Internet & Society: The Technologies and Politics of Control
Professor Jonathan Zittrain co-taught with Professor Joi Ito, Director of the MIT Media Lab
Harvard Law School
Winter 2017

Mon-Fri
10:30am-noon; 12:45pm-2pm
Milstein West AB

Syllabus

I. Course Description

This course offers a rigorous introduction to the field of cyberlaw. We will investigate the evolving nature of online architecture and activities, and the ways in which law has been, and will be, leveraged to influence them.

Course themes include the complex interaction between Internet governance organizations and sovereign states, the search for balance between the ease of disseminating information online and the interest of copyright holders, privacy advocates, and others in controlling that dissemination, and the roles of intermediaries and platforms in shaping what people can and cannot do online. The course will include an array of learning and teaching methods. Students will be expected to participate in a variety of activities.

II. Class Schedule

The class meets every day from January 3rd to January 13th in Milstein West AB. Each day will be divided into three phases: the morning session from 10:30am to noon, lunch from noon to 12:45pm, and the afternoon session from 12:45pm to 2pm. Lunch will be provided.

A more detailed schedule of the topics we will be covering each day follows below.

Topics (2 per day other than the last day)

Day 1: Introduction, Right to Be Forgotten and Jurisdiction
Day 2: Copyright, DRM debate between Professor Ito and Professor Zittrain (afternoon session)

Day 3: Cryptocurrency
Day 4: Private Infrastructures for Government Surveillance, John DeLong/Bruce Schneier talk (morning session)
Day 5: Net Neutrality and Internet Architecture, Dialogue with Andy Ellis (afternoon session)
Day 6: Weaponized Social, Open discussion with John Palfrey (morning session)
Day 7: Free vs. Proprietary Code and Content, Dialogue with David Clark (afternoon session)
Day 8: Governance, Artificial Intelligence
Day 9: Conclusion

III. Class Requirements

The purpose of this class is to give students a sense of the historical battles of the Internet, what different actors were thinking, what they were trying to accomplish, and what levers they pulled in order to select for specific outcomes. Students should apply what they have learned from historical examples to a current Internet issue discussed in class and describe in a 12-15 page paper what a viable solution might look like. Solutions could take the form of a policy recommendation, project proposal, or code. The paper or project proposal will be due on Friday, January 20th, and may be submitted by email to Samantha Bates at sbates@law.harvard.edu.

IV. Class Materials

There is no required textbook for this class. All readings will be available online on the class H2O playlist: https://h2o.law.harvard.edu/playlists/51511.

We will have a slack channel for the class. Please click on the following link to sign up: https://internet-society2017.slack.com/signup.

Students should bring their laptops to class to use for daily activities, but all electrical devices must remain off during lectures.

V. General Information

Professor Zittrain and Professor Ito will be available for group office hours after class on the following dates:

- Wednesday, January 4th from 2:15-3:15pm in Milstein West.
- Monday, January 9th from 2:15-3:15pm in Milstein West.
- Wednesday, January 11th from 2:15-3:15pm in Milstein West.

For other general scheduling/appointment questions, please contact:

Amanda McMahan
Assistant to Professor Zittrain
Office Phone: 617-495-8351
Email: a2jz@law.harvard.edu
Office location: Griswold Hall, 5th floor, Room #505

Yuko Barnaby
Assistant to Media Lab Director Ito
Office Phone: 617-999-5579
Email: yuko@media.mit.edu
Office location: MIT Media Lab, E-14, Director's Office 245

For course related (readings/paper) questions, please contact:

Samantha Bates
Research Associate
Email: sbates@law.harvard.edu

Natalie Saltiel
Coordinating Editor for the Journal of Design and Science (JoDS)
MIT Media Lab
Email: nsaltiel@media.mit.edu

For other information about the class, please contact:

Shailin Thomas
Teaching Fellow
Email: sthomas@jd18.law.harvard.edu

Jordi Weinstock
Visiting Scholar
Email: jordi.weinstock@gmail.com

Reading Assignments

Day 1: Introduction

Welcome! We aspire to the implausible: a nine-day introduction to the unusual dynamics of the world's digital space, sufficient for a strategic understanding of what makes it difficult (but far from impossible) to regulate or shape; who's trying to do it nonetheless; and how such efforts have fared over the past twenty years, with an eye towards lessons for influencing the space and the behavior within it today.

