

# ACM Code of Ethics and Professional Conduct

This Code, consisting of 24 imperatives formulated as statements of personal responsibility, identifies the elements of such a commitment. It contains many, but not all, issues professionals are likely to face. [Section 1](#) outlines fundamental ethical considerations, while [Section 2](#) addresses additional, more specific considerations of professional conduct. Statements in [Section 3](#) pertain more specifically to individuals who have a leadership role, whether in the workplace or in a volunteer capacity such as with organizations like ACM. Principles involving compliance with this Code are given in [Section 4](#).

## GENERAL MORAL IMPERATIVES.

### 1.1 Contribute to society and human well-being.

This principle concerning the quality of life of all people affirms an obligation to protect fundamental human rights and to respect the diversity of all cultures. An essential aim of computing professionals is to minimize negative consequences of computing systems, including threats to health and safety. When designing or implementing systems, computing professionals must attempt to ensure that the products of their efforts will be used in socially responsible ways, will meet social needs, and will avoid harmful effects to health and welfare.

### 1.2 Avoid harm to others.

"Harm" means injury or negative consequences, such as undesirable loss of information, loss of property, property damage, or unwanted environmental impacts. This principle prohibits use of computing technology in ways that result in harm to any of the following: users, the general public, employees, employers. Harmful actions include intentional destruction or modification of files and programs leading to serious loss of resources or unnecessary expenditure of human resources such as the time and effort required to purge systems of "computer viruses."

To minimize the possibility of indirectly harming others, computing professionals must minimize malfunctions by following generally accepted standards for system design and testing. Furthermore, it is often necessary to assess the social consequences of systems to project the likelihood of any serious harm to others. If system features are misrepresented to users, coworkers, or supervisors, the individual computing professional is responsible for any resulting injury.

### 1.3 Be honest and trustworthy.

Honesty is an essential component of trust. Without trust an organization cannot function effectively. The honest computing professional will not make deliberately false or deceptive claims about a system or system design, but will instead provide full disclosure of all pertinent system limitations and problems.

### 1.4 Be fair and take action not to discriminate.

The values of equality, tolerance, respect for others, and the principles of equal justice govern this imperative. Discrimination on the basis of race, sex, religion, age, disability, national origin, or other such factors is an explicit violation of ACM policy and will not be tolerated.

### **1.5 Honor property rights including copyrights and patent.**

Violation of copyrights, patents, trade secrets and the terms of license agreements is prohibited by law in most circumstances. Even when software is not so protected, such violations are contrary to professional behavior. Copies of software should be made only with proper authorization. Unauthorized duplication of materials must not be condoned.

### **1.6 Give proper credit for intellectual property.**

Computing professionals are obligated to protect the integrity of intellectual property. Specifically, one must not take credit for other's ideas or work, even in cases where the work has not been explicitly protected by copyright, patent, etc.

### **1.7 Respect the privacy of others.**

Computing and communication technology enables the collection and exchange of personal information on a scale unprecedented in the history of civilization. Thus there is increased potential for violating the privacy of individuals and groups. It is the responsibility of professionals to maintain the privacy and integrity of data describing individuals. This includes taking precautions to ensure the accuracy of data, as well as protecting it from unauthorized access or accidental disclosure to inappropriate individuals. Furthermore, procedures must be established to allow individuals to review their records and correct inaccuracies.

### **1.8 Honor confidentiality.**

The principle of honesty extends to issues of confidentiality of information whenever one has made an explicit promise to honor confidentiality or, implicitly, when private information not directly related to the performance of one's duties becomes available. The ethical concern is to respect all obligations of confidentiality to employers, clients, and users unless discharged from such obligations by requirements of the law or other principles of this Code.

# Ethics in Computer Science

by

J. Barry DeRoos

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## Introduction

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Computers are one of the core technologies for our times. They are the new paradigm, the new "common sense." In the comparatively short space of forty years, computers have become central to the operations of industrial societies. Without computers and computer networks, much of manufacturing, industry, commerce, transport and distribution, government, the military, health services, education, and research would simply grind to a halt[1]. The academic discipline of computer science has paralleled the increased computer usage with rapid growth and continuous change in its brief existence. The field of computer science often opens possibilities for applications that have not been possible before and professionals in this area develop the programs and the uses made of them.

The ethical behavior of a person grows out of his/her belief system and as an instructor of computer science, I can help focus this behavior with respect to computer science. "Ethics " has been defined as the code or the set of principles by which people live. It is what a person considers to be right and what is considered to be wrong. When people make ethical judgements, they are making perspective or normative statements about what ought to be done, not descriptive statements about what is being done[3].

