

The Handbook of Information and Computer Ethics



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THE HANDBOOK OF INFORMATION AND COMPUTER ETHICS

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**THE HANDBOOK
OF INFORMATION
AND COMPUTER ETHICS**

For my wife, Maria Elias Sotirhos, and my nieces, Angela and Maria Katinas

KEH

In memory of my mother-in-law, Mary Abate

HTT

FOREWORD

The publication of *The Handbook of Information and Computer Ethics* signifies a milestone in the field of computer ethics. The field began to emerge as a scholarly field in the late 1970s and early 1980s. Joseph Weizenbaum's *Computer Power and Human Reason* (1976) was the first extended work to draw attention to the potentially deep social implications of the new technology. During this period, privacy had been subject to a number of major studies, including Alan Westin and Michael Baker's *Data Banks in a Free Society* (1972). The first works by philosophers began to appear in the 1980s, and in 1985 Terrell Bynum published a special issue of *Metaphilosophy* pulling together these first works and making them more available to the philosophical community. That year, 1985, was also the year in which my own *Computer Ethics* was first published.

Perhaps it is an understatement to say that in the twenty-plus years since the appearance of these first works, the field of computer ethics has flourished enormously. Of course, the development of the field has gone hand-in-hand with the development of computer and information technology. In one of the seminal articles in the field, Jim Moor identifies malleability as a key feature of computers; that malleability has meant that computer and information technology has permeated almost every domain of human activity. And, of course, wherever the technology goes, ethical issues can be found. While the flourishing of the field of computer ethics is to be celebrated, growth inevitably means pressure to split the whole into parts. The topics that need to be addressed continue to expand, and perspectives from a wide range of disciplines are relevant. Thus, there is pressure for the field to become splintered into subfields (for example, with a distinction between computer ethics and information ethics); for scholars to become specialists in one subfield (for example, to choose to become an expert in privacy or intellectual property or professional ethics); or to have subfields merged into already existing fields such as media studies, business ethics, information sciences, etc.

In this context, the publication of *The Handbook of Information and Computer Ethics* is particularly important because it aims to keep the field whole. It is intended to provide an overview of the issues and controversies in a field that has become increasingly unwieldy. As a handbook, the volume defines the field as a whole; it identifies foundational issues, provides theoretical perspectives, and includes analyses of a range of applied and practical issues. The volume does this through chapters by individuals who have been working in the field from the

beginning, as well as works by scholars who have come to the field more recently. For this reason, I applaud the efforts of Kenneth Himma and Herman Tavani and welcome the publication of *The Handbook of Information and Computer Ethics*.

DEBORAH G. JOHNSON

PREFACE

In the last 10 years, information and computer ethics has emerged as an important area of philosophical and social theorizing, combining conceptual, metaethical, normative, and applied elements. Interest in the area has increased dramatically in computer science departments, philosophy departments, communications departments, business schools, information and library schools, and law schools. Information ethics has become one of the most important areas of applied philosophy in terms of professional, student, and popular interest. Many of the most pressing new ethical issues we face have arisen in connection with the use and development of new information technologies. For example, debates about the ethics of online music file sharing have led academics and ordinary citizens to reconsider the arguments for the legitimacy of intellectual property protection. New developments in information technology threaten privacy in ways that could not have been imagined 50 years ago, raising new ethical issues about the rights to privacy and anonymity. The growing dependence of large-scale economies on the Internet creates new vulnerabilities that can be exploited by hackers, cybercriminals, and terrorists, raising novel ethical issues about computer intrusions and security.

The Handbook of Information and Computer Ethics responds to this growing professional interest in information ethics with 27 chapters that address both traditional and current issues in information and computer ethics research. Each chapter, written by one or more of the most influential information ethicists, explains and evaluates the most important positions and arguments on the respective issues. As a result, the *Handbook* reader will be able to come away from each chapter with an understanding of the major positions and arguments, their strengths and weaknesses, and the author's original take on the issue. In addition, each chapter not only contains useful summaries of the most important research on the topic but also makes an important new contribution to the literature, and ends with a bibliography that identifies the most important books and articles on the topic.