In addition to offering some frameworks for thinking about Internet architecture and policy, and the curious open and generative nature of the phenomenon, we will delve into the net as a contingently global phenomenon, and the way that complicates regulation by traditional sovereigns. Our case study will be the current debates around implementation of Europe's "right to be forgotten" in search engine results. As you complete the readings, you might see how you'd answer the question of what a state like France's view should be towards the scope of its RTBF regulation, and whether the kind of "zoning" described in the Cato Institute article from thirteen years ago (!), is realizable and desirable.

Readings:
- C.P. Snow, "The Rede Lecture: The Two Cultures," (1959) pages 1-9 http://s-f-walker.org.uk/pubsebooks/2cultures/Rede-lecture-2-cultures.pdf archived at https://perma.cc/XB6F-N9K8.
- John Perry Barlow, "A Declaration of the Independence of Cyberspace," *Electronic Frontier Foundation* (February 8, 1996) https://www.eff.org/cyberspace-independence archived at https://perma.cc/H2CZ-N2EX.
- Locke, Levine, Searles, & Weinberger, The Cluetrain Manifesto: 95 Theses (1999) http://www.cluetrain.com/book/95-theses.html archived at https://perma.cc/2BLT-6ZEL.
- Jonathan Zittrain, *The Future of the Internet and How to Stop It*. New Haven: 2008 https://dash.harvard.edu/bitstream/handle/1/4455262/Zittrain_Future%20of%20the%20Internet.pdf?sequence=1 archived at https://perma.cc/NM9D-7Y2V.
  - Read pages 1-5, 7-9, 57-61, 63-65, 67-71.
- Yochai Benkler, *The Wealth of Networks.* New Haven: 2006. http://www.benkler.org/Benkler_Wealth_Of_Networks.pdf archived at https://perma.cc/BC4A-96KP.
  - Read pages 154 (beginning "Imagine a world") - 161

Jurisdiction
- Jonathan Zittrain, "Be Careful What You Ask For: Reconciling a Global Internet and Local Law," WHO RULES THE NET?, Cato Institute (2003) http://cyber.law.harvard.edu/sites/cyber.law.harvard.edu/files/2003-03.pdf archived at https://perma.cc/3JE9-GM3R.

[OPTIONAL: Right to Be Forgotten readings]
- Zoe Bedell, "Google to France: 'Forget You' - An Update on the Right to Be Forgotten" *Lawfare* (May 25, 2016) https://www.lawfareblog.com/google-france-forget-you-%E2%80%93-update-right-be-forgotten archived at https://perma.cc/W9EX-5AGZ.
- Google Spain v. Mario Costeja González ECJ opinion (May 13, 2014) http://curia.europa.eu/juris/document/document_print.jsf?doclang=EN&docid=152065 archived at https://perma.cc/3ARS-3XC4.
  - Read paragraphs 89-99
- Brendan van Alsenoy and Marieke Koekkoek, The Extraterritorial Reach of the EU's 'Right to Be forgotten' (January 19, 2015). CiTiP Working paper 20/2015. Available at SSRN: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2551838 archived at https://perma.cc/B3SF-YJ3W.
  - Read pages 3-22

Day 2: Copyright

Copyright was once thought of as the defining battle of consumer networking. Academic technologies brought into the mainstream made it trivial to prepare and distribute perfect copies of copyrighted work without permission -- and the comparatively powerful organizations representing copyright holders saw this as an existential threat.

We will read some of the "grim joy" experienced by Internet freedom types in dancing on the grave of copyright in the mid-1990s -- and immerse in some of the law and policy changes effected in the United States to deal with the problem without running up against the equities of rapidly-growing intermediaries of online and Internet service providers (turns out, there's a difference).

