

**Aspetos Socio Profissionais da Informática**

## **Professional Ethics**

Departamento de Informática da  
FCT/UNL

# Lecture Outline

- Ethics and the Informatics Profession
- Professional Ethical Codes for Information Processing professionals
- Examples of Ethical Codes
- Limits of Ethical Codes

These slides are partially based on slides of Prof. *Gordana Dodig-Crnkovic* - School of Innovation, Design and Engineering, Mälardalen University, as well as slides from Chapter 9 of Michael J. Quinn, "Ethics for the Information Age"

# Ethics

- **Ethical theory** is the study of ethics at a conceptual level.
- **Applied ethics** is aimed at the everyday life of the typical person.
- **Professional ethics** is aimed at a person engaged in the practice of a particular profession. (Professional ethics is very difficult to separate from Professional Deontology - we use both terms interchangeably)

# Professional Ethics is a Sort of Contract

...between...

- practicing professionals
- employee and employer
- professionals and their clients
- professionals and Society
- and on specialized technical details of the professions
- Professional Ethics is the foundation of **professionalism**

# Professional Ethics / Professional Deontology

- Bioethics, Medical ethics
- Environmental ethics
- Public ethics
- Media ethics
- Political ethics, Accounting Ethics
- Ethics of science
- Ethics of Education
- Student Ethics
- **Engineering Ethics**

# Em PT

(extraído do CNOP: Conselho Nacional das Ordens Profissionais)

Ordem dos Advogados

Ordem dos Arquitectos

Ordem dos Biólogos

Ordem dos Contabilistas Certificados

Ordem dos Despachantes Oficiais

Ordem dos Economistas

Ordem dos Enfermeiros

Ordem dos Engenheiros

Ordem dos Farmacêuticos (fundada 1835)

Ordem dos Médicos

Ordem dos Médicos Dentistas

Ordem dos Médicos Veterinários

Ordem dos Notários

Ordem dos Nutricionistas

Ordem dos Psicólogos

Ord. dos Revisores Oficiais de Contas

O. Solicitadores e Agentes de Execução

# Ethics in Engineering

*"All products of technology present some potential dangers, and thus engineering is an inherently risky activity. In order to underscore this fact and help in exploring its ethical implications, we suggest that **engineering should be viewed as an experimental process.** It is not, of course, an experiment conducted solely in a laboratory under controlled conditions. Rather, it is an experiment on a social scale involving human subjects."*

*Ethics in Engineering, Martin, M.W., Schinzinger,  
McGraw-Hill, 1996*

# Do Computer Professionals Have *Special* Responsibilities?

Because software is invading most human activities and products, software engineers and their teams have significant opportunities to:

- (i) do good or cause harm
- (ii) enable others to do good or cause harm
- (iii) influence others to do good or cause harm.



# Critical-Safety Software

- Responsibilities involved in the development of safety-critical systems is a *differentiating* factor.
- A "safety-critical system" = computer system that can have a direct life-threatening impact.
  - aircraft and air traffic control systems
  - mass transportation systems
  - nuclear reactors
  - missile systems
  - medical treatment systems
  - design of bridges and buildings and aircrafts and ...
  - control of energy and water supplies
  - development of analytical models for medical treatment
  - and many more...

# Framework for Ethical Decision Making

- Recognize the ethical issue
- Get the facts
- Evaluate the alternative actions from different ethical perspectives
- Make a decision
- Act accordingly
- Reflect on the results of the decisions afterwards

# Examples of Ethical Dilemmas

- Disagreement in principle with the policies of senior management
- Your employer acts in an unethical way and releases a safety-critical system without finishing the testing of the system
- Participation in the development of components for military weapons or biogenetic systems
- Participation in the development of autonomous military weapons

# Professional Codes of Ethics

- Many professions have established professional societies, which have adopted codes of conduct (e.g. professional orders or associations)
- Two computing professional societies

Association for Computing Machinery (ACM)

Institute for Electrical and Electronics Engineers -  
Computer Society (IEEE-CS)

# ACM Code of Ethics and Conduct

- 1.1 Contribute to society and human well-being.
- 1.2 Avoid harm to others.
- 1.3 Be honest and trustworthy.
- 1.4 Be fair and take action not to discriminate.
- 1.5 Honor property rights including copyrights and patent.
- 1.6 Give proper credit for intellectual property.
- 1.7 Respect the privacy of others.
- 1.8 Honor confidentiality.

# More Specific Professional Responsibilities

*As an ACM computing professional I will ....*

- 2.1 Strive to achieve the highest quality, effectiveness and dignity in both the process and products of professional work.
- 2.2 Acquire and maintain professional competence.
- 2.3 Know and respect existing laws pertaining to professional work.
- 2.4 Accept and provide appropriate professional review.
- 2.5 Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks.
- 2.6 Honor contracts, agreements, and assigned responsibilities.
- 2.7 Improve public understanding of computing and its consequences.
- 2.8 Access computing and communication resources only when authorized to do so.

# Organizational Leadership Imperatives

*As an ACM member and an organizational leader, I will ....*

3.1 Articulate social responsibilities of members of an organizational unit and encourage full acceptance of those responsibilities.

3.2 Manage personnel and resources to design and build information systems that enhance the quality of working life.

3.3 Acknowledge and support proper and authorized uses of an organization's computing and communication resources.

3.4 Ensure that users and those who will be affected by a system have their needs clearly articulated during the assessment and design of requirements; later the system must be validated to meet requirements.

