

INFO 350

Professional Ethics

INFO Policy, Law, and Ethics

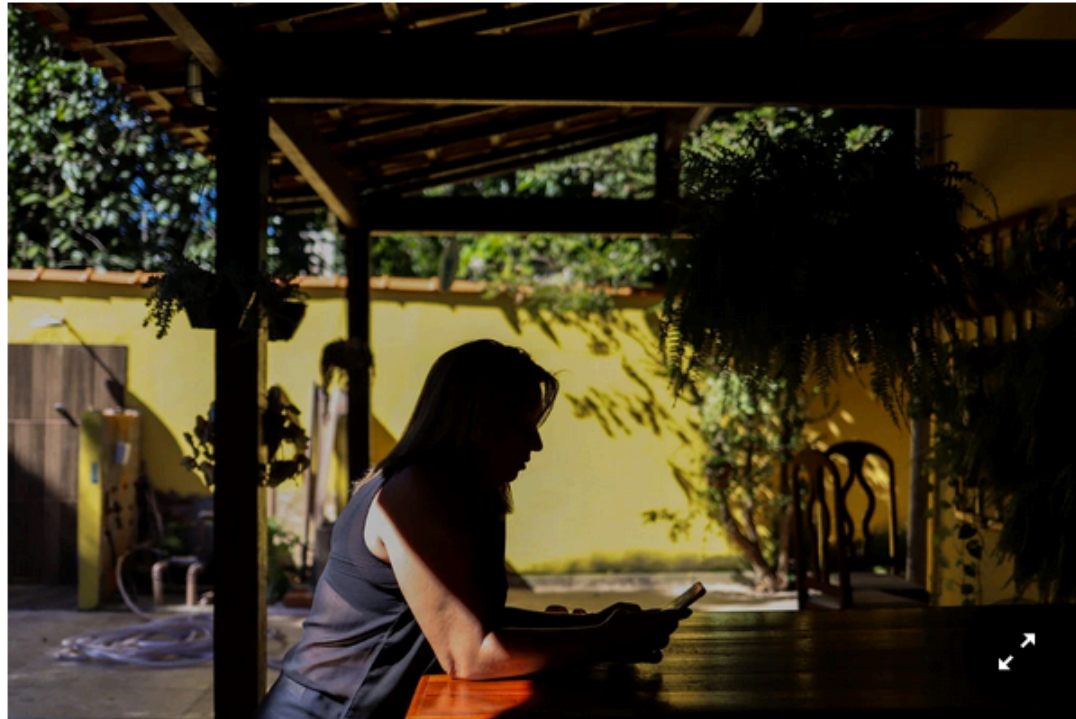


YouTube recommender system – for pedophiles

The New York Times

THE INTERPRETER

On YouTube's Digital Playground, an Open Gate for Pedophiles



"I got scared by the number of views," said a Brazilian woman, Christiane C., whose young daughter posted a video of herself.