The copyright wars revealed a variety of strategies that we'll look at with the benefit of years of hindsight, including lawsuits against network providers, software makers, and individual users both sending and receiving files, as well as technical changes designed to make it more difficult to share items that wish not to be shared. Ultimately we are drawn to the question of whether the wars were won by one side or another, or whether it's more accurate to say that they simply faded away. What issues today feel make-or-break, yet could simply fade rather than be resolved, and why?

We'll end the day with a peek into, and practice of, a current intense if obscure debate: that of whether digital rights management hooks should be placed into standards for Web browsers.

Readings:
- John Perry Barlow, "The Economy of Ideas," *Wired* (March 1994) http://archive.wired.com/wired/archive/2.03/economy.ideas.html?topic=&topic_set= archived at https://perma.cc/P82S-RZP3.

- Matthew Green, Napster Opens Pandora's Box: Examining How File-Sharing Services Threaten the Enforcement of Copyright on the Internet, 63 Oh. St. L. J. 799 (2002) http://moritzlaw.osu.edu/students/groups/oslj/files/2012/03/63.2.green_.pdf archived at https://perma.cc/H77J-TN43.
- Brad Hill, "The iTunes Influence, Part I: How Apple Changed the Face of the Music Marketplace," *Engadget* (April 29, 2013) https://www.engadget.com/2013/04/29/the-itunes-influence-part-one/ archived at https://perma.cc/MEU4-W5N9.
- Hannah Ellis-Petersen, "Music streaming hailed as industry's saviour as labels enjoy profit surge," *The Guardian* (December 29, 2016) https://www.theguardian.com/technology/2016/dec/29/music-streaming-industry-saviour-labels-spotify-apple-music archived at https://perma.cc/3B4Y-3UT6.
- David Kravets, "10 Years Later, Misunderstood DMCA is the Law That Saved the Web," *Wired* (October 27, 2008) https://www.wired.com/2008/10/ten-years-later/ archived at https://perma.cc/VH2T-7S7V.
- Lawrence Lessig, The Creative Commons, 55 Fla. L. Rev. 763 (2003) http://homepages.law.asu.edu/~dkarjala/OpposingCopyrightExtension/commentary/LessigCreativeCommonsFlaLRev2003.htm archived at https://perma.cc/T7UD-JHYZ.
- Alex Davies, "The EPA Opposes Rules That Could've Exposed VW's Cheating," *Wired* (September 18, 2015) https://www.wired.com/2015/09/epa-opposes-rules-couldve-exposed-vws-cheating/ archived at https://perma.cc/W4RK-Q6QJ.

DRM and HTML5 background readings:
- "Information about W3C and Encrypted Media Extensions (EME)" W3C (March 2016) https://www.w3.org/2016/03/EME-factsheet.html archived at https://perma.cc/4ZPR-DXTA.
- Peter Bright, "DRM in HTML5 is a victory for the open Web, not a defeat," *Ars Technica* (May 10, 2013) http://arstechnica.com/business/2013/05/drm-in-html5-is-a-victory-for-the-open-web-not-a-defeat/ archived at https://perma.cc/UM8C-NFPV.

Day 3: Cryptocurrency

One view of the progression of digital technology has been roughly from amateur to professional, from open to closed, and from chaotic to ordered -- as the early successes from left field of Google, Facebook, and Twitter enter publicly-traded adulthood. At the ripe year of 2017, are there still digital disruptions to be had?

The phenomenon (and increasing literal value) of cryptocurrency -- and, for that matter, the foundational blockchain technologies on which it can be based -- seems to indicate that there are still surprises from left field. What does the rise of cryptocurrency tell us about the state of cyberspace, and what should we expect -- and hope for -- next?

Readings:

Introduction

- Coin Center, Blockchain 101, https://coincenter.org/learn archived at https://perma.cc/M2TZ-B9YX.
- Eli Dourado and Jerry Brito, "The New Palgrave Dictionary of Economics: cryptocurrency," Online Edition, 2014 http://coincenter.org/wp-content/uploads/2015/05/cryptocurrency-article.pdf archived at https://perma.cc/3YFE-QS5P.
- Joel Monegro, "The Blockchain Application Stack" http://www.coindesk.com/blockchain-application-stack/ archived at https://perma.cc/4E3V-SCAL.

