

The Politics of Algorithms

COMM 154-254 / SOC 154 / CSRE 154T

Spring 2018

T/Th, 12-1:20pm

300-300

Prof. Angèle Christin

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Office hours: Tuesday 2:15-4:15pm

Rm 334 Building 120

Teaching Assistants:

Anna Gibson (agibson2@stanford.edu)

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Office hours:

Anna Gibson: Tuesdays 3-5pm

Jeff Nagy: Tuesdays 9:30-11:30am

300 Atrium Area, Building 120

Course description

Algorithms have become central actors in today's digital world. In areas as diverse as social media, journalism, education, healthcare, and policing, computing technologies increasingly mediate communication processes. This course will provide an introduction to the social and cultural forces shaping the construction, institutionalization, operation, and uses of algorithms. In so doing, we will explore how algorithms relate to political issues of modernization, power, and inequality. Readings will range from social scientific analyses to media coverage of ongoing controversies relating to Big Data. Students will leave the course with a better appreciation of the broader challenges associated with researching, building, and using algorithms.

Learning goals

- Students will be able to identify content, interactions, and behaviors that have been shaped by algorithms
- Students will be able to recognize and critically analyze the values and goals informing the construction of algorithms
- Students will be able to explain the different mechanisms through which algorithms reinforce differences between groups
- Students will be able to apply these mechanisms in analyzing other algorithmic techniques not covered in the course

Requirements and grading

Please note that the assignments are not the same at the Undergraduate (Comm 154/Soc 154/ CSRE 154T) and Graduate levels (Comm 254).

Comm 154 / Soc 154 / CSRE 154T (Undergraduate Level)

1. Write three short reading responses about the readings (approximately 300 words altogether, due on Wednesdays by 8pm, on Canvas in the “discussion” page for your section). The format for these responses can vary, but it is useful to include short descriptions of the main ideas, concepts, and arguments that you found stimulating, as well as your questions, concerns, or disagreements. The responses must conclude with a couple of questions to open up the discussion during sections. You will sign up for the dates of your three responses during the first section meeting.
2. A *midterm paper* (hard copy due on May 3 in class). You will be asked to choose among several possible topics and write an essay of approximately 1,000 words. You will draw on the course readings and class discussions to develop a focused argument in response to an assigned question.
3. A *final paper* (hard copy due on June 5 in class). You will be asked to choose among several possible topics and write an essay of approximately 2,000 words. The questions will ask you to synthesize course readings and link them to new issues or objects.

Grades will be determined based on the written assignments and course participation. The breakdown will be the following:

- Reading response posts and questions: 15%
- Class participation 15%
- Midterm examination: 30%
- Final paper: 40%

Your papers need to be submitted on time and should represent your best work at every level. Work submitted late or with errors of fact, grammar or spelling will be penalized. The Honor Code applies to all your work.

Comm 254 (Graduate Level)

1. Write four reading response posts on the optional readings. Graduate students taking the course will be expected to read (and cover in your reading responses) two of the “optional” readings each week in addition to the required ones. The reading responses will connect the optional readings to the mandatory readings (approximately 300 words, due by 8pm Wednesday, on Canvas, in the “discussion” section).
2. A *midterm examination*. You will be asked to choose among several possible topics and write an essay of approximately 1,500 words. You will draw on the course readings and class discussions to develop a focused argument in response to an assigned statement.
3. For the *final paper*, graduate students will be asked to choose among several possible topics and write an essay of approximately 2,500 words. The questions will ask you not only to synthesize course readings and link them to issues or objects discussed in class,

but also to develop an original, rigorous argument based on several of the theoretical readings examined in class and supported by a variety of empirical examples.

Grades will be determined based on the written assignments and course participation. The breakdown will be the following:

- Blog posts: 20%
- Class participation: 10%
- Midterm examination: 30%
- Final paper: 40%

Readings

The readings will be made available on Canvas.

Cell Phones, Laptops, Tablets, and other Electronic Devices

Please turn off all electronic means of communication for the duration of class. See Clay Shirky's "[Why I Just Asked My Students to Put Their Laptops Away](#)" as well as Pam A. Mueller and Daniel M. Oppenheimer. 2014. "[The Pen Is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking](#)," *Psychological Science*, 25 (6). You may not talk on the phone, text, IM, email, read, solve crosswords, take pictures, etc. during class. All of these activities are likely to distract you, your peers, and the instructors, which is not fair to others in the class. Those engaging in these activities may be asked to leave the class. Direct repercussions could include loss of class attendance and class participation points.

