'Without a sense of professional ethics, individuals might justify to themselves conduct that would be much more difficult to justify in front of others.'

Narayanan & Vallor 2014.

Computer Ethics (English)

BLG412E

3: Professional Ethics

Contents of Lecture

Professional ethics:

- What and why professional ethics.
- Codes of ethics.
- Problems with codes.
- Loyalty & whistle-blowing.
- Responsibility.

What is a profession?

Professionals	Computer professionals
Doctors	Software engineers
Lawyers	Quality analysts
Architects	Technical Documenters
Pilots	Project managers
Clinical Psychologists	Educators
Anyone with a calling or a special skill or education who uses that ability to provide a service.	Anyone involved with analysis, certification, design, specification, development, maintenance & testing of software systems.

What is a profession?

- Special skills → service.
- Characteristics (Greenwood, 1957):
  - Systematic theory.
  - Authority.
  - Community Sanction.
  - Ethical Codes.
  - Culture.
- Computer Engineering Professional Societies:
  - ACM.
  - IEEE-CS.

Why *Professional* Ethics?

Safety-critical systems examples
Aircraft & air-traffic.
Mass transportation.
Nuclear reactors.
Medical treatment.
Design software (e.g. bridges, buildings).
Analytical models (e.g. medical treatment).
Operations software (e.g. disposal site selection)

- Ethics is ethics!?
- Expertise:

  → Advantage over non-professional.

  → Social function & impact.

  - Safety-critical systems.
  - Gotterbarn: capacity to do harm.

  → Independence.

Computer Ethics (English)

BLG412E

3: Professional Ethics

Contents of Lecture

Professional ethics:

- What and why professional ethics.
- Codes of ethics.
- Problems with codes.
- Loyalty & whistle-blowing.
- Responsibility.

Professional Codes of Ethics

Primary Purposes:

- Inspire (aspirational).
- Guide.
- Educate.
- Discipline.

IEEE-CS/ACM Software Engineering Code of Ethics and Professional Practice.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=796142

Professional Codes of Ethics

Secondary Purposes:

- Awareness raising.

  ("oh I didn't think about bugs as dangerous before")
- Status raising.

  ("the computer profession is upstanding")
- Define expectations

  ("should I expect the occasional bug?")

IEEE-CS/ACM Software Engineering Code of Ethics and Professional Practice.
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=796142

Computer Ethics (English)

BLG412E

3: Professional Ethics

Contents of Lecture

Professional ethics:

- What and why professional ethics.
- Codes of ethics.
- Problems with codes.
- Loyalty & whistle-blowing.
- Responsibility.

Criticisms of Codes of Ethics (I)

Davis (1995): Codes usually:

- Vague.
- Self-serving.
- Inconsistent.
- Unrealistic.

Fairweather (2001): Codes usually incomplete:

- IT focus on privacy, accuracy, property, accessibility.
- Sanctioning unremarked items.

Criticisms of Codes of Ethics (II)

Ladd (1995):

- Rules discourage reflection.
- No individual/collective distinction.
- Ethics should not be policed.

- Prioritisation.
  - Perlman & Varma (2002): Secrecy vs transparency.

IEEE-CS/ACM SECEPP

Software Engineering Code of Ethics and Professional Practice

Eight Principles:

- 1. PUBLIC - Act consistent with the public interest.
- 2. CLIENT AND EMPLOYER – Act in interests of client and employer consistent with public interest.
- 3. PRODUCT – Ensure products and modifications meet highest professional standards.
- 4. JUDGEMENT - Maintain integrity and independence in professional judgement.
- 5. MANAGEMENT - Managers and leaders should follow and promote ethical approach.
- 6. PROFESSION - Advance the integrity and reputation of the profession.
- 7. COLLEAGUES - Be fair to and supportive of colleagues.
- 8. SELF - Participate in lifelong learning and promote ethical approach.

Each principle has many clauses or examples in the "long version".

http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=796142

Levels of codes

(an attempt to overcome criticism)

- Codes of ethics (aspirational).

  (we are people)

  It's your business.
- Codes of conduct (behaviour guide).

  (we are professionals)

  You can be warned.
- Codes of practice (operational rules).

  (we are computer professionals)

  You can be disciplined.

