DS-GA 3001.009: Responsible Data Science

Legal Frameworks, Codes of Ethics, and Personal Responsibility

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http://stoyanovich.org/
https://dataresponsibly.github.io/

AI ethics from our finest news source!

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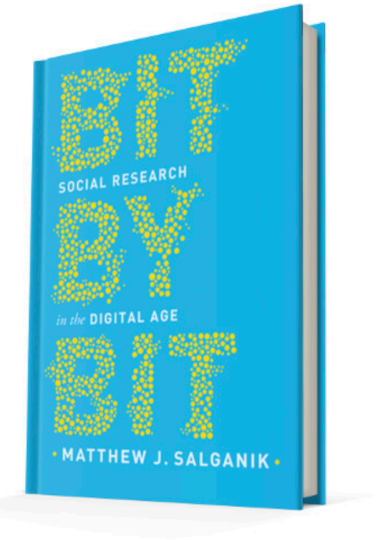
NEWS IN BRIEF

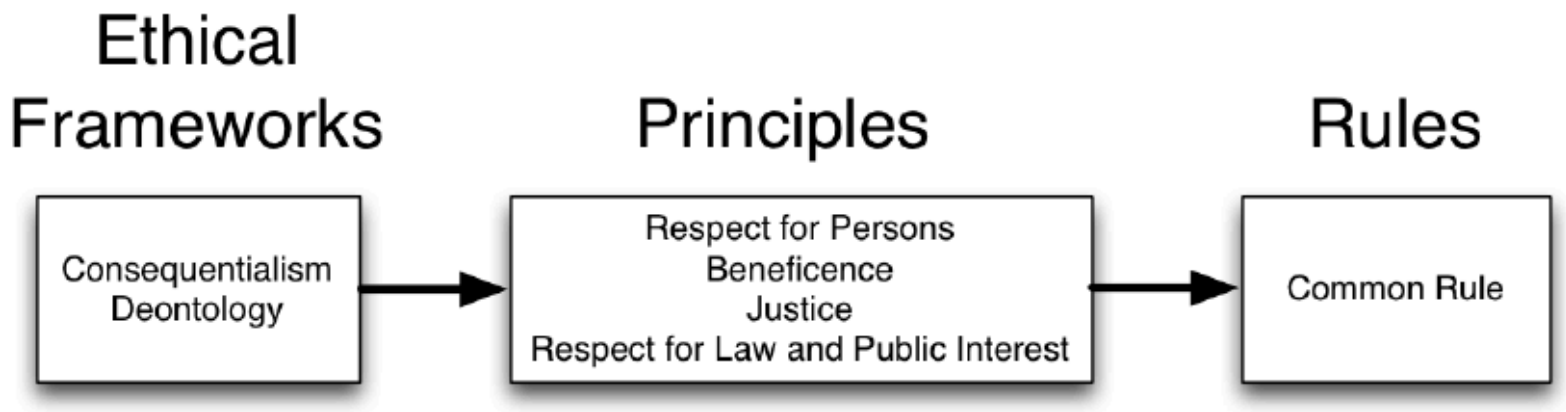
4/22/19 7:02am • SEE MORE: SCIENCE

Computer Scientists Say AI's Underdeveloped Ethics Have Yet To Move Beyond Libertarian Phase

"While companies like Facebook and Google have allocated millions to making sure machine learning is guided by basic moral and ethical values, early prototypes, which achieved self-awareness, have yet to move beyond self-importance," said MIT robotics research engineer Dr. Alvin Dubicki, who hypothesized that **even the most advanced labs are decades away from developing neural networks sophisticated enough to analyze large quantities of data and output much else besides paraphrased Ayn Rand quotes**.

