ISLAMIC COMPUTER ETHICS VIA THE ACM COMPUTER ETHICS

Mansoor Al-A'ali And Hasan Al-Hazmi

Department of Computer Science, College of Information Technology, University of Bahrain, PO Box 32038, Kingdom of Bahrain.
mansoor.alaali@gmail.com , malaali@itc.uob.bh , alaalim1@batelco.com.bh

ABSTRACT

The ethics of the adoption of Information Technology by Muslims must be researched in order to increase prosperity and to stop many unethical practices such as software piracy. Ethics amongst IT professionals and the general public such as the sale of software are but a few issues which need to be researched. This research examines the computer ethical principles presented in the ACM Code of Conduct from an Islamic point of view through studying the relevant verses of the Holy Quran and Prophet Mohammed (pbuh) Hadiths. We used the ACM code of conduct as a base to develop a **Computer Islamic Code of Ethics** *to be used by IT personnel and institutions.*

Keywords: *Ethics, IT Ethics, Islamic Ethics, Islamic computer Ethics.*

1. INTRODUCTION

Islam is a religion based upon the surrender to God who is one. The very name of the religion, al-Islam in Arabic, means at once submission and peace, for it is in submitting to God's Will that human beings gain peace in their lives in this world and in the hereafter. The message of Islam concerns God, who in Arabic is called Allah, and it addresses itself to humanity's most profound nature. It concerns men and women as God created them--not as fallen beings. Islam therefore considers itself to be not an innovation but a reassertion of the universal truth of all revelation, which is God's Oneness.

Islam is known for being a comprehensive religion, which can be applied in all fields, and its ethical system is considered as one of the major ethical systems in various religions. Due to the importance of establishing an ethical system in the field of IT especially at our present time as a result of increased ethical problems, several specialist organizations have prepared codes of ethics to be complied by members of those organizations. This is what ACM and IEEE have done in accordance with the rules, systems and opinions of experts of those organizations.

In the last two decades, the information technology has been reshaping how the world communicated and received information. evidence of the eagerness on the part of some Muslims to embrace such technology, has been the proliferation of Islamic sites on the Internet, some of which are devoted to Islamic education and propagation, while others being more of a commercial or entertainment nature.

In their paper about IT and the Quran, Norazlina Zainul etal [15] argue the adoption of Quranic teaching in making the use of ecommerce a more beneficial process.. They argue the question: what is the relationship between IT and Islam? The Quran [1] is a book of guidance, which contained general principles applicable to all times and places. The Quran contained principles and guidance pertaining to all spheres of lives, including the domain of IT (by analogy).

The importance of seeking both the divine and worldly knowledge in Islam is stressed since the first revelation. As stated in the Quran: ''Read in the name of your Lord and Cherisher, Who created- Created man out on a clot of congealed blood'' (96:1–2).

Throughout this research, the ACM code of ethics is evaluated from the Islamic viewpoint and an Islamic code of ethics for IT is also prepared for distribution and implementation in fieldwork and IT personnel dealings. Having reviewed studies in this field and having searched related websites, we have not found any studies of an Islamic code of ethics for IT.

This research can be considered to be the first of its kind to examine IT ethics from an Islamic viewpoint and to prepare an Islamic code of ethics for IT personnel and how to distribute and implement it. This research also focuses on evaluating the ACM code of ethics in IT being established by ACM.

2. INTERNATIONALCOMPUTER SOCIETIES AND ETHICS.

ACM[1], the Association for Computing Machinery, is a major force in advancing the skills of information technology professionals and students worldwide. ACM has the industry's leading Portal to Computing Literature, authoritative publications and pioneering conferences, providing leadership for the 21st century. The essential aim is to minimize negative consequences of computing systems, including threats to health and safety[2].

2.1 ACM: CODE OF ETHICS

An essential aim of computing professionals is to minimize negative consequences of computing systems, including threats to health and safety. Quality professional work, especially in the computing profession, depends on professional reviewing and

---

[1]. https://campus.acm.org/public/clientfunctions/acmorg.cfm
[2] - http://campus.acm.org/public/search/results.cfm

critiquing computing professionals have a responsibility to share technical knowledge with the public by encouraging the understanding of computing, including the impacts of computer systems and their limitations.

