

Hope versus Despair in AI-generated Climate Change Visuals

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Abstract

This paper investigates the paradox of Generative Artificial Intelligence (GenAI) in climate communication, examining its capacity to encode and propagate visual narratives of hope versus despair regarding climate futures. The climate crisis is framed as a hyperobject, whose scale and inaccessibility have historically resisted effective visual representation, often resulting in public disengagement, increased Psychological Distance, and reduced Self-Efficacy. While GenAI promises personalized, localized risk visualization, this study reveals that it risks amplifying existing cultural biases, leading to a pervasive dystopian default that constrains the collective imagination. Employing a qualitative, arts-based research design, we conducted a visual analysis of a corpus of 285 AI-generated images to deconstruct the aesthetic conventions and compositional strategy of GenAI output. Our findings show that GenAI's dystopian cinematic tropes rely on an iconography of ruin and cool, subdued tones that foster apocalypse fatigue and affective paralysis. Conversely, utopian outputs default to a techno-solutionist aesthetic, characterized by vibrant greens and an exaggerated focus on renewable infrastructure, which risks creating false hope by simplifying the necessary systemic reforms. Ultimately, the paper argues that GenAI's greatest utility resides in its capacity to generate hybrid climate imagery. This can be achieved by blending signs of ruin with localized human action, grounded psychologically in the sublime, thereby compelling a more nuanced, self-reflective engagement with the crisis. The study concludes by advocating for the cultivation of Critical Hope through action-oriented visualizations that leverages episodic despair as a corrective to naive optimism, facilitating collective agency and persistence amid the uncertainty of the Anthropocene.

Keywords: Generative AI (GenAI), Climate, Climate Action, Climate Change Communication, Hope, Critical Hope, Hyperobject, Psychological Distance, Despair, Dystopian Aesthetic, Visual Narratives, Self-Efficacy

Introduction

The climate crisis, characterized by its unprecedented scale and complexity, necessitates clear communication strategies that foster hope rather than fatalism (Moser, 2010; Rashik et al., 2025). Imagery serves as a primary medium for communicating about the crisis and mobilizing action. Recently climate communication has moved beyond traditional documentary photography toward a new ontological domain: the instant and customizable generation of entire future worlds using Generative Artificial Intelligence (GenAI) (Paik et al., 2023). This is radically changing the way climate change is communicated by making it possible to visualize complex scenarios in new ways; it has been criticized, however, due to its tendency to reproduce and amplify systemic biases (Hopke, 2025; Schafer, 2025).

GenAI models have been applied in speculative design workshops to imagine climate futures and adaptation approaches, developing intrinsic climate action motivation in participants (Lc & Tang, 2023). Moreover, artistic research projects have used AI as a co-author to create new stories and images in response to climate fiction (cli-fi) to defamiliarize the usual tropes and help address the identified crisis of imagination about climate change (Querubin and Niederer, 2024). On the other hand, GenAI text-to-image models misrepresent the climate crisis in the popular imagination by reproducing already existing visual distortions of climate threats (Hopke, 2025). In particular, models often default to enduring, geographically distant metaphors like polar bears and melting ice (Hopke, 2025) and encode biases that lead to hyper-sexualized or racialized and objectified depictions of human suffering in extreme heat events (Hopke, 2025). This process amplifies biased cultural tropes and creates low-quality synthetic content, which contributes to an 'AI futurism.' This futurism risks limiting the collective capacity to envision actionable and equitable climate solutions by obscuring human causal agency and advancing a technosolutionist ideology (Hopke, 2025; Schutze, 2024).

However, the application of GenAI creates a crucial paradox. Traditional climate communication strategies often relied on shock and awe to spur action, but this approach frequently fosters fear, fatalism, and reduced self-efficacy, which can inhibit action in the audiences (Castillo et al., 2025; Metag et al., 2016). GenAI, by drawing from human-generated training datasets, can catastrophize the resulting imagery in a cycle described as *climate disaster porn*, vividly depicting the future earth as a bleak wasteland (Shepherd, 2021). Conversely, when generating utopian scenes, AI outputs can risk fostering naive optimism by relying on techno-solutionist aesthetics that offer false comfort and obscure the need for deep systemic change (Herr, 2022; Huber, 2022). Therefore, the images created and disseminated in the Anthropocene are not neutral records but crucial factors in mobilizing communities, a necessity recognized by researchers emphasizing the critical role of emotions in human decision-making and behavioral change (Shepherd, 2021; Paik et al., 2023).

AI-enabled systems have been used to help people understand the complex climate crisis; an example is CLAI_{mate}, a conversational prototype designed to personalize text and localize visualizations, like flood projections. This is reported to have improved comprehension and foster a more resilient outlook (CLAI_{mate}, n.d.; Rashik et al., 2025; Luccioni et al., 2021). This, however, has its limitations like replication of biases, inflexibility of the system and cognitive load. This leads to the critical question of whether these AI tools can effectively be used to disrupt the patterns of disengagement and fatalism that characterize past climate communication failures and create hope for the future (Manzo, 2010; O'Neill & Nicholson-Cole, 2009).