Bit by Bit, Chapter 6: Ethics

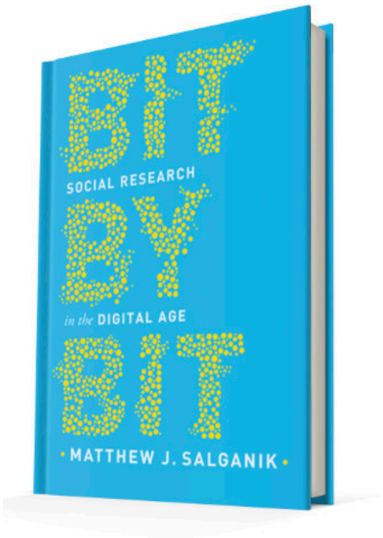


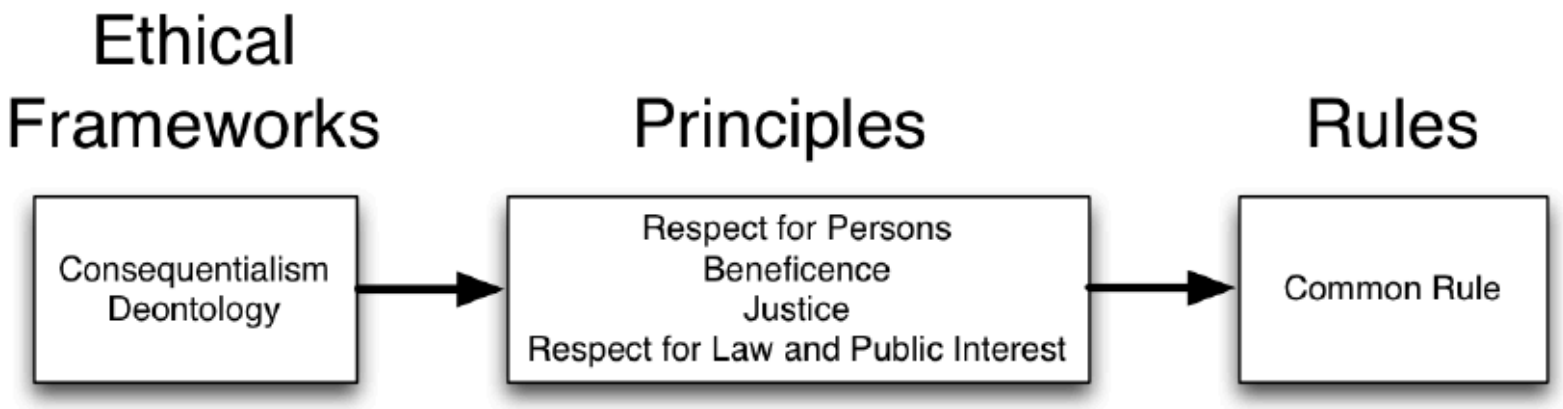


The **rules** governing research are derived from **principles** that in turn are derived from **ethical frameworks**. A main argument of this chapter is that researchers should evaluate their research through existing rules—which I will take as given and assume should be followed—and through more general ethical principles.

https://www.bitbybitbook.com/en/1st-ed/ethics/

Bit by Bit, Chapter 6: Ethics

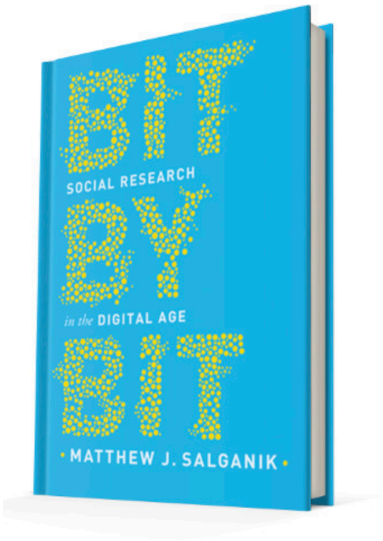


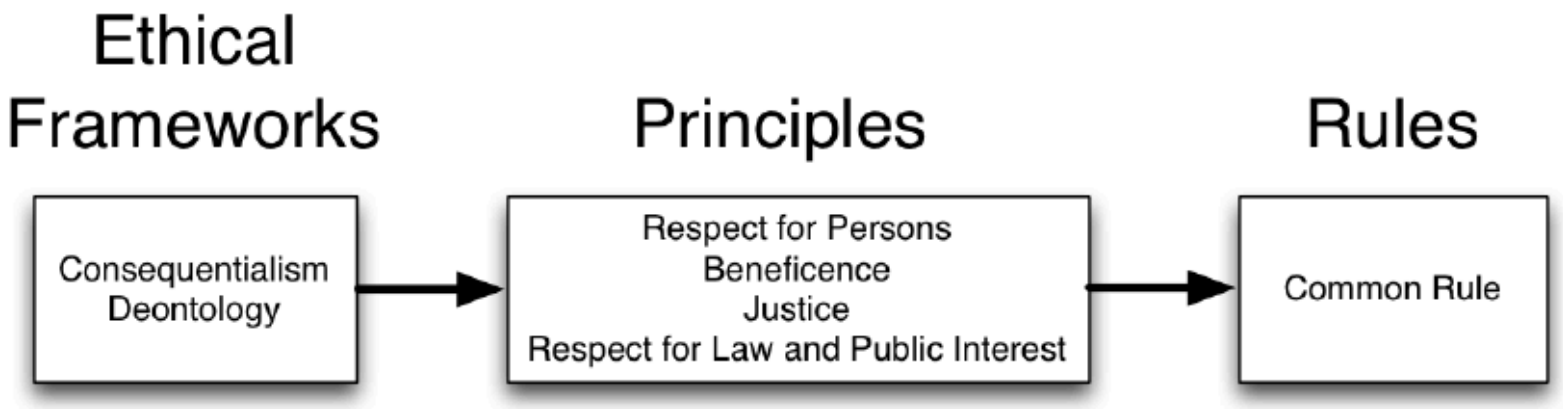


The **Common Rule** is the set of regulations currently governing most federally funded research in the United States… The four principles come from two blue-ribbon panels that were created to provide ethical guidance to researchers: the **Belmont Report** and the **Menlo Report**.

https://www.bitbybitbook.com/en/1st-ed/ethics/

Bit by Bit, Chapter 6: Ethics





Finally, **consequentialism** and **deontology** are ethical frameworks that have been developed by philosophers for hundreds of years. A quick and crude way to distinguish the two frameworks is that deontologists focus on means and consequentialists focus on ends.

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Two ethical frameworks

Consequentialism (Jeremy Bentham, John Stuart Mill): Take actions that lead to better states in the world.

