The Next Iteration

Are your processes repeatable? Can you get out the next release without having to rewrite most of the code base?

As an industry, we obsess about answering "yes" to these questions because at one point we could only respond with "no". That "no" carried with it implications of poor stewardship. Reinventing the wheel costs money, writing non-maintainable code costs money. In reality, it often took version 2.0 of a product to wake people up and follow practices that could lead to a "yes" in the future… if they were lucky enough to produce version 2.0 before going bankrupt.

Admittedly, this second release of Dynamic Link followed that pattern. However, one process was repeatable. That was the process of prayer, and prayer was answered with a new set of authors and a complementary conference as well.

This iteration starts with two discussions concerning the "fit" of technology and its "creators." Reverend Jason Wells explains how the evolution of disciplines marks hackers as the new breed of gifted people needed by the Church. Dr. John Hunt explores the symbiotic nature of computing, our world and our faith. Then, two additional articles explore human nature and the cultural impact. Becky Bertram reflects on the time and place for recognition and incentives, and Jon Walz talks about the new dynamics of relationships with Web 2.0 technologies.

The last article recognizes a special event that took place this year: The Dynamic Link 2009 conference. This meeting brought together students from Calvin's Computer Science Department and working professionals, who are professed Christians, to explore the challenges of integrating faith into our craft. This one-day engagement that hosted close to 60 participants was actually four months in the making and was made possible by funds from the Calvin College Lilly Vocation Project, which also provided the seed money for this journal. If after reading it you would like to be part of the next Dynamic Link conference, please let us know by contacting computing@calvin.edu.

Finally, some of the authors have provided personal contact information. We encourage you to contact them with your feedback and share your thoughts about our craft and our faith.

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The Church Needs Hackers

by Reverend Jason Wells

Scripture tells us about the relationship between faith and the craftsperson. Reverend Jason Wells reflects on the same when it comes to hackers.

From its most primitive form, computer science has been shaped by people of faith. The algorithm itself, without which there is no programming, comes from the Muslim scholar al-Khwīrizmī and from Euclid, a Platonist. Since these ancient writers, Christian theology flowered and computer science developed into similar intellectual disciplines. In addition, hackers developed for themselves a keen moral and ethical system that cries out for conversation with Christian moral theology. Computer science and its hackish practitioners can find an unlikely but comfortable and fruitful home in mutual conversation with theologians and practitioners of faith.

Thirteenth-century Franciscan St. Bonaventure dubbed the discipline of theology as "queen of the sciences." His meaning was twofold. First, he meant that "the fear of the Lord is the beginning of knowledge" (Proverbs 1:7). That is, deep reflection on the Creator (theology) leads us necessarily into deep reflection on Creation (science). From theology flow all scientific disciplines. The second meaning was this: science, the deep love for the world, lifts our minds into theology and deep love for its Maker (cf. Psalm 19:1-4 and Luke 10:16).

In Bonaventure's day, theology was the first source and final destination of all science and learning. The first medieval universities laid the foundational trivium (grammar, rhetoric and logic) and the advanced quadrivium (arithmetic, geometry,

music and astronomy). Only after reaching proficiency in these did a student move on to theological inquiry at the Universities. That theology be the queen of sciences was so well-established that, for its first seventy years, Princeton University's chief aim was the theological training of Presbyterian clergy. Today, theology as a discipline has lost this status as the place where all the sciences meet. Princeton University and Princeton Theological Seminary parted from a single institution in 1812.

If theology might have lost its crown over all science, perhaps the discipline of computer science might be able to claim its place as successor. Computer science as a discipline incorporates aspects of a great breadth of knowledge, greater than just about any other discipline. The Association for Computing Machinery's

> # Computer science and its hackish practitioners can find an unlikely but comfortable and fruitful home in mutual conversation with theologians and practitioners of faith.

curriculum recommendation modestly states, "Computer science continues to draw its foundations from a wide variety of disciplines" (ACM 13). The recommendation then details no fewer than fourteen "knowledge areas," namely, Discrete Structures, Human-Computer Interaction, Programming Fundamentals, Graphics and Visual Computing, Algorithms and

Jason Wells

Complexity, Intelligent Systems, Architecture and Organization, Information Management, Operating Systems, Social and Professional Issues, Net-Centric Computing, Software Engineering, Programming Languages, Computational Science.

Embedded in these knowledge areas are, in my estimation, engagement with the disciplines of mathematics, psychology, art and film, ethics and law, sociology, linguistics and business management. Each of these disciplines bears merit of a college degree on their own. Additionally, most engineers also need physics and chemistry training as well as on-demand technical writing skills. This also does not account for domain-specific knowledge such as that required for medical, aerospace or other applications. Given this great breadth of foundational knowledge areas, computer science can in good conscience consider itself a sibling if not a successor to theology, the traditional "queen of the sciences."

