

Forming a Christian View of Computer Technology

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1 Introduction

Computer technology has become ubiquitous. In the western world, we are daily dependent on a plethora of embedded computers that surround us. From digital alarm clocks and computerized kitchen appliances, to the myriad of processors that govern the various systems in our cars, our heating and ventilation systems, cell phones, and of course, our desktop computers. We live in a digital age where we communicate with e-mail, instant messaging, and regularly visit distant web sites. Computer technology has found its way into factory floors, offices, classrooms, and churches.

Not only has computer technology become ubiquitous, it changes things. Many thinkers have argued that technology is not neutral, that it is, in fact, “value-laden”. The designers of technological objects embed their personal or corporate values into them. As a result, technological objects are biased towards certain uses, which in turn biases a user to use them in a particular way. Neil Postman argues the non-neutrality of technology as follows:

Embedded in every tool is an ideological bias, a predisposition to construct the world as one thing rather than another, to value one thing over another, to amplify one sense or skill or attitude more loudly than another . . . New technologies alter the structure of our interests: the things we think about. They alter the character of our symbols: the things we think with. And they alter the nature of community: the arena in which thoughts develop (Postman, 1993, p. 13).

The changes brought about by technology elicit a diverse range of responses from people. Some view technology with disdain; such people are labelled as “technophobes” or “neo-luddites”. Yet others are indifferent to technology and just accept these changes as a fact of life. But by far the most common attitude towards technology in our society is one of *trust* in technology.

1.1 Faith in Technology

Francis Bacon gave expression to a justification for technical knowledge when he coined the phrase “Knowledge is Power” (“*Ipsa Scietia Potestas Est*”). The value of knowledge lies in its power to alter one’s circumstances to conform to one’s desires and to the attainment of power. This is a common motivation that drives the pursuit of technical knowledge in our modern world. As a motivation for theorizing and scholarship, Nicholas Wolterstorff calls this motivation the “Baconian justification” (Wolterstorff, 1967, p. 124).

Not only is technical knowledge pursued for power, but there exists a widespread belief that technology will eventually solve all our problems. Many believe that technology will eventually usher in a “new age” of peace and prosperity. The belief in technology as saviour of the human condition is called *technicism*. Egbert Schuurman describes technicism as follows:

... the pretension of humans, as self-declared lords and masters using the scientific-technical method of control, to bend all of reality to their will in order to solve all problems, old and new, and to guarantee increasing material prosperity and progress. (Schuurman, 2003, p. 69)

A “tower-of-Babel” culture replaces God with a reliance on technology. This is a form of idolatry; looking to created things rather than to the creator.

But technicism does not stand alone as an idol in our times, *scientism* holds that human reason can provide complete understanding of man and nature. Scientism has been described by C. Stephen Evans as “the belief that all truth is scientific truth and that the sciences give us our best shot at knowing ‘how things really are’ ” (Evans, 2002, p. 18). Such a view holds that our problems are not due to sin, but rather due to a lack of knowledge. Technicism relies on the achievements of scientism to provide the secrets of nature that can be used to control nature and achieve power (Walsh and Middleton, 1984, p. 133).

Technicism is fed by scientism, but technicism in turn feeds *consumerism*. Consumerism is the notion that people can find happiness through purchasing and consuming material goods. Technology has played a significant part in enabling consumerism to become as widespread as it is in our times. Technology and automation enable products to be produced in large quantities and at a lower cost. Raw materials can be harvested, processed, shipped and packaged at an astonishing rate. Short technology lifecycles driven by Moore’s law and the rapid pace of change mean many of these products are soon discarded in exchange for the latest fads and features. Technology has itself become a product which is used to entice us to continually “upgrade”, “update” and “modernize” as technology marches forward. The disposal of yesterday’s technology also leads to various environmental concerns. Technology further feeds consumerism by providing a means to broadcast a continuous stream of advertising through a variety of different electronic media to lure us into purchasing more. We are literally saturated with advertisements and we are often unaware of the extent to which they steadily make us covet for more.

The combination of scientism, technicism, and consumerism are powerful forces in our culture. These forces unite to form a powerful philosophy that leads its followers to look to

different aspects of the creation for meaning and happiness. As Christians we must discern the “spirits of our age” and seek the proper role and place for technology in our lives.

2 Questions about Faith and Technology

Discerning a Christian view of technology leads to many questions. Christian colleges and universities seek to integrate faith into all areas of learning and scholarship. But exactly how does faith influence the study of computer science and technology? Tertullian, a father of Latin Christian literature, stated “What is there in common between Athens and Jerusalem?”. When it comes to technology, we might well ask “What is there in common between Silicon Valley and Jerusalem?” If faith speaks to technology, what does a Christian perspective of computer technology look like?