Deontology (Immanuel Kant): Focus on ethical duties, independent of their consequences

Deontologists focus on ***means*, consequentialists** focus on ***ends***

"Arguments between consequentialists and deontologists are like two ships passing in the night."

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Application: Informed Consent

Deontologists focus on ***means*, consequentialists** focus on ***ends***

Illustration: **informed consent**. Both frameworks support it, but for different reasons.

A **consequentialist** argument: informed consent helps prevent harm to participants by prohibiting research that does not properly balance risk and anticipated benefit. In other words, consequentialist thinking would support informed consent because it helps **prevent bad outcomes** for participants.

A **deontological** argument for informed consent focuses on a researcher's duty to respect the **autonomy** of participants.

Given these approaches, a pure consequentialist might be willing to waive the requirement for informed consent in a setting where there was no risk, whereas a pure deontologist might not.

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Ad absurdum

Deontologists focus on ***means*, consequentialists** focus on ***ends***

Transplant: A doctor has five patients dying of organ failure and one healthy patient whose organs can save all five. A **consequentialist doctor is required to kill** the healthy patient to obtain his organs. This complete focus on ends, without regard to means, is flawed.

Time bomb: A police office captured a terrorist who knows the location of a ticking time bomb that will kill millions of individuals if it detonates. A **deontological police officer would not lie** to trick a terrorist into revealing the location of the bomb. This complete focus on means, without regards to ends, also is flawed.

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Tuskegee Syphilis Study

In 1932, researchers from the US Public Health Service (PHS) enrolled 400 black men from Tukegee, Alabama, infected with syphilis in a study to study the effects of the disease. The study was **non-therapeutic**: designed to document, not treat!

Date	Event
1932	Approximately 400 men with syphilis are enrolled in the study; they are not informed of the nature of the research
1937-38	The PHS sends mobile treatment units to the area, but treatment is withheld for the men in the study
1942-43	In order to prevent the men in the study from receiving treatment, PHS intervenes to prevent them from being drafted for WWII
1950s	Penicillin becomes a widely available and effective treatment for syphilis; the men in the study are still not treated (Brandt 1978)

https://www.bitbybitbook.com/en/1st-ed/ethics/

Tuskegee Syphilis Study

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Date	Event
1969	The PHS convenes an ethical review of the study; the panel recommends that the study continue
1972	Peter Buxtun, a former PHS employee, tells a reporter about the study, and the press breaks the story
1972	The US Senate holds hearings on human experimentation, including Tuskegee Study
1973	The government officially ends the study and authorizes treatment for survivors

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The need for ethical principles

THE BELMONT REPORT

Office of the Secretary

Ethical Principles and Guidelines for the Protection of Human Subjects of Research

The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research

April 18, 1979

- Boundaries between practice and research
- Basic ethical principles
- Applications

The Belmont Report: boundaries

Boundaries between practice and research

- Research seeks generalizable knowledge, practice includes everyday treatment and activities

  "For the most part, the term "practice" refers to interventions that are designed solely to enhance the wellbeing of an individual patient or client and that have a reasonable expectation of success. The purpose of medical or behavioral practice is to provide diagnosis, preventive treatment or therapy to particular individuals … By contrast, the ***term "research' designates an activity designed to test an hypothesis****, permit conclusions to be drawn, and thereby to develop or contribute to generalizable knowledge (expressed, for example, in theories, principles, and statements of relationships). Research is usually described in a formal protocol that sets forth an objective and a set of procedures designed to reach that objective."*

- Argues that ethical principles of Belmont Report apply only to research

The Belmont Report: basic principles

Respect for persons

- Individuals should be treated as autonomous agents

*"To **respect autonomy** is to give weight to autonomous persons' considered opinions and choices while refraining from obstructing their actions unless they are clearly detrimental to others. To show lack of respect for an autonomous agent is to repudiate that person's considered judgments, to deny an individual the freedom to act on those considered judgments, or to **withhold information necessary to make a considered judgment**, when there are no compelling reasons to do so. "*

The Belmont Report: basic principles

Respect for persons

- Individuals should be treated as autonomous agents
- Persons with diminished autonomy are entitled to protection

"*In some situations, however, application of the principle is not obvious. The involvement of prisoners as subjects of research provides an instructive example. On the one hand, it would seem that the principle of respect for persons requires that prisoners not be deprived of the opportunity to volunteer for research. On the other hand, under prison conditions they may be subtly coerced or unduly influenced to engage in research activities for which they would not otherwise volunteer. Respect for persons would then dictate that prisoners be protected. Whether to allow prisoners to "volunteer" or to "protect" them presents a dilemma.* ***Respecting persons, in most hard cases, is often a matter of balancing competing claims urged by the principle of respect itself.*** "

The Belmont Report: basic principles

Beneficence

- Do not harm
- Maximize possible benefits and minimize possible harm

"The Hippocratic maxim "do no harm" has long been a fundamental principle of medical ethics. ***Claude Bernard extended it to the realm of research, saying that one should not injure one person regardless of the benefits that might come to others.*** *However, even avoiding harm requires learning what is harmful; and, in the process of obtaining this information, persons may be exposed to risk of harm. Further, the Hippocratic Oath requires physicians to benefit their patients "according to their best judgment."* ***Learning what will in fact benefit may require exposing persons to risk.*** *The problem posed by these imperatives is to decide when it is justifiable to seek certain benefits despite the risks involved, and when the benefits should be foregone because of the risks."*

The Belmont Report: basic principles

Justice

- Who ought to receive the benefits of research and bear its burdens?