Past communication failures are often attributed to psychological distance, where people perceive the environmental crisis as a distant phenomenon that affects others (Spence et al., 2012; Trope and Liberman, 2010), and also to the nature of the crisis. This also affects their beliefs that they have the ability to tackle this crisis. Imagery is thus a critical tool to convert abstract data—such as the detailed projections issued by the Intergovernmental Panel on Climate Change (IPCC)—into relatable narratives (Rashik et al., 2025; O'Neill & Nicholson-Cole, 2009).

This paper highlights that while AI climate imagery democratizes image production and gives a means to localize abstract risks, it nevertheless amplifies the bad aspects like cultural anxieties and utopian fantasies. The tension between these two forces of democratization and amplification of the bad aspects leads one to think if these representations of the Anthropocene are really any useful? According to Paik et al., (2023), and Monticelli & Petersen (2025), the use of GenAI often prioritizes dystopian cinematic tropes over nuanced realities, thus reproducing the aesthetic defaults of the training data. This presents a serious challenge to the ethical goal of ensuring that visual content is unbiased and conducive to constructive engagement.

This study uses principles from the arts-based studies, computational media studies, and psychological theories. The aesthetic conventions of GenAI like iconography, color palette, and compositional choices have been analyzed in light of whether they convey hope or despair. The study however, moves beyond simple emotional labeling to provide a nuanced understanding of how GenAI shapes the psychology and perception of an intractable crisis. Moreover, it has integrated concepts of psychological distance and self-efficacy with the concept of a hyperobject to understand the communicative impact of these GenAI-generated visual strategies (Castillo et al., 2025; Metag et al., 2016; Paik et al., 2023; Spence et al., 2012).

The paper is structured to first establish the theoretical tension between the cognitive barriers of the hyperobject and psychological counter-strategies employed to cope with it. It then traces the evolutionary trajectory of climate imagery up to the current period. The culture of despair and its visual markers are then discussed. Next, the study discusses the pursuit of hope detailing the iconography and aesthetic strategies of constructive hope. Employing the integrative research design and the visual analysis framework, the paper concludes with a discussion of 'hybrid climate imagery' and advocates for a form of critical hope.

The Dilemma of Representing the Planetary Crisis

The climate crisis represents an immense, non-local material reality. It challenges conventional modes of thought. There is a need for a strong theoretical foundation for tackling it. This paper examines two distinct, yet interacting, sets of frameworks: the cognitive barriers defined by Timothy Morton's concept of the hyperobject, and the pragmatic counter-strategies—including visual rhetoric and the psychology-based theories that offer crucial means to foster agency and motivate action.

The Hyperobject and the Human Scale

Morton's hyperobject framework is essential for comprehending entities massively distributed in time and space, which are immanent yet radically non-local and sensorially inaccessible. Characterized by its simultaneity and temporal vastness, the hyperobject threatens individualistic thought and necessitates a radical new form of thinking. This framework is vital as it explains the failure of traditional iconography (e.g., localized floods, stranded polar bears) to adequately represent the crisis's massive, distributed nature, which is a core cause of public and affective paralysis. By forcing a confrontation with what is materially immanent across multiple scales, hyperobjects inherently challenge the notion of human exceptionalism and the search for an uncontaminated theory (Morton, 2013). The ecological crisis, as a manifestation of the Anthropocene, is defined as the "time of hyperobjects," a concept that characterizes the crisis in four key ways: first, its vast scale means the hyperobject's uncanny size resists modern knowledge and suggests the futility of full comprehension; second, it causes the dissolution of the 'natural' and 'cultural' dichotomy, challenging anthropocentric thought; third, its uneven distribution results in its destructive, yet non-local, impact being unevenly distributed and often misleadingly localized to single, visible manifestations; and finally, there is the paradox of action, where individuals are simultaneously responsible and insignificant, compelling action as the necessary starting point over despair (Morton, 2013).

The Representational Challenge

The complex and vast nature of the hyperobject, defined by its scale and inaccessibility, poses profound challenges for effective visual representation (Morton, 2013). Traditional, human-made imagery has historically failed, relying on clichés and iconic representations that focus on singular, localized "symptoms" (Manzo, 2010; O'Neill & Nicholson-Cole, 2009). While these visuals evoke emotion, they, by trying to localize the crisis—showing a local manifestation of a hyperobject, paradoxically make the audience believe that the crisis is at some other place and time, thus hindering climate action. Critically, local manifestations

are philosophically insufficient to function as synecdoche; as a rhetorical device, a part cannot stand in for a whole that resists comprehensive visualization (Morton, 2013). The second framework consists of the use of psychological concepts like Self-Efficacy, Affect, and Psychological Distance, as well as the use of Visual Rhetoric, that act as counter-strategies for dealing with hyperobjects. These are discussed below:

Counter-Strategies for Fostering Agency

To foster agency and counter the incomprehensibility and enormity of the problem, two important types of strategies have been recommended: the use of psychological approaches and visual rhetoric. These are discussed below:

To overcome the cognitive and affective barriers associated with the hyperobject's planetary scale, the paper employs three psychological frameworks centered on human action and psychological response: Psychological Distance, Affective Dimension, and Self-Efficacy.