Beyond computer science's disciplinary breadth, engineering and theology share Biblical connections. Fred Brooks, in his classic The Mythical Man-Month, writes, "According to the Genesis account, the tower of Babel was man's second major engineering undertaking, after Noah's ark" (Brooks 74). Within its first ten chapters, the Bible tells the story of engineers. The building of the Jerusalem Temple (1 Kings

6-7), its later re-building (Ezra 5), its present spiritual reality (1 Peter 2:5-6) and its future glorification (Revelation 21:9-21) show the coordination of team effort for the high art ("architecture," literally) of construction from detailed plan, down to the details of argumentation among the team and its managers (Ezra 4:1-4). Apart from team effort, Gideon ("hacker," in Hebrew or "someone who makes furniture with an ax," according to Eric S. Raymond's Jargon File) shows us the inspired ingenuity of making a machine (wine press) serve a new purpose (threshing wheat), for which it was not originally designed. Computer science and all engineering are not just theological disciplines, they are Biblical disciplines.

And yet, despite these connections, engineering and theology are disciplines rarely put in relation to one another. Numerous books and articles explore theology's connections to art, literature, music, film, popular culture and even other sciences. From the available literature, theology would seem to belong only to the liberal arts. An informal appeal to Amazon shows returns over nine thousand titles for the search "art and theology." For "music and theology," there are about four thousand results. There are more than twelve thousand under "literature and theology."

However, when searching Amazon for "science and theology," there are many titles (over 20,000) that show initial promise. The first results come from significant authors in the field (like Polkinghorne, Pannenberg and McGrath). After three pages of results, polemic works on controversies around human and cosmic origins start to appear. The remainder of the works are scientific, which is good, but deal with natural sciences rather than engineering and applied sciences.

When it comes to "engineering and theology" as search terms, there are only 913 results and the bulk of them deal with moral questions around genetic engineering. The subject of "computers and theology" returns 801 products, most of which are complete mismatches. From informal, unscientific studies of Amazon and Google searches, there are many places where the overlap of Christian theology and other disciplines are explored. Those overlaps begin with related disciplines like philosophy, psychology and counseling. From there, there is decreasing frequency of overlap into the arts and natural sciences. Vanishing into the distance is engineering and, finally, computer science.

Seeing that there are few writers relating these queens of science, other articles all the more unfortunately dissociate spirituality from technical disciplines. Just before Ash Wednesday, the Roman Catholic

> Although unstated as fear, the distance between technology and Christian practice as well as the distance between the disciplines and writing on computer science and theology remains wide.

Diocese of Modena-Nonantola in Italy encouraged its faithful to make Lenten Fridays text-message free. Similarly, the Diocese of Turin called for a fast from television. In Scientific American's blog coverage of the disciplines, they noted, "So far, no one is directly calling for a Lenten moratorium on Facebook or MySpace...."

Certainly, Scientific American missed my denominational news article, Episcopal Life's "Fasting from Facebook: Modern Lenten discipline reawakens spirit." In the article, several clergy and laypersons spoke of making such a Lenten sacrifice in order to find more time for spiritual disciplines such as Bible reading, prayer and meditation on Christian writings. The assumption behind these calls is these technologies, be it text messages or social media, generally take us away from reflection on the things of God. Note that among this year's calls to put aside new technologies, there are no calls to put aside established and comfortable technologies, such as telephones, radio or printed newspapers, for the sake of growth in Christian faith.

But Christians are well-known for their ambivalent attitude toward new media and new technology. Well-known attitudes of conservative Christians towards television and film predate concerns over the Internet being a distraction from religious pursuits. Galileo reported frustration at his critics who would not even look at his telescope. Victor Hugo's Hunchback of Notre Dame tells the drama of Archdeacon Claude Frollo's anger at the printing press when he shouted, "This [the printed book] will destroy that [the Cathedral]!"

Fear of new technology has been a part of the Christian Church since at least the Reformation. This relationship is deep and worth exploring, but ultimately not the focus of this article. Along with fear of technology comes fear of its creators and users. Conservative Christian worry over television and movies is never far from criticism of Hollywood or a perceived media bias. The Church in the Reformation did not just express anxiety over telescopes and printing presses but met Galileo Galilei and Martin Luther with spiritual force. Although unstated as fear, the distance between technology and Christian practice as well as the distance between the disciplines

and writing on computer science and theology remains wide.

Despite the distance between the two and in recognition of the connections between the two, computer science and theology have many insights to share with one another and these bid them come closer together. In writing the remainder of this article, the problem of naming technology professionals as a group comes up. Few outside full-time research refer to themselves as "computer scientists." Even when we do, the objections raised by Edsgar Dijkstra and, more recently, by Paul Graham, to the suitability of the term "computer science" for the discipline remains. The titles our professionals go by are many: programmers, coders, developers, software engineers. This list captures only a few possibilities and not one quite carries the same connotations as the others. For the remainder of the article, the term "hackers" will stand in for the diversity of people who work in the theory and practice of programming digital machines.