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## Ethics and Computer Science

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In today's world computer professionals often get mixed ethical messages from teachers, managers and even leading researchers in the computer science field. Many of the ethical questions seem to revolve around ownership of intellectual property and the copying and unauthorized use of software. The messages vary from "Don't copy that floppy" , to "make a copy of that software if you need to use it". Some of the statements are based upon the principle of "maximizing profit and minimizing costs". Software is a growing portion of the company budget and an effective way of minimizing this expense is to copy software. Since one can purchase a single copy of the software and make copies of it for only the cost of the disk medium, it is spectacularly cost effective with minimal chances of getting caught[4]. The piracy of software is not a trivial issue because it effects large corporations, small business, staff and students. The apid increase in the

capabilities of microcomputers and the availability of useful software has greatly expanded the possible uses of the microcomputer. This has increased the productivity of users and offices but there have been some rather serious side-effects. One of the side effects is the common practice of "pirating" software that is neither site licensed nor in the public domain.

Ken Walsh of the U.S. Software Publishers Association said,

*"Industry's loss on a global bases is staggering." The unauthorized copying of computer programs by American businesses alone deprived software publishers of \$1.6 billion last year, a figure that swells to nearly \$7.5 billion when overseas markets are included.*[5]

The copying of software has other serious effects on the ethical character of the person as outlined in the quote below :

*"Perhaps the greatest cost of software piracy is the effect of such actions on members' appreciation of the need of ethical behavior. Taking the property of another without offering just compensation is stealing. An individual who makes an unauthorized copy of a software package is in fact taking another's property, albeit intellectual instead of physical property. Unfortunately, this is not a widely recognized form of property, as is shown by two recent studies. Vitell and Davis (1990) found software copying to be one of the most acceptable of 27 questionable consumer practices[6], while Solomon & O'Brien(1991) reported over half of the students surveyed admitted making unauthorized copies[7].*

*Such an attitude may lead to feelings that other forms of "victimless" stealing also are acceptable. Similarly, pirating software is an "economic short-cut" in that a good is acquired without cost to the user or apparent harm to the original owner. If the organization's culture condones this practice, then other such "harmless short-cuts" also may be taken, At what point is the line to be drawn between ethical and unethical behavior."*[8]

The piracy of software according to these authors produces an ethical softness toward other unethical behavior. A recent publication by Strickwerda and Ross suggests that piracy of software is an area that many individuals and corporations have decided that the usual rules against stealing of property can be ignored.

*"Some people do not care about doing the morally correct thing in any area of life. These people are not our concern. However, other people who would not think of shoplifting a book from a bookstore readily make illegal copies of software. How do people who sleep well at night turn into software thieves by day?"*[9]

This paper suggests that there are two possible reasons for this clearly illegal activity : 1) problems with moral vision and 2) rationalization of the problem. Education and awareness can help people arrive at clearer moral vision on the subject. Since much of personal ethics is learned in childhood, and respecting intellectual property is not something we learned from parents or teachers

while in grade school, this becomes a blind spot in our moral behavior and needs to be addressed first by education and awareness.

Some of the rationalizations that users often make for copying software are illustrated by the following letters to the editor of Time magazine[10].

*"In response to your article on the unauthorized copying of computer programs [Technology, June 13], I would like to note that we will finally nab the "pirates of cyberspace" when software companies stop charging \$500 and more for software packages that consist of little more than a few floppy disks and a soft cover manual or two in a cardboard box. ... Issues such as intellectual property, copyright infringement, and fraud might fall by the wayside if software manufacturers and publishers started charging a fair price for their products. They just might find themselves selling many more copies of their software products to a much bigger marketplace."*

Kent Daniel Bentkowski  
Angola New York

and

*"I have a job in software retail. Like most retail employees, my co-workers and I get employee discounts and benefits. The surprise came when one software publisher offered us a fully packaged product for \$30 that we were retailing for \$450. In other words, the break-even price for the company is \$30; it gets an additional \$200 selling to us, and we in turn make about \$220 retailing it to consumers. Software is so expensive today that it is no wonder people choose to copy programs or buy them bootlegged. When the prices are high, companies deserve losses to pirates."*

Ernesto Gluecksmann  
Silver Spring, Maryland

In these two letters, the writers justify unauthorized software duplication by the rationalization that software companies are over charging customers and that copying the software is a protest over pricing. In fact, it may be just a rationalization to justify themselves. The injustice of the software company somehow then justifies my illegal actions. This type of reasoning sends a mixed message regarding ethics : illegal acts are ok if it is done in protest. "The end justifies the means." However, under some circumstances it might be okay to copy software. It is clear that the piracy of software is an ethical issue in which many people have made the decision that they have sufficient justification for violating the principle of stealing property that is not theirs.

# What is okay to use?

## → Information for your report:

- ↳ Copies of documents you have collected?
- ↳ Diagrams, tables, from other people's work?
- ↳ Short quotations (e.g. a few sentences)?
- ↳ Long quotations (e.g. a few paragraphs/pages)?
- ↳ Photographs or images collected from the web?
- ↳ Photographs of other people that you have taken yourself?
- ↳ Transcripts of interviews, conversations, etc.
- ↳ Summaries of questionnaire data

Okay  
Get permission  
Not okay

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## → Putting Information on the web:

- ↳ Links to material on other sites ("href" links)?
- ↳ Local use of images from other sites ("img" links)?
- ↳ Links to main (home) pages of other sites?
- ↳ Links to content deep inside other sites?
- ↳ Framing (I.e. wrapping your frame around content from other sites)?

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