

(Un)designing AI for Spiritual Wellbeing

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Despite the importance of religion or spirituality (R/S) to human wellbeing and health, R/S has been under-explored in CSCW and HCI. With rapid advances in Artificial Intelligence (AI) impacting health and wellbeing, and R/S communities globally, there is an urgent need for open scholarly discourse on (un)designing AI for spiritual wellbeing. *How, when, where, and why should AI be (un)involved in sociotechnical systems affecting physical, mental, and spiritual health?* Motivated by functional, technical, ethical, and theological concerns, this workshop aims to critically advance our understanding of how AI-based systems for wellbeing and health can better integrate R/S-related concerns and address peoples' deep spiritual needs, both within and beyond clinical settings. We invite people from *all* faiths and various disciplines (e.g., HCI, AI, medicine, chaplaincy, theology, R/S community leaders) to submit short papers, pictorials, design fictions, podcasts, artworks, etc. Although the workshop mainly focuses on health and wellbeing, submissions intersecting R/S and AI are welcome. The hybrid workshop includes a virtual pre-conference event and one full day of programming during the conference, featuring keynotes, panel discussions, and interactive group sessions on the challenges, opportunities, and future directions for integrating R/S into AI designs for wellbeing and health.

Additional Key Words and Phrases: Artificial intelligence, faith, religion, spirituality, wellbeing, spiritual care, health, theology, chatbots, large language models, social media, online health communities

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1 INTRODUCTION

Approximately 85% of people in the world affiliate themselves with some form of religion/spirituality (R/S) [19]. Consequently, peoples' experiences of wellbeing, health, and quality of life are often intertwined with R/S beliefs, rituals, or communities [80]. Medical research and practice already acknowledge the importance of R/S for individuals' wellbeing and health, especially in chronic or terminal cases [5]. However, in the CSCW and HCI literature, knowledge of the role of technology in addressing people's R/S needs still requires deeper explorations [16, 84, 91, 106]. Engaging in these explorations can critically expand the field's understanding of fundamental aspects of identity and healing and aid designers in a fuller realization of the promise of human-centered design.

Moreover, sociotechnical systems that impact human wellbeing and health are now being shaped by Artificial Intelligence (AI). For example, clinical healthcare involves AI-powered patient care [1] and administrative applications [3]. Medical devices often incorporate AI/ML-based functionalities, a growing trend due to the rise of large language models (LLMs) [49]. AI interventions can support complex therapies [50], end-of-life care [75, 89], and digital legacy planning [15, 28, 93]. Outside of clinics, users' self-care and wellbeing can be influenced by AI-powered technologies for practices like prayer [54, 94] or meditation [70]. Social bots in online communities [103] or chatbots acting as "virtual psychotherapists" [52] are innovating on traditional models of mental illness prevention and treatment. Both the popular press [34] and scholarly works [14, 98] are now discussing the role of generative AI in spiritual activities or care. Although people rate bot-provisioned support lower than human-provisioned support [69], LLM-driven chatbots may benefit socially isolated individuals [48]. Creating art with Midjourney may also help to address trauma and mental health [39].

While such AI-driven technologies may immediately seem useful, numerous ethical, moral, and theological considerations should inform how designers do or do not incorporate AI while designing systems that impact spiritual wellbeing. HCI must remain wary of technosolutionist approaches that assume technology—including AI—will *always* be the right solution [6]. For example, Sherry Turkle has raised concerns that ramping up technology, robotics, and AI in our lives may diminish the quality of human connections [100]. Building on this, we posit that misbelieving AI to have its own spirit, or to be empathetic and caring when it cannot be, may mislead users into false relationships that can distract from meaningful opportunities to connect with real humans, or be used to spread misinformation, extract financial resources, and manipulate people's R/S-based beliefs and actions. AI can also directly harm desired R/S activities through decreased authenticity and credibility—i.e., commitment to spiritual guidance was degraded when provided by a humanoid robot pastor compared to a human preacher [47]. Additionally, many religious or spiritual systems are systematically underrepresented in training data, meaning that generative AI models can, in effect, erase marginalized cultures and faiths, or be prompted to produce text or images that severely violate R/S practices (e.g. "*Muslim drinking alcohol*") [78]. Thus, carelessly integrating AI may introduce harms in deeply unacceptable and damaging ways.

