

Reclaiming Attention: A Christian Perspective Prioritizing Relationships in the Design of Technology

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Christianity maintains that God calls people to build loving relationships across three spheres: with himself, with other people, and with creation. Building relationships in any of these contexts requires attentiveness, but in the attention economy, technologies (and their makers) often regard human attention as a commodity to be monetized, leading to designs that maximize engagement and direct user attention to advertisements. As attention is a finite resource, these design tactics directly undermine the relational investments that Christianity claims give us “*life in abundance*” (John 10:10). Novel work in human-computer interaction (HCI) shows that this situation does not have to be the norm. Research prototypes have, for example, facilitated the emotional regulation necessary for opening one’s heart to God, fostered closeness between loved ones, and increased children’s focus on the natural world. Thus, supporting the world’s two billion Christians in living out their faith is within reach but requires committing to an HCI design agenda that facilitates attentiveness instead of plundering it.

CCS Concepts: • **Human-centered computing** → **Human computer interaction (HCI)**.

Additional Key Words and Phrases: Christianity, faith-based computing, attention economy, user engagement, relationships.

1 INTRODUCTION

Christianity is the world’s most practiced religion [9]. Its followers hold that Jesus of Nazareth was the divine Son of God, who was resurrected from the dead following his crucifixion, thereby fulfilling the Jewish messianic prophecies as foretold in the Hebrew Bible. Christians believe that Jesus was both fully human and fully divine [3], and that his resurrection demonstrates that the faithful will not perish but will instead enter into an eternal life with God after death [44].

The current wave of human-computer interaction (HCI) research seeks to support people in living a life of meaning [5], and billions of people—spanning continents and millennia—have derived such meaning from their Christian faith that they have made it their life’s foundation. What animates the Christian worldview and causes it to resonate with so many? We examine one possible answer to this question and consider how HCI designers might respond to and support what Christians find meaningful in their faith and life.

Centrally, Christian teaching and practice is deeply preoccupied with human *relationships*. As we describe below, Christianity: (1) portrays a living God who invites each member of the human race into an intimate, personal relationship with him, (2) calls on all people to cultivate intimate and loving relationships with one another, and (3) extends this relational model to the natural world, charging each person to be a caring steward of God’s creation.

Here, we reflect on ways—both positive and negative—in which the design of technology currently collides with the Christian priority of cultivating loving relationships. Technology has the potential to support the challenging work of relationship-building, and yet too often, it undermines it instead. If the Christian life is a life built on relationships, foremost with Jesus Christ, then technology only edifies Christian users when it is relationally enhancing. By contrast,

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when technology is relationally corrosive, it acts as an adversary instead. We consider both of these possibilities and reflect on how HCI designers might pursue relationally enhancing systems.

2 THE CHRISTIAN PRIORITIZATION OF RELATIONSHIPS

In Relationship with God: The Calling to Love the Divine

A thread that runs throughout Christian doctrine is the idea that God invites each of his followers into an intimate relationship with him. God speaks personally to key figures throughout the Bible, and he repeatedly tells his followers that he will “*walk among*” them (Lev 26:12, 2 Cor 6:16)¹ and “*dwell among*” them (Ex 29:45, Rev 21:3). Jesus describes God’s relationship with each person as epitomizing parent-child attachment and commitment, explaining:

“Now suppose one of you fathers is asked by his son for a fish; he will not give him a snake instead of a fish, will he? Or if he is asked for an egg, he will not give him a scorpion, will he? If you then, being evil, know how to give good gifts to your children, how much more will your heavenly Father give the Holy Spirit to those who ask him?” (Luke 11:11–13)

As Jesus explains through metaphors and parables, God delights in each new relationship and rejoices each time he is reconciled to one of his followers. Jesus refers to God as “*Abba*” (Mark 14:36), a term of endearment for his father; he also describes God as a shepherd who leaves his entire flock to search for one lost sheep (Matt 18:10–14), and as a father who celebrates the return of his profligate child rather than rebuke him (Luke 15:11–32). In these and other examples, Jesus emphasizes that God passionately pursues each relationship, knowing each person so intimately that even “*the very hairs on your head are numbered*” (Luke 12:7).

