Announcements

• Mike Schroepfer, Facebook CTO, guest lectures April 24.
  – Class will meet in Walker 5113 from 9:00 – 11:00

• Exam for 3rd Section (May 8) will have questions covering L4, L5, L6, L7, L9, L10.
  – Same set-up as before: Essay, 1.5 hour exam. Probably 5 or 6 questions with parts.
  – Exam is on May 8 and worth 20% of your grade.
  – Send me sample questions by April 28

• Ways to improve your grade:
  – Let me know if you will be doing an op-ed. If so, come see me.
Today (4/17/15)

• Lecture 9: Digital Rights and Regulation (9-10:15)
  – Copyright
  – Digital Millennium Copyright Act
  – Viacom vs. YouTube/Google
  – Creative Commons and Licensing
  – Transparency in Government – the DATA Act

• L8 Data Roundtable (Juan, Robert, Yusri, Charles) (10:20 -11:20)

• Class will end by 11:20 today and I will miss Office Hours. Send email if you want to make an appointment.
<table>
<thead>
<tr>
<th>Section 1: The Data Ecosystem -- Fundamentals</th>
<th>January 30</th>
<th>Class introduction; Digital data in the 21st Century (L1)</th>
<th>Data Roundtable / Fran</th>
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<td>February 6</td>
<td>Data Stewardship and Preservation (L2)</td>
<td>L1 Data Roundtable / 5 students</td>
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<td>February 13</td>
<td>Data and Computing (L3)</td>
<td>L2 Data Roundtable / 6 students</td>
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<td>February 20</td>
<td>Colin Bodel, Time Inc. CTO Guest Lecture and Q&amp;A</td>
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<tr>
<th>Section 2: Data and Innovation – How has data transformed science and society?</th>
<th>February 27</th>
<th>Section 1 Exam</th>
<th>Data and the Health Sciences (L4)</th>
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<td>March 6</td>
<td>Paper preparation / no class</td>
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<td>March 13</td>
<td>Data and Entertainment (L5)</td>
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<td>March 20</td>
<td>Big Data Applications (L6)</td>
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<th>Section 3: Data and Community – Social infrastructure for a data-driven world</th>
<th>April 3</th>
<th>Data in the Global Landscape (L7) Section 2 paper due</th>
<th>L6 Data Roundtable / 5 students</th>
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<td>April 10</td>
<td>Bulent Yener Guest Lecture, Data Privacy / Bad guys on the Internet (L8)</td>
<td>L7 Data Roundtable / 4 students</td>
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<td>April 17</td>
<td>Digital Rights and Regulation (L9)</td>
<td>L8 Data Roundtable / 3 students</td>
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<td>April 24</td>
<td>Mike Schroepfer, Facebook CTO Guest Lecture and Q&amp;A</td>
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<td>May 1</td>
<td>Data Futures (L10)</td>
<td>L10 Data Roundtable / 3 students</td>
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<td>May 8</td>
<td>Section 3 Exam</td>
<td>Data Roundtable as needed</td>
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Lecture 9: Digital Rights and Regulation
Data and the Law

- **Wikipedia:** “Law is a system of rules that are enforced through social institutions to govern behavior. ... The law shapes politics, economics, history and society in various ways and serves as a mediator of relations between people.”

- In a digital society, laws around ownership, rights and the use of data are critical to help society create a framework for digitally-enabled efforts.

- **The ubiquity and replicability of digital content makes the development of this framework extremely complex**
  - Many players involved
  - Great potential for distinct interpretations, conflict between distinct laws, unintended consequences
  - Benefits, value, usefulness relative to various stakeholders

Image By Deval Kulshrestha (Own work) [CC BY-SA 3.0 (http://creativecommons.org/licenses/by-sa/3.0)], via Wikimedia Commons
What is Copyright?

• Wikipedia: “Copyright is a legal right created by the law of a country that grants the creator of an original work exclusive rights to its use and distribution, usually for a limited time, with the intention of enabling the creator to receive compensation for their intellectual effort.

• The exclusive rights are, however, not absolute and do not give the creator total control of their works because they are limited by limitations and exceptions to the copyright law.”
What is copyright?

• **Copyright is a form of intellectual property.**
  – Can be shared among multiple authors, each of whom holds a set of rights to use or license the work.
  – “Rights” include reproduction, control over derivative works, distribution, public performance, and “moral rights” (e.g. attribution)

• Copyright came about with the invention of the printing press and wider literacy. Its legal origins were in Britain at the beginning of the 18th century.