Respect privacy and do not make digital recordings of others without their consent

Digital recordings and privacy concerns will be a recurring topic as we discuss present day media processes and effects. It is essential to the success of this class that participants feel comfortable sharing questions, ideas, concerns, stories, and experiences during class discussions. Therefore, you may not create any audio, photographic, or video recordings during class time.

Students with Documented Disabilities

Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Office of Accessible Education (OAE). Professional staff will evaluate the request with required documentation, recommend reasonable accommodations, and prepare an Accommodation Letter for faculty dated in the current quarter in which the request is being made. Students should contact the OAE as soon as possible since timely notice is needed to coordinate accommodations. The OAE is located at 563 Salvatierra Walk (phone: 723-1066, URL: <http://studentaffairs.stanford.edu/oea>).

Well-Being, Stress Management, & Mental Health

If you (or someone you know) are experiencing personal, academic, or relationship problems and would like someone to talk to, reach out to the Counseling and Psychological Services (CAPS)

on campus. CAPS is the university's counseling center dedicated to student mental health and wellbeing. As specialists working with undergraduate and graduate students, CAPS staff will work to address your needs through an initial CAPS phone screen appointment. CAPS provides a broad range of services including: crisis counseling, individual therapy, medication assessment and management, and group therapy. These services are provided by a diverse and multicultural professional staff. Many services are available without additional charge for students who have paid the Campus Health Service Fee. Phone assessment appointments can be made at CAPS by calling 650-723-3785, by accessing the VadenPatient portal through the Vaden website, or by coming to the second floor of the Vaden Health Center from 8:30 am–5 pm Monday through Friday. For more information about CAPS services, visit: <https://vaden.stanford.edu/caps-and-wellness>

Week 1. April 3-5. Introduction. What are algorithms? Do they have politics?

April 3

“A Visual Introduction to Machine Learning.” R2D3.

April 5

O’Neil, Cathy. 2016. Introduction and Chapter 1 in *Weapons of Math Destruction*. Crown.
Winner, Langdon. 1980. “Do Artifacts Have Politics?” *Daedalus* 109(1): 121-136.

Optional

Daumé III, Hal. 2017. Chapter 1 in *A Course in Machine Learning*.

Gillespie, Tarleton. 2014. “The relevance of algorithms.” Pp. 167-194 in T. Gillespie, P. Boczkowski & K. A. Foot (eds.), *Media Technologies: Essays on Communication, Materiality, and Society*. MIT Press.

Seaver, Nick. 2016. “Algorithms as Culture: Some Tactics for the Ethnography of Algorithmic Systems.” *Big Data & Society* 1-12.

boyd, danah and Kate Crawford. 2012. “Critical Questions for Big Data: Provocations for a Cultural, Technological, and Scholarly Phenomenon.” *Information, Communication, & Society* 15 (5): 662-679.

Joerges, Bernward. 1999. “Do Politics Have Artefacts?” *Social Studies of Science* 29 (3): 411-431.

Woolgar, Steve, and Geoff Cooper. 1999. “Do Artefacts Have Ambivalence?” *Social Studies of Science* 29 (3): 433-449.

White House. 2016. *Big Data: A Report on Algorithmic Systems, Opportunities, and Civil Rights*. Executive Office of the President.

Week 2. April 10-12. Facebook, Filter Bubbles, and the Public Sphere

April 10

- Pariser, Eli. 2011. Introduction and Chapter 1 in *The Filter Bubble: How the New Personalized Web is Changing What We Think and How We Read*. Penguin.
- Habermas, Jurgen. 1989. Pp. 27-43 in *The Structural Transformation of the Public Sphere: An Inquiry into the Category of Bourgeois Society*. MIT Press.
- Keegan, John. 2018. "Blue Feed, Red Feed: See Liberal Facebook and Conservative Facebook Side By Side." *The Wall Street Journal*.

April 12

- Fraser, Nancy. 1990. "Rethinking the Public Sphere." *Social Text* 25/26: 56-80.
- Zuckerberg, Mark. 2016. "I Want to Share Some Thoughts on Facebook and the Election."
- Zuckerberg, Mark. 2017. "The Question of Russian Interference in the US Elections."
- Gillespie, Tarleton. 2010. "The Politics of 'Platforms.'" *New Media & Society* 12 (3): 347-64.