- The IEEE-CS/ACM SECEPP – observing this distinction? (Gotterbarn)

Computer Ethics (English)

BLG412E

3: Professional Ethics

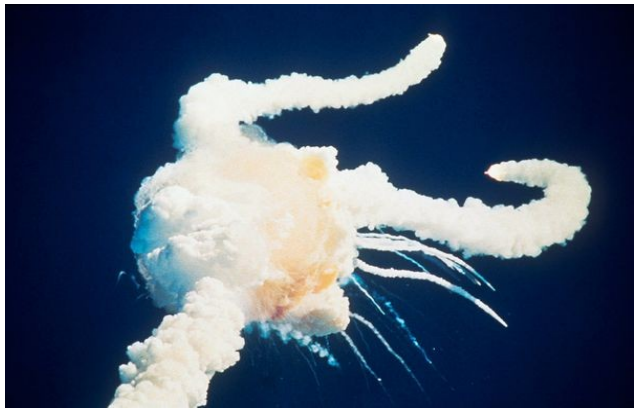
Contents of Lecture

Professional ethics:

- What and why professional ethics.
- Codes of ethics.
- Problems with codes.
- Loyalty & whistle-blowing.
- Responsibility.

Whistle-blowing & Loyalty

- Whistle-blowing + product inadequacy:
  - BART transit system.
    - Unsafe local transit computer system.
    - Whistleblowing engineers lost jobs.
  - Challenger disaster.
    - Engineers knew about faulty parts.
    - Informed superiors.



When is one permitted to whistle-blow?

De George (1981):

1. Serious harm may occur.
2. Concerns have been made known.
3. No satisfaction reached.

When is one obliged to whistleblow?

De George (1981):

1. Serious harm may occur.
2. Concerns have been made known.
3. No satisfaction reached.
4. Convincing evidence exists.
5. Whistle-blowing will prevent harm.

When is one obliged to whistleblow?

James (1991):

Depends on severity, consequences, possibility.

Alpern (1991):

Ordinary Morality = "do no harm".

(engineers specially placed to do harm)

Ladd (1991):

Should engineers be Moral Heroes?

(recall levels of codes)

http://rt.com/news/world-press-freedom-index-662/

Whistle-blowing & Loyalty

RT QUESTION MORE. LIVE

News USA Russian politics Business

BREAKING NEWS UKRAINE SECURITY FO

Home / News /

US plunges in World Press Freedom index after NSA leaks, attacks on whistleblowers

Published time: February 12, 2014 13:55
Edited time: February 14, 2014 11:55

Get short URL

Computer Ethics (English)

BLG412E

3: Professional Ethics

Contents of Lecture

Professional ethics:

- What and why professional ethics.
- Codes of ethics.
- Problems with codes.
- Loyalty & whistle-blowing.
- Responsibility.

Loyalty

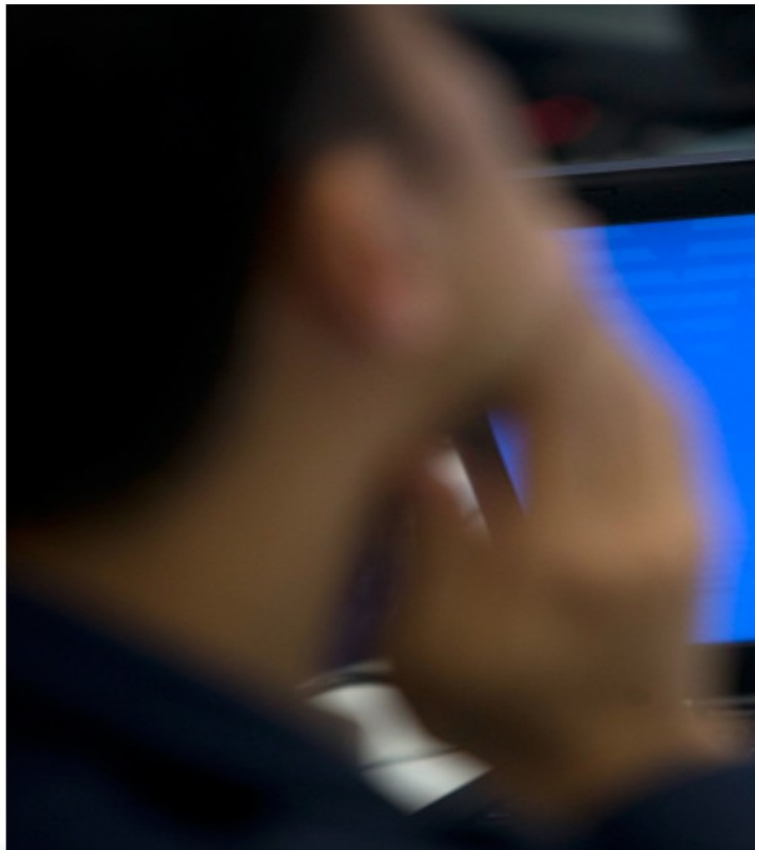
- Are we obliged to be loyal to our employers?
  - IEEE/ACM SECEPP: #2 in list.
  - Duska (1991):
    - Relationship contractual.
    - Big companies usually would not reciprocate (exceptions).
  - Power asymmetry:
    - Discourse shaped by power?
    - Codes do exist for managers.