[OPTIONAL: for a more in depth technical introduction to Bitcoin]

- Michael Nielson, "How the Bitcoin Protocol Actually works" http://www.michaelnielsen.org/ddi/how-the-bitcoin-protocol-actually-works/ archived at https://perma.cc/C2QJ-YFEY.

Bitcoin & the Blockchain

- Joi Ito, "Why Bitcoin is and isn't like the Internet" https://joi.ito.com/weblog/2015/01/23/why-bitcoin-is-.html archived at https://perma.cc/CBE8-2UXQ.
- Joi Ito, "Why anti-money laundering laws and poorly designed copyright laws are similar and should be revised," (March 12, 2016) http://pubpub.ito.com/pub/dmca-drm-aml-kyc-backdoors archived at https://perma.cc/7T7T-UPJK.
- Rachel O'Dwyer, "The Revolution Will Not Be Decentralized: Blockchains," *Common Transition* (June 11, 2015) http://commonstransition.org/the-revolution-will-not-be-decentralised-blockchains/ archived at https://perma.cc/MNP7-JZZL.
- Vili Lehdonvirta and Edward Castronova, *Virtual Economies: Design and Analysis.* 2014. MIT Press.
  - Read Chapter 10: Money
- Raskin, Max and Yermack, David, Digital Currencies, Decentralized Ledgers, and the Future of Central Banking (May 1, 2016). Peter Conti-Brown & Rosa Lastra (eds.), Research Handbook on Central Banking, Edward Elgar Publishing, Spring 2017, Forthcoming. Available at SSRN: https://ssrn.com/abstract=2773973 archived at https://perma.cc/FTC3-M6EF.

Ethereum

- Vitalik Buterin, "What is Ethereum?," *Coin Center* https://coincenter.org/entry/what-is-ethereum archived at https://perma.cc/WKN4-33XF.

Smart Contracts
- Houman Shadab,"What are Smart Contracts and What Can We do with Them?," *Coin Center* (December 15, 2014) https://coincenter.org/entry/what-are-smart-contracts-and-what-can-we-do-with-them archived at https://perma.cc/BH6T-J6S7.

[OPTIONAL]
- Arvind Narayanan; "What Happened to the Crypto Dream, Part 1," Co-published by the IEEE Computer and Reliability Societies (March/April 2013) http://randomwalker.info/publications/crypto-dream-part1.pdf archived at https://perma.cc/DX8U-QJ5A.
- Arvind Narayanan, "What Happened to the Crypto Dream?, Part 2," Co-published by the IEEE and Reliability Societies (May/June 2013) http://randomwalker.info/publications/crypto-dream-part2.pdf archived at https://perma.cc/F482-84AY.
- Lawrence Lessig Code 2.0 lecture from COALA Blockchain Workshop: https://www.youtube.com/watch?v=pcYJTIbhYF0.
- Chelsea Barabas and Ethan Zuckerman, "Can Bitcoin be used for Good?," *The Atlantic* (April 7, 2016) http://www.theatlantic.com/technology/archive/2016/04/bitcoin-hype/477141/ archived at https://perma.cc/V94Q-CCP3.

Day 4: Private Infrastructures for Government Surveillance

Digital privacy has at times been understood as privacy against corporate intrusion (think ad networks); against government (think the various government intelligence-gathering establishments around the world); and against one another (think drones as well as more pedestrian technologies that empower people to document facts about, or even doxx, each other).

This session will look at the second form of surveillance, especially as effectuated through the cooperation or compulsion of private intermediaries. How successful is such surveillance, and will it continue to be effective as the public reacts by potentially adopting privacy-enhancing tools? How successful do we want it to be, and how might frameworks agreeable within jurisdictions that embrace the rule of law be used or abused within those that do not?