Similarly, the term "Church" is loaded with similar problems. Something here is meant beyond local congregations, broader denominations or world-wide federations. Again, the definition and scope of the word "Church" cannot be undertaken here. The Church in mind here is the community of baptized Christians, of all administrative and theological kinds, first in place its laity and also its clergy. The focus is especially on the Church's pastors, teachers and theologians; those who engage the most in listening and responding to the world outside itself.

Theology and computer science have a natural home together. To put the two in communion together means we ought first consider how Christian teaching might be a source for the practice of hacking. Second, we consider how hackers' gifts find a home in the Church. Finally, when Chris-

tian hackers recognize themselves as part of a communion of saints, we consider the notable computer scientists and hackers who might inspire us in faith, cloud of witnesses that already surrounds us.

The Association for Computing Machinery's computer science curriculum, like many professional curricula, includes attention to ethical issues. Even less savory uses of term "hacker" have particu-

> To open the Word of God for all to Christians and to open source code for hackers are both exercises in the love of neighbor.

lar ethical codes for behavior attached to them. Here one area opens immediately for connection between ethical questions and Christian moral theology. The place of the conscience in both areas can cross-pollinate. Christian hackers could find a place for the moral theologies of Kenneth Kirk or Dietrich Bonhoeffer in reflection and writing on their own professional ethics.

For example, the Free Software Foundation (FSF)'s four freedoms can be understood as an exercise in the Christian mandate to "love your neighbor" (Matthew 22:39). These freedoms are the freedom to (1) run any program for any purpose, (2) study and adapt any program, (3) make copies of any program and (4) share improvements with the wider community. The FSF's call to the openness of source code parallels closely the Reformation call *ad fontes* (literally, "to the source!"), to the Hebrew, Greek and Aramaic texts of the Bible and to the Bible translations in common, accessible languages. Indeed, to

open the Word of God for all to Christians and to open source code for hackers are both exercises in the love of neighbor.

Also, Christian ministers, clerical and lay, both receive instruction on the importance of confidentiality and privacy. From professional ethics, ministers routinely encounter confidentiality issues when counseling: pastoral, pre-marital or otherwise. From a pastoral standpoint, many in our congregations expect a certain amount of privacy, particularly when it comes to financial contributions. As before, hackers know these issues well. The problems of confidentiality, anonymity, privacy and security pervade highly-networked environments. Again, the Christian instruction to "not let your left hand know what your right hand is doing" and "whenever you pray, go into your room and shut the door and pray to your Father who is in secret" (Matthew 6) can inform our sense of professional ethics and network security.

The Church needs hackers. The wide range of skills and talents that hackers have are best understood as spiritual gifts. As such, these gifts serve the Spirit who gave them. Rather than the distant relationship that the Church and hackers appear to share, the relationship can be amicable. That is to say, it could be like the relationship between the Electronic Frontier Foundation (EFF) and our courts. Beyond the activism the EFF is usually known for, they routinely write amicus curiae briefs for court cases as well. Whenever judges find themselves out of touch on technology issues, the EFF writes such a brief to explain and elucidate.

One relationship between the Church and hackers might be like this. Would we as hackers be willing to explain issues around security and privacy, free software of the implications of new technology? Would the Church be willing not only to listen to explanation but also have the humility to ask?

Certainly, the implications of the Church fasting from technology or misunderstanding social networking needs addressing. Rather than leave the Church to sort these things out alone (and slowly), hackers can quickly respond with accurate summaries to teach and enlighten. In this way, the distances might be closed, the dividing walls might be brought down (c.f. Ephesians 2:8, Psalm 18:29) and hackers, already *amici curiae* ("friends of the court") through their work, might also become great *amici ecclesiae* ("friends of the church").

Finally, looking to our forerunners and contemporaries encourages us in this work. There is indeed a great cloud of witnesses currently in the field and hackers of the past who are Christian. For example, Blaise Pascal was Roman Catholic. Gottfried Leibniz was a devout Lutheran who worked for reunion with Roman Catholics. George Boole, Charles Babbage and Alan Turing all were raised and remained in the Church of England. Philosopher of technology Marshall McLuhan converted to Roman Catholicism in early adulthood and frequently referred to his faith in his interviews and writings. Some of these men had eccentric or unorthodox views, but they remained Christian and were forever shaped by Christian thinking and worldviews.

Although, Eric Raymond's Portrait of J. Random Hacker would suggest that among hackers, "conventional faith-holding Christianity is rare though not unknown." Eminent computer scientist Donald Knuth remarks openly on his Lutheranism and even wrote a book applying random algorithms to Biblical study. Other well-known evangelical Christians include Perl designer Larry Wall and Johnny Long. Presently, Long's faith has called him to start Hackers for Charity, a group that joins computer talents with charity needs in the developing world.

Even if Christian faith is rare among hackers, Christian hackers are among a healthy number of technology luminaries. When we let these boundaries blur and let our faith inform our hacking and vice versa, we join their company. Like the rest of our lives, our faith can give shape and transform the way we think of hardware, software and the way it affects others. As these changes happen, theology and computer science regain Bonaventure's crowning as sister queens of the sciences.

The Church, as much as it needs theology, needs computer science; it needs hackers; it needs you.