Abraham Kuyper wrote about the difference between believers and non-believers and how belief transforms society. Kuyper stated that there are essentially two kinds of people: those transformed by God and everyone else. He continues this reasoning by stating:

... but one is inwardly different from the other, and consequently feels a different content rising from his consciousness; thus they face the cosmos from different points of view, and are impelled by different impulses. And the fact that there are two kinds of people occasions the fact of two kinds of human life and consciousness of life, and of two kinds of science. (Kuyper, 1980, p. 154)

Does the Christian faith result in a “new kind” of computer science? Should we build “Christian computers” or “Christian operating systems”? Should we be making Christian software just as others have formed Christian labour parties and Christian farmers associations? What would a “Christian word processor” look like and what about the possibility of a “Christian Internet”? How does our faith address specific issues in computer science such as personal information, privacy, intellectual property and artificial intelligence? What is distinctive about a Christian view of technology? What role and what shape should technology take in the life of Christians? How should the teaching and study of computer science in a Christian college differ from a secular college? What consequences does our faith have on the training of computer scientists without artificially “spiritualising” the discipline? There are many important questions related to the difference faith makes when it comes to computer technology.

Suppose two programmers set out to write a computer program, one a Christian, and one a non-Christian. Both use the same programming language, the same compiler, the same operating system, and both apply the same software engineering techniques. Can the end user discern the religious convictions of the programmer? What difference does our faith make in our work and our studies in computer technology?

If it is not a “new kind” of computer science, in what ways is it different? Does our faith really affect our study of computer science? Can one’s faith really be genuinely integrated into the discipline without becoming forced or artificial? If faith does make a

difference, how do we begin to seek out the answers? And finally, how can we hope to transform, shape, and influence technology in today's fast-paced, complex world?

One thing is clear: our aim is not to be different just for the sake of being different; any differences that arise in how we approach technology should be as a *consequence* of our beliefs. Nicholas Wolterstorff summarizes this point when he says:

Faithful scholarship will, as a whole, be distinctive scholarship; I have no doubt of that. But difference must be a consequence, not an aim. And if at some point the difference is scarcely large enough to justify calling this segment of scholarship a "different kind of science" - Christian science in contrast with competitors which are non-Christian - why should that, as such, bother us? Again, isn't faithful scholarship enough? Difference is not a condition of fidelity - though, to say it once more, it will often be a consequence. (Wolterstorff, 1989, p. 70)

This naturally leads to the question of whether there are any differences in studying and teaching computer science that should arise as a consequence of our beliefs. If difference is often a consequence of faithfulness, will faithful technology result in different hardware and software than we have now?

3 Towards a Christian View of Computer Technology

How then do we proceed in forming a Christian view of computer science and technology? If you look up "computer" in a Bible concordance you will find no references cited. Instead, the scriptures are to be used like "spectacles" that enable us to view reality aright (Calvin, 1960).

A good place to start is to look at God's general goal for human existence: *shalom*. Shalom means a "universal flourishing, wholeness, and delight a rich state of affairs in which natural needs are satisfied and natural gifts fruitfully employed, all under the arch of God's love. *Shalom is the way things are supposed to be*" (Plantinga, 2002, p. 15). But how do we know how technology is "supposed to be"?

Unfortunately, this can be a difficult task since the Bible does not specifically address all the issues that arise from modern technology. How can the Bible inform us about contemporary issues such as computer technology? A Reformed Christian perspective identifies the main Biblical themes of creation, fall, and redemption as a starting point for shaping a Biblical worldview. These Biblical themes can also shape our worldview when it comes to computer technology (Adams, 2001). It is the job of a Christian scholar in the discipline of computer science to investigate the implications of each of these themes on the study of computer science.

3.1 Creation and Computer Technology

The Christian faith recognizes that God created a world which He called “good”. This theme is expressed well in the *Belgic Confession* where it states:

... the universe is before our eyes like a beautiful book in which all creatures, great and small, are as letters to make us ponder the invisible things of God. (CRC87a, Article 2)

The study of computer science, like any other scientific pursuit, gives us a glimpse into the majesty of our powerful and wise Creator. God built into creation the possibility for computers and technology, and along with other aspects of culture they are part of the latent potential in creation (Wolters, 1985, p. 38).

God created the universe and established laws and norms for the world. These laws and norms have also been discovered for different aspects of computation. To a Christian scholar, the laws of computing are recognized as being part of God’s creation and ought to be explored.