2.2 THE COMPUTER SOCIETY[3]

It has with nearly 100,000 members; the IEEE Computer Society is the world's leading organization of computer professionals. Founded in 1946, it is the largest of the 37 societies of the Institute of Electrical and Electronics Engineers (IEEE). It has a lot of ethics codes in various fields one of them is:

2.3 SOFTWARE ENGINEERING CODE OF ETHICS AND PROFESSIONAL PRACTICE

The Code contains eight Principles related to the behavior of and decisions made by professional software engineers, including practitioners, educators, managers, supervisors and policy makers, as well as trainees and students of the profession. The Principles identify the ethically responsible relationships in which individuals, groups, and organizations participate and the primary obligations within these relationships. The Clauses of each Principle are illustrations of some of the obligations included in these relationships. These obligations are founded in the software engineer's humanity, in special care owed to people affected by the work.

3. ACM CODE OF ETHICS FROM AN ISLAMIC VIEW

In this section we consider selected parts of the ACM code of ethics and relate them to Quranic verses and Hadiths.

3.1 GENERAL MORAL IMPERATIVES.
As an ACM member I will ....

Contribute to society and human well-being.

{وَلاَ تُفْسِدُواْ فِي ٱلأَرْضِ بَعْدَ إِصْلاَحِهَا وَٱدْعُوهُ خَوْفاً وَطَمَعاً إِنَّ رَحْمَةَ ٱللَّهِ قَرِيبٌ مِّنَ ٱلْمُحْسِنِينَ}[4]

O Do not mischief on the earth, after it hath been set in order, but call on him with fear and longing (in your hearts): for the mercy of Allah is (always) near to those who do good[5]

Well-being mentioned in the ACM code of conduct can be clearly associated with the Quranic verse warning its followers not to "mischief" on the earth's resources.

Avoid harm to others.

{وَلاَ تَبْخَسُواْ ٱلنَّاسَ أَشْيَاءَهُمْ وَلاَ تَعْثَوْاْ فِي ٱلأَرْضِ مُفْسِدِينَ}[6]

O And withhold not things justly due to men, nor do evil in the land, working mischief[7]

"Harm" and "Evil" mentioned in the code and Qur'an respectively go hand in hand.

Be honest and trustworthy.

{يَـٰأَيُّهَا ٱلَّذِينَ آمَنُواْ ٱتَّقُواْ ٱللَّهَ وَكُونُواْ مَعَ ٱلصَّادِقِينَ}[8]

O ye who believe! Fear Allah and be with those who are truthful[9].

{قَالَ ٱللَّهُ هَـٰذَا يَوْمُ يَنفَعُ ٱلصَّادِقِينَ صِدْقُهُمْ لَهُمْ جَنَّاتٌ تَجْرِي مِن تَحْتِهَا ٱلأَنْهَارُ خَالِدِينَ فِيهَا أَبَداً رَّضِيَ ٱللَّهُ عَنْهُمْ وَرَضُواْ عَنْهُ ذَلِكَ ٱلْفَوْزُ ٱلْعَظِيمُ}[10]*

O Allah will say; This is a day on which the truthful will profit from their truth: theirs are gardens, with rivers flowing beneath, -Their eternal home: Allah well-Pleased with them, and they with Allah: that is the mighty triumph (the fulfillment of all desires).[11].

Both the ACM code and the Holy Quran urge their readers and followers towards truth and honesty.

Be fair and take action not to discriminate.

{يَا أَيُّهَا ٱلَّذِينَ آمَنُواْ كُونُواْ قَوَّامِينَ للَّهِ شُهَدَاءَ بِٱلْقِسْطِ وَلاَ يَجْرِمَنَّكُمْ شَنَآنُ قَوْمٍ عَلَى أَلاَّ تَعْدِلُواْ ٱعْدِلُواْ هُوَ أَقْرَبُ لِلتَّقْوَىٰ وَٱتَّقُواْ ٱللَّهَ إِنَّ ٱللَّهَ خَبِيرٌ بِمَا تَعْمَلُونَ}[12]*