• **U.S. Constitution provides for the protection of copyrights** “to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries” (1787)
  – Modern intent of copyright is to promote the creation of new works by giving authors control of and profit from them

• **Copyrights are “territorial”** – do not extend beyond the territory of a specific jurisdiction unless that jurisdiction is party to an international agreement
  – Many aspects of copyright standardized internationally but each country’s copyright laws have unique features

• Once copyright expires, the work enters the public domain and can be freely used or exploited by anyone.
Copyright around the World

• For most of the world, the duration of copyright generally the whole life of the creator + 50-70 years from the creator’s death (or a finite period for anonymous or corporate creations)
  – Original length of copyright in U.S. was 14 years and it had to be explicitly applied for. Afterwards, work was in the public domain

• Some jurisdictions have required formalities to establishing copyright, most recognize copyright in any completed work without formal registration.

• Copyright covers form and manner that ideas are expressed but not the ideas themselves.
  – E.g.: Copyright of Mickey Mouse cartoon restricts others from making copies of the cartoon or creating derivative works of MM. MM is not copyrighted because characters cannot be copyrighted.
  – Patents and trademarks used in areas that copyright doesn’t cover

• 1989 Berne Convention Implementation Act amended U.S. 1976 Copyright Act to conform to most of the provisions of the Berne Convention
  – Berne Convention provides for recognition of copyright among sovereign nations, rather than bilaterally
  – Copyright is automatic and does not require registration. Foreign authors treated equivalently to domestic authors in any country signed onto the Convention
Fair Use (in the U.S.)

- Wikipedia: Fair use is a limitation and exception to the exclusive right granted by copyright law to the author of a creative work.
  - Fair use permits limited use of copyrighted material without acquiring permission from the rights holders.

- Fair use is one of the traditional safety valves intended to balance the public's interest in open access with the property interests of copyright holders.

- Fair use of a copyrighted work for purposes such as criticism, comment, news reporting, teaching, scholarship, or research, is not an infringement of copyright.

- In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include:
  - the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
  - the nature of the copyrighted work;
  - the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
  - the effect of the use upon the potential market for or value of the copyrighted work.
Prince sued for copyright infringement after releasing Judith Hill album for free download

Legendary musician is facing legal action for the same practices he’s long battled against

by ALEX YOUNG, ON MARCH 26, 2015 1:03PM

Nike sued for copyright infringement over Air Jordan logo

by Joe Hall

Air Jordan, Nike’s successful basketball brand, could be brought crashing back to earth by a lawsuit which claims its iconic logo is guilty of copyright infringement.

The silhouetted image of Michael Jordan stretching for a slam dunk has been the most prominent logo of Nike’s basketball merchandise which generated $3.2bn (£1.8bn) in revenue in the financial year ended 32 May 2014.

But photographer Jacobus Reuterreister claims the

Aston Martin Sues Fisker Over Thunderbolt Copyright Infringement

In a peculiar turn of events, Aston Martin has filed suit against Henrik Fisker, alleging that Fisker copied a number of design elements on the Thunderbolt
Extending copyright to digital content -- 1998 Digital Millennium Copyright Act (DMCA)

• DMCA is U.S. copyright law that implements two 1996 treaties of the World Intellectual Property Organization (WIPO).

• DMCA
  – Criminalizes production and dissemination of technology, devices or services intended to circumvent digital rights management (DRM) measures that control access to copyrighted works.
  – Criminalizes the act of circumventing an access control (even if there is no infringement of the copyright itself)
  – Heightens penalties for copyright infringement on the Internet.

• DMCA amended Title 17 of the U.S. code to extend the reach of copyright while limiting the liability of online service providers and other intermediaries for copyright infringement by their users
DMCA -- Motivation and Complexity

• DMCA bill was heavily supported by the content industries—Hollywood, the music business and book publishers—during its legislative journey through the U.S. Senate and House of Representatives.

• DMCA was written in order to strengthen existing federal copyright protections against new threats posed by the Internet and by the democratization of high technology.
  – Key provision was “safe harbor”, granting companies operating platforms for user-contributed content protection from liability for acts of copyright infringement by those users.

• It was this provision that the operators of file-sharing platforms like Grokster and Napster tried to leverage during their unsuccessful attempts to defend themselves against DMCA-inspired litigation in the early 2000s.
DMCA Provisions

• **Title I:** WIPO Copyright and Performances and Phonograms Treaties Implementation Act
  – Creates “anti-circumvention” provisions.

• **Title II:** Online Copyright Infringement Liability Limitation Act
  – Creates a safe harbor for online service providers against copyright infringement liability, provided they meet specific requirements.

