

ALGORITHMS & BIG DATA

Methods & Controversies

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June 1 – June 12, 2015
10am – 1pm

Meeting Room: ANN-405
Office Hours: By appointment (ANN-310B)

Communication research is increasingly concerned with, and inseparable from, the technologies and cultures producing information algorithms and large-scale data sets. Whether *studying* or *using* algorithms or “big data”, researchers need to understand how their research questions intersect with the logics of automation and scale underpinning networked, computational platforms. In this workshop, students will: analyze emerging, critical literature on the technologies and cultures of big data/algorithm research; get hands-on experience with big data/algorithmic tools, platforms, and activities (no programming skills required); discuss recent big data/algorithm controversies, and examine how researchers have responded; develop a short research proposal on some aspect of big data/algorithms they find personally valuable. Students should leave the workshop with an appreciation of the challenges of using and researching big data/algorithms, a framework for understanding future big data/algorithm controversies, and the beginnings of a research project to pursue beyond the workshop.

TEXTS & COURSE MATERIALS

Borgman, C. (2015). *Big data, little data, no data: Scholarship in the networked world*. Cambridge, MA: MIT Press.

Pasquale, F. (2015). *The black box society: The secret algorithms that control money and information*. Cambridge, MA: Harvard University Press.

Recommended:

Kitchin, R. (2014). *The data revolution: Big data, open data, data infrastructures and their consequences*. London, UK: SAGE.

All other texts will be provided as PDFs or URLs.

EXPECTATIONS

In an intensive workshop like this it's critical that you attend all sessions, arrive ready to participate actively, and commit to creating work products that are high-quality, personally meaningful, and communicated to the group. To that end, the following is expected of each student:

- **Daily Discussion Questions**

By 9am every day (*except the first and last days*), students should email ONE discussion question to the entire class. The question can be on virtually any aspect of the course but will ideally relate to that day's theme or compare/contrast the assigned materials. It should help set the tone for that day's meeting and offer a starting point for a class conversation.

- **Active Participation & Attentiveness**

In every class, students should have their phones off, use laptops for course business only, help shape discussions and enrich conversations, and treat all class members with thoughtfulness and respect.

- **Opening a "Foundational" Reading**

Twice (2x) each student will "open" a "foundational" readings. I'll say more about this in the first class, but opening a reading does NOT mean simply summarizing the text (you can assume everyone has read it). It means using the text to ground a discussion, surface interpretations, and develop the class's collective intelligence. You don't need to prepare a handout or a formal presentation, just lead a discussion and create a rich conversation.

- **Research Project Proposal**

On the last day students will *individually* submit an extended abstract of a research proposal (1-2 pages) and give a 12-15 minute presentation proposing a research project. The proposal should succinctly state 5 things:

1. A research question;
2. The project's stakes (*i.e.*, conceptually and empirically grounded answers to questions like "why does this project matter?", "how are you a good person to study it?", and "who might fund it?");
3. A brief review of relevant bodies of literature (there is no time for a full literature review but you should identify key citations, areas of inquiry, and related projects);
4. A methodological approach, and a discussion of its power and challenges;
5. An interpretation of at least one of the project's anticipated or potential findings (*i.e.*, "finding X would be significant in way Y").

I do not expect this to be a *fully* developed proposal of the sort you'd write for your dissertation or a polished piece of prose (you can even write in outline form if you like), but it should establish your project's viability, and be a starting point for future work that would make sense to someone who wasn't in the class. Since time is compressed, you should start thinking about this project and sketching ideas immediately. I might periodically ask students to give updates.

SCHEDULE

1. Depending on the course pace and student interests, I might change some of the below. If so, I'll give enough notice.
2. On some days more than one activity is listed, to accommodate students with different levels of technical ability.

Monday, June 1

:: INTRODUCTION ::

Turner, J. H. (2005). A new approach for theoretically integrating micro and macro analysis. In C. Calhoun, C. Rojek & B. S. Turner (Eds.), *The Sage handbook of sociology* (pp. 405-422). London, UK: Sage.