Christianity teaches that God’s followers should respond to his invitation by pursuing this relationship with equal devotion. Scripture and practice both dictate the importance of opening one’s heart to God in prayer [33], and Jesus teaches that prayer should be humble, private, and personal (Matt 6:5–14), yielding the kind of heart-to-heart authenticity that is essential to building relationships with other people [19]. Christians are tasked not only with speaking to God but also with listening; Christianity teaches *discernment*, the practice of listening for God’s word when engaging in moral reasoning and decision-making [49].

The central message of the New Testament is the *gospel*, or “good news,” that through the death and resurrection of Jesus Christ, all people can be saved. But what does it mean to be “saved?” The salvation God offers is not merely the absence of death—it is the promise of an eternal *relationship*. As the Bible concludes, “*God’s dwelling place is now among the people, and he will dwell with them. They will be his people, and God himself will be with them and be their God*” (Rev 21:3).

¹All Bible references are from the New International Version.



Fig. 1. Three spheres of Christian relationship: with God, with others, and with all of creation.

In Relationship with Others: The Calling to Care for Our Neighbors

Christian teaching places great emphasis not only on relationships with the divine but also on human-to-human relationships. When asked which moral teaching is most important, Jesus responds:

“Love the Lord your God with all your heart and with all your soul and with all your mind.’ This is the first and greatest commandment. And the second is like it: ‘Love your neighbor as yourself.’ All the Law and the Prophets hang on these two commandments.” (Matt 22:37-40)

This short passage captures the entire Christian prescription for holy living. First, Jesus once again stresses the importance of building a close and loving relationship with God. Second, he stresses the importance of building close and loving relationships with people. Throughout the gospel texts, Jesus both demonstrates and demands a radical commitment to loving others. He prioritizes showing compassion, inclusion, friendship, and care, especially to those on the margins of society who are least likely to receive love from their community. He pays disproportionate attention to those who have been shunned, and in doing so, demonstrates that no one is beyond God’s love [17]. He teaches extending forgiveness to anyone who asks for it (Matt 18:21-22), illustrating God’s extreme commitment to relational repair and reconciliation. And he explains that love should be given universally and unconditionally, saying even:

“Love your enemies, do good to those who hate you, bless those who curse you, pray for those who abuse you... If you love those who love you, what benefit is that to you? For even sinners love those who love them.” (Luke 6:27-32)

Thus, Jesus models extreme and continual investment in relationships. He reaches out, forgives, and loves unconditionally, even in the most forbidden and hostile relational contexts (Matt 9:9-13, Luke 7:36-50, John 4:1-26, 8:2-11). And he makes clear that this radical way of life is the asymptote toward which God asks all people to strive.

In Relationship with Creation: The Calling to Steward the Natural World

Finally, in viewing God as *creator*, it is no surprise that Christianity teaches the importance of cultivating a relationship with *creation*. In the Hebraic account, God creates the universe and all things in it, pronouncing it “good” five times (e.g., Gen 1:31). Furthermore, John’s Gospel opens by explaining that all of creation was formed through Jesus Christ, saying, “*through him all things were made; without him nothing was made that has been made*” (John 1:1-3), and Paul the Apostle [45], the writer of most of the New Testament, affirms this further, stating, “*for in him all things were created: things in heaven and on earth*” (Col 1:16). For Christians, creation was and is the handiwork of God made manifest.

Scripture further teaches that God’s boundless love and desire for a relationship extends not only to people but to all of creation. The Bible explains that, like people, creation was pronounced good, became corrupted through sin, and will be redeemed by God’s love. Put simply, it is *all of creation*, and not humankind alone, that is in need of redemption and a relationship with God, and God seeks “*to reconcile to himself all things, whether things on earth or things in heaven, by making peace through his blood, shed on the cross*” (Col 1:19-20).