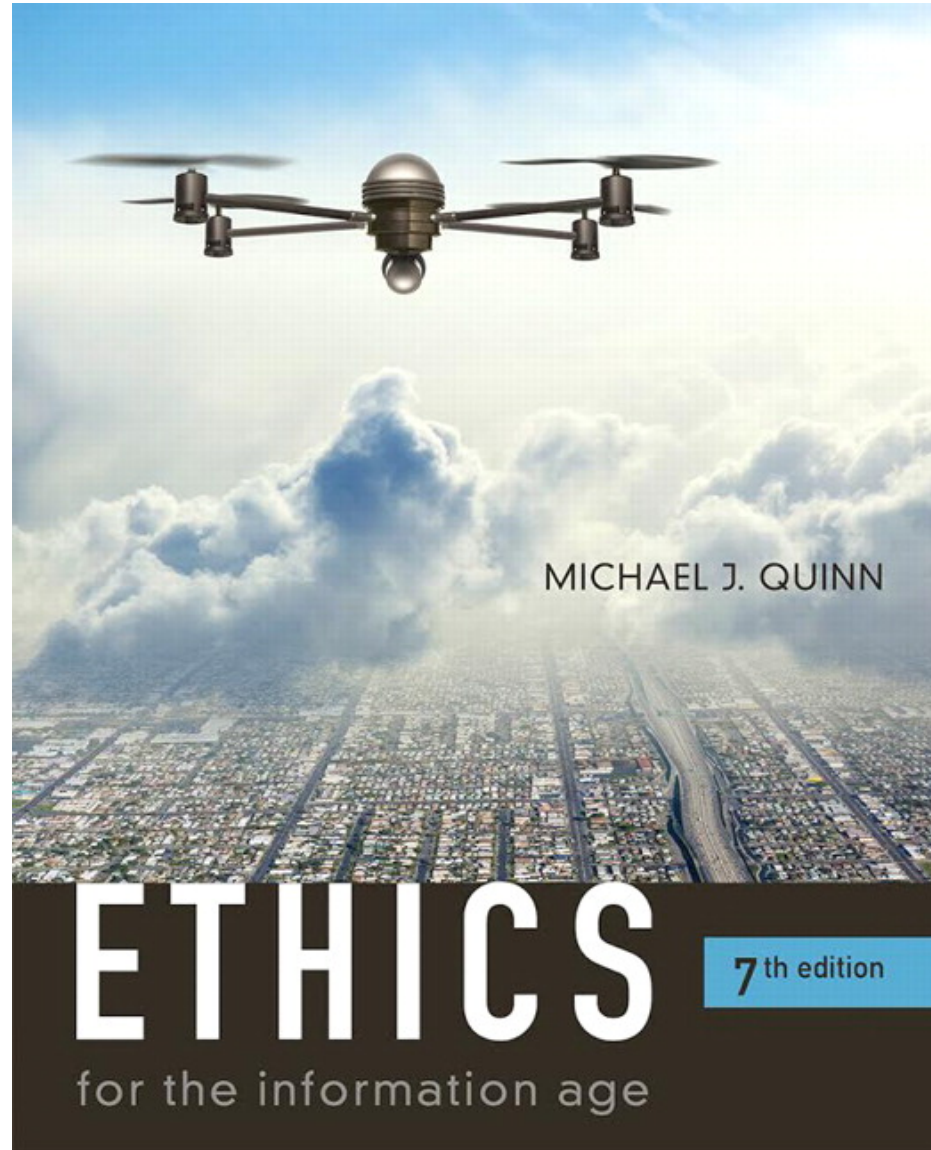
Maria Magdalena Arrellaga for The New York Times

Recommender systems

- ...a user who watches erotic videos might be recommended videos of women who become conspicuously younger, and then women who pose provocatively in children's clothes.
- Eventually, some users might be presented with videos of girls as young as 5 or 6 wearing bathing suits, or getting dressed or doing a split.
- On its own, each video might be perfectly innocent, but, grouped together, their shared features become unmistakable.

Other YouTube recommender failures...

- Previous cases include:
 - Videos falsely claiming that a riot in Germany was caused by the actions of Muslim refugees recommended after watching fact-based coverage, seen and rereported by mainstream media
 - Children's videos that feature suicide, cannibalism, and violence auto-playing after popular, appropriate videos
 - Watching Trump speeches leads quickly to recommendations for holocaust denial and white supremacy videos