→ when reading this article, think about: (1) what kind of “theories of the middle range” (Merton) are being created or assumed by research on big data and algorithms; (2) what the “unit of analysis” is in your own work and your interest in big data / algorithms.

Wallach, H. (2014, December 19, 2014). Big data, machine learning, and the social sciences: Fairness, accountability, and transparency. *Medium*. Retrieved December 20, 2014, from <https://medium.com/@hannawallach/big-data-machine-learning-and-the-social-sciences-927a8e20460d>

Come with two questions about big data / algorithms.

In-Class Activity:

Build “If This Then That” feeds; reflect on process/assumptions of creating rule structures to traverse a data space of unknown size.

Tuesday, June 2
:: WHAT IS "BIG DATA" & WHY DOES IT MATTER? ::

Foundations (read all)	Applications (choose 1 or 2 and be ready to discuss)
<p>boyd, d., & Crawford, K. (2012). Critical questions for big data. <i>Information, Communication & Society</i>, 15(5), 662-679.</p> <p>Borgman, C. (2015). Big data, little data, no data: Scholarship in the networked world. Cambridge, MA: MIT Press. → <i>Chapters 1-4 only</i></p> <p>Shah, D. V., Cappella, J. N., & Neuman, W. R. (2015). Big Data, Digital Media, and Computational Social Science: Possibilities and Perils. <i>The ANNALS of the American Academy of Political and Social Science</i>, 659(1), 6-13. doi: 10.1177/0002716215572084</p>	<p>Anderson, C. (2008, June 23, 2008). The end of theory: The data deluge makes the scientific method obsolete. <i>Wired Magazine</i>. Retrieved March 4, 2010, from http://archive.wired.com/science/discoveries/magazine/16-07/pb_theory</p> <p>Ford, H. (2014). Big Data and small: Collaborations between ethnographers and data scientists. <i>Big Data & Society</i>, 1(2), 1-3. doi: 10.1177/205395171454433</p> <p>Burrell, J. (2012a, May 28, 2012). The ethnographer's complete guide to big data: Answers (part 2 of 3). <i>Ethnography Matters</i>. Retrieved December 2, 2014, from http://ethnographymatters.net/blog/2012/06/11/the-ethnographers-complete-guide-to-big-data-part-ii-answers/</p> <p>Bell, G. (2012, April 3, 2012). Anthropologist for Intel describes big data as a person <i>Tech Web TV</i>. Retrieved December 3, 2014, from https://www.youtube.com/watch?v=WVB6_QP_2s0</p> <p>Miller, G. (2014, December 8, 2014). The huge, unseen operation behind the accuracy of Google Maps. <i>Wired</i>. Retrieved December 18, 2014, from http://www.wired.com/2014/12/google-maps-ground-truth/</p> <p>Healy, Kieran. (2013, June 9, 2013). Using metadata to find Paul Revere. Retrieved August 20, 2014, from http://kieranhealy.org/blog/archives/2013/06/09/using-metadata-to-find-paul-revere/</p> <p>The Economist. (2012, October 12, 2012). Big data and the democratisation of decisions. <i>The Economist</i>. Retrieved May 31, 2015, from http://www.economistinsights.com/technology-innovation/analysis/big-data-and-democratisation-decisions</p>

In-Class Activities:
Build a web scraper and/or Twitter bot, and reflect on process/assumptions.
 OR
Use Overview project (<https://www.overviewproject.org>) to create / analyze a document data set (register for free account).