O ye who believe! stand out firmly for Allah, as witnesses to fair dealing, and let not the hatred of others to you make you swerve to wrong and depart from justice. Be just: that is next to piety: and fear Allah. For Allah is well-Acquainted with all that ye do.[13]

{يَأَيُّهَا ٱلَّذِينَ آمَنُواْ لاَ يَسْخَرْ قَوْمٌ مِّن قَوْمٍ عَسَىٰ أَن يَكُونُواْ خَيْراً مِّنْهُمْ وَلاَ نِسَآءٌ مِّن نِّسَآءٍ عَسَىٰ أَن يَكُنَّ خَيْراً مِّنْهُنَّ وَلاَ تَلْمِزُواْ أَنفُسَكُمْ وَلاَ تَنَابَزُواْ بِٱلأَلْقَابِ بِئْسَ ٱلاسْمُ ٱلْفُسُوقُ بَعْدَ ٱلإَيمَانِ وَمَن لَّمْ يَتُبْ فَأُوْلَئِكَ هُمُ ٱلظَّالِمُونَ}[14]*

O you who believe! Let not a group scoff at another group, it may be that the latter are better than the former. Nor let (some) women scoff at other women, it may be that the latter are better than the former. Nor defame one another, nor insult one another by nicknames. How bad is it, to insult one's brother after having Faith (i.e. to call your Muslim brother (a faithful believer) as: O sinner, or O wicked, etc.). And whosoever does not repent, then such are indeed Zâlimûn (wrongdoers, etc.)[15]

Justice and fairness in dealings of concerned parties is a requirement in addition to avoiding prejudice towards others.

Honor property rights including copyrights and patent.

{يَا أَيُّهَا ٱلَّذِينَ آمَنُواْ لاَ تَأْكُلُواْ أَمْوَالَكُمْ بَيْنَكُمْ بِٱلْبَاطِلِ إِلاَّ أَن تَكُونَ تِجَارَةً عَن تَرَاضٍ مِّنْكُمْ وَلاَ تَقْتُلُواْ أَنفُسَكُمْ إِنَّ ٱللَّهَ كَانَ بِكُمْ رَحِيماً}[16]*

O you who believe! Eat not up your property among yourselves unjustly except it be a trade amongst you, by

---

[3] - http://www.computer.org/csinfo

[4] - The Holy Qur'an, Surah 7, Ayah56.

[5] - English meaning Translation, Abdullah yusuf 7/56.

[6] - The Holy Qur'an, Surah 26, Ayah183.

[7] - English meaning Translation, Abdullah yusuf26/183.

[8] - The Holy Qur'an, Surah 13, Ayah119

[9] - English meaning Translation, Abdullah yusuf13/119

[10] -The Holy Qur'an, Surah 47, Ayah119

[11] - English meaning Translation, Abdullah yusuf47/119.

[12] - The Holy Qur'an, Surah 5, Ayah 8

[13] - English meaning Translation, Abdullah yusuf.

[14] - The Holy Qur'an, Surah 49, Ayah 11.

[15] -English Meaning Translation, Mohammad Hassan Khan49/11.

[16] - The Holy Qur'an, Surah 4, Ayah 29.

mutual consent. And do not kill yourselves (nor kill one another). Surely, Allâh is Most Merciful to you.[17]

Again, both sources urge their followers to acknowledge and recognize the intellectual achievements of others.

Both the ACM code of ethics and Islam advocate the acknowledgement of other people's property and rights, being either tangible or intellectual.

Give proper credit for intellectual property.

{يَا أَيُّهَا ٱلَّذِينَ آمَنُواْ لاَ تَأْكُلُواْ أَمْوَالَكُم بَيْنَكُمْ بِٱلْبَاطِلِ إِلاَّ أَن تَكُونَ تِجَارَةً عَن تَرَاضٍ مَّنْكُمْ وَلاَ تَقْتُلُواْ أَنْفُسَكُمْ إِنَّ ٱللَّهَ كَانَ بِكُمْ رَحِيماً}[18]

O you who believe! Eat not up your property among yourselves unjustly except it be a trade amongst you, by mutual consent. And do not kill yourselves (nor kill one another). Surely, Allâh is Most Merciful to you.[19]

Again, both sources urge their followers to acknowledge and recognize the intellectual achievements of others.