• **Title III:** Computer Maintenance Competition Assurance Act
  – Allows temporary, limited copies of materials while making computer repairs

• **Title IV:** Other Provisions
  – Clarified and added to the duties of the Copyright Office
  – Added provisions relevant to libraries, collective bargaining for movie rights, broadcasters, distance education

• **Title V:** Vessel Hull Design Protection Act
  – Adds protection for boat hull designs (not previously considered covered)
Anti-circumvention Exemptions

• Librarian of Congress may issue exemptions from the prohibition against circumvention of access control technology when access-control has had a substantial adverse effect on people’s ability to make non-infringing uses of copyrighted works.

• Exemption rules are revised every 3 years and prior exemptions become invalid

• Prior exemption examples:
  – Literary works, including computer programs and databases, protected by access control mechanism that fail to permit access because of malfunction, damage or obsolescence
  – Movies of DVDs that are lawfully made and acquired and that are protected by the Content Scrambling System when circumvention is accomplished to incorporate short portions of motion pictures into new works for the purpose of criticism and comment (for education, documentaries, non-commercial videos, etc.)
Copyright Infringement: Viacom v. YouTube, Google Inc.

• March 13, 2007: Viacom files a lawsuit against YouTube and its corporate parent Google for copyright infringement, seeking $1B in damages

• Viacom (owner of Paramount, Dreamworks, some cable channels) claimed that YouTube was engaging in “massive intentional copyright infringement” for making available 160,000 unauthorized clips of Viacom’s entertainment program.
  
  – Viacom: “"YouTube appropriates the value of creative content on a massive scale for YouTube's benefit without payment or license.""

• Google claimed that the DMCA’s safe harbor provision shielded them from liability.
  
  – Recall: Safe harbor is a provision of a statute or a regulation that specifies that certain conduct will be deemed not to violate a given rule. It is usually found in connection with a vaguer, overall standard.
Different perspectives

• **Viacom:** "YouTube has deliberately chosen not to take reasonable precautions to deter the rampant infringement on its site," ... "Because YouTube directly profits from the availability of popular infringing works on its site, it has decided to shift the burden entirely onto copyright owners to monitor the YouTube site on a daily or hourly basis to detect infringing videos."

• **Viacom** source: "More and more of the company's resources are going to this," the source said. "The company basically is paying for an entire new department to watch YouTube."

• **Google:** Google relying on 1998 DMCA to shield the company from liability. One provision of that statute generally says **companies are off the hook if they remove copyrighted content promptly** when it is brought to their attention.

• **Google:** Internet services benefit from "safe harbor" if they also meet a four-pronged test. Conditions include not being "aware of facts or circumstances from which infringing activity is apparent" and not receiving "financial benefit directly attributable to the infringing activity."

• Counsel for **YouTube / Google** confident their actions were on solid legal ground. "We meet those requirements and go above and beyond them in helping content providers identify copyright infringements."
Legal trajectory

- Case originally filed in March, 2007 in the District Court for the Southern District of New York.
  - Court held that YouTube is protected by the safe harbor of the DMCA.
  - Viacom appealed to the U.S. Court of Appeals for the Second Circuit.
- On April 5, 2012, the federal Second Circuit Court of Appeals vacated Judge Louis Stanton's ruling, and instead ruled that Viacom had presented enough evidence against YouTube to warrant a trial, and the case should not have been thrown out in summary judgement.
- Court did uphold the ruling that YouTube could not be held liable based on "general knowledge" that users on its site were infringing copyright.
- Case was sent back to the District Court in New York
- On April 18, 2013, Judge Stanton issued another order granting summary judgment in favor of YouTube.
- Case is now over; no money changed hands.
Electronic Frontier Foundation criticisms of the DMCA

- **Electronic Frontier Foundation**: “Years of experience with the "anti-circumvention" provisions of the DMCA demonstrate that the statute reaches too far, chilling a wide variety of legitimate activities in ways Congress did not intend. ““Congress meant to stop copyright infringers from defeating anti-piracy protections added to copyrighted works and to ban the "black box" devices intended for that purpose. In practice, the anti-circumvention provisions have been used to stifle a wide array of legitimate activities, ....”
- EFF: “DMCA has developed into a serious threat to several important public policy priorities”
  - **The DMCA Chills Free Expression and Scientific Research**
    - Professor Ed Felten at Princeton participated in Secure Digital Music Initiative Public Challenge. Was told that he should not publish his research as publication “could subject you and your research team to actions under the Digital Millennium Copyright Act”
  - **The DMCA Jeopardizes Fair Use**
    - EFF: “By banning all acts of circumvention, and all technologies and tools that can be used for circumvention, the DMCA grants to copyright owners the power to unilaterally eliminate the public's fair use rights. Already, the movie industry's use of encryption on DVDs has curtailed consumers' ability to make legitimate, personal-use copies of movies they have purchased.”
  - **The DMCA Impedes Competition and Innovation**
    - EFF: “Rather than focusing on pirates, some have wielded the DMCA to hinder legitimate competitors. For example, the DMCA has been used to block aftermarket competition in laser printer toner cartridges, garage door openers, and computer maintenance services. Similarly, Apple has used the DMCA to tie its iPhone and iPod devices to Apple's own software and services.”
  - **The DMCA Interferes with Computer Intrusion Laws**
    - EFF: “DMCA has been misused as a general-purpose prohibition on computer network access, a task for which it was not designed and to which it is ill-suited.”