Wednesday, June 3

:: WHAT ARE ALGORITHMS AND WHY DO THEY MATTER? ::

Foundations (read all)	Applications (choose 1 or 2 and be ready to discuss)
<p>Gillespie, T. (2014). The relevance of algorithms. In T. Gillespie, P. Boczkowski & K. A. Foot (Eds.), <i>Media technologies: Essays on communication, materiality, and society</i> (pp. 167-194). Cambridge, MA: MIT Press.</p> <p>Napoli, P. M. (2014). Automated media: An institutional theory perspective on algorithmic media production and consumption. <i>Communication Theory</i>, 24(3). doi: 10.1111/comt.12039</p>	<p>Manovich, L. (2013, December 16, 2013). The algorithms of our lives. <i>The Chronicle of Higher Education</i>. Retrieved August 20, 2014, from http://chronicle.com/article/The-Algorithms-of-Our-Lives-/143557/</p> <p>Priluck, J. (2015, April 25, 2015). When bots collude. <i>The New Yorker</i>. Retrieved April 28, 2015, from http://www.newyorker.com/business/currency/when-bots-collude</p> <p>Gillespie, T. (2012, July 31, 2012). Is Twitter us or them? #twitterfail and living somewhere between public commitment and private investment. <i>Culture Digitally</i>. Retrieved January 6, 2014, from http://culturedigitally.org/2012/07/is_twitter_us_or_them/</p> <p>Stoller, M. (2014, April 9, 2014). Uber's algorithmic monopoly. <i>Observations on credit and surveillance</i>. Retrieved July 4, 2014, from http://mattstoller.tumblr.com/post/82233202309/ubers-algorithmic-monopoly-we-are-not-setting-the</p> <p>Lohr, S. (2013, March 10, 2013). Algorithms get a human hand in steering web. <i>New York Times</i>. Retrieved April 2, 2014, from http://www.nytimes.com/2013/03/11/technology/computer-algorithms-rely-increasingly-on-human-helpers.html</p> <p>Mier, B. (2014, October 13, 2014). The mailman mapping Brazil's largest favela by hand. <i>Vice</i>. Retrieved October 24, 2014, from http://motherboard.vice.com/read/the-mailman-mapping-brazils-largest-favela-by-hand</p> <p>Baker, P., & Potts, A. (2013). 'Why do white people have thin lips?' Google and the perpetuation of stereotypes via auto-complete search forms. <i>Critical Discourse Studies</i>, 10(2), 187-204. doi: 10.1080/17405904.2012.744320</p>
<p>In-Class Activity: Play the "silent game" (from MIT NSF project) and/or take an "algorithmic walk" (designed by Malte Ziewitz)</p>	

Thursday, June 4

:: SOCIOTECHNICAL PRACTICES: MAKING SENSE OF BIG DATA / ALGORITHM TRACES IN LIGHT OF WHAT PEOPLE DO & THINK ::