"Questions of justice have long been associated with social practices such as punishment, taxation and political representation. Until recently these questions have not generally been associated with scientific research. However, they are foreshadowed even in the earliest reflections on the ethics of research involving human subjects. For example, during the 19th and early 20th centuries the ***burdens of serving as research subjects fell largely upon poor ward patients, while the benefits of improved medical care flowed primarily to private patients.*** *Subsequently, the* ***exploitation of unwilling prisoners as research subjects in Nazi concentration camps*** *was condemned as a particularly flagrant injustice. In this country, in the 1940's,* ***the Tuskegee syphilis study*** *used disadvantaged, rural black men to study the untreated course of a disease that is by no means confined to that population.* ***These subjects were deprived of demonstrably effective treatment in order not to interrupt the project, long after such treatment became generally available.*** *"*

The Belmont Report: applications

Informed Consent: Information, Comprehension, Voluntariness

Comprehension. *The manner and context in which information is conveyed is as important as the information itself. For example,* ***presenting information in a disorganized and rapid fashion, allowing too little time for consideration or curtailing opportunities for questioning, all may adversely affect a subject's ability to make an informed choice.***

Because the subject's ability to understand is a function of intelligence, rationality, maturity and language, it is necessary to adapt the presentation of the information to the subject's capacities. Investigators are responsible for ascertaining that the subject has comprehended the information.

The Belmont Report: applications

Informed Consent: Information, Comprehension, Voluntariness

"Respect for persons requires that subjects, to the degree that they are capable, be given the opportunity to choose what shall or shall not happen to them. This opportunity is provided when adequate standards for informed consent are satisfied.

While the importance of informed consent is unquestioned, ***controversy prevails over the nature and possibility*** *of an informed consent. Nonetheless, there is widespread agreement that* ***the consent process can be analyzed as containing three elements: information, comprehension and voluntariness.***

A special problem of consent arises where informing subjects of some pertinent aspect of the research is likely to impair the validity of the research. *… In all cases of research involving incomplete disclosure, such research is justified only if it is clear that (1) incomplete disclosure is truly necessary to accomplish the goals of the research, (2) there are no undisclosed risks to subjects that are more than minimal, and (3) there is an adequate plan for debriefing subjects, when appropriate, and for dissemination of research results to them.*

More on informed consent

Research question: Does an employer unlawfully discriminate against applicants based on membership in protected groups?

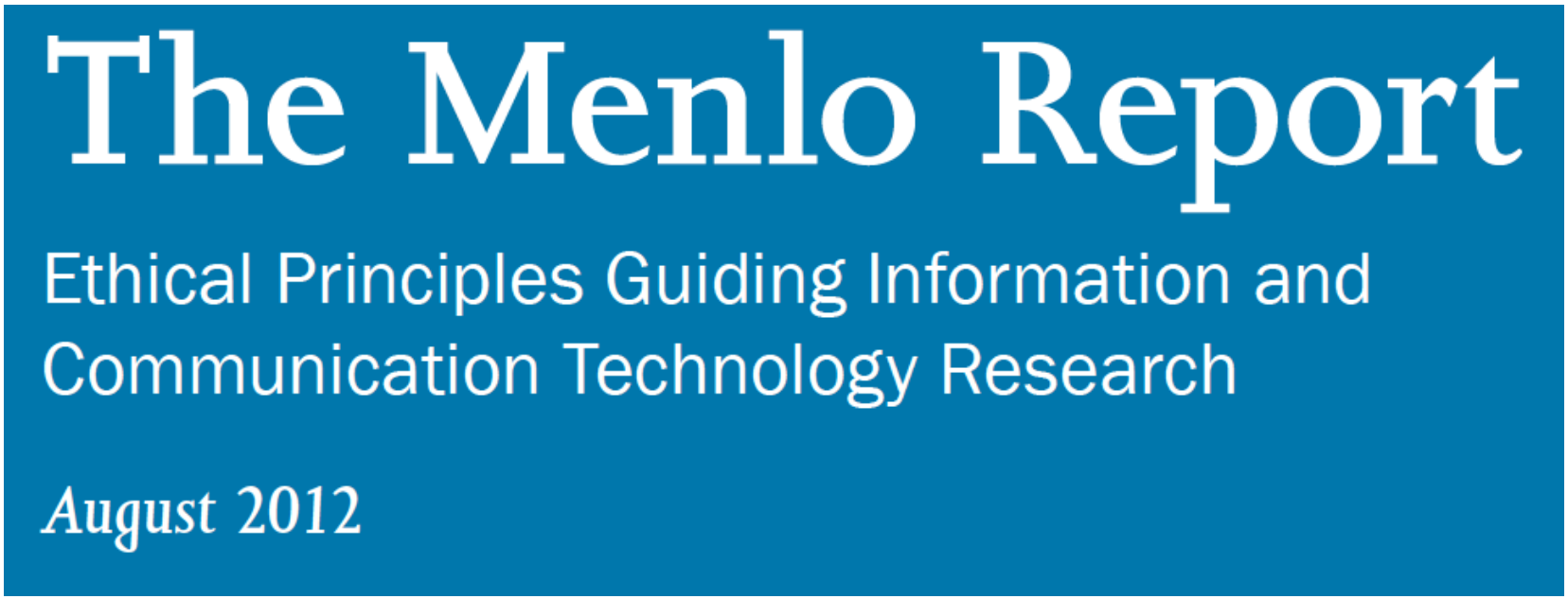
Think AdFisher, or an "analog" version of this study
Employers don't provide consent, in fact, they are actively deceived!