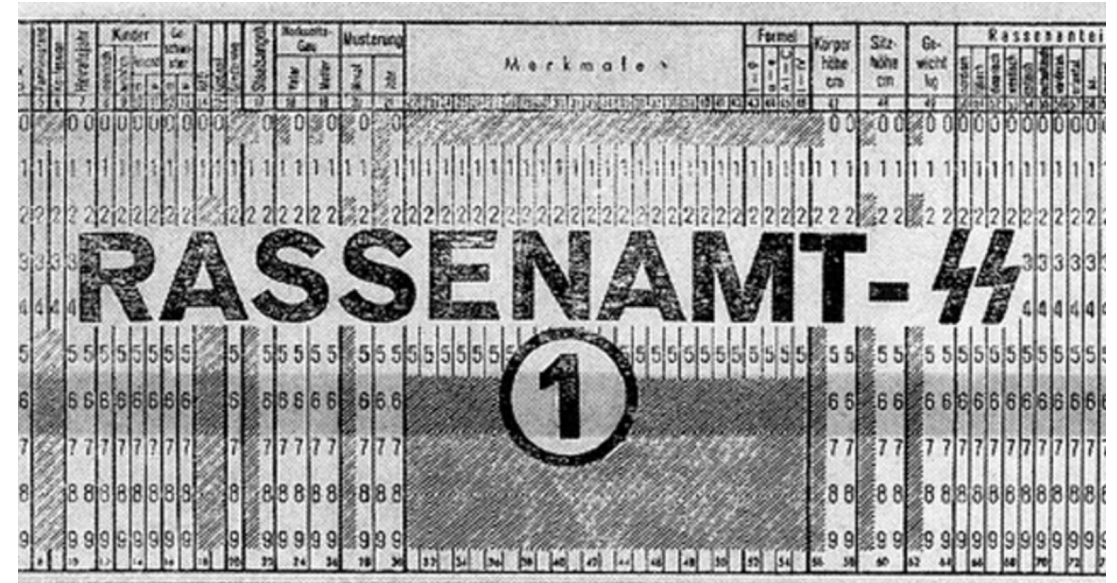


Chapter 9

Professional Ethics

Jacobus Lentz

- Created a system for tracking Dutch citizens in the 1930s
 - Rejected by the government but adopted by the Nazis after they invaded The Netherlands in 1940
- Nazis used Lentz's system (aided by IBM computers) to identify Jews and kill them



Not just an historical event

PRIVACY AND SECURITY

IBM Sells Face Recognition Surveillance to a Dictatorship: Report

 Patrick Howell O'Neill
Wednesday 5:57pm • Filed to: FACE RECOGNITION ✓

 15.4K  21  2



JEFF BEZOS FAILS TO EXPLAIN AWAY AMAZON'S PARTNERSHIP WITH ICE

This week, Amazon's partnership with ICE agencies—but not one.



Tech Workers Coalition

@techworkersco

Follow



Google has Project Maven. Amazon has Rekognition. Microsoft has this ICE contract. Salesforce is modernizing CBP. Palantir is...Palantir. The entire tech industry is complicit, and fighting it requires us to organize throughout the industry, across roles, companies, and borders.