→ Broader definition of stakeholders.

IEEE SPECTRUM

Massive Worldwide Layoff Under Way At IBM

By Tekla Perry
Posted 3 Feb 2015 | 17:00 GMT



- Changing market situation.
- Up to 26% workforce reduction.
- Not all “layoffs”:
  - Low employment ratings being given.

Stakeholders

- Employers.
- Clients.
- Users.
- Beneficiaries.
- Affected individuals.
- Families.
- The Public.

...

Computer Ethics (English)

BLG412E

3: Professional Ethics

Contents of Lecture

Professional ethics:

- What and why professional ethics.
- Codes of ethics.
- Problems with codes.
- Loyalty & whistle-blowing.
- Responsibility.

Responsibility: kinds

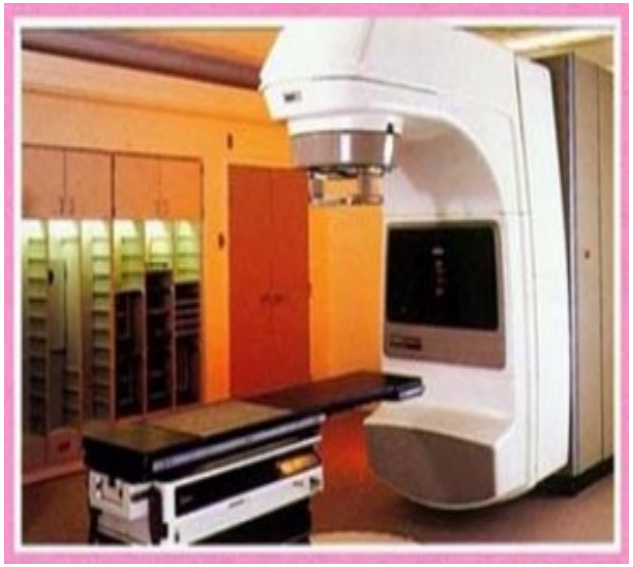
	Responsibility	Accountability	Liability
Main idea:	Conscience following.	Addressed for issues.	Legal consequence.
Who is addressed:	Individuals.	Individuals or groups.	Any legal entity.
Consequences:	Guilt, shame, sense of wrong.	Must answer to victims etc.	Compensation, punishment, redress.

Responsibility:
- Causality.
- Intent.

Is responsibility exclusive?
- The problem of "many hands".
  → introduce "accountability".

Note: This is jargon.
Everyday usage of these words is different.

Case-study: Therac-25.



- Machine to give radiation in hospitals.
- Bugs in safety code, in dosage calculations, and a hardware error.
- Staff trusted machine & safety measures.
- 3 dead, 3 irreversible injuries.

http://computingcases.org/case_materials/therac/therac_case_intro.html

Case-study: Panama Radiotherapy

- Slightly non-standard calculations.
- Machine produced garbage data.
- Company: You should checked results / get support.
- FDA: Firm negligent – license revoked.
- Courts: Doctors to prison.
- Who is responsible?

Panama X-Ray Case Documents

Legal liability

- Engineer Licensing:
  - Certification programs exist.
    - Some countries license software engineers.
  - ACM:
    - Consistency licensing would be better.
    - State of knowledge too immature.
    - No guarantees:
      - Reliability.
      - Dependability.
      - Usability.

Legal liability

- Software owners:
  - Property protected in law.
  - Obligations: "no responsibility accepted" (License Agreements).
    - Not always legally binding.
  - Liability usually with user.