Christians believe that the result of this redemptive act is already foretold. Contrary to the popular depiction of heaven as a place in the clouds where spirits whisk about, the Biblical account of creation’s destiny is of redeemed people in physical bodies (John 6:54, Rom 6:5, 1 Cor 6:14, 15:35-58, 2 Cor 4:14) inhabiting a restored heaven *and* a new, physical earth (2 Pet 3:13, Rev 21:1), with all of creation reconciled to God in everlasting relationship (Rom 8:19-23, Eph 1:10). Vitaly, Christianity does not permit its adherents to passively await this restoration of creation. God charged people with caring for his creation as it exists today (Gen 2:15, Lev 25:1-7); far from a license to exploit the natural world, this charge reflects a divine mandate to stewardship. This stewardship is framed as bidirectional and relational,

as God instructs humanity to “*ask the animals, and they will teach you, or the birds in the sky, and they will tell you; or speak to the earth, and it will teach you, or let the fish in the sea inform you*” (Job 12:7-8).

The implications of this directive for the Christian are profound. It means to have right relationship with God and others, we must have right relationship to God’s creation [53]. As Paul wrote to the early church in Rome:

“For since the creation of the world, God’s invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made.” (Rom 1:20)

Christianity teaches that there is no path to loving God or loving others apart from loving the creation he made and will restore.

3 TECHNOLOGY AND RELATIONSHIPS

This backdrop points to a clear design principle: supporting Christian users in living out their faith requires supporting them in their relationships with God, with others, and with creation. In moments, popular technologies live up to this ideal, and for example, people leverage devices and interactive systems to collaborate [31], meet new people [41], maintain intimacy with geographically distributed loved ones [38], bond over shared experiences [50], deepen their connections to the natural world [24], and augment acts of worship [21].

But too often, digital experiences instead suppress our inclination to invest in relationships, and they undermine our connections to God, to one another, and to creation. This trend is not arbitrary or accidental; it is, in part, the result of the *attention economy*, the common online business model of monetizing human attention through advertising [37]. Designers creating products with the goal of serving advertisements are incentivized to capture users’ attention as often as possible and to hold it for as long as possible, and a design agenda to direct human attention toward advertising surface area is inherently at odds with the Christian agenda of directing human attention towards purposive relationships. A Christian design perspective demands a shift from designing for engagement to designing for the radical prioritization of relationships. Here, we tour examples of current technologies’ impact on each of the three relational spheres (see Figure 1) described above.

Technology and Our Relationship with God

Tending a relationship with God through prayer, worship, and other activities requires specific and deliberate behavioral choices, including: pausing, rejoicing, yielding, and asking [20]. Technology is interwoven into modern life in a way that affects each of these behaviors, and, for example, the constant intrusion of digital notifications fragments attention [52], undermines contemplative activities like prayer [32], and suppresses our instinct to pause [39, 51]. The sensationalized headlines, negativity, and clickbait that drive engagement on interactive news platforms reduce optimism and joy [8], and common social media usage patterns promote anxiety and psychological distress that impede people’s ability to surrender to God and trust in his providence [25].

And yet, technology also has the potential to support people in building their relationship with God. Apps can increase users’ mindfulness and awareness of the present moment [55], and intentionally designed systems can support people in self-soothing and grappling with their emotions [47]—regulatory processes that are central to yielding to God [12]. Other exploratory work has even investigated explicit ways in which digital-tangible interfaces can augment religious rituals and facilitate their goals [21]. However, this potential appears to remain untapped in mainstream offerings, as the overwhelming majority of American Christians disagree with the statement that technology has improved their relationship with God [15].

Technology and Our Relationships with Other People

Separately, people report widespread frustration with digital experiences that undermine their connections with loved ones, and yet they also say these frustrating experiences are pervasive [13, 27, 40]. Many people describe frequently experiencing “the forehead effect,” in which an individual feels alienated by a loved one’s routine phone use and is left with the sense that they are always looking at their forehead, never their face [13]. This pattern of disruption is so common that researchers have operationalized and examined the predictive construct of *technoference*, which measures interruptions from technology during moments of interpersonal connection [35]. Increases in technoference reduce relationship satisfaction and predict mental health disorders [36].

Distraction is not the only way in which attention-economy designs undermine relationships. For example, prior work shows that inflammatory content online increases engagement and profitability but also hostility among users [7]. Interactive systems can encourage trolling [11], reduce empathy [30], and reward shaming [1], and experimental work has causally linked social media browsing to increases in loneliness and depression [23]. Ubiquitous surveillance systems manufacture distrust between neighbors [29], and gaming experiences that simulate violence toward others lead to increases in hostile attribution bias [16] (i.e., the tendency to assume hostile intentions in others).