Field experiments to study discrimination are legally permissible **if**:

1. the harm to employers is limited, **and**
2. there is great social benefit to having a reliable measure of discrimination, **and**
3. other methods of measuring discrimination are weak; **and**
4. deception does not strongly violate the norms of that setting.

https://www.bitbybitbook.com/en/1st-ed/ethics/

The Menlo Report



http://www.caida.org/publications/papers/2012/menlo_report_actual_formatted/menlo_report_actual_formatted.pdf

The Menlo Report

Principle	Application
Respect for Persons	Participation as a research subject is voluntary, and follows from informed consent; Treat individuals as autonomous agents and respect their right to determine their own best interests; Respect individuals who are not targets of research yet are impacted; Individuals with diminished autonomy, who are incapable of deciding for themselves, are entitled to protection.
Beneficence	Do not harm; Maximize probable benefits and minimize probable harms; Systematically assess both risk of harm and benefit.
Justice	Each person deserves equal consideration in how to be treated, and the benefits of research should be fairly distributed according to individual need, effort, societal contribution, and merit; Selection of subjects should be fair, and burdens should be allocated equitably across impacted subjects.
Respect for Law and Public Interest	*Engage in legal due diligence; Be transparent in methods and results; Be accountable for actions.*

http://www.caida.org/publications/papers/2012/menlo_report_actual_formatted/menlo_report_actual_formatted.pdf

The Menlo Report

Respect for Law and Public Interest

- Implicit in the Belmont Reports' application of Beneficence
- In Information and Communication Technology Research (ICTR), included as a separate principle with two applications - *Compliance* and *Transparency and Accountability*

> *"The second application refers to **transparency of methodologies and results**, and accountability for actions. Transparency and accountability serve vital roles in many ICTR contexts where it is challenging or impossible to identify stakeholders (e.g., attribution of sources and intermediaries of information), to understand interactions between highly dynamic and globally distributed systems and technologies, and consequently to **balance associated harms and benefits**. A lack of transparency and accountability risks undermining the credibility of, trust and confidence in, and ultimately support for, ICT research."*

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The Menlo Report

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> *"**Accountability demands that research methodology, ethical evaluations, data collected, and results generated should be documented and made available responsibly in accordance with balancing risks and benefits**. Data should be available for legitimate research, policy-making, or public knowledge, subject to appropriate collection, use, and disclosure controls informed by the Beneficence principle. The appropriate format, scope and modality of the data exposure will vary with the circumstances, as informed by Beneficence determinations."*

http://www.caida.org/publications/papers/2012/menlo_report_actual_formatted/menlo_report_actual_formatted.pdf

The Menlo Report

… the Menlo Report calls on researchers to **move beyond the narrow definition of "research involving human subjects" from the Belmont Report** to a more general notion of "research with human-harming potential."

A principles-based approach means that **researchers should not hide behind a narrow, legal definition of "research involving human subjects,"** even if IRBs allow it. Rather, they should adopt a more general notion of "research with human-harming potential" and they should subject all of their own research with human-harming potential to ethical consideration.

https://www.bitbybitbook.com/en/1st-ed/ethics/ethics-appendix/

Beyond re-identification: Barrow, Alaska, 1979

Native leaders and city officials, worried about drinking and associated violence in their community, **invited a group of sociology researchers** to assess the problem and work with them to devise solutions.

Methodology

- 10% representative sample (N=88) of everyone over the age of 15 using a 1972 demographic survey
- Interviewed on attitudes and values about use of alcohol
- Obtained psychological histories & drinking behavior
- Given the Michigan Alcoholism Screening Test
- Asked to draw a picture of a person (used to determine cultural identity)

based on a slide by Bill Howe

Study “results”

Alcohol Plagues Eskimos; Alcoholism Plagues Eskimo Village

DAVA SOBEL ();
January 22, 1980,
, Section Science Times, Page C1, Column , words

PERMISSIONS

[DISPLAYING ABSTRACT]

THE Inupiat Eskimos of Alaska's North Slope, whose culture has been overwhelmed by energy development activities, are "practically committing suicide" by mass alcoholism, University of Pennsylvania researchers said here yesterday. The alcoholism rate is 72 percent among the 2,000 Eskimo men and women in the village of Barrow, where violence is becoming the ...