Optional

- Bakshy, Eytan, Solomon Messing, and Lada A. Adamic. 2015. "Exposure to Ideologically Diverse News and Opinion on Facebook." *Science* 348 (6239)
- Flaxman, Seth, Sharad Goel, and Justin M. Rao. 2016. "Filter Bubbles, Echo Chambers, and Online News Consumption." *Public Opinion Quarterly* 80 (S1): 298-320.
- Schudson, Michael. 1995. "Was There Ever a Public Sphere?" Pp. 189-203 in *The Power of News*. Harvard University Press.
- Tufekci, Zeynep. 2017. Introduction and Chapter 1 in *Twitter and Tear Gas: The Power and Fragility of Networked Protest*. New Heaven: Yale University Press.

Week 3. April 17-19. Privacy, Surveillance, and Control

April 17

- Angwin, Julia. 2014. Chapter 1 and 2 in *Dragnet Nation: A Quest for Privacy, Security, and Freedom in a World of Relentless Surveillance*. Times Book.
- Solove, Daniel J. 2015. "Why Privacy Matters Even if You Have 'Nothing to Hide.'" *The Chronicle of Higher Education*.
- Nissenbaum, Helen. 2011. "A Contextual Approach to Privacy Online." *Daedalus* 140(4): 32-48.

April 19

- Hill, Kashmir. 2018. "The House that Spied on Me." *Gizmodo*, published February 7, 2018.
- Foucault, Michel. 1975. Chapter 3 in *Discipline and Punish: The Birth of the Prison*. Vintage.
- Deleuze, Gilles. 1992. "Postscript on the Societies of Control." *October* 59: 3-7.
- Levy, Karen, and Solon Barocas. 2018. "Refractive Surveillance. Monitoring Customers to Manage Workers." *International Journal of Communication* 12: 1166-1188.

Optional

- Agre, Philip E. 1994. "Surveillance and Capture. Two Models of Privacy." *The Information*

- Society* 10(2): 101-127.
- Turow, Joseph. 2005. "Audience Construction and Culture Production: Marketing Surveillance in the Digital Age." *The ANNALS of the American Academy of Political and Social Science*, 597(1): 103-121.
- Tufekci, Zeynep. 2014. "Engineering the Public: Big Data, Surveillance and Computational Politics," *First Monday* 19 (7).

Week 4. April 24-26. Algorithmic Discrimination and Inequality

April 24

- Sweeney, Latanya. 2013. "Discrimination in Online Ad Delivery." *ACM Queue* 11(3): 1-19.
- Ananny, Mike. 2011. "The Curious Connection Between Apps for Gay Men and Sex Offenders." *The Atlantic*. April 14
- Eubanks, Virginia. 2017. Introduction and Chapter 2 in *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*. St Martin's Press.

April 26

- Angwin Julia, Larson Jeff, Mattu Surya, and Krichner Lauren. 2016. Machine Bias. *ProPublica*, May 23, 2016.
- Corbett-Davis, Sam, Pierson, Emma, Feller, Avi and Goel, Sharad. 2016. "A Computer Program Used for Bail and Sentencing Decisions Was Labeled Biased Against Blacks. It's Actually Not That Clear." *The Washington Post*. October 17, 2016.
- Brayne, Sarah. 2017. "Big Data Surveillance: The Case of Policing." *American Sociological Review* 82(5): 977-1008.

Optional

- Introna, Lucas D., and Helen Nissenbaum. 2000. "Shaping the Web: Why the Politics of Search Engines Matters." *The Information Society* 16: 169-185.
- Barocas Solon, and Selbst Andrew D. 2016. "Big Data's Disparate Impact." *California Law Review* 104: 671-732.
- Braun, Lundy. 2005. "Spirometry, Measurement, and Race in the Nineteenth Century," *Journal of the History of Medicine and Allied Sciences* 60 (2): 135-69.
- Fourcade, Marion, and Kieran Healy. 2016. "Seeing Like a Market." *Socio-Economic Review* 1-21.
- Christin, Angèle. 2017. "The Mistrials of Algorithmic Sentencing." *Logic* 03: <https://logicmag.io/03-the-mistrials-of-algorithmic-sentencing/>

Week 5. May 1-3. Algorithmic Selves I: Identities and Time

May 1

- Marwick, Alice E., and boyd, danah. 2011. "I Tweet Honestly, I Tweet Passionately: Twitter Users, Context Collapse, and the Imagined Audience." *New Media & Society*, 13(1): 114-133.

Duffy, Brooke Erin, and Emily Hund. 2015. "'Having it All' on Social Media: Entrepreneurial Femininity and Self-Branding Among Fashion Bloggers." *Social Media + Society* 1-15.
Goffman, Erving. 1959. Pp. 1-34 in *The Presentation of Self in Everyday Life*. New York: Doubleday.