10:13 AM - 19 Jun 2018

620 Retweets 1,338 Likes

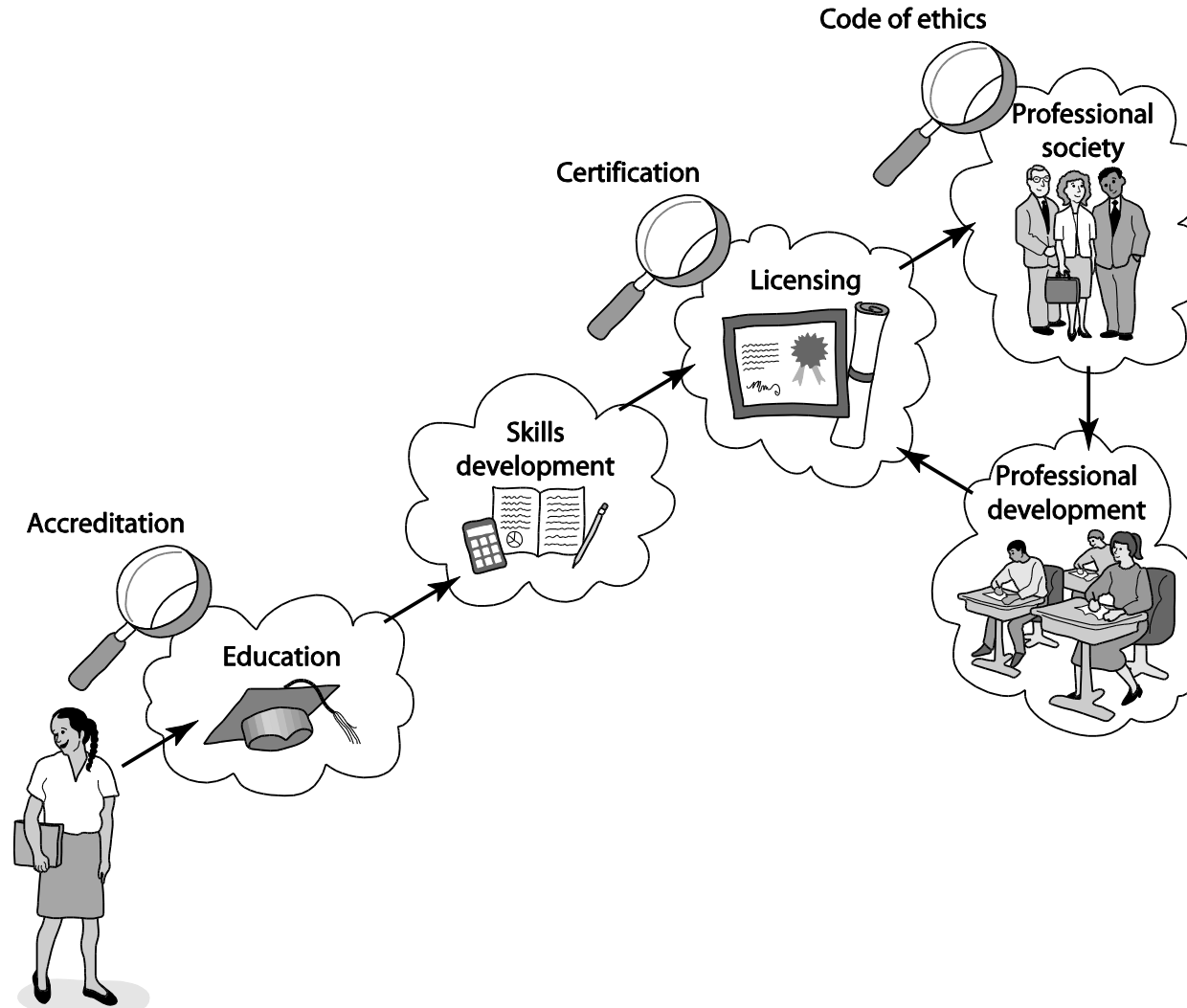


ement
int," said

Taking responsibility as a professional

PROFESSIONAL ETHICS

How Well Developed Are the Computing Professions?



Characteristics of a Profession

- Initial professional education
- Accreditation
- Skills development
- Certification
- Licensing
- Professional development
- Code of ethics
- Professional society

Examples of "mature" professions

- **Law** – must attend accredited law school, pass a qualifying exam, submit to disciplinary system, etc.
- **Accounting** (CPA) – accredited school, qualifying exams, disciplinary standards, etc.
- Medicine ...
- Architecture...
- Pharmacists, barbers, etc.

How Do Computer-Related Careers Stack Up?

- Certification and licensing not required
- College degree not required
- Apprenticeship not required
- Membership in professional society optional
- No specific requirements for continuing education
- Most computer programmers, system analysts, etc. are part of teams

Ability to Harm Public

- Many computer professionals hold responsibilities similar to those held by members of mature professions
- Therac-25 killed or gravely injured at least six people
- Millions rely upon software rather than accountants to prepare their tax returns
- Millions of people rely on system administrators to keep their work-related information secure
- Information/emerging technologies affect millions of lives