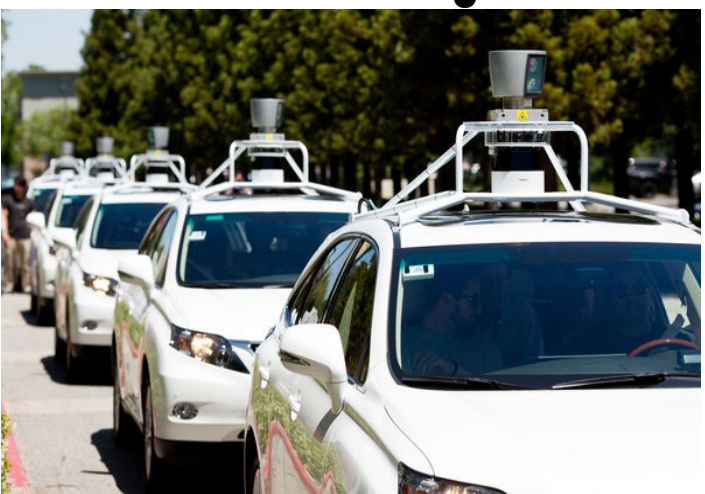
The New York Times

WHAT THE FUTURE HOLDS

When Driverless Cars Break the Law

MAY 13, 2014

Claire Cain Miller
@clairecm



Parties:

- Owner.
- Driver.
- Manufacturer.

Situations:

- Breaking traffic laws.
- Damage to property.
- Injury & death.

Risk assessment

- Normally:
  - Scheduling.
  - Budget.
  - Specification matching.
- Ethical considerations?
  - Full software lifecycle (Gotterbarn, 2001).
  - Social, political, ethical issues (Schneir, 2000).

The New York Times

Anthem Hacking Points to Security Vulnerability of Health Care Industry

By REED ABELSON and MATTHEW GOLDSTEIN FEB. 5, 2015

- 80 million patient records hacked.
- No encryption on company computers.
- Anthem went public, to police.

Collective Responsibility

McFarland:

Responsibility of an engineer

vs

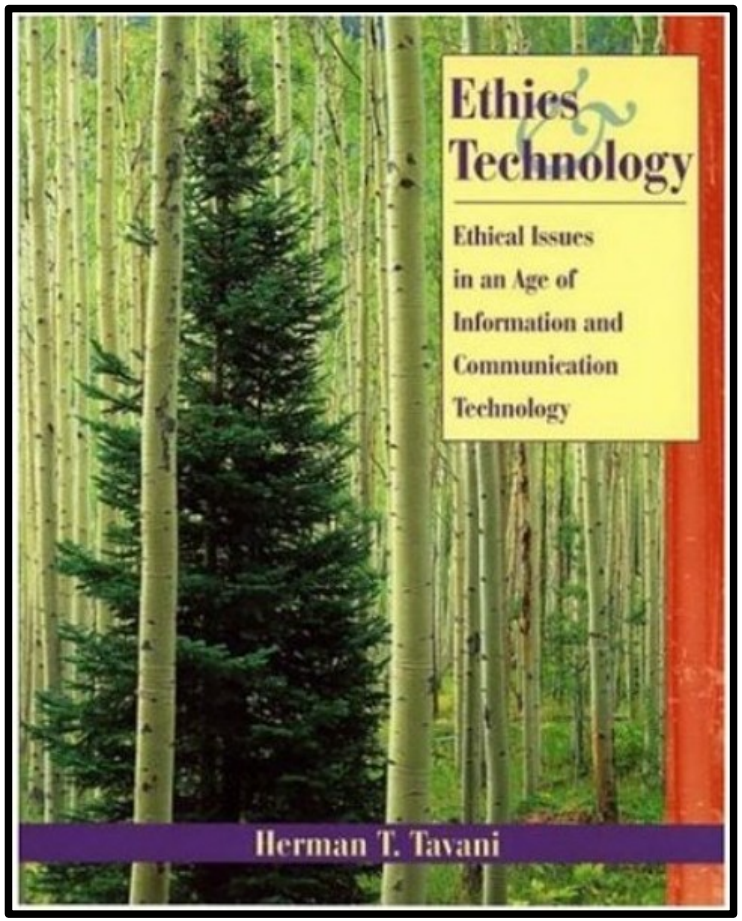
Responsibility of engineers

Nobody is a moral hero.

We're in it together.