Foundations (read all)	Applications (choose 1 or 2 and be ready to discuss)
<p>Hargittai, E. (2015). Is Bigger Always Better? Potential Biases of Big Data Derived from Social Network Sites. <i>The ANNALS of the American Academy of Political and Social Science</i>, 659(1), 63-76. doi: 10.1177/0002716215570866</p> <p>Marres, N., & Weltevrede, E. (2013). Scraping the social? Issues in live social research. <i>Journal of Cultural Economy</i>, 6(3), 313-335. doi: 10.1080/17530350.2013.772070</p> <p>Eslami, M., Rickman, A., Vaccaro, K., Aleyasen, A., Vuong, A., Karahalios, K., . . . Sandvig, C. (2015). "I always assumed that I wasn't really that close to [her]": Reasoning about invisible algorithms in the news feed. Paper presented at the CHI 2015, Seoul, Republic of Korea.</p>	<p>Lotan, G., Graeff, E., Ananny, M., Gaffney, D., Pearce, I., & boyd, d. (2011). The revolutions were tweeted: Information flows during the 2011 Tunisian and Egyptian revolutions. <i>International Journal of Communication</i>, 5, 1375-1405.</p> <p>Vanderbilt, T. (2013, August 7, 2013). The science behind the Netflix algorithms that decide what you'll watch next. <i>Wired</i>. Retrieved August 20, 2014, from http://www.wired.com/2013/08/qq_netflix-algorithm/</p> <p>Papacharissi, Z., & Oliveira, M. (2012). Affective news and networked publics: The rhythms of news storytelling on #Egypt. <i>Journal of Communication</i>, 62(2), 266-282.</p> <p>Brogan, J. (2015, May 13, 2015). The case of the ornamental anthropologist. <i>Slate</i>. Retrieved May 17, 2015, from http://www.slate.com/articles/technology/future_tense/2015/05/netflix_tries_to_put_a_human_face_on_big_data_with_its_own_anthropologist.single.html</p> <p>Madrigal, A. (2014, April 14, 2014). Behind the machine's back: How social media users avoid getting turned into big data. <i>The Atlantic</i>. Retrieved June 3, 2014, from http://www.theatlantic.com/technology/archive/2014/04/behind-the-machines-back-how-social-media-users-avoid-getting-turned-into-big-data/360416/</p> <p>Geiger, R. S., & Ribes, D. (2010). <i>The work of sustaining order in Wikipedia: The banning of a vandal</i>. Paper presented at the Computer Supported Cooperative Work, Savannah, Georgia. http://www.pensivepuffin.com/dwmcphd/syllabi/info447_wi12/readings/wk05-ConflictInCollaborations/geiger.BanningAVandal.CSCW10.pdf</p>
<p>In-Class Activity: Exploring a "trace ethnography" approach to studying algorithms and big data.</p>	

Friday, June 5

:: WORKING WITH BIG(ISH) DATA – SAMPLING & CONNECTING CONTEXTS ::

[Visitor: Prof Kjerstin Thorson, USC]

Foundations (read all)	Applications (choose 1 or 2 and be ready to discuss)
<p>Driscoll, K., & Thorson, K. (2015). Searching and Clustering Methodologies: Connecting Political Communication Content across Platforms. <i>The ANNALS of the American Academy of Political and Social Science</i>, 659(1), 134-148. doi: 10.1177/0002716215570570</p> <p>Driscoll, K., & Walker, S. (2014). Working within a black box: Transparency in the collection and production of big Twitter data. <i>International Journal of Communication</i>, 8, 1745–1764.</p>	<p>Thorson, K., Driscoll, K., Ekdale, B., Edgerly, S., Thompson, L. G., Schrock, A., . . . Wells, C. (2013). YouTube, Twitter, and the Occupy movement. <i>Information, Communication & Society</i>, 16(3), 421-451. doi: 10.1080/1369118X.2012.756051</p> <p>Butler, D. (2013, February 13, 2013). When Google got flu wrong. <i>Nature</i>. Retrieved May 2, 2014, from http://www.nature.com/news/when-google-got-flu-wrong-1.12413</p> <p>Lazer, D., Kennedy, R., King, G., & Vespignani, A. (2014). The parable of Google Flu: Traps in big data analysis. <i>Science</i>, 343, 1203-1205.</p> <p>Ananny, M. (2011, April 14, 2011). The curious connection between apps for gay men and sex offenders. <i>The Atlantic</i>. Retrieved January 8, 2014, from http://www.theatlantic.com/technology/archive/2011/04/the-curious-connection-between-apps-for-gay-men-and-sex-offenders/237340/</p> <p>Owen, T. (2015, May 25, 2015). The violence of algorithms: Why big data is only as smart as those who generate it. <i>Foreign Affairs</i>. Retrieved May 25, 2015, from https://www.foreignaffairs.com/articles/2015-05-25/violence-algorithms</p>

In-Class Activity:

Working with DiscoverText, exploring its power and methodological challenges.