Recently, a series of workshops at CHI22 [84], NordiCHI22 [60], and DIS23 [59] reflects a rise in research attention to R/S. Likewise, the emergence of scholarly groups such as AI&Faith (<https://aiandfaith.org/>) and the SPIRITED HCI Collective (<https://spiritedhci.org/>), as well as the industrial design consultancy firm, Sacred Design Lab (<https://sacred.design/>), demonstrate a need for communities of research and practice that: (1) intentionally center R/S in design; and (2) seek to embody ancient wisdom and sacred traditions that provide a moral, ethical, and social foundation for a healthy, thriving, value-driven life. **Because of the strong connection between R/S and human health and wellbeing alongside the rising prevalence of AI, we propose to continue this workshop series at CSCW 2024.** We are inspired by Kate Crawford's CHI 2024 keynote [25] and by recent calls for the critical deconstruction or "unmaking" of myopic

or shortsighted innovation—especially in the face of climate crisis, inhumane model training and moderation practices, and the unsustainable depletion of electricity and rare earth minerals—largely to the benefit of megacorporations and tech billionaires. Whereas we acknowledge prospective benefits of AI, we equally emphasize the reality of AI harms and the need for resistance to AI hype. As researchers, we must carefully reflect upon when, why, and how AI may (not) be an ethical solution for the spiritual and mental wellbeing of individuals and society.

Primary Intended Outcomes:

- (1) Exploring how the (un)design of AI-powered systems for supporting physical or mental health and wellbeing can benefit from integrating R/S and principles of spiritual care.
- (2) Cultivating a space for discussion that intentionally and respectfully embraces diversity of beliefs (including atheism, agnosticism), interfaith dialogue, and ethical pluralism.
- (3) Nurturing a growing community of people within CSCW who are either interested in learning about or already working on addressing a longstanding research gap related to R/S in HCI.

1.1 Opportunities and Challenges

Designing for AI and R/S presents opportunities, risks, and challenges that must be addressed in functional, technical, and theological ways. Functionally, R/S beliefs impact people's thought patterns and use of sociotechnical systems, yet AI-based systems and personal informatics do not adequately mirror human sense-making and reflection [21], resulting in discrepancies between people's everyday mental models and those within AI models. Technically, how AI models are built (e.g., data types (text-based v.s. oral), data labeling practices, the intents for which AI is built) are not typically reflective of the diversity of R/S beliefs and values. These issues influence the effectiveness and adoption of wellness support systems, *especially* in cases when theological values conflict with their design or use. Hence, AI systems will better address human needs for support and connection if they holistically and intentionally consider R/S. The workshop will explore:

Opportunities:

- How might AI systems (not) integrate with whole-person care models that acknowledge R/S?
- How might AI systems (not) contribute a better understanding or discovery of peoples' R/S needs, and what methodologies are appropriate for this task?
- How might AI systems (dis)respectfully leverage sacred resources across belief systems (e.g., literatures, rituals, or practices like repentance, forgiveness, etc.) for health and wellbeing?

Challenges:

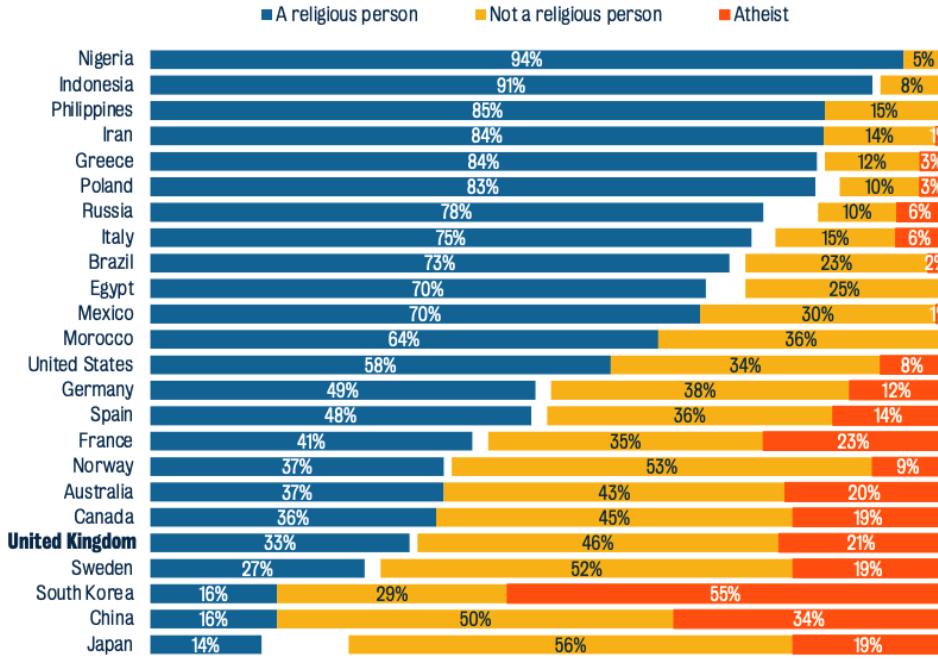
- How might we appropriately encourage and advocate for designing R/S-sensitive AI, given that some research contexts or funding agencies may remain reluctant to engage with this marginalized topic, despite its repeatedly validated [5] importance to health and wellbeing?
- How might we (un)design AI in health and wellbeing support systems that may be commonly used by people with varied R/S backgrounds?
- Given the sensitive, serious, and transcendent nature of R/S, how might we research and (un)design AI in harmony with theological foundations (e.g., mysticism)?
- How might we address the technical AI/ML-related challenges and risks that may be introduced into spiritual care, including risks associated with emergent generative AI systems?

2 BACKGROUND

2.1 Social, Mental and Spiritual Crises in the Sociotechnical Era

Research characterizes our era as one of rising epidemics of social isolation [43], mental illness [99], and spiritual crises [104], while the quality of in-person communities and interaction continues to

Independently of whether you attend religious services or not, would you say you are...?



UK base: 3,056 people in the UK aged 18+, surveyed 1 Mar–9 Sept 2022. Other countries all surveyed in wave 7 of WVS at various points between 2017 and 2022. See [WVSA website](#) for sample information

Fig. 1. Figure copied verbatim from [29].

degrade over time [101]. Contemporary scholarly debates question whether technology is causing [38] or accompanying [73, 88] these epidemics amidst an increasingly competitive and uncertain world. These concerns call us to *re-examine* existing worldviews and *redefine* what we humans are and what we really need. The dominant Western secular worldview of humanity and individualism has impacted how modern society interacts and socializes [18, 46]. Other traditions and geographies tend to define humans as *persons* (vs. individuals) and focus more on relationships (with others, nature, and God), community/communion, and harmony [17, 79]. Figure 1 demonstrates geographic diversity of religious v.s. non-religious v.s. atheist individuals [29]. Due to a generational shift in human values in the Western world (e.g., USA, Europe), participation in organized religion is declining [20, 35, 53, 63, 110], whereas people who identify as spiritual are increasing [7, 20, 90]. In other geographies, we observe traditional adherence to faith-based systems. For example, in Latin American countries like Costa Rica—the site of CSCW 2024—Catholicism remains the prominent majority religion, with deep and pervasive cultural implications for both institutional and daily life [37]. Whether people remain affiliated with religious institutions or define themselves as spiritual or atheistic, most will identify R/S needs, especially in defining social/divine connection, meaning, and purpose. Marginalizing these facts is harmful to our ability to address the challenges of modern society with appropriate technology.