Through the creation story we are also introduced to the *cultural mandate*. In the creation account we read:

God blessed them and said to them, “Be fruitful and increase in number; fill the earth and subdue it. Rule over the fish of the sea and the birds of the air and over every living creature that moves on the ground.” (Genesis 1:28)

At the time of creation, God gave us a job to be stewards of His world. God created the world with laws and resources that could be explored and put to good use to help fulfill this cultural mandate. Unfortunately, this mandate has sometimes been misused to justify exploiting and plundering the world and its resources. We are called to be faithful stewards of the world and care for it and all its creatures. It is the job of a Christian scholar to investigate responsible ways to unfold the latent potential of technology in creation.

In 1984, *Time* magazine ran a story on computer software which gave the following quote:

Put the right kind of software into a computer, and it will do whatever you want it to. There may be limits on what you can do with the machines themselves, but there are no limits on what you can do with software.

The Biblical theme of creation affects ones perception of the contours of computer science. There are limitations which are intrinsic to God’s creation, and it follows that there are limitations to computation. Part of the task of a theoretical computer scientist is to discover the laws of computation and map out the boundaries that form the limits of computation (Adams, 2001). Some of these boundaries that computer scientists explore include the study of non-computability and intractability. There are also many aspects of the discipline which deal with implications of finite computer time and finite storage. On the hardware side,

other researchers are busy exploring the limits of the speed, size, and thermal boundaries of devices and circuits.

Another part of the Christian doctrine of creation is that humans have been created in the image of God (*imago Dei*). This has many implications for the study of artificial intelligence (AI) and the possibility of artificial life and consciousness. The question of artificial life leads to several philosophical questions (Buttazzo, 2001). Some of these questions include:

- Could computer hardware or software replicate the human brain?
- What is the connection between mind and body? Is the soul distinct from the body?
- Can we create machines in our own image? What does it mean to be made in the image of God?
- What does it mean to be human?
- What is personhood? Could a robot ever be recognized as a person?
- What is consciousness? Could a machine ever become self-aware?

Some of the most intriguing philosophical questions that arise in AI are questions surrounding the nature of the human mind. Related to this question is the “Mind-Body Problem” which seeks to understand the relationship between the mind and the body. A Christian scholar will need to investigate the implications of being created in the image of God when exploring the field of AI.

3.2 Technology and the Fall

Unfortunately, the disobedience of humankind led to the fall which has affected all of creation. In the Bible we read that “the whole creation has been groaning as in the pains of childbirth right up to the present time” (Romans 8:22). Since technology is part of the latent potential in creation, it too is affected by sin. The “thorns and thistles” of the fall are readily apparent to anyone who has worked with computers. Sometimes computers fail to boot, sometimes software “goes off into the weeds”, sometimes hard drives crash, sometimes wisps of blue smoke arise from our machines. Sometimes things do not work the way they are supposed to work. Sometimes the way technology is used by fallen people is harmful as is the case with malicious software (viruses, worms etc.) and computer gaming addictions. These are all a result of the fall.

It is also evident that the fall has brought with it many distortions in how technology is used. The effects of the fall are apparent in attitudes which reduce the cultural mandate into a mere “technical mandate” in which the pursuit of technology is made paramount without thought to God or neighbour. In fact, taken to an extreme, this can lead to a “tower-of-Babel” culture where people replace their need for God with a reliance on the possibilities of modern technology. It is the job of the Christian scholar in computer science

to discern technicism in all its forms along with other distortions in the use of computer technology.

3.2.1 Technology as a Result of the Fall?

Is technology a result of the fall? Would a perfect creation need technology? Some suggest that a perfect creation would not need technology. Jacques Ellul describes the state of creation as follows:

No cultivation was necessary, no care to add, no grafting, no labour, no anxiety. Creation spontaneously gave what man needed. (Ellul, 1984, p. 126)

He questions how in a “world where there was no necessity” what possible purpose there would for technique (technology). In conclusion, Ellul says:

Thus, no matter what attitude one takes toward technique, it can only be perceived as a phenomena of the fall; it has nothing to do with the order of creation; it by no means results from the vocation of Adam desired by God. It is necessarily of the situation of the fallen Adam. (Ellul, 1984, p. 135)

This view precludes the need for technology and concludes that technology is only present due to sin. If technology is not part of the order of creation, as Ellul suggests, what possible motivation will Christians have for engaging this important area?