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Computing and the Cultural Mandate

by John Hunt, Ph.D.

Computing is about algorithms. Computing is about understanding data. So, does it have anything at all to do with understanding Christianity? After a personal journey, Dr. Hunt sought answers and found them.

I became a Christian in my mid 30's, and I was already an experienced software developer. Many things in my life changed, but I felt that my work life had changed very little. A few years into my Christian life I decided to earn a Ph.D. and teach computer science at a Christian college as a way of "redeeming" my programming skills and putting them into the Lord's service.

During my Ph.D. work at Clemson I was fortunate to know a number of faculty members in computer science and computer engineering who were Christians, some of whom went to my PCA church. I asked these men about what relationships they saw between computing and their faith. Succinctly, the general response was:

> Computing is a technical field and thus value neutral, being value neutral there is no interplay between God and computing. That is, computing exists on its own without need of God. The differences that Christians bring to computing are ethics and a striving for excellence.

I must admit to being disappointed about this rather generic response. I had hoped for something more specific to computing.

Is Computing an Orphan in God's Kingdom?

Other fields have developed insights based on Christianity in a variety of ways. Christian historians have the concept of providence. Christians studying literature may look for certain themes, such as redemption. Those in the natural sciences know that what they study is not merely nature, but creation. But what about computing? *Is it really an orphan?*

I have pursued this topic for a number of years now, and before I continue I offer several presuppositions:

- God created ALL things and as a result nothing exists apart from Him.
- God has purpose to ALL that He has made. Here, care must be taken to acknowledge that His purposes are often beyond our understanding.
- Nothing is value neutral; rather all things may be used and understood either properly, for the glory of God, or improperly, without acknowledging Him.

I am interested here in considering computing in a very broad sense—theoretical and practical, academic and applied. I want to look at how Christianity changes our understanding of computing, and how computing changes our understanding of Christianity. I want to start a dialog in the Christian computing community, with a goal allowing us to better understand ourselves, our role in the Kingdom, and our Lord.

There are many aspects to this: There are important apologetic based arguments that occur in the area of artificial intelligence and genetic programming. There is a role of service to the church and in using communication technologies to spread the gospel. There is the ability demonstrate love for our neighbor in ways ranging from helping to alleviate poverty to overcoming physical handicaps. Here I look at the very foundational task that God gave man before the fall, by looking at the involvement of computing in the "cultural mandate".

> I want to look at how Christianity changes our understanding of computing, and how computing changes our understanding of Christianity.

"Culture is what we make of the world, both in creating cultural artifacts as well as in making sense of the world around us. By making chairs and omelets, languages and laws, we participate in the good work of culture making." [Crouch2008a] Computing affects all aspects of culture including understanding and shaping both our physical and intellectual environment. I will

conclude by reflecting on the relationship between my observations and the consideration's of God's image.

Understanding our physical environment

We understand our physical environment through science. Over the years, science has become dependent on computers – to acquire and store data, analyze data, and model theories.

Physics is often thought of as the first of the modern sciences. Today the atom smashers of experimental physics typify "big science". For example, Brookhaven Laboratory's RHIC atom smasher generates a Petra byte (250) of data per test. To contemplate this number is to see the absurdity of a paper and pencil to record data in modern science. The distribution of data from CERN's atom smasher led to the invention of the World Wide Web.

Astronomy is in its most productive age, largely due to data collected by satellites, which is to say semi-autonomous computer guided robots in space. However, even ground based instruments rely primarily on digital data collection while being controlled over the internet. Observing for astronomers no longer involves staying up at night, but in reading the results of the requested e-mailed observations.

Environmental sciences, which have always been too large to do in a laboratory, are shifting from the trained human observers, who could only see a fraction of what they hoped to study, to large scale sensor networks. Clemson University is installing hundreds of sensors, linked by wireless networks, to provide real time data on the entire Savannah River watershed, as part of its "Intelligent River" project.

Mapping the human genome became a race between a research group at NIH and a privately funded company, Celera Genomics, lead by Craig Venter. Both groups used computers extensively; however, Celera began by focusing on finding more effective ways to use computers in higher level data analysis than the NIH team. As a result, Celera was able to almost entirely automate the analysis process.

Computers are the only reasonable tool to analyze massive amounts of data collected by computers. And that combination has enabled modeling techniques in almost all areas of science.

These examples could go on almost indefinitely, but the point is clear: computing has become fundamental to science in this generation, much as the ability to measure new things was in the past.

Shaping our physical environment

Computers change how things are designed, made, distributed and sold.

Consider a car. No longer does its design rely on clay models and blue prints. Instead it is designed on a CRT screen with CAD / CAM software, which can even do much of its crash testing. With the design complete, suppliers are marshaled digitally. Parts arrive "just in time" from hundreds of suppliers, scheduled and by logistics software, tracked by computerized records, whose progress is updated using bar codes, RFID tags, and GPS locations. Robots now replace armies of assembly line workers. The finished car includes embedded software to control fuel intake, brake usage, GPS sub systems and more. As much as 50% of the cost of developing a new car at the high end goes into software development.

