

GLOBAL
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Ethics for the Information Age

SIXTH EDITION

Michael J. Quinn

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6th edition

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ETHICS

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6th edition
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ETHICS

for the information age

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Preface

Computers and high-speed communication networks are transforming our world. These technologies have brought us many benefits, but they have also raised many social and ethical concerns. My view is that we ought to approach every new technology in a thoughtful manner, considering not just its short-term benefits, but also how its long-term use will affect our lives. A thoughtful response to information technology requires a basic understanding of its history, an awareness of current information-technology-related issues, and a familiarity with ethics. I have written *Ethics for the Information Age* with these ends in mind.

Ethics for the Information Age is suitable for college students at all levels. The only prerequisite is some experience using computers and the Internet. The book is appropriate for a stand-alone “computers and society” or “computer ethics” course offered by a computer science, business, or philosophy department. It can also be used as a supplemental textbook in a technical course that devotes some time to social and ethical issues related to computing.

As students discuss controversial issues related to information technology, they have the opportunity to learn from one other and improve their critical thinking skills. The provocative questions raised at the end of every chapter, together with dozens of in-class exercises, provide many opportunities for students to express their viewpoints. My hope is that they will get better at evaluating complex issues and defending their conclusions with facts, sound values, and rational arguments.

WHAT’S NEW IN THE SIXTH EDITION

The most significant change in the sixth edition is the new emphasis on virtue ethics. I have written a completely new section on virtue ethics that appears in Chapter 2, replacing the description of virtue ethics that formerly appeared in the chapter on professional ethics. In addition, I have included analyses from the perspective of virtue ethics to the case studies appearing in Chapters 3, 5, and 7.

To increase the relevance and value of the “Further Reading and Viewing” sections, I have eliminated the references to scholarly tomes. They have been replaced by lists of recent magazine and newspaper articles, television interviews, documentaries, and other videos available on the Internet. Most of the videos are only a few minutes long and can fuel interesting classroom discussions.

In response to a suggestion from one of the reviewers, I have added a table to Chapter 7 that provides students with practical tips about how to choose good passwords.

The sixth edition references many important recent developments; among them are:

- Edward Snowden’s revelations of longstanding National Security Agency access to telephone metadata, email messages, and live communications;
- the privacy implications of Twitter, Foursquare, Instagram, and other apps gathering information from address books stored on smartphones;
- the controversy surrounding Microsoft’s proposal for digital rights management on the Xbox One;
- the activities of the “hactivist” group Anonymous;
- benefits and harms of tracking the movement of people through their smartphones;
- the debate over the use of drones by police departments;
- retailers using information collected from online sales to differentiate between customers and offer different prices to different people;
- retailers using targeted direct marketing to win new customers;
- the use of “crowdsourcing” by companies to improve products and services;
- coverage of how cell phones are changing lives in developing countries;
- predictive policing based on data mining;
- massive open online courses (MOOCs) and implications for students from different socio-economic groups; and
- the “Internet of Things”—Internet-connected devices that can be controlled remotely.

Finally, I have updated facts and figures throughout the book.

ORGANIZATION OF THE BOOK

The book is divided into ten chapters. Chapter 1 has three objectives: to get the reader thinking about the process of technological change; to present a brief history of computing, networking, and information storage and retrieval; and to provide examples of moral problems brought about by the introduction of information technology.

Chapter 2 is an introduction to ethics. It presents nine different theories of ethical decision-making, weighing the pros and cons of each one. Five of these theories—Kantianism, act utilitarianism, rule utilitarianism, social contract theory, and virtue ethics—are deemed the most appropriate “tools” for analyzing moral problems in the remaining chapters.

Chapters 3–10 discuss a wide variety of issues related to the introduction of information technology into society. I think of these chapters as forming concentric rings around a particular computer user.

Chapter 3 is the innermost ring, dealing with what can happen when people communicate over the Internet using the Web, email, and Twitter. Issues such as the increase in spam, easy access to pornography, cyberbullying, and Internet addiction raise important questions related to quality of life, free speech, and censorship.

The next ring, Chapter 4, deals with the creation and exchange of intellectual property. It discusses intellectual property rights, legal safeguards for intellectual property, the definition of fair use, digital rights management, abuses of peer-to-peer networks, the rise of the open-source movement, and the legitimacy of intellectual property protection for software.

Chapter 5 focuses on information privacy. What is privacy exactly? Is there a natural right to privacy? How do others learn so much about us? The chapter describes the electronic trail that people leave behind when they use a cell phone, make credit card purchases, open a bank account, go to a physician, or apply for a loan.

Chapter 6 focuses on privacy and the US government. Using Daniel Solove's taxonomy of privacy as our organizing principle, we look at how the government has steered between the competing interests of personal privacy and public safety. We consider US legislation to restrict information collection and government surveillance; government regulation of private databases and abuses of large government databases; legislation to reduce the dissemination of information and legislation that has had the opposite effect; and finally government actions to prevent the invasion of privacy as well as invasive government actions. Along the way, we discuss the implications of the USA PATRIOT Act and the debate over the REAL ID Act to establish a de facto national identification card.