Because a number of very good anthologies on information and computer ethics already exist, one might ask: Why another book of readings on ethical aspects of information and computer technology? One justification for the book is that, as noted above, each chapter in the present volume is written in a style that conforms to the objectives of a handbook and thus provides the conceptual background that is often not found in papers comprising other volumes. Consider that many papers included in those volumes are compiled from disparate sources and, thus, can reflect various styles and diverse objectives. With one exception, every chapter in this volume is an original piece that was written specifically for the *Handbook*. As such, each paper provides an

accessible but sophisticated overview of the most important positions and supporting arguments and objections, along with the author's state-of-the-art take on these positions, arguments, and objections.

Another justification for this book is that existing anthologies tend to be narrower in scope than *The Handbook of Information and Computer Ethics*. For example, many anthologies cover only a limited set of topics that affect one or more subfields of information ethics; as a result, these works often exclude some of the controversies and issues that arise in information ethics as a broader field of inquiry. Consider that some anthologies have focused on Internet- or cyber-specific issues involving information ethics,¹ while others have centered mainly on professional ethics issues affecting responsibility.² Other volumes are dedicated to information ethics concerns affecting specific topical areas such as privacy, security, and property.³ Still other anthologies have focused on ethical aspects of information technology that converge with ethics-related concerns affecting medicine and genetics/genomics research.⁴ And other anthologies are dedicated to the examination of ethical issues in information technology that intersect either with disciplines, such as philosophy, or with new or emerging fields, such as nanotechnology.⁵ So even though there is no shortage of anthologies that examine ethical issues centering on these, and related, ethical aspects of information technology, none addresses the breadth of topics covered in the present handbook.

The *Handbook* is organized into six main parts, which cover a wide range of topics—i.e., from foundational concepts and methodological approaches in information ethics (at the theoretical level) to specific problem areas involving applied or practical ethical issues.

At the theoretical level, conceptual frameworks underlying topical areas such as intellectual property, privacy, and security are examined. These frameworks provide *Handbook* readers with some conceptual tools needed to analyze more systematically the kinds of issues examined in the chapters comprising the remaining sections of the book. At the practical level, a number of contemporary controversies ranging from professional-ethical issues to issues of responsibility, regulation, and access are examined. For example, these chapters examine controversies affecting open-source software, medical informatics and genetic research, cyber-conflict, risk assessment, the digital divide, information overload, e-mail spam, online file sharing, plagiarism, censorship and free speech, and so forth. Thus, *Handbook* readers will gain an

¹See Langford, D. (Ed.). *Internet Ethics*. Macmillan, 2000; Baird, R., Reagan, R., and Ramsower, S., (Eds.) *Cyberethics*. Prometheus, 2000; Spinello, R. and Tavani, H. (Eds.). *Readings in CyberEthics*, 2nd ed. Jones and Bartlett, 2004.

²See Bynum, T. and Rogerson, S. (Eds.). *Computer Ethics and Professional Responsibility*. Blackwell, 2004.

³See Moore, A. (Ed.). *Information Ethics: Privacy, Property, and Power*. University of Washington Press, 2005; Himma, K. (Ed.). *Internet Security: Hacking, Counter Hacking, and Society*. Jones and Bartlett, 2007.

⁴See Goodman, K. (Ed.). *Ethics, Computing, and Medicine*. Cambridge, 1998; Tavani, H. (Ed.). *Ethics, Computing, and Genomics*. Jones and Bartlett, 2006.

⁵See Moor, J. and Bynum, T. (Eds.). *Cyberphilosophy*. Blackwell, 2002; Allhoff, F., Lin, P., Moor, J. and Weckert, J. (Eds.). *Nanoethics*. Wiley, 2007.

understanding of both the general frameworks and specific issues that define the fields of information and computer ethics.

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The editors are especially grateful to the contributing authors, without whom this volume would not exist. The contributors' willingness to revise drafts of their papers to comply with the specific objectives of this handbook is greatly appreciated. We also appreciate the extraordinary patience, as well as the ongoing cooperation and support, the contributors displayed throughout the long, and sometimes tedious, process required to complete this book.

We are also grateful to the editorial staff at Wiley, especially to Paul Petralia, Anastasia Wasko, and Whitney Lesch, for managing to keep the book on a reasonable schedule, despite some of the obstacles that we encountered along the way.

Finally, we wish to thank our spouses, and our families, for their unwavering support throughout this project. To them, we dedicate this book.