Monday, June 8

:: AUDITING ALGORITHMS: THE CHALLENGE & CONTESTED VALUE OF SYSTEM TRANSPARENCY ::

Foundations (read all)	Applications (choose 1 or 2 and be ready to discuss)
<p>Sandvig, C., Hamilton, K., Karahalios, K., & Langbort, C. (2014). <i>Auditing algorithms: Research methods for detecting discrimination on internet platforms</i>. Paper presented at the Data and Discrimination: Converting Critical Concerns into Productive: A preconference at the 64th Annual Meeting of the International Communication Association, Seattle, WA.</p> <p>Hamilton, K., Sandvig, C., Karahalios, K., & Eslami, M. (2014). <i>A path to understanding the effects of algorithm awareness</i>. Paper presented at CHI 2014, Toronto, ON.</p> <p>Seaver, N. (2014, nd). On reverse engineering: Looking for the cultural work of engineers. <i>Medium</i>. Retrieved April 3, 2014, from https://medium.com/anthropology-and-algorithms/d9f5bae87812</p>	<p>Felten, E. (2012, September 12, 2012). Accountable algorithms. <i>Freedom to tinker</i>. Retrieved May 2, 2013, from https://freedom-to-tinker.com/blog/felten/accountable-algorithms/</p> <p>Diakopoulos, N. (2015, April 27, 2015). Towards a standard for algorithmic transparency in the media. <i>Tow Center for Digital Journalism</i>. Retrieved April 29, 2015, from http://towcenter.org/towards-a-standard-for-algorithmic-transparency-in-the-media/</p> <p>Schudson, M., & Sonnevend, J. (2010, February, 2010). Beyond transparency: Is more information always a good thing? <i>Columbia Journalism Review</i>. Retrieved March 30, 2015, from http://www.cjr.org/the_research_report/beyond_transparency.php</p> <p>Zara, C. (2015, April 9, 2015). FTC chief technologist Ashkan Soltani On algorithmic transparency and the fight against biased bots. <i>International Business Times</i>. Retrieved May 1, 2015, from http://www.ibtimes.com/ftc-chief-technologist-ashkan-soltani-algorithmic-transparency-fight-against-biased-1876177</p> <p>Lessig, L. (2009, October 9, 2009). Against transparency: The perils of open government. <i>The New Republic</i>. Retrieved August 17, 2010, from http://www.tnr.com/article/books-and-arts/against-transparency</p> <p>Brill, J. (2015, February 28, 2015). Scalable approaches to transparency and accountability in decisionmaking algorithms: Remarks at the NYU conference on algorithms and accountability. <i>Federal Trade Commission</i>. Retrieved April 3, 2015, from https://www.ftc.gov/system/files/documents/public_statements/629681/150228nyualgorithms.pdf</p> <p>Madrigal, A. C. (2015, March 27, 2015). Many, many Facebook users still don't know that their news feeds are filtered by an algorithm. <i>Fusion</i>. Retrieved March 29, 2015, from http://fusion.net/story/110543/most-facebook-users-still-dont-know-that-their-news-feeds-are-filtered-by-an-algorithm/</p>
<p>In-Class Activity: <i>Using one or more algorithmic auditing techniques outlined in foundation readings, design and/or conduct comparative algorithmic audits of at least two social media platforms.</i></p>	

Tuesday, June 9

:: ETHNOGRAPHY OF DATA & ANALYTICS IN AN INSTITUTIONAL CONTEXT – NETWORKED NEWS ::

[Visitor: Caitlin Petre, NYU]