Chapter 7 focuses on the vulnerabilities of networked computers. A case study focuses on the release of the Firesheep extension to the Firefox Web browser. A section on malware discusses rootkits, spyware, cross-site scripting, and drive-by downloads. We discuss common Internet-based attacks—phishing, spear-phishing, SQL injection, denial-of-service attacks, and distributed denial-of-service attacks—and how they are used for cyber crime, cyber espionage, and cyber attacks. We conclude with a discussion of the risks associated with online voting.

Computerized system failures have led to lost business, the destruction of property, human suffering, and even death. Chapter 8 describes some notable software system failures, including the story of the Therac-25 radiation therapy system. It also discusses the reliability of computer simulations, the emergence of software engineering as a distinct discipline, and the validity of software warranties.

Chapter 9 is particularly relevant for those readers who plan to take jobs in the computer industry. The chapter presents a professional code related to computing, the Software Engineering Code of Ethics and Professional Practice, followed by an analysis of the code. Several case studies illustrate how to use the Software Engineering Code of Ethics and Professional Practice to evaluate moral problems related to the use of computers. The chapter concludes with an ethical evaluation of whistle-blowing, an extreme example of organizational dissent.

Chapter 10 raises a wide variety of issues related to how information technology has impacted work and wealth. Topics include workplace monitoring, telecommuting, and globalization. Does automation increase unemployment? Is there a “digital divide” separating society into “haves” and “have nots”? Is information technology widening the gap between rich and poor? These are just a few of the important questions the chapter addresses.

<i>Unit</i>	<i>Name</i>	<i>Chapter(s)</i>
SP1	History of computing	1
SP2	Social context of computing	1, 3, 10
SP3	Methods and tools of analysis	2–10
SP4	Professional and ethical responsibilities	9
SP5	Risks and liabilities of computer-based systems	8
SP6	Intellectual property	4
SP7	Privacy and civil liberties	5, 6
SP8	Computer crime	3, 7
SP9	Economic issues in computing	10
SP10	Philosophical frameworks	2

TABLE 1 Mapping between the units of the Social and Professional Issues course in *Computing Curricula 2001* and the chapters of this book.

NOTE TO INSTRUCTORS

In December 2001, a joint task force of the IEEE Computer Society and the Association for Computing Machinery released the final draft of *Computing Curricula 2001* (www.computer.org/education/cc2001/final). The report recommends that every undergraduate computer science degree program incorporate 40 hours of instruction related to social and professional issues related to computing. For those departments that choose to dedicate an entire course to these issues, the report provides a model syllabus for CS 280T, Social and Professional Issues. *Ethics for the Information Age* covers all of the major topics listed in the syllabus. Table 1 shows the mapping between the 10 units of CS 280T and the chapters of this book.

The organization of the book makes it easy to adapt to your particular needs. If your syllabus does not include the history of information technology, you can skip the middle three sections of Chapter 1 and still expose your students to examples motivating the formal study of ethics in Chapter 2. After Chapter 2, you may cover the remaining chapters in any order you choose, because Chapters 3–10 do not depend on one other.

Many departments choose to incorporate discussions of social and ethical issues throughout the undergraduate curriculum. The independence of Chapters 3–10 makes it convenient to use *Ethics for the Information Age* as a supplementary textbook. You can simply assign readings from the chapters most closely related to the course topic.

SUPPLEMENTS

The following supplements are available to qualified instructors on Pearson's Instructor Resource Center. Please contact your local Pearson sales representative or visit www.pearsonglobaleditions.com/Quinn to access this material.

- An instructor's manual provides tips for teaching a course in computer ethics. It also contains answers to all of the review questions.

- A test bank contains more than 300 multiple-choice, fill-in-the-blank, and essay questions that you can use for quizzes, midterms, and final examinations.
- A set of PowerPoint lecture slides outlines the material covered in every chapter.

FEEDBACK

Ethics for the Information Age cites hundreds of sources and includes dozens of ethical analyses. Despite my best efforts and those of many reviewers, the book is bound to contain errors. I appreciate getting comments (both positive and negative), corrections, and suggestions from readers. Please send them to quinnm@seattleu.edu or Michael J. Quinn, Seattle University, College of Science and Engineering, 901 12th Avenue, Seattle, WA 98122.

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We never know how high we are
Till we are called to rise;
And then, if we are true to plan,
Our statures touch the skies.
The heroism we recite
Would be a daily thing
Did not ourselves the cubits warp
For fear to be a king.

—EMILY DICKINSON, *Aspiration*

I dedicate this book to my children: *Shauna, Brandon, and Courtney*.

Know that my love goes with you, wherever your aspirations may lead you.

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CHAPTER

1

Catalysts for Change

A tourist came in from Orbitville,
parked in the air, and said:
The creatures of this star
are made of metal and glass.
Through the transparent parts
you can see their guts.
Their feet are round and roll
on diagrams of long
measuring tapes, dark
with white lines.
They have four eyes.
The two in back are red.
Sometimes you can see a five-eyed
one, with a red eye turning
on the top of his head.
He must be special—
the others respect him
and go slow
when he passes, winding
among them from behind.
They all hiss as they glide,
like inches, down the marked
tapes. Those soft shapes,
shadowy inside
the hard bodies—are they
their guts or their brains?

—MAY SWENSON, "Southbound on the Freeway"¹

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