

# Computing Ethics

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## Ethics

- Ethics is the study of what it means to “do the right thing.” It is often equated with moral philosophy because it concerns how one arrives at specific moral choices.
- Ethical theory posits that people are rational, independent moral agents, and that they make free choices.
- Computer ethics is a branch of ethics that specifically deals with moral issues in computing.

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## Normative vs. Descriptive Ethics

- *Normative ethics*: tell us what we *should* do in making practical moral standards.
- *Descriptive ethics*: focus on what people actually believe to right or wrong, the moral values (or ideals) they hold up to, how they behave, and what ethical rules guide their moral reasoning.

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## Deontological Theories

- *Deon* meaning *obligation* in Greek
- Ethical decisions should be made solely by considering one's duties and the absolute rights of others
- The principal philosopher in this tradition is Emmanuel Kant (1724-1804).
- A key concept is the “*categorical imperative*” -- an absolute, unconditional requirement that guides human act in all circumstances.
  - *Act only according to that maxim by which you can at the same time will that it would become a universal law.*

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## Deontological Views: Key Principles

- The principle of universality: Rules of behavior should be applied to everyone. No exceptions.
- Logic or reason determines rules of ethical behavior.
- Treat people as ends in themselves, but not as means to ends.
- Absolutism of ethical rules.
  - E.g., it is wrong to lie (no matter what!)

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## Utilitarianism

- The founding father is John Stuart Mill (1806-1873)
- An ethical act is one that maximizes the good for the greatest number of people.
- The guiding principle is to increase happiness or "utility" (i.e., what satisfies one's needs and values).
- Consequences are quantifiable, and are the main basis of moral decisions.
- An act is "right" if it tends to increase the aggregate utility of all affected people.
- How can determine or measure possible consequences before an act is committed?

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## Two Types of Utilitarianism

- Rule-utilitarianism: applies the utility principle to general ethical rules rather than to individual acts.
  - The rule that would yield the most happiness for the greatest number of people should be followed.
- Act-utilitarianism: applies utilitarianism to individual acts. We must consider the possible consequences of all our possible actions, and then select the one that maximizes happiness to all people involved.

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## Natural Rights

- Natural rights are *universal rights* derived from the law of nature (e.g., inherent rights that people are born with).
- Ethical behavior must respect a set of fundamental rights of others. These include the rights of life, liberty, and property.
- One of the founding fathers is John Locke (1632-1704).

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## Situational Ethics

- There are always 'exceptions to the rule.'
- *The morality of an act is a function of the state of the system at the time it is performed.*
- "Each situation is so different from every other situation that it is questionable whether a rule which applies to one situation can be applied to all situations like it, since the others may not really be like it. Only the single law of love (*agape*) is broad enough to be applied to all circumstances and contexts."
- Originally developed by Joseph Fletcher (1905-1991).

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## Negative Rights vs. Positive Rights

- Negative rights (or liberties) are rights to act without interference.
  - E.g., rights to life, liberty and property.
- Positive rights (or claim-rights) are rights that impose an obligation on some people (often the government) to provide certain things to others.
- Controversies often rise as to whose (what) rights should take precedence.

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## Laws vs. Ethics

- Right & Wrong versus Legal & Illegal.
- Ethics precedes law in the sense that ethical principles help determine whether or not specific laws should be passed.
- Some acts are ethical, but illegal; other acts are legal, but unethical.
- Distinguishing wrong and harm: many ethical acts may do harm to some people.

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## Licensing of Software Engineers

- Certification of IT professionals is common practice now
- Accreditation of computer science, software engineering and related programs is well established
- There have been recurring calls for the licensing of IT professionals, most recently due to national security concerns.
- Texas (approved by the Texas Board of Professional Engineers) started to license software engineers as a profession in 1998, making it the first state to do so.
- It remains the only state in the United States to do this.
- Canada follows the same practice.

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## Licensing vs. Certifying

- There is a difference between certifying and licensing.
- Licensing is typically practiced by the government, and is a legal precondition to entering a field. Licensing is mandatory.
- Certification is done by the profession itself, demonstrating that you have mastered certain levels of skills in a particular field. This is a voluntary process.

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## Ubiquitous Computing (1)

- Invisibility, integratedness and embeddedness into a variety of real-life situations
- High degree of connectivity
- Cheap and miniaturized
- Applied to everything

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## Ubiquitous Computing (2)

- Interplanetary networks?
- Optical computing?
- DNA computing?
- Quantum transistors?
- Wearable computing
- As a result, the impact of computing on society is becoming particularly important.
- A related question is: Who should be (legally and/or morally) accountable for an action taken by a computer or a computer system?

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## Autonomous Moral Agents

- The article by Stahl (2004).
- Some computer systems are autonomous in the sense that they come to independent decisions based under specific circumstances.
- Computers play a role in social interaction, which often displays a moral dimension. But are they autonomous moral agents?
- Stahl said no, for the following reasons:
  - Computers process data (processed facts)
  - Human beings process information (data that is attached with a meaning)

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## Moral Alan Turing Test

- Does a computer have intelligence (or consciousness)? Does it have a mind of its own?
- *Turing Test*: Let a human judge interact with two parties in natural language, one being a human and the other being a machine. If the judge cannot reliably tell which is which, then the machine is said to pass the test.
- *Moral Turing Test*: Let human interrogators engage in conversations with a computer system, and ask the system to make moral decisions. If the system passes the test, then we can assign the status of an autonomous moral agent to the system.
- The question is: Most moral decisions are not a clear-cut yes/no. Then whose criteria should we adopt?