Cars are just one example of how computers shape the things that make up our physical environment, and then our physical environment shapes us – what we can do, how we behave, who we become.

Shaping our intellectual environment

Computing has changed what might be called high culture – visual arts, music, literature, etc. These are areas that we often point to as making us uniquely human. The key part of many movies are the special effects which are often computer generated. Digital technology allows practically anyone and not just large studios to produce and distribute movies. The recent production of "Fireproof" was made by Sherwood Baptist Church, with the goal of presenting a Christian view of marriage.

Distribution of art in many fields has become digital. Consider the proportion of music provided by CD's and now MP3 players and Amazon.com's replacement of traditional bookstores and with Kindle the actual book itself.

Blogging is a new literary form that draws on older forms, such as diaries and

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journals, made possible by only the internet. The creation of blogging is credited to Andrew Smales, a 29 year old Toronto programmer, who envisioned an "online diary community" and produced an easy to use authoring tool called "Pitas" in 1999. An example of how fast concepts are established in an internet enabled culture, "blog" was the most commonly re-

quested word of 2004 in the on-line Merriam-Webster dictionary; however, it had no definition for the word. As a Christian it is fairly easy to argue that blogging has many unfortunate attributes (a temptation to narcissism being an obvious problem) but it should be acknowledged that Mr. Smales, working part time, has had an enormous, computing enabled, impact on people's lives.

Reflecting God's image

So what do these ruminations on computing's symbiotic relationship to our earthly world lead to? Quite simply, it may very well give us insight into creation.

Fredrick Brooks in "The Mythical Man-Month" says "As the child delights in his mud pie so the adult enjoys building things, especially things of his own design. I think this delight must be an image of God's delight in making things, a delight shown in the distinctness and newness of each leaf and each snowflake." [Brooks1982]

The first thing God revels about himself in Genesis is that He creates and takes joy in it. I would agree with Brooks and extend this to claim that when we design, not only is our delight in the image of God's delight, but that our role as designers is an example of how we ourselves are made in God's image (Gen 1:27). Since starting with fundamental items of 1's, 0's, and Turing instructions is as close as we are going to get to creating *ex nihilo*, designing software is as close as we are going to get to reflecting God as the creator. We are starting to recognize that algorithms are a part of creation. In the field of genetics, the properties that make DNA interesting have little to do with its physical or chemical properties, but instead involve its use to encode information. As a result, genetics is gaining recognition as a computing rather than a biological discipline. To understand creation is to understand something about its creator.

In addition to a search for knowledge about the world, all humans, including those in computing, are involved in a quest to define themselves and understand who they are. This is a process that we do not often focus on in computer science; yet, it is ultimately a human activity. In the end the computer is only our tool. As Christians we believe it is appropriate to base our identity on our relationship to God. Our role as sub-creators is appropriate to being an image bearer of the creator God. To see the parallels between God as a designer and man reflecting God's image as a software designer, provides an opportunity to understand the gifts that God has given us. These gifts allow a calling that is as profound and God-centered as any.

Is computing an orphan? I think not.

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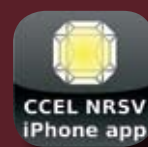
Breathless Idols

by Becky Bertram

How important are your gifts to career growth? Becky Bertram asks you to examine your gifts in the context of how you live your life as well as grow in your career… and faith.

A colleague of mine likes to say, (tongue firmly planted in cheek), "I'm kind of a big deal." As much as this comment is meant in jest, many of us do feel like we are special in some way, and that we surpass others in particular skills and talents. God has indeed blessed each person with particular gifts and abilities, which Paul acknowledges in his letter to the Roman church when he says that each of us has been given gifts in accordance with the grace that has been given us.

Unfortunately, these gifts can develop into an unhealthy source of pride if we are praised repeatedly for them. When we begin to feel like we *are* "kind of a big deal", we can become overly protective of a gift or talent which makes us feel good about ourselves. The result is that we might react harshly to criticism, fearing we might lose that one thing which we feel gives us value in the eyes of others. This defensiveness is exacerbated by the competitiveness we experience in today's marketplace, where we often feel like our job is dependent on others perceiving us as offering greater value than anyone else. Another possible consequence of clutching onto a gift is that we find it difficult to recognize the accomplishments of others if we feel their success might threaten our own.

I most recently ran across this dynamic in a series of emotional reactions to a blog posting by a prominent member of a particular software community. Microsoft has a recognition program for profession-als who invest significant amounts of time to educate others in the use of a particular technology. Often these people spend quite a bit of time and money to travel the globe and present at various user groups and conferences. The people who receive this award are considered the best and the brightest in the industry, and they receive a great deal of public recognition. On one occasion, a person chose to publicly question the validity of the award on their blog, and a flurry of angry responses ensued – some from award recipients who resented anyone questioning their worthiness of receiving the award – and some from people who were angry and bitter that their own

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volunteer efforts had gone unrewarded. The responses quickly became personal as hurt individuals on both sides hurled insults at one another. It was clear a nerve had been struck.

