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. 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 each 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 FIFTH EDITION

The most significant changes in the fifth edition are in the chapters dealing with privacy and computer and network security.

I have completely reorganized the material on privacy, dividing what used to be a single chapter into two more manageable chapters. Chapter 5 begins with a philosophical discussion of privacy, moves on to survey various ways in which people disclose information to private organizations, and then presents secondary uses of data and the opt-in versus opt-out debate. Chapter 6 shows how the executive, legislative, and judicial branches of the U.S. government have responded to the competing demands of protecting individual privacy and protecting the common good.

Chapter 7, “Computer and Network Security,” has been heavily revised. I have deleted the historical section on hackers and phreaks, replacing stories of what happened
in the 1980s with a new section that focuses on twenty-first century hacking incidents and the release of the Firesheep extension to the Firefox Web browser. The section formerly called “Viruses, Worms, and Trojan Horses” has been renamed “Malware,” and it has been expanded to cover rootkits, spyware, adware, cross-site scripting, and drive-by downloads. I have eliminated low-level technical details of how various attacks work, focusing instead on their impact. Later in the chapter, I have added new material that underscores the growing significance of cyber attacks by criminal organizations and politically motivated cyber attacks.

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

• the role of Twitter and Facebook in the Arab Spring uprisings that led to revolutions in Tunisia and Egypt;
• the security holes of Facebook, Twitter, and Amazon.com exposed by Firesheep;
• the privacy controversy surrounding Facebook Tag Suggestions;
• the Netflix Prize and the perils of releasing large “anonymous” data sets of consumer preferences;
• the release of E-ZPass toll records as evidence in criminal prosecutions and civil lawsuits;
• the protests against law enforcement agencies obtaining six-month-old email messages without a search warrant;
• the invasion of privacy concerns expressed after the introduction of advanced imaging technology scanners at airport security checkpoints;
• organized crime moving into the malicious code industry; and
• politically motivated cyber attacks.

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 eight different theories of ethical decision-making, weighing the pros and cons of each one. Four of these theories—Kantianism, act utilitarianism, rule utilitarianism, and social contract theory—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 U.S. government. Using Daniel Solove’s taxonomy of privacy as our organizing principle, we look at how the government has steered a middle path between the competing interests of personal privacy and public safety. We consider U.S. 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 new ethical case study focuses on the release of the Firesheep extension to the Firefox Web browser. The malware section has been heavily revised and now discusses rootkits, spyware, cross-site scripting, and drive-by downloads. A new section, “Cyber Crime and Cyber Attacks,” describes how criminal organizations are exploiting human, network, and computer vulnerabilities for monetary gain, as well as how the Internet has become a new battlefield. 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 and an introduction to virtue ethics. Several case studies illustrate how to use virtue ethics in conjunction with 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,
Table 1  Mapping between the units of the Social and Professional Issues course in Computing Curricula 2001 and the chapters in this book.

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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.

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 each 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.pearsonhighered.com/educator 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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