May 3

***** Guest Lecture by Prof. Judy Wajcman *****

Wajcman, Judy. 2015. Introduction and Chapter 6 in *Pressed for Time: The Acceleration of Life in Digital Capitalism*. Chicago: The University of Chicago Press.

Optional

Scholz, Trebor. 2017. Introduction to *Digital Labor: The Internet as Playground and Factory*. Routledge.

Vallas, Steven P., and Angèle Christin. 2018. "Work and Identity in an Era of Precarious Employment: How Workers Respond to 'Personal Branding' Discourse." *Work & Occupation* 45(1): 1-17.

Wajcman, Judy. 2008. "Life in the Fast Lane? Towards a Sociology of Technology and Time." *British Journal of Sociology* 59 (1): 59-77.

-- Midterm Paper Due on May 3 --

Week 6. May 8-10. Algorithmic Selves II: Intimacy, Friendship, and Bodies

May 8

Illouz, Eva. 2007. "Romantic Webs" in *Cold Intimacies: The Making of Emotional Capitalism*. Polity.

Bucher, Taina. 2016. "The Algorithmic Imaginary: Exploring the Ordinary Affects of Facebook Algorithms." *Information, Communication & Society* 20(1): 30-44.

Espeland, Wendy Nelson, and Mitchell L. Stevens. 1998. "Commensuration as a Social Process." *Annual Review of Sociology* 24 (1): 313-43.

May 10

*****Guest lecture by Anna Gibson*****

Lupton, Deborah. 2016. Chapter 3 in *The Quantified Self*. Malden: Polity.

Crawford, Kate, Lingel, Jessa, and Karppi, Tero. 2015. "Our Metrics, Ourselves. A Hundred Years of Self-Tracking from the Weight Scale to the Wrist Wearable Device." *European Journal of Cultural Studies* 18(4-5): 479-496.

Weigel, Moira. 2016. "'Fitbit For Your Periods': The Rise of Fertility Tracking." *The Guardian*, March 23, 2016.

Optional

- Igo, Sarah. 2007. Introduction and Chapter 6 in *The Averaged American*. Cambridge, MA: Harvard University Press.
- Eslami, M., Rickman, A., Vaccaro, K., Aleyasen, A., Vuong, A., Karahalios, K., Hamilton, K., & Sandvig, C. 2015. "I always assumed that I wasn't really that close to [her]": Reasoning about invisible algorithms in the news feed." *Proceedings of the 33rd Annual SIGCHI Conference on Human Factors in Computing Systems* ACM: 153-162.
- Schull, Natasha. 2016. "Data for Life: Wearable Technology and the Design of Self Care," *BioSocieties* 11(3): 317-33.
- Hicks, Marie. 2017. "The Mother of All Swipes." *Logic* 02: <https://logicmag.io/02-the-mother-of-all-swipes/>

Week 7. May 15-17. Algorithmic Institutions: Work and Money

May 15

- Rosenblat, Alex and Stark, Luke. 2016. "Algorithmic Labor and Information Asymmetries. A Case Study of Uber Drivers." *International Journal of Communication* 10: 3758-3784.
- Shestakofsky, Benjamin. 2017. "Working Algorithms: Software Automation and the Future of Work." *Work and Occupations* 44(4):376-423.
- Christin, Angèle. 2018. "Algorithms in Practice: Comparing Web Journalism and Criminal Justice." *Big Data & Society* 4(2): 1-14.

May 17

*** **Guest lecture by Jeff Nagy** ***

- Nakamoto, Satoshi. 2008. "Bitcoin: A Peer-to-Peer Electronic Cash System." <https://bitcoin.org/bitcoin.pdf>
- Böhme, Rainer, Nicholas Christin, Benjamin Edelman, and Tyler Moore. 2015. "Bitcoin: Economics, Technology, and Governance." *Journal of Economic Perspectives*, 29(2): 213-238.
- Malmö, Christopher. "Bitcoin is Unsustainable." *Motherboard*, June 29, 2015. https://motherboard.vice.com/en_us/article/ae3p7e/bitcoin-is-unsustainable
- Lustig, Caitlin and Bonnie Nardi. 2015. "Algorithmic Authority: The case of Bitcoin." In *2015 48th Hawaii International Conference on System Sciences (HICSS)*: 743-752. IEEE.