Reading:

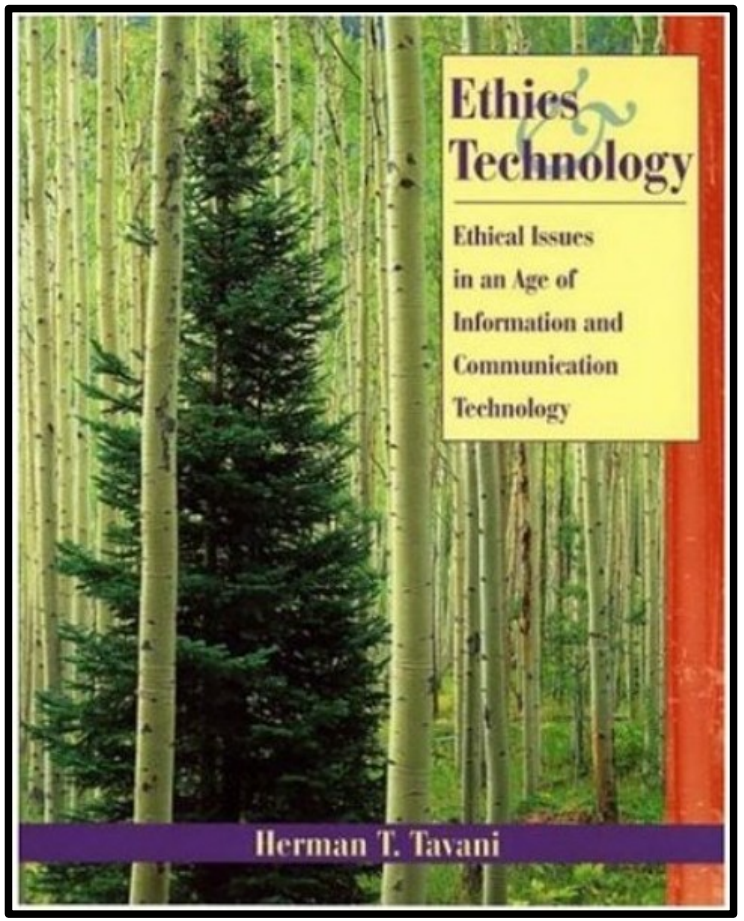
Tavani Chapter 4: Professional Ethics, Codes of Conduct, and Moral Responsibility



4

Reading for next time:

Tavani Chapter 5: Privacy in Cyberspace



5

Take-home question

Which SECEPP principles (short version) and their realisations/clauses (long version) could apply to the following situations and how:

Your have already gone over-budget on a project for a client and there is no sign of the project ever being finished.
A teacher from a poor neighbourhood asks you if you can guide some some gifted children she knows with a robot club.
Your employer is overhyping your product to the client and you are not sure if you will be able to deliver what they are promising.
You are thinking about making an application to scrape and mine data from google but are not sure how legal it is.
You are asked by a court to check the claim that a document was produced before a particular date.

SAMPLE SECEPP-RELATED QUESTIONS

1) From what principle do the following clauses arise? In what way or how do they arise from this principle?
“Ensure proper and achievable goals and objectives for any project on which they work or propose.”
“Identify, define, and address ethical, economic, cultural, legal, and environmental issues related to work projects.”

2) Describe, with reference to specific clauses from Principle 2 (Client & Employer) and Principle 6 (Profession), how commitment to the wellbeing of the employer is reconciled with a commitment to the reputation of the profession?

3) What is meant by *consistent* with public interest?

4) In clause 3.06, “Work to follow professional standards, when available, that are most appropriate for the task at hand, departing from these only when ethically or technically justified.”
- Is the term "professional standards" interchangeable with "high standards"?
- Give an example of something that might justify a departure from professional standards?

5) What is "professional judgement"? Distingush from another use of judgement as might be used by a computer professional.

6) Choose 2 from
- accessibility
- leadership
- privacy
- professional standards

And explain what the code has to say about it (under which principle).

7) Under which principle does the following clause go, and why?
“Not engage in deceptive financial practices such as bribery, double billing, or other improper financial practices.”
“ Be accurate in stating the characteristics of software on which they work, avoiding not only false claims but also claims that might reasonably be supposed to be speculative, vacuous, deceptive, misleading, or doubtful.”
“ In situations outside of their own areas of competence, call upon the opinions of other professionals who have competence in those areas.“

Slides licensed under "creative commons"

Slides based loosely on slides by H. Turgut Uyar.

http://creativecommons.org/licenses/by-nc-sa/4.0/

You are free to share or adapt these slides as long as you attribute the original authors, are using it for non-commercial purposes, and with the same CC license you share alike.