
COMS W3410: Computers and Society

Prof. Steven M. Bellovin
Spring 2018

<https://www.cs.columbia.edu/~smb/classes/s18>



Why?

- Computer science does not live in a vacuum
- The things we do have and can have a profound influence on the world
- It is important for everyone to understand what the effects of computers can be
- It is important for programmers and computer scientists to understand the consequences of what they build

From Tonight's NY Times: News & Sociology

Facebook Doesn't Like What It Sees When It Looks in the Mirror

From Tonight's NY Times: Literature

The Awl and The Hairpin, Eccentric Showcases for Writers, Are Shutting Down

From Tonight's NY Times: Defense

Pentagon Suggests Countering Devastating Cyberattacks With Nuclear Arms

From Tonight's NY Times: Policy

Flurry of Lawsuits Filed to Fight Repeal of Net Neutrality

From Tonight's NY Times: Finance

Beyond the Bitcoin Bubble

Are These Good? Bad?

- How do we think about these issues?
- (There are many more examples)
- What's the next one?
- Should it be built? Who should decide?

We'll Scratch the Surface

- Ethical issues for practitioners
- Privacy
- Risks of computer systems
- Employment
- Freedom of speech
- Crime and national security
- Intellectual property

Course Structure

- Hybrid seminar/lecture format (as much as is possible with a class this large. . .)
- I want *you* to do a lot of the talking
- I want you to do a lot of the *thinking*
- Syllabus subject to change to discuss current events
- Grades will be posted on Courseworks
- Yes, I curve

Prerequisites

- An open mind
- A willingness to learn
- No specific technical prerequisites—I'll cover any specialized knowledge necessary

Readings

- The *Risks Digest*:
<http://catless.ncl.ac.uk/Risks/>—please subscribe. (Note that it appears irregularly.)
- My blog (<https://www.cs.columbia.edu/~smb/blog/>) will often be relevant
- Some primary source material—I assume you all know how to use the library and/or electronic resources. (Hint: Google does not (yet?) have access to all of the world’s knowledge.)
- Note: ACM and IEEE readings are often available only from the campus network.

More Readings

- No textbook—the one I used to assign has gotten too expensive
- Some of the readings are short and easy; some are longer and harder
- I *may* assign some readings from (legally!) payment-optional books, Grimmelman's *Internet Law: Cases and Problems*, and Tufekci's *Twitter and Tear Gas*—the PDFs are free, or you can buy the hard-copy.

Logistics

- For grading issues, appeal within two weeks.
- First contact the IA who graded the paper; see me if you still aren't satisfied.
- For issues relating to *this class*, email [smb+3410@cs...](mailto:smb+3410@cs.cu.edu)
- That lets me auto-sort class-related mail and keep better track of things

Cooperation versus Dishonesty

- Discussing the class with others is encouraged
- All written material *must* be individual work unless otherwise instructed.
- *All* quotations from external sources *must* be properly cited
- <http://www.poynter.org/2014/is-it-original-an-editors-guide-to-identifying-plagiarism-269273/> is a good guide
- Zero tolerance for cheating
- See the department's honesty policy:
<http://www.cs.columbia.edu/education/honesty> I will assume that you have all read it; you are in any event responsible for its terms and provisions.

Contacting Me

- Feel free to drop in during office hours.
- I'll announce changes on my home page
- I'm amenable to meeting other times, by appointment. You're welcome to drop in if my office door is open, but I reserve the right to ask you to come back later
- If you have any questions, please use email rather than telephone; I travel a lot and am not very reachable by phone

Talking to Me

- Drop by, just to talk (a good idea if you think you'll want me to write a recommendation. . .)
- You don't need to be in trouble to talk with me. . .
- If my office door is open, just walk in
- But—I travel too much

IAs

- Daniel Schwartz: d.schwartz@columbia. . .
- Joshua Zweig: jnz2135@columbia. . .
- Joanne Kim: jk3740@barnard. . .
- Ilya Jupudy: ij2205@columbia. . .
- Their office hours will be posted

Lectures

- I prepare slides for each class, and upload them shortly before class time
- Slides (and other information) are uploaded to my web page
- Well, occasionally they're uploaded shortly after class. . .

Papers: Syntax

- Papers *must* include proper bibliographies
- Papers must be submitted electronically by the start of class
- 👉 Submission will be via `turnitin.com`
- I strongly prefer PDF to other formats
- Papers received later that day lose 5%, the next day 10%, two days late 20%, three days late 30%; after that, zero credit
- Exceptions granted only for *unforeseeable* events. Workload, day job, etc., are quite foreseeable.
- Problems? See me *before* the due date

Papers: Semantics

- One paper on each major unit
- ☞ The lowest grade is dropped—which means you can omit one paper if you choose
 - *About* 5–8 pages apiece
 - Write something *analytic* about the topic
 - Do not just summarize or regurgitate lectures or references—draw conclusions
 - Think of them as take-home essay exams where you pick the question. They are not expected to be original research.
 - Opinion pieces are ok—*if* backed up by facts that you cite

Grading Standards

- Is the topic suitable? (You can always check that in advance.) Briefly: it must be on-topic for the unit and it must involve computer technology in some form. Example: bias in society is not suitable; bias in the computer industry is.
- Is your argument clear and correct?
- Is it complete? That is, did you overlook important contrary facts?
- Is it yours? That is, how much of the paper summarizes other people's work (which you need to do) and how much is your own, original work?
- Not counted against you: disagreeing with me.
- Not counted against you: errors in grammar or spelling, unless *extremely* egregious, and not much even then. (This is not an English class, and not everyone in the class is a native English speaker.)