Readings:
- David O'Brien, Matt Olsen, Bruce Schneier, and Jonathan Zittrain, et al. "Don't Panic. Making Progress on the 'Going Dark' Debate," The Berkman Center for Internet & Society at Harvard University (Feb 1, 2016) https://cyber.law.harvard.edu/pubrelease/dont-panic/Dont_Panic_Making_Progress_on_Going_Dark_Debate.pdf archived at https://perma.cc/NT9M-ELAG.

- John Cassidy, "Lessons from Apple vs. The F.B.I.," *The New Yorker* (March 29, 2016) http://www.newyorker.com/news/john-cassidy/lessons-from-apple-versus-the-f-b-i archived at https://perma.cc/282P-A7MS.
- Susan Landau, Testimony for House Judiciary Committee Hearing on "The Encryption Tightrope: Balancing Americans' Security and Privacy" (March 1, 2016) https://judiciary.house.gov/wp-content/uploads/2016/02/Landau-Written-Testimony.pdf archived at https://perma.cc/N9D9-JTYQ.
- Bruce Schneier, "Data Is a Toxic Asset, So Why Not Throw It Out?," *Schneier on Security* (March 1, 2016) https://www.schneier.com/essays/archives/2016/03/data_is_a_toxic_asse.html archived at https://perma.cc/7NUL-W5YJ.
- Stewart Baker, "Why the NSA Needs Your Phone Calls…and why you (probably) shouldn't worry about it," *Foreign Policy* (June 6, 2013) http://foreignpolicy.com/2013/06/06/why-the-nsa-needs-your-phone-calls/ archived at https://perma.cc/YE3N-TSWU.
- [OPTIONAL] Harold Abelson et al., "Keys Under Doormats: Mandating insecurity by requiring government access to all data and communications," CSAIL (Jul 7, 2015). https://www.schneier.com/academic/paperfiles/paper-keys-under-doormats-CSAIL.pdf archived at https://perma.cc/2L3U-QST8.

Day 5: Internet Architecture/Net Neutrality

We increasingly assume the availability of commodity networking -- a flat fee for access -- even as the way in which we experience the Internet is evolving through a curious microeconomics, a mishmash of policies designed to subsidize or regulate access, and a sometime ability to arbitrage around arrangements through technologies to facilitate access sharing and virtual tunneling.

How is Internet access likely to evolve, and what choices exist for polities with particular ideals about how it should work?

Discussion will include Andy Ellis, Berkman Klein Center Fellow and CSO of Akamai, one of the most important companies that people haven't heard of.

Readings:
Net Neutrality
- [FOR REFERENCE] Net Neutrality timeline, Public Knowledge: http://whatisnetneutrality.org/timeline archived at https://perma.cc/L8JE-QYP8.
- Tim Wu, Network Neutrality, Broadband Discrimination. Journal of Telecommunications and High Technology Law, Vol. 2, p. 141 (2003). Available at SSRN: https://ssrn.com/abstract=388863 or http://dx.doi.org/10.2139/ssrn.388863 archived at https://perma.cc/X856-RWSC.
  - Read the introduction and Part I A, pages 141-147.

- Tim Wu and Christopher Yoo, "Keeping the Internet Neutral?: Tim Wu and Christopher Yoo Debate," Federal Communications Law Journal. 59 (2007), pp. 575-592 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=953989 archived at https://perma.cc/FHE3-XUED.
- Tom Wheeler, "This is How We Will Ensure Net Neutrality," *Wired* (February 4, 2015) https://www.wired.com/2015/02/fcc-chairman-wheeler-net-neutrality/ archived at https://perma.cc/C8DE-2PJB.

Zero-rating
- Jeremy Malcolm, Corynne Mcsherry, and Kit Walsh, "Zero rating: What It Is and Why You Should Care," *Electronic Frontier Foundation* (February 18, 2016) https://www.eff.org/deeplinks/2016/02/zero-rating-what-it-is-why-you-should-care archived at https://perma.cc/Y6TW-2QAG.
- Arturo J Carrillo, Having Your Cake and Eating it Too? Zero-Rating, Net Neutrality and International Law (March 6, 2016). 19 Stan. Tech. L. Rev. 364 (2016). Available at SSRN: https://ssrn.com/abstract=2746447 archived at https://perma.cc/9Z28-X6A4.
  - Read part IV (pages 418-428).