Therac 25

PATIENT NAME: John			
TREATMENT MODE: FIX	BEAM TYPE: E	ENERGY (KeV) :	10
	ACTUAL	PRESCRIBED	
UNIT RATE/MINUTE	0.000000	0.000000	
MONITOR UNITS	200.000000	200.000000	
TIME (MIN)	0.270000	0.270000	
GANTRY ROTATION (DEG)	0.000000	0.000000	VERIFIED
COLLIMATOR ROTATION (DEG)	359.200000	359.200000	VERIFIED
COLLIMATOR X (CM)	14.200000	14.200000	VERIFIED
COLLIMATOR Y (CM)	27.200000	27.200000	VERIFIED
WEDGE NUMBER	1.000000	1.000000	VERIFIED
ACCESSORY NUMBER	0.000000	0.000000	VERIFIED
DATE: 2012-04-16	SYSTEM: BEAM READY	OP.MODE: TREAT	AUTO
TIME: 11:48:58	TREAT: TREAT PAUSE	X-RAY	173777
OPR ID: 033-tfs3p	REASON: OPERATOR	COMMAND: █	

Therac 25

- Software-driven radiation therapy medical device
- Software design issues led to massive overdoses of radiation
 - Design errors + user errors (stemming from design choices)
- Caused severe and painful injuries and the death of several patients
- Distribution of responsibility falls on company, engineering teams, and hospital staff

Therac 25

- **Root causes**
- A commission concluded that the primary reason should be attributed to the bad software design and development practices, and not explicitly to several coding errors that were found. In particular, the software was designed so that it was realistically impossible to test it in a clean [automated](#) way.^[3]
- Researchers who investigated the accidents found several contributing causes. These included the following institutional causes:
 - AECL did not have the software code independently [reviewed](#).
 - AECL did not consider the design of the software during its assessment of how the machine might produce the desired results and what failure modes existed. These form parts of the general techniques known as [reliability modeling](#) and [risk management](#).
 - The system noticed that something was wrong and halted the X-ray beam, but merely displayed the word "MALFUNCTION" followed by a number from 1 to 64. The user manual did not explain or even address the error codes, so the operator pressed the P key to override the warning and proceed anyway.
 - AECL personnel, as well as machine operators, initially did not believe complaints. This was likely due to overconfidence.^{[1]:428}
 - AECL had never tested the Therac-25 with the combination of software and hardware until it was assembled at the hospital.

Design choices

FEATURED STORIES

Data Violence and How Bad Engineering Choices Can Damage Society

Cultural harms can go well beyond search results — which can be bad news for vulnerable communities



Anna Lauren Hoffmann [Follow](#)

Apr 30, 2018 · 12 min read ★



Design choices

How Airport Security Makes Travel Traumatic for Butches and Trans Folks, Whether or Not They Pass

By CARINA JULIG

JUNE 25, 2018 • 5:46 AM



- If an information and/or surveillance technology causes harm (physical, emotional, social) who is to blame?
- More to the point, how do we allocate responsibility?

The Problem of Many Hands

(Philosopher Helen Nissenbaum)

- When solutions, decisions, artifacts, etc. are created by teams and committees (boards, hierarchies, etc.),
- Assigning blame for any particular event becomes difficult.
- Software, platforms, corporations – collective activities
 - Collective action resists individual accounting – by design
 - Chains of command – who “did” something vs. who “decided”

Legal liability

- Two standards of liability
 - **Negligence**: Companies and/or individuals are *responsible* for failure or harm **if** they were incompetent or careless.
 - Example: Medical malpractice
 - Example: Personal injury (slip and fall)
 - **Strict Liability**: Companies and/or individuals are responsible for failure or harm whether intention/incompetent or not.
 - Example: Dutch bicycle safety laws
 - Example: U.S. impaired driving collisions



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.