Foundations (read all)	Applications (choose 1 or 2 and be ready to discuss)
<p>Petre, C. (2015, May 7, 2015). The traffic factories: Metrics at Chartbeat, Gawker Media, and The New York Times. <i>Tow Center for Digital Journalism</i>. Retrieved May 10, 2015, from http://towcenter.org/research/traffic-factories/</p> <p>ONE OF:</p> <p>Parasie, S. (2014). Data-driven revelation? Epistemological tensions in investigative journalism in the age of “big data”. <i>Digital Journalism</i>. doi: 10.1080/21670811.2014.976408</p> <p>OR</p> <p>Carlson, M. (2014). The robotic reporter: Automated journalism and the redefinition of labor, compositional forms, and journalistic authority. <i>Digital Journalism</i>. doi: 10.1080/21670811.2014.976412</p>	<p>Ananny, M., & Crawford, K. (2014). A liminal press: Situating news app designers within a field of networked news production. <i>Digital Journalism</i>, 3(2), 192-208. doi: 10.1080/21670811.2014.922322</p> <p>O'Donovan, C. (2014, July 8, 2014). Q&A: Tarleton Gillespie says algorithms may be new, but editorial calculations aren't. <i>Nieman Lab</i>. Retrieved July 9, 2014, from http://www.niemanlab.org/2014/07/qa-tarleton-gillespie-says-algorithms-may-be-new-but-editorial-calculations-arent/</p> <p>Somaiya, R. (2014, October 26, 2014). How Facebook is changing the way its users consume journalism. <i>The New York Times</i>. Retrieved December 27, 2014, from http://www.nytimes.com/2014/10/27/business/media/how-facebook-is-changing-the-way-its-users-consume-journalism.html</p> <p>Goel, V., & Somaiya, R. (2015, May 13, 2015). Facebook begins testing instant articles from news publishers. <i>The New York Times</i>. Retrieved May 14, 2015, from http://www.nytimes.com/2015/05/13/technology/facebook-media-venture-to-include-nbc-buzzfeed-and-new-york-times.html</p> <p>Christin, A. (2014, August 28, 2014). When it comes to chasing clicks, journalists say one thing but feel pressure to do another. <i>Nieman Lab</i>. Retrieved August 30, 2014, from http://www.niemanlab.org/2014/08/when-it-comes-to-chasing-clicks-journalists-say-one-thing-but-feel-pressure-to-do-another/</p> <p>Ingram, M. (2014, August 18, 2014). Twitter vs. Facebook as a news source: Ferguson shows the downsides of an algorithmic filter. GigaOM. Retrieved January 5, 2015, from https://gigaom.com/2014/08/18/twitter-vs-facebook-as-a-news-source-ferguson-shows-the-downsides-of-an-algorithmic-filter/</p>
<p>In-Class Activity:</p> <ol style="list-style-type: none">1. Caitlin Petre visits to talk about studying data analytics at Chartbeat, Gawker, and The New York Times.2. Use Newsdiff (http://newsdiffs.org/), NPR API Query Generator (http://www.npr.org/api/queryGenerator.php), PageOneX (http://pageonex.com/)	

Wednesday, June 10

:: MAKING SENSE OF BIG DATA HOLES & ALGORITHM RESISTANCE – AND SPECULATIVE DESIGN AS A RESEARCH METHOD ::

Foundations (read all)	Applications (choose 1 or 2 and be ready to discuss)
<p>Lerman, J. (2013). Big data and its exclusions. <i>Stanford Law Review</i>, 66, 55-63.</p> <p>Gangadharan, S. P. (Ed.). (2014). <i>Data and discrimination: Collected essays</i>: Open Technology Institute & New America. → <i>skim and pick a few you're interested in (they're very short essays)</i></p> <p>Brunton, F., & Nissenbaum, H. (2011). Vernacular resistance to data collection and analysis: A political theory of obfuscation. <i>First Monday</i>, 16(5).</p>	<p>Maddock, J., Starbird, K., & Mason, R. (2015). Using historical Twitter data for research: Ethical challenges of tweet deletions. <i>Paper presented at the Computer Supported Cooperative Work workshop: Ethics for studying sociotechnical systems in a big data world</i>, Vancouver, BC. https://cscwethics2015.files.wordpress.com/2015/02/maddock.pdf</p> <p>Berg, N. (2014, June 25, 2014). Predicting crime, LAPD-style. <i>The Guardian</i>. Retrieved August 20, 2014, from http://www.theguardian.com/cities/2014/jun/25/predicting-crime-lapd-los-angeles-police-data-analysis-algorithm-minority-report</p> <p>Crawford, K. (2013, April 1, 2013). The hidden biases in big data. <i>Harvard Business Review</i>. Retrieved August 27, 2013, from http://blogs.hbr.org/cs/2013/04/the_hidden_biases_in_big_data.html</p> <p>Vertesi, J. (2014, May 1, 2014). My experiment opting out of big data made me look like a criminal. <i>Time</i>. Retrieved May 1, 2014, from http://time.com/83200/privacy-internet-big-data-opt-out/</p> <p>Crawford, K., & Schultz, J. (2013). Big data and due process: Toward a framework to redress predictive privacy harms. <i>Boston College Law Review</i>, 55(1).</p>
<p>In-Class Activity: <i>Using speculative design and design fiction techniques to create big data / algorithm concept prototypes that help surface meanings of resistance and opting out.</i></p>	