At the conclusion of the study researchers formulated a report entitled **“The Inupiat, Economics and Alcohol on the Alaskan North Slope”**, released **simultaneously** at a press release and to the Barrow community.

The press release was picked up by the New York Times, who ran a front page story entitled **“Alcohol Plagues Eskimos”**

based on a slide by Bill Howe

Harms and backlash

Study **results were revealed** in the context of a press conference that was held far from the Native village, and **without the presence, much less the knowledge or consent**, of any community member who might have been able to present any context concerning the socioeconomic conditions of the village.

Study results suggested that nearly all adults in the community were alcoholics. In addition to the shame felt by community members, the town's Standard and Poor bond rating suffered as a result, which in turn decreased the tribe's ability to secure funding for much needed projects.

Article Preview

Eskimos Irate Over Alcoholism Study

[DISPLAYING ABSTRACT]

PERMISSIONS

BARROW, ALASKA HOT tempers and tension arising from a scientific report that found a high rate of alcoholism in this predominantly Eskimo community have abated somewhat after two days of meetings here at the northernmost point of Alaska.

based on a slide by Bill Howe

Problems

Edward F. Foulks, M.D., "Misalliances In The Barrow Alcohol Study"

Methodological

- "The authors once again met with the Barrow Technical Advisory Group, who stated their concern that only Natives were studied, and that outsiders in town had not been included."

any chance of selection bias?

- "The **estimates of the frequency of intoxication based on association with the probability of being detained** were termed "ludicrous, both logically and statistically."

Ethical

- Participants not in control of how their data is used
- Significant harm: social (stigmatization) and financial (bond rating)
- No laws were broken, and harms are not about individual privacy!
- **Who benefits? Who is harmed?**

data protection …. responsibility …. trust

based on a slide by Bill Howe

Case study: Emotional contagion

Experimental evidence of massive-scale emotional contagion through social networks

PNAS Proceedings of the National Academy of Sciences of the United States of America

Adam D. I. Kramer, Jamie E. Guillory, and Jeffrey T. Hancock

PNAS June 17, 2014 111 (24) 8788-8790; first published June 2, 2014 https://doi.org/10.1073/pnas.1320040111

Edited by Susan T. Fiske, Princeton University, Princeton, NJ, and approved March 25, 2014 (received for review October 23, 2013)

participants did not consent
there was no third-party review of the study

Significance

We show, via a massive (N = 689,003) experiment on Facebook, that emotional states can be transferred to others via emotional contagion, leading people to experience the same emotions without their awareness. We provide experimental evidence that emotional contagion occurs without direct interaction between people (exposure to a friend expressing an emotion is sufficient), and in the complete absence of nonverbal cues.

Case study: Encore

Encore: Lightweight Measurement of Web Censorship with Cross-Origin Requests

ACM SIGCOMM 2015

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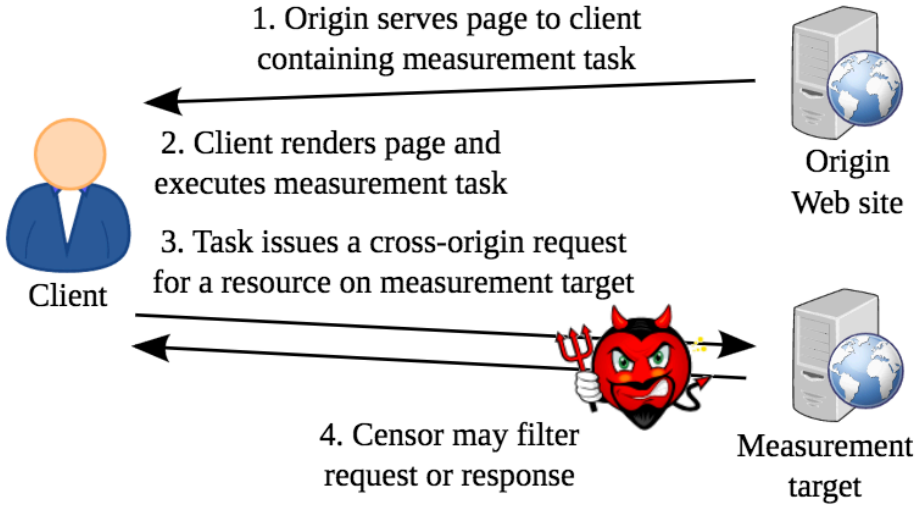
"…We present Encore, a system that harnesses cross-origin requests to **measure Web filtering** from a diverse set of vantage points without requiring users to install custom software, enabling longitudinal measurements from many vantage points. We explain how Encore **induces Web clients to perform cross-origin requests** that measure Web filtering, design a distributed platform for scheduling and collecting these measurements, show the feasibility of a global-scale deployment with a pilot study and an **analysis of potentially censored Web content**, identify several cases of filtering in six months of measurements, and **discuss ethical concerns** that would arise with widespread deployment."