And yet, despite these relationally corrosive effects, people also say they regularly use digital technology to *grow* their relationships with others. Parents and children bond by gaming together [48], online support groups facilitate meaningful interpersonal connections [54], and romantic partners leverage communication technologies to stay close and share inside jokes over geographic distance [14].

This differentiated impact is not happenstance, as the design of a system and its affordances play a critical role in determining whether an experience is relationally enhancing or relationally destructive. For example, multitouch support, symmetric interfaces, and user-dictated timing all increase children’s likelihood of responding to the people around them when using devices and inviting others to share their digital experiences [22]. The design of social platforms can intentionally nudge users toward or away from critical reflection [28], and the way a platform organizes posts and constructs audiences influences people’s ability to discuss controversial topics constructively [2]. Thus, the decisions HCI designers make influence whether users live up to the commandment of loving their neighbor.

Technology and Our Relationship with Creation

Finally, humans have always created technologies to mediate their relationship with the natural world and to enable them to exert power over their environment by altering landscapes, destroying habitats, controlling waterways, and extracting earth’s resources. These human-centric activities too often reflect an exploitative, rather than stewarding, relationship to creation; indeed, post-industrial-revolution advances have exploded the scope and scale of technology-driven environmental degradation. In the Christian view, relating to the earth in this way is an affront to God, for he has deemed the earth precious enough to redeem it for eternity (2 Pet 3:13, Rev 21:1-5) and tasked humanity with caring for creation with effort and love (Gen 2:15, Lev 25:1-7).

Work in HCI has brought sustainability to the fore, showing that technology need not be used as a tool of exploitation and can instead support people in relating to creation as stewards [34, 43, 46]. Other work demonstrates that technology can be used to focus people’s attention on creation and to increase their appreciation of and investment in the natural world [4, 24]. These prototypes provide proof-of-concept that technology can support people in cultivating loving relationships with creation.

And finally, people’s relationship to creation provides the larger context in which they carry out their relationships with God and other people, making it all the more essential that technology support people in relating to nature with care. We cannot “*lift up our eyes to the hills*” (Psalm 121:1) when they are cast down upon our touchscreens. We cannot love our neighbors as ourselves by ruining the environment in which they live. We cannot love future generations by leaving them a degraded creation worth less than God intended. We must become conscious of how our technologies, whether by their manufacture or use, disparage creation and our relationship to God through it.

4 A RELATIONSHIP-CENTRIC DESIGN AGENDA

All loving relationships—whether with God, other people, or creation—are built through investments of attention. Relating to another requires looking outward, making the relational partner the focus of attention, and attuning to their current state. *Attunement* is the process of indirectly feeling another’s experience; it is essential to strong relationships [18] and achieved through the mirror neuron system, which allows us to simulate the mental states of others [42]. A relationship-centric HCI design agenda must consider the effect of each design decision on the user’s ability to attune to God, others, and creation. This requires examining how interfaces direct the user’s attention, affect their ability and inclination to engage in perspective-taking, and influence their willingness to accept, experience, and listen without judgment to the distress of another.

Building and maintaining relationships also requires emotional responsiveness and availability that leads to *secure attachment* [6]. Technologies that foster secure attachments will support users in selective self-disclosure, giving and receiving social support, expressing emotions, and demonstrating presence. Maintaining secure attachments requires repairing relational breaches when they occur [18], and it requires developing an intimate space for relational partners to share, which prior work describes as a co-created “private world” [10, 26]. Technologies that support this maintenance work will give relational partners: space to build their private world, support for constructive conflict management, and a sense of shared presence.

At an individual and societal level, we bemoan technology’s distracting and inflammatory influence on our relationships. This is unsurprising, given that **the attention economy and the work of relationship-building share the same currency and compete for the same scarce resource of human attention**. As long as HCI designers have other plans for users’ attention, those users will be compromised in their ability to invest in relationships attentively. But decades of HCI innovation show that it does not have to be this way. Designers have the power to create systems that edify, rather than erode, our relationships, which Christians maintain are the best part of this life and a holy glimpse of the life to come.

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