2.2 Spiritual Care in Medical Practice

Medical research has firmly established the importance of R/S for individuals' health and well-being [5]. Therefore, clinical practice (*esp.* palliative medicine [31]) has moved toward a holistic care approach using the biopsychosocial-spiritual model [77]. In this view, an individual's health is understood as a complex interaction of biological, social, psychological, and R/S factors [81]. In the USA, providing spiritual care is legally mandated as a standard of patient care since 2006 [45], with many tools and trainings available, e.g., [2, 13, 74, 81]. In practice, however, spiritual care is often neglected to the detriment of patient wellbeing and quality of life [24, 31, 64, 68]. This workshop will critically reflect upon the potential for AI technology to facilitate spiritual care, both in terms of needs assessment, as well as in mediating spiritual care.

2.3 Spiritual Care Beyond the Clinic

Social support is a prominent area of scholarship in CSCW. However, recent work at CSCW shows that for many users, spiritual or religious beliefs and communities are an underlying motivation and driver of supportive behaviors [91, 93]. For example, in online health communities, textual [94] or visual [51, 92] expressions of prayer are frequent and highly valued by users. Recent work highlights a trend in spiritual informatics [58]. Drawing from health informatics, self-tracking can also be designed to support R/S practices and wellbeing [22]. The global COVID-19 pandemic also confirmed the need for new forms of technologically-mediated spiritual care [33]. For example, technology became a key mediator for R/S support among families and friends during the pandemic, with a rise in tech use to support virtual Christian services [108] and Buddhist practices [23]. The workshop will critically discuss prospective roles for AI in such systems for R/S practices and spiritual wellbeing outside of the clinic.

3 WORKSHOP THEMES AND QUESTIONS

3.1 Reconnecting Science & R/S

A diminished focus on R/S in CSCW and HCI may happen because some scientists think that faith and technology are mutually exclusive, rather than acknowledging that they can be complementary [8, 66, 83, 85, 106], or due to concerns about reputation, funding, personal spirituality, or institutional and historical factors (e.g., separation of science and R/S) [9, 16]. However, for most people around the world, R/S culture, and communities are important sources of support, especially in critical, chronic, and/or mental health conditions [95]. In the medical context, a dominantly secular approach resulted in an environment where the R/S side of patients was largely ignored [9]. Walach and Reich call for overcoming such attitudinal barriers and working toward *reconnecting science and R/S* [102]. Historians of science also do not necessarily view the relationship between science and R/S as one of inherent conflict [72]. Robinson presented a dialectical way of capturing both differences and overlapping areas in R/S and science [86]. Some theologians also argue that faith, technology, and science cannot arbitrarily oppose one another because they address different areas of inquiry [71]. Within HCI and design research, scholars have argued for drawing inspiration from faith and R/S to counter the capitalist motivations and attention economy of technology platforms [44, 96]. They advocate for an inward turn focused on mental and spiritual wellbeing [96]. ***This workshop aims to overcome historical barriers, facilitate open discussions around R/S in CSCW, and seek new (un)design opportunities for AI and spiritual wellness.***

3.2 Exploring AI (Un)design Opportunities in Spiritual Care

The nature, modes, and infrastructure of healthcare have undergone rapid changes in response to contemporary global situations. The COVID-19 pandemic spurred an aggressive move towards

remote healthcare services, particularly in spiritual care [105] and mental health [12, 67]. Recent hype surrounding LLMs has also accelerated the development of healthcare chatbots, potentially complementing human caregivers [48, 75, 111]. Excitement for providing care with AI now joins a long chain of research in affective computing that seeks to invent newer methods and artifacts (e.g., robots for emotional support and stress management [4, 62]). However, R/S has not been adequately explored in healthcare tech. We will explore: ***How is AI currently being used across both clinical and social or community-based care settings? How can future AI (un)design be more sensitive to R/S, especially given emergent public availability of AI?***