Thursday, June 11

:: STUDYING (WITH) BIG DATA ALGORITHMS – THE ETHICS OF “DATA SCIENCE” & AN EMERGING PROFESSION ::

Foundations (read all)

Applications (choose 1 or 2 and be ready to discuss)

Shilton, K., Butler, B., Goggins, S., & Winter, S. (2015). Research ethics for open online community data: A case study of human subjects research online. *Paper presented at the Computer Supported Cooperative Work workshop: Ethics for studying sociotechnical systems in a big data world*, Vancouver, BC.

<https://cscwethics2015.files.wordpress.com/2015/02/shilton.pdf>

Gray, M. L. (2014, August 19, 2014). Microsoft Research faculty summit 2014 ethics panel recap. *Social Media Collective*. Retrieved October 2, 2014, from

<http://socialmediacollective.org/2014/08/19/msr-faculty-summit-2014-ethics-panel-recap/>

Markham, Annette, & Buchanan, Elizabeth. (2012). Ethical Decision-Making and Internet Research: Recommendations from the AoIR Ethics Working Committee. *Association of Internet Researchers*. 2nd revision. Retrieved October 19, 2014, from

<http://aoir.org/reports/ethics2.pdf>

Meyer, R. (2014, September 8, 2014). Everything we know about Facebook's secret mood manipulation experiment. *The Atlantic*. Retrieved December 3, 2014, from <http://www.theatlantic.com/technology/archive/2014/06/everything-we-know-about-facebooks-secret-mood-manipulation-experiment/373648/>

Auerbach, D. (2015, May 18, 2015). The silicon tower. *Salon*. Retrieved May 20, 2015, from

http://www.slate.com/articles/technology/bitwise/2015/05/facebook_study_why_silicon_valley_s_incursion_into_academic_research_is_single.html

Grimmelmann, J. (2015, May 27, 2015). Do you consent? *Salon*. Retrieved May 28, 2015, from

http://www.slate.com/articles/technology/future_tense/2015/05/facebook_emotion_contagion_study_tech_companies_need_irb_review.html

Gillespie, T. (2014, July 4, 2014). Facebook's algorithm: Why our assumptions are wrong, and our concerns are right. *Culture Digitally*. Retrieved July 5, 2014, from

<http://culturedigitally.org/2014/07/facebooks-algorithm-why-our-assumptions-are-wrong-and-our-concerns-are-right/>

Lazer, D., Pentland, A., Adamic, L., Aral, S., Barabási, A.-L., Brewer, D., . . . Van Alstyne, M. (2009). Computational Social Science. *Science*, 323(5915), 721-723. doi: 10.1126/science.1167742

In-Class Activity:

Sketch interdisciplinary code of ethics for: studying big data and algorithms; building “data factories”; and creating a “data science” profession.

Friday, June 12

:: WRAP-UP & PROPOSAL PRESENTATIONS ::