While reading the series of "flaming" responses, I asked myself what a Christian response might look like. Immediately, Jeremiah 9:23 and 24 came to mind:

> "Let not the wise man boast of his wisdom or the strong man boast of his strength or the rich man boast of his riches but let him who boasts

boast about this: that he understands and knows me, that I am the Lord who exercises kindness, justice and righteousness on earth, for in these I delight," declares the Lord.

The "no boasting" clause was the specific connection I made. However, as I thought more about it, something else occurred to me: the wise man *is* wise, the strong man *is* strong, and the rich man *is* rich. When I think of boasting, I often think of insecure people who boast about what they *don't* have – foolish people who claim to be wise, weaklings who claim to be mighty, and poor folks who claim to be wealthy. But this verse acknowledges that indeed each of us *does* surpass others in certain areas, and even so, we are not to boast about those things.

If we are not to boast in our God-given gifts, what is it that we are to boast in, then? We are to boast not only that we know God, but that we understand Him. What is it that we are to understand about Him? Not only that he exercises certain quality traits, but that he *delights* in those things! Acting according to God's character is not just a rule to be obeyed, but is a source of joy and delight.

There are three things God says he delights in doing: kindness, justice and righteousness. Focusing on these three things

draws our gaze away from ourselves and our own ambitions. If we are kind, we are focusing on the needs of others. If we are just, we want equality and fair treatment for everyone whom we encounter, not just for ourselves. And we if we are righteous, we are not self-seeking, but God-seeking. The greatest antidote for the excessive love of self is an abundant love for God, which manifest itself in tremendous love for others.

Jeremiah goes on to prophecy in chapter 10, verse 14,

…every goldsmith is shamed by his idols. His images are a fraud; they have no breath in them.

I suspect some of the vitriolic responses I read were from people discovering at that moment that their idols were lifeless. In consideration of this, I challenge you as I challenge myself to grow in the knowledge and understanding of God, and to exercise kindness, justice, and righteousness towards all those whom we encounter on a daily basis. This will open us up to a more realistic view of ourselves and allow us to more freely celebrate the accomplishments of others.

Becky Bertram graduated from Calvin College with honors in 1999. She is an independent SharePoint architect and consultant living in the St. Louis area, and has spent the last decade building content management systems for clients throughout the country using Microsoft technologies. She speaks German and loves eating North Carolina barbeque (but not at the same time). You can visit her website at www.beckybertram.com.

Web 2.0 and the Rise of Passive Relationships

by Jon Walz

For better or worse, WEB developers have changed the dynamics of relationships and what we know about each other. Jon Walz poses some questions and challenges for us.

While the Web may have started its life as a collection of largely isolated repositories of knowledge, it has evolved into something entirely more human as the Web 2.0 revolution has taken off.

Whereas once the masses were largely relegated to being mere consumers of online content, we are now invited to contribute, categorize, critique, share, and support it. The response to this democratizing power has been overwhelming. More and more, we are witnessing the vast subculture of the Web permeate popular culture. More and more, we are trusting the expertise of the many when seeking knowledge or entertainment. More and more, we are becoming comfortable living transparently as we broadcast our lives and our thoughts to the world.

It's well known that identity is a complicated issue in the online world. Long before the introduction of the World Wide Web, way back when Usenet was shiny and new, science fiction authors and scholars alike were already probing into the implications anonymity could have on our perception of others online. In his seminal 1985 novel Ender's Game, Orson Scott Card included a major subplot in which mere children manipulate the entire geopolitical dialogue by contributing to what is essentially a global bulletin board system. The only things they needed to earn legitimacy in this impersonal, asynchronous environment were their own brilliance and the assumed names of Locke and Demosthenes. As it so often does, what began as conjecture has become commonplace in reality. For reasons both noble and vile, many people take advantage of the potential for anonymity online in order to create identities for themselves that wouldn't be possible in the real world.

Over the years, as the Internet has grown in significance and as people increasingly turn towards it for communication, we have not only adapted to this conundrum, but we have learned from it. Interactions with our peers online can teach us much about the nature of our neighbor. They can help us realize that wisdom is wisdom regardless of its source. They can help us accept that bad behavior isn't necessarily perpetrated by bad people.

An issue that I haven't seen being dis-

> Instead of being members of an intentional dialog, we become part of some sort of incomprehensible, existential play. The basic structure of this production involves millions of individuals acting as both audience and cast.

cussed nearly so thoroughly is the impact of the Internet on our relationships.

At its core, the Internet is a platform for the development of new communica-

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tion technologies; and while, historically, advances in telecommunications have aimed to make it easier for us to reach out to specific individuals or groups at increasing distances, the ever growing suite of Web 2.0 technologies is different in nature. When we engage in the culture of Web 2.0, whether it's through blogging, social networking, participating in an online community, or whatever else, our communication is no longer targeted. We no longer control with whom we are communicating or who is viewing our communications. Instead of being members of an intentional dialog, we become part of some sort of incomprehensible, existential play. The basic structure of this production involves millions of individuals acting as both audience and cast. We jump between hundreds of thousands of stages, concurrently participating in numerous smaller dramas; observing as many more as we are willing or able to; and directing one another's attention to particularly riveting performances along the way.