Respect the privacy of others.

{يٰأَيُّهَا ٱلَّذِينَ آمَنُواْ ٱجْتَنِبُواْ كَثِيراً مِّنَ ٱلظَّنِّ إِنَّ بَعْضَ ٱلظَّنِّ إِثْمٌ وَلاَ تَجَسَّسُواْ وَلاَ يَغْتَب بَّعْضُكُم بَعْضاً أَيُحِبُّ أَحَدُكُمْ أَن يَأْكُلَ لَحْمَ أَخِيهِ مَيْتاً فَكَرِهْتُمُوهُ وَٱتَّقُواْ ٱللَّهَ إِنَّ ٱللَّهَ تَوَّابٌ رَّحِيمٌ}[20]

O ye who believe! avoid suspicion as much (as possible): for suspicion in some cases is a sin: and spy not on each other, nor speak ill of each other behind their backs. Would any of you like to eat the flesh of his dead brother? Nnay, ye would abhor it.. But fear Allah: for Allah is oft-Returning, most Merciful[21]

Privacy in terms of confidentiality and discretion of other peoples' matters is a requirement of both the code and Islam.

Honor confidentiality.

Here too, both sources urge the acknowledgement of confidentiality.

{يٰأَيُّهَا ٱلَّذِينَ آمَنُواْ ٱجْتَنِبُواْ كَثِيراً مِّنَ ٱلظَّنِّ إِنَّ بَعْضَ ٱلظَّنِّ إِثْمٌ وَلاَ تَجَسَّسُواْ وَلاَ يَغْتَب بَّعْضُكُم بَعْضاً أَيُحِبُّ أَحَدُكُمْ أَن يَأْكُلَ لَحْمَ أَخِيهِ مَيْتاً فَكَرِهْتُمُوهُ وَٱتَّقُواْ ٱللَّهَ إِنَّ ٱللَّهَ تَوَّابٌ رَّحِيمٌ}[22]

O ye who believe! avoid suspicion as much (as possible): for suspicion in some cases is a sin: and spy not on each other, nor speak ill of each other behind their backs. Would any of you like to eat the flesh of his dead brother? Nnay, ye would abhor it.. But fear Allah: for Allah is oft-Returning, most Merciful[23]

3.2 MORE SPECIFIC PROFESSIONAL RESPONSIBILITIES.

As an ACM computing professional I will....
Strive to achieve the highest quality, effectiveness and dignity in both the process and products of professional work.

قال رسول الله صلى الله عليه وآله وسلم (إن الله يحب إذا عمل أحدكم عملا أن يتقنه)[24]

Acquire and maintain professional competence.

{ قُلْ هَلْ يَسْتَوِي ٱلَّذِينَ يَعْلَمُونَ وَٱلَّذِينَ لاَ يَعْلَمُونَ إِنَّمَا يَتَذَكَّرُ أُوْلُو ٱلأَلْبَابِ}[25]

O Is one who worships devoutly during the hours of the night prostrating himself or standing (in adoration), who takes heed of the hereafter, and who places his hope in the mercy of his Lord-(like one who does not) say: Are those equal, those who know and those who do not know" it is those who are endued with understanding that receive admonition.[26]

Know and respect existing laws pertaining to professional work.

{كُلُّ نَفْسٍ بِمَا كَسَبَتْ رَهِينَةٌ}[27]

O Every soul will be (held) in pledge for its deeds[28]

Accept and provide appropriate professional review.

قال رسول الله صلى الله عليه وآله وسلم (إن الله يحب إذا عمل أحدكم عملا أن يتقنه)[29]

Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks.

قال رسول الله صلى الله عليه وسلم (كلكم راع وكلكم مسؤول عن رعيته)[30]

Honor contracts, agreements, and assigned responsibilities.

{وَأَوْفُواْ بِٱلْعَهْدِ إِنَّ ٱلْعَهْدَ كَانَ مَسْؤُولاً}[31]

O And fulfill (every) covenant. Verily, the covenant, will be questioned about.[32]

Access computing and communication resources only when authorized to do so.