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Statement from the SIGCOMM 2015 Program Committee: The SIGCOMM 2015 PC appreciated the technical contributions made in this paper, but found the paper controversial because some of the experiments the authors conducted raise ethical concerns. The controversy arose in large part because the networking research community does not yet have widely accepted guidelines or rules for the ethics of experiments that measure online censorship. In accordance with the published submission guidelines for SIGCOMM 2015, had the authors not engaged with their Institutional Review Boards (IRBs) or had their IRBs determined that their research was unethical, the PC would have rejected the paper without review. But the authors did engage with their IRBs, which did not flag the research as unethical. The PC hopes that discussion of the ethical concerns these experiments raise will advance the development of ethical guidelines in this area. It is the PC's view that future guidelines should include as a core principle that researchers should not engage in experiments that subject users to an appreciable risk of substantial harm absent informed consent. The PC endorses neither the use of the experimental techniques this paper describes nor the experiments the authors conducted.

https://gdpr-info.eu/

General Data Protection Regulation
GDPR

Welcome to gdpr-info.eu. Here you can find the official PDF of the Regulation (EU) 2016/679 (General Data Protection Regulation) in the current version of the OJ L 119, 04.05.2016; cor. OJ L 127, 23.5.2018 as a neatly arranged website. All Articles of the GDPR are linked with suitable recitals. The European Data Protection Regulation is applicable as of May 25th, 2018 in all member states to harmonize data privacy laws across Europe. If you find the page useful, feel free to support us by sharing the project.

Quick Access

GDPR: scope and definitions

Article 2: Material Scope

- This Regulation applies to the processing of personal data wholly or partly by automated means and to the processing other than by automated means of personal data which form part of a filing system or are intended to form part of a filing system.

Article 4: Definitions

- '**personal data**' means any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person;
- '**processing**' means any operation or set of operations which is performed on personal data or on sets of personal data, whether or not by automated means, such as collection, recording, organisation, structuring, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction;

GDPR: scope and definitions

Article 4: Definitions

- '**controller**' means the natural or legal person, public authority, agency or other body which, alone or jointly with others, determines the purposes and means of the processing of personal data; where the purposes and means of such processing are determined by Union or Member State law, the controller or the specific criteria for its nomination may be provided for by Union or Member State law;
- '**processor**' means a natural or legal person, public authority, agency or other body which processes personal data on behalf of the controller;
- '**consent**' of the data subject means any freely given, specific, informed and unambiguous indication of the data subject's wishes by which he or she, by a statement or by a clear affirmative action, signifies agreement to the processing of personal data relating to him or her;

Art. 7 GDPR

Conditions for consent

1. Where processing is based on consent, the controller shall be able to demonstrate that the data subject has consented to processing of his or her personal data.

2. [1] If the data subject's consent is given in the context of a written declaration which also concerns other matters, the request for consent shall be presented in a manner which is clearly distinguishable from the other matters, in an intelligible and easily accessible form, using clear and plain language. [2] Any part of such a declaration which constitutes an infringement of this Regulation shall not be binding.

Art. 7 GDPR

Conditions for consent

3. [1] The data subject shall have the right to withdraw his or her consent at any time. [2] The withdrawal of consent shall not affect the lawfulness of processing based on consent before its withdrawal. [3] Prior to giving consent, the data subject shall be informed thereof. [4] It shall be as easy to withdraw as to give consent.

4. When assessing whether consent is freely given, utmost account shall be taken of whether, *inter alia*, the performance of a contract, including the provision of a service, is conditional on consent to the processing of personal data that is not necessary for the performance of that contract.

Chapter 3

Rights of the data subject

Section 1	–	**Transparency and modalities**
Article 12	–	Transparent information, communication and modalities for the exercise of the rights of the data subject
Section 2	–	**Information and access to personal data**
Article 13	–	Information to be provided where personal data are collected from the data subject
Article 14	–	Information to be provided where personal data have not been obtained from the data subject
Article 15	–	Right of access by the data subject

Chapter 3

Rights of the data subject

Section 3	–	**Rectification and erasure**
Article 16	–	Right to rectification
Article 17	–	Right to erasure ('right to be forgotten')
Article 18	–	Right to restriction of processing
Article 19	–	Notification obligation regarding rectification or erasure of personal data or restriction of processing
Article 20	–	Right to data portability

Chapter 3

Rights of the data subject

Section 4	–	**Right to object and automated individual decision-making**
Article 21	–	Right to object
Article 22	–	Automated individual decision-making, including profiling

Recital 58

The principle of transparency*

[1] The principle of transparency requires that any information addressed to the public or to the data subject be concise, easily accessible and easy to understand, and that clear and plain language and, additionally, where appropriate, visualisation be used. [2] Such information could be provided in electronic form, for example, when addressed to the public, through a website. [3] This is of particular relevance in situations where the proliferation of actors and the technological complexity of practice make it difficult for the data subject to know and understand whether, by whom and for what purpose personal data relating to him or her are being collected, such as in the case of online advertising. [4] Given that children merit specific protection, any information and communication, where processing is addressed to a child, should be in such a clear and plain language that the child can easily understand.

https://gdpr-info.eu/recitals/no-58/

Transparency, Fairness, Data Protection, Neutrality: Data Management Challenges in the Face of New Regulation

SERGE ABITEBOUL, Inria & Ecole Normale Supérieure, France
JULIA STOYANOVICH, New York University, USA

- Legal frameworks: the EU's General Data Protection Regulation (GDPR), the New York City Automated Decision Systems (ADS) law, the Indian Net Neutrality Regulatory Framework
- Common threads:
  - data subject's **informed consent** to data collection and processing
  - right to an **explanation** of decision-making processes and results
  - **data rights**: correction, deletion, portability of personal data

https://arxiv.org/abs/1903.03683

Personal responsibility

NATURE | NEWS

Italian seismologists cleared of manslaughter

Appeals court says six scientists did not cause deaths in 2009 L'Aquila earthquake and cuts sentence of a government official.