Final Grade Arithmetic

- There are six papers; each is therefore worth 16.67% of your final grade
- *One* missing assignment therefor reduces your course average by 16.67%, which is more than a letter grade
- Three days late is $.3 \times 16.67\%$ off, or 5% points, which may change an A to a B+.
- Translation: If you plan to turn in only six assignments—which is perfectly permissible—save the omission for an unforeseeable emergency or perhaps the last paper
- (Dropping the last paper is highly encouraged, given the very tight schedule for getting final grades in.)

Responsibility

- You're all adults
- You're all responsible for your own actions
- If there's some special issue or problem, you have to tell me
- (I shouldn't have to ask you about missing homeworks)

Bibliographies

- A form of proper attribution
- Where to go for more information
- Sometime a way to judge the credibility of the statement

Citations

- I don't care about the precise format of citations. However—there should be enough information in each citation to permit me to find the reference
- Bare URLs are not acceptable
- Wikipedia is not a primary source

Resources

- There is wisdom in the world not known to Google
- There are rooms and even whole buildings on this campus known as “libraries”
- The CU library network also has a lot of electronic works

Discussing Legal Works

- This is not a law class
- We are not interested in the legal minutiae or in a critique of the legal reasoning
- We are interested in the broad foundations of legal decisions, their effects, and on how these decisions and laws interact with technology

Legal Research

- <https://www.law.cornell.edu>—statutes, cases, etc.
- [LexisNexis](#), via CU library — comprehensive, annotated, complex
- <http://www.lib.uchicago.edu/~llou/mpoctalk.html> — research guide
- <https://www.congress.gov> — good for bills currently before Congress
- Many, many more

Legal Notation: Court Cases

United States v Morris (1991, CA2 NY) 928 F2d 504

United States v Morris Common name; lists parties to the case

1991 Year of the decision

CA2 NY Court of Appeals, Second Circuit, New York

928 F.2d 504 Volume 928, page 504, of the Federal Reporter, Second Series (yes, cases are cited by page number!)

See <http://www.faqs.org/faqs/law/research/part1/> for more details

Similar formats are used even when referring to cases from other countries: Semayne's Case, 5 C. Rep. 91a, 77 Eng. Rep. 194 (K.B. 1603).

Legal Notation: U.S. Code

18 U.S.C. 1030 (Computer Fraud and Abuse Act)

18 Title 18 of the U.S. Code (Crimes and Criminal Procedure)

U.S.C. U.S. Code or other body of laws or regulations (“CFR” is the Code of Federal Regulations)

1030 Section 1030

Computer Fraud and Abuse Act The common name. Strictly speaking, it applies to the *Public Law* that created that section (or made major amendments to it)

The U.S. Code is the orderly compilation; sections are created and amended by Public Laws: P.L. 98-473, Title II, Ch XXI, §2102(a), 98 Stat. 2190.

Opinions

- I'm an unabashed privacy advocate. But the course is not about *promoting* privacy, and I don't expect you to agree with me.
- Feel free to espouse any position—but be prepared to back up what you say
- I may challenge you even if I agree with you. . .
- “You are entitled to your own opinions, but not your own facts.” (Sen. Daniel Patrick Moynihan, probably among others.)

Why These Topics?

- Ethical issues for practitioners
- Privacy
- Risks of computer systems
- Employment
- Freedom of speech
- Crime and national security
- Intellectual property

All represent potential conflicts between the good and the bad things that computers can do

Ethics

- “Once the rockets are up, who cares where they come down? That’s not my department, says Werner von Braun”.
(*Werner von Braun*, Tom Lehrer)
- Who should worry about such things?
- What are the special issues for computer scientists?

Privacy

- What are the special risks to privacy from computer systems?
- What are the privacy benefits of computer systems?
- What is the tradeoff between privacy and security? How do we strike the proper balance?
- How does one design systems to improve privacy without giving up other things?

Risks of Computer Systems

- Many items we deal with on a daily basis are computerized
- Often, older control mechanisms have been replaced by newer, computerized ones
- Where is this being done?
- What are the effects, good and bad?
- How can we maximize the benefits and minimize the risks

Employment

- The computer industry has created many new jobs and careers
- It has also cost jobs and is threatening others
- It has aided the migration of jobs to lower-cost areas
- What are the tradeoffs? Can we have our cake and eat it, too?

Freedom of Speech

- The Internet is a very powerful vehicle for free speech.
- Or is it?
- Is there such a thing as too much free speech? Who decides?
- How do we balance conflicting national interpretations of the balance?

Crime; National Security

- Is cyberwar real?
- What are the risks to our infrastructure?
- What is the balance between cryptographically-enforced security and privacy and government needs?

Intellectual Property

- Computer technology and the Internet have lowered the cost of copying and distributing many things to near zero
- Why has this happened?
- Is it a problem? Is it a benefit?
- If it is a problem, how can we solve it?

Current Events

- Terrorists recruiting and communicating on the Internet
- The Snowden revelations
- Nation-state activities
- More...

Values Matter

“Technology is not and has never been socially or politically neutral; it embodies and usually transmits the attitudes, economic endowments, moral priorities, and even the aesthetics of the societies that create it. It is very hard to simply adopt the machine and not the less tangible biases that go with it.”

Walter Russell Mead

(<https://www.the-american-interest.com/2015/04/09/the-paradox-of-american-democracy-promotion/>)

What's Different About Computers?

- Scale
- Speed
- Complexity
- Inflexibility
- Lack of human judgment at runtime

As computer professionals, what do we do?

What's this Course About?

- Facts about various interactions
- Some notion of where things might be headed
- How to think about the issues