K. E. H.

H. T. T.

August, 2007

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INTRODUCTION

KENNETH EINAR HIMMA and HERMAN T. TAVANI

As noted in the Preface to this volume, *The Handbook of Information and Computer Ethics* covers a wide range of topics and issues. The 27 chapters that comprise this work are organized into six main parts: I. Foundational Issues and Methodological Frameworks; II. Theoretical Issues Affecting Property, Privacy, Anonymity, and Security; III. Professional Issues and the Information-Related Professions; IV. Responsibility Issues and Risk Assessment; V. Regulatory Issues and Challenges; and VI. Access and Equity Issues.

I FOUNDATIONAL ISSUES AND METHODOLOGICAL FRAMEWORKS

Part I, comprising four chapters, opens with Luciano Floridi's examination of some key foundational concepts in information ethics. Floridi points out that the expression "information ethics," introduced in the 1980s, was originally used as a general label to discuss issues regarding information (or data) confidentiality, reliability, quality, and usage. He also notes that "information ethics" has since come to mean different things to different researchers working in a variety of disciplines, including computer ethics, business ethics, medical ethics, computer science, the philosophy of information, and library and information science. Floridi is perhaps best known among computer ethicists for his influential methodological (and metaethical) framework, which he calls *Information Ethics* or *IE*. He contrasts his framework with traditional views that have tended to view IE as either an "ethics of informational resources," an "ethics of informational products," or an "ethics of the informational environment." Floridi argues that his alternative view of IE, as a "macroethics," is superior to the various microethical analyses of IE that have been suggested.

Floridi's discussion of foundational issues in IE is followed by Terrell Ward Bynum's chapter, "Milestones in the History of Information Ethics." Bynum is generally considered to be one of the "pioneers" in computer ethics, helping to establish the field as an independent area of applied ethics in the 1980s. In Chapter 2, Bynum argues that the origin of computer and information ethics can be traced to the work of philosopher/scientist Norbert Wiener, who, during World War II, worked with a group of scientists and engineers on the invention of digital computers and radar. His chapter begins with a discussion of Wiener's "powerful foundation" for information

and computer ethics, and then it describes a number of additional “milestones” in the history of what Bynum describes as a “new and vital branch of ethics.”

Next, Jeroen van den Hoven examines some methodological issues in his chapter, “Moral Methodology and Information Technology.” One question that has been considered by some theoreticians in the fields of information and computer ethics is whether a new and distinct methodology is needed to handle the kinds of ethical issues that have been generated. Van den Hoven suggests that we need a methodology that is “different from what we have seen thus far in applied ethics,” but which does not call for “cataclysmic re-conceptualizations.” He begins with an overview of some of the main methodological positions in applied ethics that are relevant for computer ethics, before sketching out his proposed method that aims at making moral values a part of technological design in the early stages of its development. This method assumes, as van den Hoven notes, that “human values, norms, moral considerations can be imparted to the things we make and use (technical artefacts, policy, laws and regulation, institutions, incentive structures, plans).”

Part I closes with Batya Friedman, Peter Kahn, and Alan Borning’s chapter, “Value Sensitive Design and Information Systems.” The authors note that *value sensitive design* (VSD) is a theoretically grounded approach to the design of technology that accounts for human values in a “principled and comprehensive manner throughout the design process.” It also includes a tripartite methodology, consisting of conceptual, empirical, and technical investigations. In explicating VSD, Friedman, Kahn, and Borning consider three case studies: one concerning information and control of web browser cookies (implicating the value of informed consent); a second study concerning using high-definition plasma displays in an office environment to provide a “window to the outside world” (implicating the values of physical and psychological well-being and privacy in public spaces); and a third study concerning an integrated land use, transportation, and environmental simulation system to support public deliberation and debate on major land use and transportation decisions (implicating the values of fairness, accountability, and support for the democratic process). In the concluding section of their chapter, the authors offer some practical suggestions for how to engage in VSD.

II THEORETICAL ISSUES AFFECTING PROPERTY, PRIVACY, ANONYMITY, AND SECURITY

Part II comprises four chapters that examine conceptual and theoretical frameworks in information ethics. Unlike the chapters in Part I, however, they examine some topic- or theme-specific frameworks that underlie many of the practical issues considered in the remaining parts of the Handbook. Specifically, the chapters in Part II examine theoretical and conceptual aspects of intellectual property, informational privacy, online anonymity, and cyber security. In the opening chapter, Adam Moore discusses three different kinds of justifications for intellectual property (IP), also noting that we need to be careful not to confuse moral claims involving IP with legal ones. His chapter begins with a brief sketch of Anglo-American and Continental systems of IP that