{فَإِن لَّمْ تَجِدُواْ فِيهَا أَحَداً فَلاَ تَدْخُلُوهَا حَتَّىٰ يُؤْذَنَ لَكُمْ وَإِن قِيلَ لَكُمُ ٱرْجِعُواْ فَٱرْجِعُواْ هُوَ أَزْكَىٰ لَكُمْ وَٱللَّهُ بِمَا تَعْمَلُونَ عَلِيمٌ}[33]

O If ye find no one in the house, enter not until permission is given to you: if ye are asked to go back, go back: that makes for greater purity for yourselves: and Allah knows well all that ye do.[34]

---

[17] -English Meaning Translation, Mohammad Hassan Khan.4/29.
[18] - The Holy Qur'an, Surah 4, Ayah 29.
[19] -English Meaning Translation, Mohammad Hassan Khan.4/29.
[20] -The Holy Qur'an, Surah 49, Ayah 12.
[21] - English meaning Translation, Abdullah yusuf, 49/12
[22] -The Holy Qur'an, Surah 49, Ayah 12.
[23] - English meaning Translation, Abdullah yusuf, 49/12

[24] - Albukhari reference..
[25] -The Holy Qur'an, Surah 39, Ayah 9.
[26] 26 - English meaning Translation, Abdullah yusuf, 39/9
[27] - The Holy Qur'an , Surah 74,Ayah 38.
[28] - English Meaning Translation, Mohammad Hassan Khan.78/38
[29] - Albukhari reference.
[30] - Albukhari reference.
[31] - The Holy Qur'an , Surah ١٧ ,Ayah 34.
[32] - English Meaning Translation, Mohammad Hassan Khan.17/34
[33] The Holy Qur'an , Surah 24,Ayah 28.
[34] - English meaning Translation, Abdullah yusuf,24/28

4. PROPOSED ISLAMIC CODE OF COMPUTER ETHICS

Principle 1: Public Software Engineers
PUBLIC Software engineers shall act consistently with the public interest. In particular, software engineers shall, as appropriate:

- *Accept full responsibility for their own work and to moderate the interests of the software engineer, the employer, the client and the users with the public good, which goes with Islam millstones and directions.*

- *Islam does approve software that meets the public and personal interests.*

Principle 2: Client and Employer
Software engineers shall act in a manner that is in the best interests of their client and employer, consistent with the public interest. In particular, software engineers shall, as appropriate:

- *Islam does not approve the use of software that is obtained or retained either illegally or unethically except if related to an enemy country.*

- *Keep private any confidential information gained in their professional work, where such confidentiality is consistent with the public interest and consistent with the law.*

Principle 3: Product
Software engineers shall ensure that their products and related modifications meet the highest professional standards possible. In particular, software engineers shall, as appropriate:

- *In Islam the buyers or distributors should be honest with the product in quality and cost.*

- *In IT quality includes accomplish the software on time including the test and training of employees and of course the integrity of data that it had been well documented and satisfying the requirements.*

Principle 4: Judgment
Software engineers shall maintain integrity and independence in their professional judgment.

Principle 5: Management
Software engineering managers and leaders shall subscribe to and promote an ethical approach to the management of software development and maintenance. In particular, those managing or leading software engineers shall, as appropriate:

- *Ensure good management for any project on which they work, including effective procedures for promotion of quality and reduction of risk.*

Principle 6: Profession
Software engineers shall advance the integrity and reputation of the profession consistent with the public interest. In particular, software engineers shall, as appropriate:

- *Help develop an organizational environment favorable to acting ethically.*
- *Promote public knowledge of software engineering.*

Principle 7: Colleagues
Software engineers shall be fair to and supportive of their colleagues. In particular, software engineers shall, as appropriate:

- *Help each other and assist their colleagues in professional development and to give a fair hearing to the opinions, concerns, or complaints of a colleague.*

Principle 8: Self
Software engineers shall participate in lifelong learning regarding the practice of their profession and shall promote an ethical approach to the practice of the profession. In particular, software engineers shall continually endeavor to:

- *Improve their ability to create safe, reliable, and useful quality software at reasonable cost and within a reasonable time.*

- *Improve their knowledge of relevant standards and the law governing the software and related documents on which they work.*