John Howard Yoder has suggested that: “we have no access to the good creation of God” this side of the fall into sin (Yoder, 1972, p. 143). However, one needs to distinguish between *structure* and *direction* (Wolters, 1985, p. 49). God continues to uphold the structures of creation, but sin has corrupted the world and directed things away from God and obedience to His law. If technology is part of the latent potential in creation, it cannot be viewed as a result of the fall. If this is the case, Christians cannot reject technology, but they have a responsibility to develop and direct technology in ways that honour God. A Christian scholar in computer science must articulate the good creational aspects of computing and discern responsible ways for it to be used.

3.3 Redeeming Computer Technology

Despite the extent to which sin has stained technology and its uses, we should not abandon hope. God has not abandoned His creation to despair, but loved the world so much that he sent His one and only son, Jesus Christ. Lewis Smedes writes: “Though it brings grief that the world is as badly broken as it is . . . there is still enough goodness in the world to make it both fixable and worth fixing” (Smedes, 2003, p. 59).

Computer technology, as part of the latent potential in creation, must also be redeemed. The Lordship of Jesus Christ over all of creation, which includes computer technology, was captured well in the familiar quote from Abraham Kuyper who said “There is

not a square inch on the whole plain of human existence over which Christ, who is Lord over all, does not proclaim: ‘This is Mine!’ ”. Paul affirms this when he says Jesus is the “the head over everything” (Ephesians 1:22). Christians are not called to turn away from the world, but to be salt and light in the world. As such, we should be *shapers* of technology. In order to be in a position to shape computer technology, we need to be competent and faithful computer scientists.

Jesus Christ came into the world to redeem His creation. He inaugurated His kingdom on earth and called all believers to be faithful kingdom workers. Engineers and computer scientists have many practical skills and gifts that can be readily employed for kingdom service. These include the harnessing of these tools for immediate practical service in many settings from the office to the mission field. With an awareness that all technology is value-laden, Christians should also strive to redeem technology by being deliberate about embedding good values into their designs. The Christian scholar in computer science should explore normative uses for computer technology which contribute to shalom. The benefits of technology need to be recognized, while at the same time remaining on guard against technicism. In the words of Wolterstorff:

Technology does make possible advance toward shalom; progress in mastery of the world can bring shalom nearer. But the limits of technology must also be acknowledged: technology is entirely incapable of bringing about shalom between ourselves and God, and it is only scarcely capable of bringing about the love of self and neighbour. (Wolterstorff, 1983, p. 71)

3.4 Technology and Eschatology

How one views eschatology has a strong influence on how one views technology. The Bible begins with the creation in Genesis and concludes with the “new creation”. Many see the world as advancing and getting better through technology that someday promises to bring solutions to all of life’s problems. The view that technology and human progress will eventually usher in a new age of peace and prosperity is actually a type of postmillennialism (Berkhof, 1996, p. 717). However, we believe that the healing of the nations can only come with Christ’s return. Only then will we fully realize the end of problems on earth. At the end of time, the earth will not be burned and annihilated, instead the earth will be renewed, and purified (Bavinck, 1996, p. 157). Technology that was misdirected, will also be redeemed and used for good: “They will beat their swords into plowshares and their spears into pruning hooks” (Isaiah 2:4).

Ultimately, creation begins in a garden but ends with a city. Will there be computers in the new earth and if so, what will they be like? These are interesting questions for the Christian scholar to ponder, but ultimately we can only speculate on these things. The Bible tells us that “No eye has seen, no ear has heard, no mind has conceived what God has prepared for those who love him”. (1 Corinthians 2:9) Until then, we work with expectation for the new heaven and the new earth. In the meantime, we should “go into the world and create some imperfect models of the good world to come” (Smedes, 2003, p. 59). We look forward to the day when Christ returns:

*Our hope for a new earth is not tied to what humans can do,
for we believe that one day every challenge to God's rule
and every resistance to His will shall be crushed.
Then His kingdom shall come fully,
and our Lord shall rule forever. (Article 56 CRC87b)*

4 Conclusion

The discipline of computer science is ripe with questions with which the Christian scholar needs to wrestle. Computer technology is part of the latent potential that God placed in creation and that we are called to discover and develop. As a consequence of the fall, there are distortions in the use and place of technology. As Christians, we are called to reject technicism in all its forms, and work to shape technology in ways that answer God's call to look after the earth and to show love to our neighbours. A Christian view of computer technology is summarized well in the words of the contemporary testimony *Our World Belongs to God*:

*Grateful for advances in science and technology,
we make careful use of their products,
on guard against idolatry and harmful research,
and careful to use them in ways that answer
to God's demands to love our neighbour
and to care for the earth and its creatures. (Article 52 CRC87b)*

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