Internet Architecture
- Mike Masnick, "Can We Kill This Ridiculous Shill-Spread Myth That CDNs Violate Net Neutrality? They Don't," *TechDirt* (August 13, 2014) https://www.techdirt.com/articles/20140812/04314528184/can-we-kill-this-ridiculous-shill-spread-myth-that-cdns-violate-net-neutrality-they-dont.shtml archived at https://perma.cc/YK3D-3BQG.

Day 6: Weaponized Social

The time when the solution to bad speech could be advanced as simply more speech might seem quaint. The famously libertarian Electronic Frontier Foundation recently released a white paper in which it acknowledged a line between a clash of ideas and flat-out harassment, with the latter causing less rather than more robust debate. Separately, concerns about outright false news that spreads virally have inspired calls for action by intermediaries like Facebook -- a self-described technology, rather than media, company.

Applying lessons from the conflicts of the past two decades online, how might we agree upon a vision for social networking even if we disagree on many substantive issues to be debated there, and what are the roles, if any, of regulators and private platforms in establishing boundaries on behavior online through code or legal sanction?

Is it more difficult to agree on a vision is our media is no longer *about* the battlefield or the real world but *is* the battlefield and the real world?

Readings:

The Problem

- Eugene Volokh, "No, there's no 'hate speech' exception to the First Amendment," *The Washington Post* (May 7, 2015) https://www.washingtonpost.com/news/volokh-conspiracy/wp/2015/05/07/no-theres-no-hate-speech-exception-to-the-first-amendment/?utm_term=.78330882267d archived at https://perma.cc/A5ES-HMQE.
- Jon Ronson, "How One Stupid Tweet Blew Up Justine Sacco's Life," *The New York Times Magazine* (February 12, 2015) http://www.nytimes.com/2015/02/15/magazine/how-one-stupid-tweet-ruined-justine-saccos-life.html?_r=0 archived at https://perma.cc/3AHS-Z9EU.
- Adrian Chen, "The Agency," *The New York Times Magazine* (June 2, 2015) http://www.nytimes.com/2015/06/07/magazine/the-agency.html?_r=0 archived at https://perma.cc/BER2-TD6E.
- Reeves Wiedeman, "The Sandy Hook Hoax," *The New York Magazine* (September 5, 2016) http://nymag.com/daily/intelligencer/2016/09/the-sandy-hook-hoax.html archived at https://perma.cc/T9YD-U8Z9.
- Gilad Lotan, "Fake News Is Not the Only Problem," *Points* (November 22, 2016) https://points.datasociety.net/fake-news-is-not-the-problem-f00ec8cdfcb#.kwt01pk4h archived at https://perma.cc/B3FK-FJVX.
- Craig Silverman, "How Teens In The Balkans Are Duping Trump Supporters With Fake News," *BuzzFeed* (November 3, 2016) https://www.buzzfeed.com/craigsilverman/how-macedonia-became-a-global-hub-for-pro-trump-misinfo?utm_term=.nlpEm5kbY#.apomjgWlD archived at https://perma.cc/SB2G-9XUM.
- Caitlin Dewey, "Facebook fake-news writer: 'I think Donald Trump is in the White House because of me,'" *The Washington Post* (November 17, 2016) https://www.washingtonpost.com/news/the-intersect/wp/2016/11/17/facebook-fake-news-writer-i-think-donald-trump-is-in-the-white-house-because-of-me/?utm_term=.e2d9c7b0d5e6 archived at https://perma.cc/B6S4-UBJC.

The Search for Solutions

- Andy Greenberg, "Inside Google's Internet Justice League and Its AI-Powered War on Trolls," *Wired* (September 19, 2016) https://www.wired.com/2016/09/inside-googles-internet-justice-league-ai-powered-war-trolls/ archived at https://perma.cc/K56R-MGBX.
- Dia Kayyali and Danny O'Brien, "Facing the Challenge of Online Harassment" *Electronic Frontier Foundation* (January 8, 2015) https://www.eff.org/deeplinks/2015/01/facing-challenge-online-harassment, archived at https://perma.cc/98RS-L876.