3.5 Articulate and support policies that protect the dignity of users and others affected by a computing system.

3.6 Create opportunities for members of the organization to learn the principles and limitations of computer systems.

# Compliance With The Code

*As an ACM member I will ....*

4.1 Uphold and promote the principles of this Code.

4.2 Treat violations of this code as inconsistent with membership in the ACM



# Código de Ética da Ordem dos Engenheiros

<http://www.ordemengenheiros.pt/pt/a-ordem/atribuicoes-e-organizacao/estatuto/>

# Legal Status of Orders (1)

*[A Professional Order, ..., is, in the Portuguese legal system, a public entity with an associative structure representing a profession that should be subject to control of access and exercise. ... is also responsible for the elaboration of specific technical and deontological norms and has an autonomous disciplinary regime by imperative of tutelage, in the pursue of public interest.]*

*Ordem dos Médicos:*

You cannot practice your profession unless authorized by the Order

You are subject to the order Ethics Board and Professional Board

*Ordem dos médicos* accepts complaints from any patient, hospital, company, public authority, ...

# Legal Status of Orders (2)

*Ordem dos Engenheiros*: It is in certain sense similar, since some engineer professions, if not accredited by the Order, cannot be responsible for projects (their projects would be considered illegal by the State). Examples: Civil, Electrotechnical

Each Colégio (e.g., Civil, Mechanical, Electrotechnical) regulates their members, judges complaints, conflicts, ...

After "Bolonha", several changes have occurred and, as of today, one can be a member of the "Ordem" at different levels, including "Estagiário" and "Efetivo". A recently graduated candidate can only use the title "Engenheiro" iff: a) holds MSc degree from a University/Institute; b) has completed (or was excused) from the Internship; and c) has succeeded in the deontology exam.

([https://www.ordemengenheiros.pt/fotos/editor2/regulamento\\_admissao\\_qualificacao\\_dr\\_13042017.pdf](https://www.ordemengenheiros.pt/fotos/editor2/regulamento_admissao_qualificacao_dr_13042017.pdf))

# What about Unions (Sindicatos)?

"Sindicatos" (Unions / Trade Unions)

A sua função principal é "defender os interesses de uma categoria profissional (ou dos trabalhadores nele inscritos)..."

"... Orders can only be incorporated to satisfy specific needs and that they cannot perform the functions of trade unions associations. Furthermore, their internal organization must be based on respect of the rights of its members and the democratic formation of their organs." (trad. da Constituição da República Portuguesa)

However, "Sindicatos" seem to be able (in PT) to play both roles: "Sindicato" and "Ordem". Example: "Sindicato dos Jornalistas" issues "carteiras profissionais" i.e., the habilitation to work as a journalist and holds a Deontological Counsel to judge "violations"...

# Purpose of Professional Codes

- Professional codes of ethics are often designed to motivate members of an association to behave in certain ways.
- Four primary functions of codes are to:
  - inspire*
  - guide*
  - educate*
  - discipline* the members.

# Some Critiques of These Codes

- Difficult to follow all provisions (no war related work allowed?)
- No criticism implied, or allowed (?)
- Obedience seems to be an assumption
- Workplace democracy or collective decision not included
- Emphasis on property and ownership
- Describes procedures to minimize access to private data, but does not say what may be issues (race, religion, politics...)

# Some Strengths and Weaknesses of Professional Codes

## Strengths

## Weaknesses

Codes inspire the members of a profession to behave ethically.	Directives included in many codes tend to be too general and too vague.
Codes guide the members of a profession in ethical choices.	Codes are not always helpful when two or more directives conflict.
Codes educate the members of a profession about their professional obligations.	A professional code's directives are never complete or exhaustive.
Codes discipline members when they violate one or more of the code's directives.	Codes are ineffective (have no "teeth") in disciplinary matters.
Codes "sensitize" members of a profession to ethical issues and alert them to ethical aspects they otherwise might overlook.	Codes do not help us distinguish between micro-ethics issues and macro-ethics issues.
Codes inform the public about the nature and roles of the profession.	Directives in codes are sometimes inconsistent with one another.
Codes enhance the profession in the eyes of the public.	Codes can be self-serving for the profession.

# Do Employees Have a Special Obligation to Employers?

- Some believe we have a *prima facie* obligation of loyalty in employment contexts.
- In other words, all things being equal, an employee should be loyal to his or her employer and *visa versa*.



# Deep Throat ("Garganta Funda")

- "Whistle Blowing" ("por a boca no trombone") is a matter of an individual employee finding his or her conscience unable to accept the actions of the company and telling the world about them, typically via the media
- It is always a fairly dramatic event and was even more so in the past when the typical view was that an employee owed total loyalty to the employer
- Employees who blow the whistle on their employers are protected by law. If they are fired or otherwise retaliated against for whistle blowing, they can sue (in all countries?)

# Conflicts of Professional Responsibility: Employee Loyalty and Whistle-blowing

- What exactly is employee loyalty?
- Do employees and employers have a special obligation of loyalty to each other?
- Should loyalty to one's employer ever preclude an employee's "blowing the whistle" in critical situations?
- In which cases can whistle-blowing be justified?

# Conclusion

- There are many differences among morals, ethics and law
- Ethics concerns all aspects of modern collective life and has its roots in philosophy
- Current and future computing and communication systems challenge many moral beliefs and ethics
- Computing professional ethics is the subject of many Codes of Conduct