3.3 Ethics in AI-based Sociotechnical Systems for Wellbeing and Health

Using AI for health and wellbeing requires careful ethical reflection. First, many people around the world still lack access to basic healthcare due to infrastructural constraints, resource limitations, and digital divides [76, 87]. Second, scholars are becoming increasingly aware of potential LLM harms, which may prematurely inspire numerous wellbeing and healthcare technologies [30, 78]. Third, the ethical and value orientation of healthcare AI technologies are often implicitly or explicitly shaped by evidence-based data, and primarily Western and secular ways of being, making the technologies non-inclusive and discriminatory for many individuals worldwide, especially people with R/S beliefs that impact their healthcare decisions and preferences [32, 61]. Finally, some contexts are better off *without* AI as it can displace human labor and detract from meaningfully addressing wellbeing and social determinants of health [40]. To curtail the harms of techno-determinism and techno-solutionism, we value thoughtful decisions *not* to use AI [6], as well as soulful and communal ways of rethinking normative technological relations [41, 42]. Considering these concerns, we invite critical, speculative, empirical, and theoretical contributions that consider (un)ethical aspects of AI, such as: ***What kind of “good” life is being “designed” at the individual and communal levels through such AI “care”-giving technologies and wellbeing tech more broadly? Whose ethics and moralities are being considered or marginalized by AI?*** Such questions require an understanding of “care” as both an emotional disposition towards matters of concern [26] and as actions taken in response to those concerns [97], as well as how wellbeing and “care”-informed technology may be (un)designed in CSCW policies, practice, and innovation.

Pre-Workshop Zoom Event: 2-Hour Introduction and Coordination	
60-min.	Introductory Remarks & Participant Lightning Talks
60-min.	Group Activity (Identify Thematic Topics of Interest) & Logistical Coordination
In-Person & Hybrid Conference Event: Full Day Main Event	
8:30 - 8:50	Opening Remarks
8:50 - 9:10	Icebreakers
9:10 - 10:00	Opening Keynote/panel TBA
10:00 - 10:30	Coffee
10:30 - 12:00	Interactive Group Activity 1: Challenges
12:00 - 1:30	Lunch
1:30 - 2:30	Talk/panel
2:30 - 3:00	Coffee
3:00 - 4:40	Interactive Group Activity 2: Opportunities
4:40 - 5:00	Closing Remarks

Table 1. Approximate schedule.

4 OVERVIEW OF ACTIVITIES

Table 1 displays a prospective schedule. The workshop will feature informative talks or panels interspersed with rich opportunities for reflective, in-depth discussion and structured interactive activities to facilitate community and relationship building. The workshop will be organized in a hybrid format combining: (1) a pre-conference workshop activity over Zoom; and (2) one day of in-person and remote participation during the conference. We will facilitate synchronous remote participation by livestreaming all keynotes/talks/panels. Depending on the number of remote attendees, we also intend to facilitate remote group activities over Zoom.

5 CALL FOR PARTICIPATION

Although the workshop broadly focuses on health and wellbeing, we invite interested participants to submit *any* work relating R/S and AI in HCI. Participation is open to a diverse group of researchers, designers, and practitioners from areas like: AI, CSCW/HCI, theology, R/S community leaders/members, health and mental health care, palliative care, chaplaincy, etc. Participants are invited to submit short papers, visual papers or pictorials, podcasts, or artworks related to workshop themes describing:

- Completed research projects
- Works-in-progress
- Research artifacts
- Prospective study designs
- Position papers
- Critical reflections on the field
- Speculative design ideas or fictions
- Case studies of lived experiences or users

5.1 Submission Details

- **Website & Call for Participation:** July 2, 2024
- **Submission Deadline:** September 23, 2024
- **Notification of Acceptance:** October 11, 2024 (or sooner, rolling basis)
- **Page Limit (Flexible):** 1-4 pages (excluding citations)
- **Formatting:** Participants' choice
- **Submission:** Google Form (TBD)
- **Website:** (TBD)
- **Accepted submissions:** Posted on the workshop website (with authors' permission)

Participants will be recruited via networking, social media posts, and personal outreach. To ensure relevance, submissions will undergo a lightweight review process via anonymous peer-review by co-organizers. Acceptance of a maximum of 30 in-person participants (plus up to 30 additional remote participants) will be based on relevance to workshop themes and goals, creativity, uniqueness, and potential implications for future research. Other than pens, large paper pads, and standard AV equipment for the in-person workshop room (microphones, Zoom-compatible projector), no further supplies are requested. Please direct questions to aispiritualityandhealth@gmail.com.