The voluntary, asynchronous, and broadcast natures of social interaction on the Web allow for us to develop attachments radically different from those that regular, personal encounters nurture. Of chief interest to me is the increasing prevalence of what I have begun to refer to as passive relationships.

By this, I mean relationships that are sustained without direct contact between the parties involved.

These sorts of relationships have a number of interesting characteristics. They are low maintenance, they are directional, and they have limited impact on our daily lives. These are the sorts of relationships that we used to develop with celebrities or even fictional characters, but as ordinary people continue to increase their online presence, it is becoming more and more common for our ordinary relationships to become passive.

As I see it, this is cause for concern, as passive relationships like these encourage us to substitute information in place of intimacy. Moreover, from this information, we can't help but make judgments and assumptions. We take the information available to us and then continue to fill in the blanks of the other person's character on our own without the clarifying context that personal experience brings. The result is that, ironically enough, this overload of personal information has the potential to obscure our understanding of our neighbors' identities more than anonymity ever could.

> The real danger in online interaction … lies in re-imagining our neighbor in our image and faltering in our ability to grow in love for them.

The real danger in online interaction no longer lies in failing to properly recognize Locke and Demosthenes for who they are. Instead, it lies in determining which of our classmates are worth getting to know by a simple "about me" section on Facebook. It lies in keeping track of our friends by following their Twitter feeds or Flickr accounts instead of keeping in touch with them through email and phone calls and going out for coffee. It lies in inundating ourselves with weak ties to the point that we are no longer able to strengthen any of them. It lies in re-imagining our neighbor in our image and faltering in our ability to grow in love for them.

I have no doubt that we will learn important lessons from this dilemma just as we learned from dealing with the complexities of anonymity, but we need to begin talking about it first. Web 2.0 services have proven time and time again that they have great power. From reconnecting childhood friends to helping creative individuals get the chance they so richly deserve to make a career from their talents; from exposing corruption to galvanizing the grass roots, the seemingly personal nature of these systems makes them valuable beyond measure. Yet, if we fail to recognize and begin serious discussion of the dangers and shortcomings inherent to these technologies, then this value is worthless. Let's get the conversation started.

Jonathan Walz is entering his final year at Calvin College where he is studying Computer Science with minors in Mathematics and Japanese language. After finishing his undergraduate studies, he plans to pursue his PhD in Computer Science.

Dynamic Link Conference Held

Have you heard of the "Geek Gap"? That concept and book by the same title inspired the first Dynamic Link Conference held on May 2, 2009 at DeVos Communications Center at Calvin College. Through a grant from the Lilly Vocational Venture Fund, students in Calvin College's Information Systems Leadership class (IS371 is the catalog listing), organized a conference where they and working professionals could meet and discuss the "Geek Gap." Over 50 students and working professionals attended the event to listen to two keynote talks and participate directly in a dialogue about the geek gap.

So, what exactly is the geek gap? It is a metaphor to describe the historical tensions between technologists and managers. Historically, these two groups have been at odds with their expectations of each other. This tension seems to be more visible in the field of software development because it is a relatively new form of engineering with outcomes more conceptual than physical in nature. The significance of this conflict is manifested in numerous text books and "how to" articles for both managers and technicians. Ironically, both are concerned about the same goal: quality. However, as most quality experts acknowledge, quality is in the eye of the beholder, and agreeing on the processes to provide quality software is one of the core issues.

Computing students hear about this cultural gap through academic lectures because we hope they will become the future leaders who can resolve these issues. The intention of the conference was to add another consideration to resolving the tension not mentioned in the literature (at least not very often.) That is the role of faith related values. There are numerous publications linking the role of faith in general terms of leadership and teamwork, but there are very few sources where those considerations converge to address the "gaps." Given that, there were four goals to this conference:

1. Examine the "gaps" within a Christian context.
2. Provide students an opportunity to participate in a discussion with working professionals. The hope was that the experience would be a valuable exercise in integrating considerations of faith in their future career work by seeing experienced professionals who are professed Christians talking openly about their faith and work.
3. Provide the community a forum where working professionals could comfortably share their faith while exchanging ideas.
4. Produce a summary of the proceedings.

The tone of the conference was set by the two keynote speakers. Dorothy Graham, an internationally recognized expert in automated software testing, spoke about issues for testers "where the rubber hits the road" in dilemmas they may face. Dr. Quentin Schultze, Executive Director for The Gainey Institute, examined the inter-personal aspects of the issue and highlighted that it is our fallenness that blocks us from the seeing and understanding the needs of others.