- *Not give unfair treatment to anyone because of any irrelevant prejudices.*

5. PROPOSED METHOD TO APPLY THE PROPOSED ISLAMIC CODE OF COMPUTER ETHICS

1. Establishing the code as part of the organization's policies and procedures manually or as an individual entity for reference by IT personnel

2. Writing the code as items under different articles covering the different areas of IT similar to the items appearing in the ACM code of ethics

3. Publishing copies for IT personnel to be sent along with a memo requiring review and implementation effective immediately

4. Holding IT personnel meeting upon launch of the code for discussion

5. Constant review and amendment of the code by authorized personnel

6. Introduction of the code into higher studies programs at colleges institutions and preferably including it as one of the graduation requirements

7. Establishing a more elaborate code for students bearing in mind the lack of field experience

8. Incorporating research and projects into the course as to familiarize students with real-life situations in the field of IT

6. Conclusion

This paper reviewed the professional code of conduct and ethics as proposed by the ACM from an Islamic point of view. The paper went on to propose an Islamic code of computer ethics based on the ACM code and present a method to implement it. We are currently in the process of further researching this matter in order to identify the right way to implement Islamic teachings into contemporary IT applications.

REFERENCES

[1] "The Holy Quran".

[2] "Albukhari" reference.

[3] Fareed Mustafa Alsalman "Betrayal- causes, symptoms and effects", Dar Twaig, Riyadh 1999.

[4] Wahba Alzahili "Islamic culture and its evidence", Dar Alfikr, 1989.

[5] Husni Adham Jarar "Good influence- Quranic ethics and models", Dar Aldhiya, Jordan 1985.

[6] Abdulatif Mohd Alabd "Ethics in Islam", the Heritage Library, KSA 1988.

[7] Islamic Culture Centre Magazine, Issue 2, Year 1, published by Islamic world connection, 1989.

[8] Muhammad Taqiuddin Al-Hilaliand and Muhammad Muhsin Khan "Translation of the meaning of "THE NOBLE QUR'AN" in the English language, King Fahad Complex For The Holy Qur'an.Madinah.

[9] Abdullah Yusuf Ali "Translation of the meaning of The Holy Qur'an".

[10] Weil, V. "Zeroing in on ethical issues in nanotechnology", *Proceeding of the IEEE*, Vol. 91, 11, Nov. 2003.

[11] Atkinson, W. "New buying tools present different ethical challenges" *Purchasing,* v 132, n 4, 6 March 2003, 27-9

[12] Howles, T. "Fostering the growth of a software quality culture" *SIGCSE Bulletin*, Vol. 35, 2, June 2003.

[13] Ambrogi, R.J. "Top sites: in search of ethics in the internet" *Law Practice Management,* Vol. 29, 2 , March 203.

[14] EDITORIAL "Bio-Medical Research Ethics: an Islamic View" *International Journal of Surgery,* parts I & II, June 2006.

[15] Norazlina Zainul, Fauziah Osman, Siti Hartini Mazlan "Ecommerce from an Islamic Perspective" *Electronic Research And Applications Journal*, 2004, pp 280-293.

[16] Berleur, J., van Weert, T.J. and Munro, R.K., Key issues in IFIP-SIG9.2.2 approaches to ethics of computing. Informatics and the Digital Society. Social, Ethical and Conitive Issues. ,Kluwer Academic Publishers, UA, 2003.

[17] The Holy Qur'an software, Ariss computer Inc.version4, 2002.

[18] Alim Software, ISL Software Corporation, version 6, U.S.A, 2000.

Internet sites

[1] www.libumi.com

[2] www.islamonline.org

[3] www.acm.org

[4] www.computer.org

[5] www.idealibrary.com

Appendices: Some Islamic Glossary

Allâh	The name of The God
Ayat	It is the plural form of ayah. A sign, which leads or directs one to something important. An individual verse in the Qur'an.
Hadith	Sayings of the Prophet.
Mu'min	A person who has deep faith in Allah and is a righteous and obedient servant of His.
Munafiq	A hypocrite, more dangerous and worse than a kafir.
Nasihah	Means sincere good advice.
Taqua	Means charity.
Thawab	Reward of blessing.
Thaliimin	Wrongdoers