation, community practice and beliefs.
Governance systems

- The EU Research Cluster on the Internet of Things defines governance to be “the rules, processes and behavior that affect the way in which powers are exercised, particularly as regards openness, participation, accountability, effectiveness and coherence”.

- What issues should an IoT governance system address?
  - Openness and Privacy
  - Participation
  - Accountability and Responsibility
  - Rights
  - Ethics
First serious discussions on IoT “Governance” happening now
Openness and Privacy

• When should individual rights prevail?
• Who should control information about you?
• Who can access it?
• When is the public good more important than individual rights?
  – What is the “public good” in the IoT?


http://3.bp.blogspot.com/-qjxf2eOIALk/ValouseGb0l/AAAAAAAF3o/uxqTN9oVnA/s1600/photo%2B2%2B%25283%2529.JPG

http://3.bp.blogspot.com/-qjxf2eOIALk/ValouseGb0l/AAAAAAAF3o/uxqTN9oVnA/s1600/photo%2B2%2B%25283%2529.JPG
Privacy

“... there are broader ethical issues to consider. Where would the areas be where [IoT] devices would not be appropriate to use? What about our personal privacy, both in the collection of data about us, but also in the way it’s combined and acted on?

How should the law deal with smart devices, if an incorrect decision is acted on, who or what is responsible? There are many others. “

Peter McOwan, Professor of CS at Queen Mary, University of London.

"The Circle is a genre novel, with its simplistic fabrication meant to be obvious. The symbolism is abundantly clear, because it is Eggers' only way of bringing his message to the ear: How do we mean to handle the right to sovereignty of interpretation over one's own life in the future?“

Thomas Andre review in Der Spiegel
Participation

• Can you opt out?
  – It may be impossible to opt out of the IoT
  – Should individuals have the right to delete data about them? What are the repercussions of this? How would this work?

https://www.flickr.com/photos/manoftaste-de/9637127712
Accountability and Responsibility

• IoT automated systems (with or without a human in the loop) will replace some human activities.

• Which decisions should be made by technology?
  – Whose interests should systems represent?
  – How do we ensure that automated systems don’t limit our choices?

• How do we evolve current policy and regulation around responsibility and accountability?
  – Who is accountable when your self-driving car hurts someone?

Wikimedia: Self-driving car Image courtesy of Steve Jurvetson, Mariordo
HAL9000 image from https://www.flickr.com/photos/zanotti/312159382
Legislative framework emerging / needed for autonomous systems

http://cyberlaw.stanford.edu/wiki/index.php/Automated_Driving:_Legislative_and_Regulatory_Action

Rights

• What are your rights in the IoT?
  – Right to disconnect?
  – Right to privacy?
  – Right to access information about you?
  – Right to prevail over the behavior / intention of autonomous systems? (a la Asimov)
Mauritius declaration

• 36th International Conference of Data Protection and Privacy Commissioners created the “Mauritius Declaration on the Internet of Things”:

  • “Self-determination is an inalienable right for human beings. Personal development should not be defined by what business and government know about you.”

  • “Data processing starts from the moment the data are collected. All protective measures should be in place from the outset.”
Ethics

• Ethics: How do we promote the ethical use of technology?
  • Do we need *artificial ethics* to complement artificial intelligence?
  • Whose ethics should they be?

Digital Ethics and the future of humanity.
Gerd Leonhard, TedXBrussels (19 min)

https://www.youtube.com/watch?v=DD5XVDKcuSo
Lecture 10 Sources (not already on slides)


- Wikipedia, World Governance Index,
Data Roundtable
Data Roundtable May 6


• “The Ethical Data Scientist”, Slate, http://www.slate.com/articles/technology/future_tense/2016/02/how_toBring_better_ethics_to_data_science.html (Dan L.)

Data Roundtable: April 29

• “FCC Says: Sign up for Internet Service, Don’t Sign Away Your Privacy Rights,” Lexology, http://www.lexology.com/library/detail.aspx?g=9ce32e7e-96c0-4e52-8c4c-0b15103b1685 (Kiana M.)

• “Does the U.S. Need a Legal Right to be Forgotten?”, Huffington Post, http://www.huffingtonpost.com/brad-reid/does-the-us-need-a-legal_b_9659746.html (James B.)


• “Led Zeppelin’s Stairway to Heaven may be partly Stolen”, The Guardian, http://www.theguardian.com/music/2016/apr/12/stairway-to-heavens-opening-chords-may-have-been-stolen-judge-says (Levin H.)