Quotes from: https://www.eff.org/wp/unintended-consequences-under-dmca
Rights and Licensing: The Creative Commons (CC)

- Wikipedia: “Creative Commons (CC) is a non-profit organization devoted to expanding the range of creative works available for others to build upon legally and to share.”

- CC has released several copyright-licenses known free of charge to the public. The licenses allow creators to communicate which rights they reserve, and which rights they waive for the benefit of recipients or other creators.

- CC licenses do not replace copyright, but are based upon it. They replace individual negotiations for specific rights between copyright owner (licensor) and licensee, which are necessary under an "all rights reserved" copyright management, with a "some rights reserved" management employing standardized licenses for re-use cases where no commercial compensation is sought by the copyright owner.
  - Result is an agile, low-overhead and low-cost copyright-management regime, profiting both copyright owners and licensees.

- The organization was founded in 2001 by Lawrence Lessig, Hal Abelson, and Eric Eldred
Creative Commons Licenses

• Work licensed under a Creative Commons license is governed by applicable copyright law. This allows Creative Commons licenses to be applied to all work falling under copyright, including: books, plays, movies, music, articles, photographs, blogs, and websites.
  – Creative Commons does not recommend the use of Creative Commons licenses for software

• CC provides a number of copyright options to the public, free of charge.
  – Licenses allow copyright holders to define conditions under which others may use a work and to specify what types of use are acceptable.
  – Creative Commons licenses are non-exclusive and non-revocable. Any work or copies of the work obtained under a Creative Commons license may continue to be used under that license

• As of November 2014 there were an estimated 880 million works licensed under the various Creative Commons licenses.
  – As of March 2015, Flickr alone hosts over 306 million Creative Commons licensed photos.
Creative Commons in their own words

https://www.youtube.com/watch?v=BlhJUJ9DC4A
CC license conditions

• The CC licenses all grant the "baseline rights", such as the right to distribute the copyrighted work worldwide for non-commercial purposes, and without modification.

• The details of each of these licenses depends on the version, and comprises a selection out of four conditions:

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<td>Licensees may distribute derivative works only under a license identical to the license that governs the original work. (See also copyleft.)</td>
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<td><img src="https://upload.wikimedia.org/wikipedia/commons/thumb/3/39/No-Derivative-Works.png/20px-No-Derivative-Works.png" alt="No Derivative Works" /></td>
<td>No Derivative Works (ND)</td>
<td>Licensees may copy, distribute, display and perform only verbatim copies of the work, not derivative works based on it.</td>
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Table from Wikipedia, http://en.wikipedia.org/wiki/Creative_Commons_license
Common CC licenses

• **Wikipedia**: Mixing and matching these conditions produces sixteen possible combinations, of which eleven are valid Creative Commons licenses and five are not. Of the five invalid combinations, four include both the "nd" and "sa" clauses, which are mutually exclusive; and one includes none of the clauses. Of the eleven valid combinations, the five that lack the "by" clause have been retired because 98% of licensors requested attribution, though they do remain available for reference on the website.”

• This leaves six regularly used licenses:

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A free cultural work is one which has no significant legal restriction on people’s freedom:
• to use the content and benefit from using it,
• to study the content and apply what is learned,
• to make and distribute copies of the content,
• to change and improve the content and distribute these derivative work

Similar to “open content”

Table from Wikipedia, [http://en.wikipedia.org/wiki/Creative_Commons_license](http://en.wikipedia.org/wiki/Creative_Commons_license)
All in one slide ...