Optional

- Bix, Amy Sue. 2001. Prologue and Chapter 1 in *Inventing Ourselves Out of Jobs? America's Debate over Technological Unemployment, 1929-1981*. Baltimore: John Hopkins University Press.
- Zuboff, Shoshana. 1988. Introduction and Chapter 7 in *In the Age of the Smart Machine: The Future of Work and Power*. Basic Books.
- Aneesh, A. 2009. "Global Labor: Algocratic Modes of Organization." *Sociological Theory* 27 (4): 347-370.
- Geiger, R. Stuart. 2017. "Beyond Opening Up the Black Box: Investigating the Role of Algorithmic Systems in Wikipedian Organizational Culture." *Big Data & Society* 1-14.
- Narayanan, Arvind, Joseph Bonneau, Edward Felten, Andrew Miller, Steven Goldfeder, and

Jeremey Clark. 2016. "Preface: The Long Road to Bitcoin." In *Bitcoin and Cryptocurrency Technology*. Princeton: Princeton University Press.

Dodd, Nigel. 2017. "The Social Life of Bitcoin." *Theory, culture, & society*.

Week 8. May 22-24. Constructing Algorithms: Silicon Valley and elsewhere

May 22

Saxenian, AnnaLee. 1994. Introduction and Chapter 2 in *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*. Harvard University Press.

Neff, Gina, and David Stark. 2003. "Permanently Beta: Responsive Organization in the Internet Era," Pp. 173-188 in Philip Howard and Steve Jones (Eds.), *Society Online: The Internet in Context*, Sage.

Marwick, Alice. 2013. Introduction and Chapter 4 in *Status Update. Celebrity, Publicity, and Branding in the Social Media Age*. Yale University Press.

May 24

Turner, Fred. 2009. "Burning Man at Google: A Cultural Infrastructure for New Media Production." *New Media & Society*, 11(1-2), 73-94.

Chen, Adrian. 2014. "The Laborers Who Keep Dick Pics and Beheadings Out of Your Facebook Feed." *Wired*. October 23, 2014.

Optional

Barley, Stephen R., and Gideon Kunda. 2004. Chapter 1 and 2 in *Gurus, Hired Guns, and Warm Bodies: Itinerant Experts in a Knowledge Economy*. Princeton University Press.

Boltanski, Luc, and Eve Chiapello. 2005. "The New Spirit of Capitalism." *International Journal of Politics, Culture, and Society*, 18 (3-4): 161-188.

Neff, Gina. 2012. Chapter 3 from *Venture Labor: Work and the Burden of Risk in Innovative Industries*. MIT Press.

Week 9. May 29-31. Regulating Algorithms

May 29

O'Neil, Cathy. 2016. Conclusion in *Weapons of Mass Destruction*. Crown.

Diakopoulos, Nicholas, and Friedler, Sorelle. 2016. "How to Hold Algorithms Accountable." *MIT Technology Review*, Nov. 17, 2016.

Garcia, Megan. 2017. "How to Keep Your AI from Turning into a Racist Monster." *Wired*. February 13, 2017.

May 31

Pasquale, Frank. 2015. Chapter 1 and 2 in *The Black Box Society: The Secret Algorithms That Control Money and Information*. Harvard University Press.

Burrell, Jenna. 2016. "How the Machine 'Thinks:' Understanding Opacity in Machine Learning Algorithms." *Big Data & Society* 3(1).

Ananny, Mike, and Crawford, Kate. 2016. "Seeing Without Knowing: Limitations of the

Transparency Ideal and its Application to Algorithmic Accountability.” *New Media & Society*.

Optional

Schudson, Michael. 2015. Introduction, *The Rise of the Right to Know: Politics and the Culture of Transparency, 1945-1975*. Harvard University Press.

Crawford, Kate, and Jason Schultz. 2014. “Big Data and Due Process: Toward a Framework to Redress Predictive Privacy Harms.” *Boston College Law Review*, 55(1).

Ziewitz, Malte. 2016. “Governing Algorithms: Myth, Mess, and Methods.” *Science, Technology, & Human Values* 41(1): 3-16.

Week 10. June 5. Wrapping things up

Borgman, Christine L. 2015. Preface and Chapter 1 in *Big Data, Little Data, No Data: Scholarship in the Networked World*. MIT Press.

Davies, William. 2017. “How Statistics Lost Their Power – And Why We Should Fear What Comes Next,” *The Guardian*. January 19, 2017.

Optional

Star, Susan Leigh, and Geoffrey C Bowker. 2000. Introduction (“To Classify Is Human”) in *Sorting Things Out: Classification and Its Consequences* (Inside Technology). MIT Press.

-- Final Paper Due on June 5 --