Alison Abbott & **Nicola Nosengo**

10 November 2014

Six seismologists accused of misleading the public about the risk of an earthquake in Italy were cleared of manslaughter on 10 November. An appeals court overturned their six-year prison sentences and reduced to two years the sentence for a government official who had been convicted with them.

The magnitude-6.3 earthquake struck the historic town of L'Aquila in the early hours of 6 April 2009, killing more than 300 people.

The finding by a three-judge appeals court prompted many L'Aquila citizens who were waiting outside the courtroom to react with rage, shouting "shame" and saying that the Italian state had just acquitted itself, local media reported. But it **comes as a relief to scientists around the world who had been following the unprecedented case with alarm**.

"We don't want to have to be worried about the possibility of being prosecuted if we give advice on earthquakes," says seismologist Ian Main of the University of Edinburgh, UK. "That would discourage giving honest opinion."

Codes of ethics: the ACM Code

Association for Computing Machinery

Advancing Computing as a Science & Profession

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ACM Code of Ethics and Professional Conduct

ACM Code of Ethics and Professional Conduct

Preamble

Computing professionals' actions change the world. To act responsibly, they should reflect upon the wider impacts of their work, consistently supporting the public good. The ACM Code of Ethics and Professional Conduct ("the Code") expresses the conscience of the profession.

The Code is designed to inspire and guide the ethical conduct of all computing professionals, including current and aspiring practitioners, instructors, students, influencers, and anyone who uses computing technology in an impactful way. Additionally, the Code serves as a basis for remediation when violations occur. The Code includes principles formulated as statements of responsibility, based on the understanding that the public good is always the primary consideration. Each principle is supplemented by guidelines, which provide explanations to assist computing professionals in understanding and applying the principle.

Section 1 outlines fundamental ethical principles that form the basis for the remainder of the Code. Section 2 addresses additional, more specific considerations of professional responsibility. Section 3 guides individuals who have a leadership role, whether in the workplace or in a volunteer professional capacity. Commitment to ethical conduct is required of every ACM member, and principles involving compliance with the Code are given in Section 4.

The Code as a whole is concerned with how fundamental ethical principles apply to a computing professional's conduct. The Code is not an algorithm for solving ethical problems; rather it serves as a basis for ethical decision-making. When thinking through a particular issue, a computing professional may find that multiple principles should be taken into account, and that different principles will have different relevance to the issue. Questions related to these kinds of issues can best be answered by thoughtful consideration of the fundamental ethical principles, understanding that the public good is the paramount consideration. The entire computing profession benefits when the ethical decision-making process is accountable to and transparent to all stakeholders. Open discussions about ethical issues promote this accountability and transparency.

PDF of the ACM Code of Ethics

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Preamble
1. GENERAL ETHICAL PRINCIPLES.
1.1 Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing.
1.2 Avoid harm.
1.3 Be honest and trustworthy.
1.4 Be fair and take action not to discriminate.
1.5 Respect the work required to produce new ideas, inventions, creative works, and computing artifacts.
1.6 Respect privacy.
1.7 Honor confidentiality.
2. PROFESSIONAL RESPONSIBILITIES.
2.1 Strive to achieve high quality in both the processes and products of professional work.
2.2 Maintain high standards of

https://www.acm.org/binaries/content/assets/about/acm-code-of-ethics-booklet.pdf

The ACM Code (2018)

General ethical principles

- Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing
- Avoid harm
- Be honest and trustworthy
- Be fair and take action not to discriminate
- Respect the work required to produce new ideas, inventions, creative works, and computing artifacts
- Respect privacy
- Honor confidentiality

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Codes of ethics: GDEP

DATA FOR DEMOCRACY
Global Data Ethics Project

formerly known as CPEDS: Community Principles on Ethical Data Sharing

The FORTS Framework

FAIRNESS
I make a dedicated effort to understand, mitigate and communicate the presence of bias in both data practice and consumption.

OPENNESS
I practice humility and openness. Transparent practices, community engagement, and responsible communications are an integral part of my data ethics practice.

RELIABILITY
I ensure that every effort is made to glean a complete understanding of what is contained within data, where it came from, and how it was created. I also extend this effort for future users of all data and derivative data.

TRUST
I work to build public confidence in data practitioners. I make every effort to use data and algorithms in ways that maximize the informed participation of people around the world.

SOCIAL BENEFIT
I place people before data and am responsible for maximizing social benefit and minimizing harm. I consider the impact of my work on communities of people, other living beings, ecosystems and the world-at-large.

https://www.datafordemocracy.org/documents/GDEP-Ethics-Framework-Principles-one-sheet.pdf