ACM Code of Ethics and Professional Conduct

- **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.**

Eight Principles Identify Morally Responsible Relationships

- Public
- Client and employer
- Product
- Judgment
- Management
- Profession
- Colleagues
- Self

Act Consistently with Public Interest

- 1.01** “Accept full responsibility for own work”
- 1.02** Balance competing interests
- 1.03** Approve software only if it is safe
- 1.04** Disclose actual/potential dangers
- 1.05** “Cooperate in efforts to address” public concerns
- 1.06** “Be fair and avoid deception in all statements”
- 1.07** Consider factors that diminish access to software
- 1.08** “Volunteer professional skills to good causes”

Act in Best Interest of Client, Employer

- 2.01** Act within areas of competence
- 2.02** Don't use software obtained illegally
- 2.03** Only use property in authorized ways
- 2.04** Ensure documents are approved
- 2.05** Respect confidentiality
- 2.06** Promptly report problems with project
- 2.07** Report issues of social concern
- 2.08** Refuse outside work detrimental to job
- 2.09** Put employer's/client's interests first, unless overriding moral concern

Ensure Products Meet Highest Standards

- 3.01** Aim for “high quality, acceptable cost and a reasonable schedule,” making trade-offs clear
- 3.02** “Ensure proper and achievable goals”
- 3.03** Face up to “ethical, economic, cultural, legal and environmental” issues
- 3.04** Ensure you are qualified for proposed work
- 3.05** Use appropriate project methodologies
- 3.06** Follow the most appropriate professional standards
- 3.07** “Strive to fully understand the specifications”
- 3.08** Ensure the specifications are correct and approved

Ensure Products Meet Highest Standards

- 3.09** “Ensure realistic quantitative estimates of cost, scheduling, personnel, quality and outcomes”
- 3.10** “Ensure adequate testing, debugging, and review of software and related documents”
- 3.11** “Ensure adequate documentation”
- 3.12** Develop software and documents that respect privacy of those affected by software
- 3.13** Use only accurate data appropriately acquired
- 3.14** Maintain data integrity
- 3.15** Use same standards for software maintenance as software development

Maintain Integrity in Professional Judgment

- 4.01** “Temper all technical judgments by the need to support and maintain human values”
- 4.02** Understand and agree with documents before endorsing them
- 4.03** Remain objective when evaluating software or related documents
- 4.04** Do not engage in deceptive financial practices
- 4.05** Disclose conflicts of interest
- 4.06** Do not participate in decisions in which you, your employer, or your client has a potential conflict of interest

Promote Effective Project Management

- 5.01** Ensure good project management procedures
- 5.02** Ensure software engineers know standards
- 5.03** Ensure software engineers know policies and procedures for protecting confidential information
- 5.04** Take employees' abilities into account before assigning work
- 5.05** Ensure reasonable estimates are made
- 5.06** Give full and accurate information to potential employees

Promote Effective Project Management

5.07 Pay employees fairly

5.08 Do not unjustly prevent a qualified person from taking a job

5.09 Work out fair intellectual property agreements

5.10 Provide employees charged with misconduct due process

5.11 Do not ask someone to do anything violating the Code

5.12 “Do not punish anyone for expressing ethical concerns about a project”

ACM Code of Ethics and Professional Conduct

Analysis

- No mechanical process for determining if an action is right or wrong
- Should not take an overly legalistic view of the Code
 - If Code doesn't forbid something, that doesn't mean it is morally acceptable
 - Judgment required
- Code reflects principles drawn from multiple ethical theories
- Code has no disciplinary force

Alternative, Discipline-Independent List of Fundamental Principles

- Be impartial.
- Disclose information that others ought to know.
- Respect the rights of others.
- Treat others justly.
- Take responsibility for your actions and inactions.
- Take responsibility for the actions of those you supervise.
- Maintain your integrity.
- Continually improve your abilities.
- Share your knowledge, expertise, and values.

Extra credit

Cambridge Analytica and Facebook scandal

- Write a short summary of the CA scandal that includes mentions of the harm CA is accused of and what Facebook is accused of doing to make it possible.
 - Offer an opinion on Facebook's level of responsibility. Should a strict liability standard be employed? Or negligence? Or none of these?
- <https://www.nytimes.com/2018/03/19/technology/facebook-cambridge-analytica-explained.html>
 - <https://www.theguardian.com/news/series/cambridge-analytica-files>
 - <https://www.vox.com/policy-and-politics/2018/3/23/17151916/facebook-cambridge-analytica-trump-diagram>