After the keynotes, focus groups met to discuss specific topics related to the Geek Gap. The three topics discussed were as follows:

- Group 1: Responsiblities in keeping up with technology. (Co-facilitated by Calvin student Debbi Kuipers and T.R. Knight, IT Manager, Taylor University.
- Group 2: Office politics between developers and business people. (Co-facilitated by Calvin student Ben Van Drunen and Becky Bertram, Consultant)

As someone who's self-employed, I often feel like the Lone Ranger out there, bouncing from project to project; I often have lacked the encouragement of other believers in the workplace. This conference was a real shot in the arm to remember how important it is that I incorporate my faith in my job, and that I pay attention to the "whole person" when I'm working with co-workers and clients, and that it's okay to go beyond simple "business transactions". I felt like I learned a lot from the other professionals who were in the room with me (and who have a few more years of life experience than myself) and I was thrilled that the Calvin students in the room, who will be entering the "working world" soon, could also learn from the experience of others.
~ Conference attendee

- Group 3: The dynamic nature of trust in software development. (Co-facilitated by Calvin student Ross Wielard and Mike McIntosh, Project Manager, Amway)

The topics were discussed in the context of how Christian leaders should act, using the five leadership practices defined by James M. Kouzes and Barry Z. Posner in their book Christian Reflections on the Leadership Challenge: Model the Way, Inspire a Shared Vision, Challenge the Process, Enable others to Act and Encourage the heart.

Conference Comments

I was so impressed with your students, speakers, fellow attendees and facilities. Please keep me on your "mailing list" for future events!!

Despite my knowing little about programming, I learned quite a bit about communications. The speakers were fabulous as was the agenda. The conference also confirmed what we already knew - that Calvin does an admirable job of interweaving Christian values into education and the workplace. I found myself thinking that nothing like this conference would ever happen where I went to school in the "public" sector. A fine job by you and the students. Please keep up the good work!

Really enjoyed participating. Looks like you have inspired yet another team of IT professionals!

I really enjoyed Quentin Schultze's presentation. He is one of the best speakers I've heard in quite a while. He had something important to say, and said it very well. I hope to get him to speak with our organization. I also enjoyed seeing a few old friends, a former intern, and emjoyed the fellowship of other believers involved in IT.

(We should have done this sooner! Memory fades) I really appreciated Dot Graham's keynote.

Very enjoyable - especially Dot's "play." Good interaction. The lunch activity was worthwhile too.

The keynote talks were exceptional. The posters displays were informative. Neat to see leadership and technology brought together at a school.

I really appreciated getting the perspective of Christians in different roles than my own. I'm an independent software developer, and the kinds of challenges I face are very different than the kinds of challenges a manager faces at an organization where people might work their whole careers. I really appreciated getting outside my own bubble to see the bigger picture, both professionally and in terms of how I approach my job as a Christian.

It was great to realize the frustrations I deal with daily are common to others in similar fields. This allows me to be a bit more accepting of the challenges of day-to-day work.

I enjoyed meeting and interacting with people who were working in a field that I am thinking of entering. It was neat to hear their advice and insight on problems that I will face in the future.

[I liked the] interaction with the students & other professionals about faith in the workplace. As a manager, I am so conditioned by HR to shy away from discussions about religion - although those who work with me know my stand on topics.

[I appreciated the] interaction between student and professional participants in the roundtable discussion. Hearing that other professionals encounter many of the same problems and frustrations as I do was very interesting and helped me realize that I wasn't alone in these experiences.

The discussions in the small groups were very interesting. I enjoyed meeting other Christians in the industry. I was impressed with the way the students organized the conference.

Holding the conference is an excellent way for the students to apply their training on something tangible and interact before going into the workplace. From those I talked with, all benefitted - students, professionals & presenters. Great job.

I am looking forward to the Journal. I very much appreciated the first one you produced.

[The most significant benefit was] seeing the students and listening to their questions.

Discussion Groups

Discussion Group 1: Scott Crickmore(G), Debbi Kuipers(Student Leader), Kenneth Todd(G), Rohit Nair (S), Jon Walz (S), Brent Sloterbeek S), Aaron Koenes(S), Dr. Quentin Schultze(Keynote), Samuel Williamson(G), Scott Hinckley(S), Fred Baseth(G), T.R. Knight(Guest Co-Facilitator), Dr. Paul Jorgensen(G), Brenda Vander Linden(G)

Discussion Group 2: Donnie Cottingham(S),Richard T. Brown(G),John Kuipers(G), MariLou Richardson (G), Chris Brown(S), Fred Farley(G), Terrence Woodnorth(G),Jeff Andersen (Conference Project Student Lead), Becky Bertram (Guest Co-Facilitator), Nicole Veenkamp(S), Dorothy (Dot) Graham (Keynote),Ben Van Drunen (Student Leader), Tim Wolfis(S),John Moon(S)

Discussion Group 3: Ernie Walters(G),Sawyer Koops(S),Randy McCleary(G),Nick Steenstra(S), Dr. Roger Ferguson(G),Mike McIntosh (Guest Co-Facilitator),Ross Wielard (Student Leader)Jordan Gibson(S), Niko Solohin(S),Tom Zeilstra(G)

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