- State v. Robert Bishop, 223PA15 (June 10, 2016) https://h2o.law.harvard.edu/collages/42536.

Day 7: Free vs. Proprietary Code and Content

This day examines quite different models for the development and distribution of software -- which can also serve as models for hardware, and for content. What kind of ecosystem, featuring what models, is desirable?

We will think about current issues in cybersecurity as a case study in why free vs. proprietary code might matter, and take up the question of how regulation might be applied when there *are* no easily identified intermediaries in the production of code.

And we will hear from the legendary David Clark, one of the framers of the Internet.

Readings:
- Richard Stallman, "Original Announcement of the GNU Project," GNU Operating System (September 27, 1983) https://www.gnu.org/gnu/initial-announcement.html archived at https://perma.cc/2V5W-89P3.
- The Free Software Foundation, "What is free software?," GNU Operating System http://www.gnu.org/philosophy/free-sw.html archived at https://perma.cc/7884-5ZUR.
  - [FOR REFERENCE] The Free Software Foundation, "Categories of Free and nonfree software," GNU Operating System: https://www.gnu.org/philosophy/categories.html archived at https://perma.cc/HH79-6YVX.
- Jonathan Zittrain, *The Future of the Internet and How to Stop It*. New Haven: 2008 https://dash.harvard.edu/bitstream/handle/1/4455262/Zittrain_Future%20of%20the%20Internet.pdf?sequence=1 archived at https://perma.cc/B7RL-JRKK.
  - Read Chapter 4: Generative Patterns (pages 67-100).
- Jeff Atwood, "Tivoization and the GPL," *Coding Horror* (February 18, 2008), https://blog.codinghorror.com/tivoization-and-the-gpl/ archived at https://perma.cc/YFQ5-42XW.
- Rusty Foster, "The Internet's Telltale Heartbleed," *The New Yorker* (April 9, 2014) http://www.newyorker.com/tech/elements/the-internets-telltale-heartbleed archived at https://perma.cc/AC9L-HW34.
- Ron Amadeo, "Google's iron grip on Android: Controlling open source by any means necessary," *Ars Technica* (October 20, 2013) http://arstechnica.com/gadgets/2013/10/googles-iron-grip-on-android-controlling-open-source-by-any-means-necessary/ archived at https://perma.cc/QKW2-3EQH.
- [OPTIONAL] Open Source Licenses: Richard Fontana et. al, *A Legal Issues Primer For Open Source and Free Software Projects*. Software Freedom Law Center (June 4, 2008) https://www.softwarefreedom.org/resources/2008/foss-primer.pdf archived at https://perma.cc/2CMH-UP4G.

○ Read Chapter 2 only.

Day 8: Governance

The tensions between free vs. proprietary software help focus us on foundational questions of governance that are threaded through the course. To what extent should new technologies be shaped and shared by anyone without gatekeeping? 2017 may find the Internet in middle age. Do its puzzles suggest anything about whether and how to resolve governance questions for more newly mainstreamed technologies like machine learning and other AI?

In addition to the challenges that the Internet has provided in regulation and governance, the inability to really understand what many "learned" algorithms do, and their ability to have properties and abilities beyond the capabilities of their initial designers, presents additional challenges when thinking about whether and how to regulate the research, as well as the deployment, of AI. Phenomena like digital currencies and distributed AI systems reprises the ideas and challenges of Barlow's declaration of independence of cyberspace.

Readings:
Governance: IoT Security
- J.M. Porup, "'Internet of Things' security is hilariously broken and getting worse" *Ars Technica* (January 23, 2016) http://arstechnica.com/security/2016/01/how-to-search-the-internet-of-things-for-photos-of-sleeping-babies/ archived at https://perma.cc/R8LZ-MULJ.
- Nicole Perlroth, "Hackers Used New Weapons to Disrupt Major Websites Across U.S." *The New York Times* (October 21, 2016) http://www.nytimes.com/2016/10/22/business/internet-problems-attack.html.