6 ORGANIZERS

Alemitu Bezabih, PhD, is a Postdoctoral Research Associate in the Department of Computer Science at the Colorado School of Mines, with a CS/HCI background and theological training. Her research focuses on HCI, interactive technologies for health, and computational social or spiritual support. She practices and advocates informing the design and development of health technologies

through a holistic understanding of peoples' everyday lived experiences, values, and perspectives. Relevant work: [10, 11, 65]

C. Estelle Smith, PhD, is an Assistant Professor in the Department of Computer Science at the Colorado School of Mines. Her research focuses on building a new research area at the intersection of HCI and spiritual care. She uses a Soul-Centered Design approach to innovate future sociotechnical systems that can support spiritual healing, flourishing, and plasticity—especially in life-critical physical and mental illness. Relevant work: [91–94]

Diana Freed, PhD is a joint Fellow at Harvard's Berkman Klein Center for Internet and Society and at The Center for Research on Computation and Society at the Harvard John A. Paulson School of Engineering and Applied Sciences. She is a 2024 incoming Assistant Professor at Brown University in the Department of Computer Science and Data Science. She focuses on designing, developing, and evaluating sociotechnical systems in contexts of youth interpersonal relationships, intimate partner violence, and caregiving. Relevant work: [27, 36]

Brett A. Halperin is pursuing a PhD in Human Centered Design & Engineering with a graduate certificate in Cinema & Media Studies at University of Washington. His research investigates the use of generative AI for film and media production to support organizing around social determinants of health (labor and housing). He developed "soulful speculation" as a method for embracing the soul as a design resource to rework mind-body normativity in engineering. Relevant work: [40–42]

Sara Wolf is a PhD candidate at the University of Würzburg, Germany. Drawing upon participatory, design-oriented, qualitative methods, her current work explores religious and non-religious rituals with interactive technologies, focusing on how interactive technologies can be intentionally designed for rituals. Sara was an organizer of previous R/S workshops at NordiCHI22 and DIS23. Relevant work: [107, 109]

Caroline (Caro) Claisse, PhD is a Lecturer in Interaction Design at Open Lab, Newcastle University. She is a designer by background inspired by Feminist, Social Justice, and More-than-Human research. Her work focuses on digital health, techno-spirituality, and community wellbeing through co-creation and participatory approaches. Relevant work: [22, 23]

Jingjin Li, PhD, is a research fellow at AImpower.org. Her research focuses on technology for mindfulness and mental wellbeing, AI for empowerment, and inclusive videoconferencing. Her PhD at Cornell University focused on understanding and designing everyday mindfulness technologies beyond meditation for mental wellbeing through working with mindfulness practitioners and utilizing first-person research methods. Relevant work: [55–57]

Michael Hoefer, PhD is an Assistant Professor in the Department of Computer and Information Science at the University of St. Thomas. His research focuses on developing AI-augmented personal informatics systems to support eudaimonic wellbeing in daily life, with specific applications in personal development, mental health, and dreaming. He was an organizer of the DIS23 workshop on tangible R/S artifacts. Relevant work: [58, 59]

Mohammad Rashidujjaman Rifat is a PhD candidate in the Department of Computer Science, a Schwartz Reisman Institute Graduate Fellow, and a doctoral collaborative specialization student in the Munk School of Global Affairs and Public Policy at the University of Toronto. His research aims to explore faith-based ethics, rationality, and politics, to mitigate faith-based intolerance, and to make technologies inclusive of plural ethics. Rifat previously organized the Faith at CHI workshop at CHI 2022 and the Pluralism in CSCW workshop at CSCW 2023. Relevant work: [82–84]

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