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**Other CC licenses**

- *International Use:* CC licenses have been translated to reflect local laws ("porting")
  - CC licenses have been ported to over 50 jurisdictions world-wide
  - Versions 4.0 of CC licenses (released November, 2013) are generic licenses that apply to most jurisdictions and do not require ports – acts as a single global license

- *CC Public Domain:* CCO is a legal tool for waiving as many rights as legally possible, world-wide, effectively releasing content into the public domain.
  - Complexity in using CCO for open source software and this is not yet recommended by Open Software Initiative (OSI)
Creative Commons Criticism

• Critical perspectives on CC:
  – All CC licenses (except the CCO Public Domain Dedication tool) require attribution, which can be inconvenient for works based on multiple other works.
  – CC could erode the copyright system over time
  – Lack of rewards for content producers could dissuade artists from publishing their work
  – CC fails to establish a “base level of freedom” that all CC licenses must meet
  – CC only a service provider for standardized license text. Responsibility of CC system rests entirely with those using licenses
  – Licenses do not address differences among media or additional author concerns
  – Non-commercial licenses not compatible with many open-content sites and are too vague about what uses count as “commercial” vs. “non-commercial”

• Lessig: CC created to provide a middle ground between copyright protection – “all rights reserved” and “no rights reserved”
Transparency in Government – the Digital Accountability and Transparency Act (DATA) of 2014

• DATA Act is a law that aims to make information on federal expenditures more easily accessible and more transparent.

• Law requires U.S. Department of Treasury to
  – establish common standards for financial data provided by all government agencies and
  – expand the amount of data that agencies must provide to the government website, USASpending.
Data Act Facts

• Bill signed into law in May, 2014. 2 year pilot program to develop recommendations. In 2017, Treasury Secretary accountable for ensuring information is posted on-line.

• Provisions of the bill:
  – Expand the Federal Funding Accountability and Transparency Act of 2006 by disclosing federal agency expenditures and linking federal contract, loan, and grant spending to federal programs
  – Establish government-wide data standards for financial data and make it searchable on USASPending.gov
  – Simplify reporting for entities receiving federal funds
  – Improve the quality of data submitted to USASpending.gov by holding federal agencies accountable
  – Apply approaches developed by the Recovery Accountability and Transparency Board to spending across the federal government
Standards, identifiers, consistent metadata ...

- Bill directs Treasury Secretary and OMB to establish government-wide financial standards for federal funds and entities receiving federal funds:
  - Incorporate widely accepted common data elements in searchable, computer-readable format
  - Include government-wide universal identifiers
  - Be updatable
  - Produce consistent and comparable data
  - Establish standard methods of reporting
Bi-partisan support for transparency

- 2014 DATA Act
  - Provides more and better information on Government spending data
  - Creates standards for comparison of spending between programs, agencies, etc.
  - Strengthens government accountability and exposes opportunities for innovation
  - Complements Obama’s 2013 Executive Order on making federal government data open and machine readable by default

The DATA Act just passed the Senate. Here’s why that matters.
DATA Act Costs and Challenges

• Congressional Budget Office (CBO) estimates that implementing the bill would cost $300M over 2014-2018.

• Developing standards is hard …
  – Need to find agreement on metadata, formats, etc.
  – To make agencies programs and expenditures comparable, need to harmonize different kinds of data with different kinds of purposes

• Need to develop useful discovery, access, visualization and other kinds of SW tools and systems to make the data most useful

• Ensuring security / integrity of data critical

• Need to develop privacy / openness guidelines
• Developing the right kind of regulatory and rights frameworks for digital data is hard and messy, but critical to optimize the potential of data in the Information Age.

• As commerce, innovation, society, and life becomes more data-driven, it is critical to thoughtfully guide, manage, and monitor how data can be used.
Lecture 7 Sources (not already on slides)

- “Unintended Consequences – Twelve years under the DMCA” Electronic Frontier Foundation, [https://www.eff.org/wp/unintended-consequences-under-dmca](https://www.eff.org/wp/unintended-consequences-under-dmca)


- Creative Commons website, [http://creativecommons.org/](http://creativecommons.org/)

- Wikipedia entries on copyright, fair use, digital millennium copyright act, safe harbor, Creative Commons, Creative Commons licenses, DATA Act of 2014.


- Electronic Frontier Foundation website [https://www.eff.org/](https://www.eff.org/)
Data Roundtable
May 1: L10 Data Roundtable (Philip, Dennis, Lars, Oskari)


May 8: Extra Data Roundtable (Philip, Charles, Miguel)

• Your Choice! Send Fran two article choices by April 28. Fran will OK one of them by May 1 or assign you an article.

• Articles should be:
  – Data-related
  – Targeted to a general audience
  – From a credible publication
Today: L8 Roundtable


• “DDoS attacks that crippled GitHub linked to Great Firewall of China,” Ars Technica, http://arstechnica.com/security/2015/04/ddos-attacks-that-crippled-github-linked-to-great-firewall-of-china/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+arstechnica%2Findex+%28Ars+Technica+-+All+content%29 (Charles Hathaway)