Governance: Algorithmic Accountability

- Jonathan Zittrain, "Facebook Could Decide an Election Without Anyone Ever Finding Out," *New Republic* (June 1, 2014) https://newrepublic.com/article/117878/information-fiduciary-solution-facebook-digital-gerrymandering archived at https://perma.cc/ED8B-C7YL.
- Carole Cadwalladr, "Google, democracy and the truth about internet search," *The Guardian* (December 4, 2016) https://www.theguardian.com/technology/2016/dec/04/google-democracy-truth-internet-search-facebook archived at https://perma.cc/JC7F-XDUM.
- Cathy O'Neil, *Weapons Of Math Destruction : How Big Data Increases Inequality And Threatens Democracy* [e-book]. New York: Crown; 2016. Available from: eBook Collection (EBSCOhost), Ipswich, MA. Accessed December 10, 2016
    - ○ Read the Introduction and Chapter 1 (will print for the students)
- Jack Balkin and Jonathan Zittrain, "A Grand Bargain to Make Tech Companies Trustworthy," *The Atlantic* (October 3, 2016)

http://www.theatlantic.com/technology/archive/2016/10/information-fiduciary/502346/ archived at https://perma.cc/QXX4-VASM.

Artificial Intelligence
- Joichi Ito, *Extended Intelligence* (February, 2016) http://www.pubpub.org/pub/extended-intelligence.
- Joichi Ito, *Society in the Loop* (June 23, 2016) https://joi.ito.com/weblog/2016/06/23/society-in-the-.html archived at https://perma.cc/AU7Y-BABZ.
- Kevin Kelly, "The Three Breakthroughs That Have Finally Unleashed AI on the World," *Wired* (October 17, 2014) https://www.wired.com/2014/10/future-of-artificial-intelligence/ archived at https://perma.cc/CA2Y-3T58.
- Kate Crawford and Ryan Calo, "There is a Blind Spot in AI Research," *Nature* (October 13, 2016) http://www.nature.com/news/there-is-a-blind-spot-in-ai-research-1.20805 archived at https://perma.cc/5EZ5-HWQJ.
- Azim Shariff, Iyad Rahwan and Jean-François Bonnefon, "Whose Life Should Your Car Save?" *The New York Times (*November, 3, 2016) http://www.nytimes.com/2016/11/06/opinion/sunday/whose-life-should-your-car-save.html
- John Danaher, "Is Effective Regulation of AI Possible? Eight Potential Regulatory Problems" *Philosophical Disquistions* (July 7, 2015) http://philosophicaldisquisitions.blogspot.com/2015/07/is-effective-regulation-of-ai-possible.html archived at https://perma.cc/2GBN-FVMM.
- John Danaher, "Is Anyone Competent to Regulate Artificial Intelligence?" *Philosophical Disquistions* (November 16, 2015) http://philosophicaldisquisitions.blogspot.ie/2015/11/is-anyone-competent-to-regulate.html archived at https://perma.cc/LZ9L-HZJY.

Day 9: Conclusion
- John Perry Barlow, "A Declaration of the Independence of Cyberspace," *Electronic Frontier Foundation* (February 8, 1996) https://www.eff.org/cyberspace-independence archived at https://perma.cc/H2CZ-N2EX.
- Locke, Levine, Searls, & Weinberger, The Cluetrain Manifesto: 95 Theses (1999) http://www.cluetrain.com/book/95-theses.html archived at https://perma.cc/2BLT-6ZEL.
- Ethan Zuckerman, "The Internet's Original Sin," *The Atlantic* (August 14, 2014) http://www.theatlantic.com/technology/archive/2014/08/advertising-is-the-internets-original-sin/376041/ archived at https://perma.cc/C7D5-754L?type=image.
- Maciej Ceglowski, "An Internet With A Human Face," *Idle Words* (May 2014) http://idlewords.com/talks/internet_with_a_human_face.htm.
- Weinberger & Searls, Cluetrain Manifesto: New Clues (2015) http://newclues.cluetrain.com/ archived at https://perma.cc/P7K9-UXXP.