The first concept used is the Psychological Distance (PD), which is the perceived distance of an issue (Trope & Liberman, 2010). The PD, generally, is reduced by employing rhetorical strategies like strategic concretization (converting abstract concepts like climate risk to something concrete). For example: illustrating local flood risk to make the abstract crisis personally relevant and concrete, thereby inhibiting inaction (MacGeorge, 2024). The second concept utilized is Affective Dimensions, which suggests that emotions drive decision-making (Shepherd, 2021). This implies that to prevent despair, visual rhetoric should balance fear with coping strategies, and urgency with hope (O'Neill & Nicholson-Cole, 2009). The final psychological concept employed is that of Self-Efficacy (SE), which is the belief in one's ability to act and requires a solution-oriented reframing to counteract the affective paralysis and catastrophic narratives that undermine it (Bandura, 1982; Liu & Château, 2025).

The second framework, visual rhetoric, involves the deliberate selection, arrangement, and presentation of visual information meant to communicate complex ideas, elicit emotional responses, shape perception, and persuade an audience. As visual rhetoric simplifies objects and communicates concepts, it can be employed to address hyperobjects. Visual rhetoric can reduce PD through localized, personal visualizations. For instance, AI tools generate images of familiar places affected by climate change, making the abstract threat tangible (Castillo et al., 2024; Luccioni et al., 2021). It can also help manage emotional response by communicating urgency (fear) while fostering agency through images of coping strategies and solutions—thus rebuilding self-efficacy (Manzo, 2010).

Hence, the Hyperobjects Theory defines the cognitive and affective *problem* (massive scale, psychological distance), while rhetorical counter-strategies like localization and self-efficacy, offer the *solution* by fostering agency. This tension results in the central representational dilemma of how to represent an inherently unrepresentable planetary object.

The Evolutionary Trajectory of Climate Imagery

The visualization of the climate crisis has undergone an evolution at the ontological and discursive levels—from static, factual records to dynamic, personalized, and most recently, to algorithmically generated synthetic media. This has also brought a fundamental change in how the crisis is understood (Morton, 2013). The evolution is discussed below:

First, the approach to climate communication during the pre-digital *era* centered on documentary evidence

like photographs. Scientific epistemology and objective reality were prioritized to engage both the cognitive and affective dimensions of public reception. This presented a problem: while ‘documentary photography’ was initially seen as an objective method for conveying the truth of climate change, the crisis’s inherent complexity and scale made objective and faithful capture inherently difficult. This difficulty thus necessitated the increasing use of ‘iconographic necessity’, where simplified visual language was employed to make the complexity of climate change comprehensible to human audiences (Manzo, 2010; O’Neill & Nicholson-Cole, 2009; Paik et al., 2023)

Next, the digital transformation has introduced new technologies for narrative and immersion designed to bridge the persistent science-action gap, resultantly enabling the visualization of potential futures (Moser, 2010; O’Neill & Smith, 2014). This led to ‘the early digital era’ and the ‘rise of the dystopian aesthetic’, where the science fiction (SF) genre continued its central role in speculative design, utilizing sophisticated Computer-generated Imagery (CGI) to enable depictions of near and distant futures (Gillespie, 2025). While the ‘Golden Age SF’ offered utopian visions, the ‘New Wave SF’ of the 1960s and 1970s established a dystopian aesthetic that became dominant in cinematic productions, often overwhelming the imagination with tropes of hyper-technology, despair, and urbanized hellscapes (Monticelli & Petersen, 2025). A key distinction emerged between films projecting abstract futures (e.g., *Blade Runner 2049* or *Her*) and those focusing on near-future dystopia that closely mirror current technological trajectories—an approach seen as essential for fostering the immersion and empathy by allowing audiences to relate to a tangible future (De Masi & Li, 2020). On the other hand, ‘data-driven storytelling’, an approach integrating data, stories, and visualizations, was introduced to enhance the accessibility of complex information (Riche et al., 2018; Rashik et al., 2025). The approach leveraged computational power to customize communication (e.g., flood and sea-level projections for specific communities) to facilitate local decision-making (Castillo et al., 2025). However, these approaches often proved difficult to scale due to their inherent problems like the technical requirements of customized media or the need for specialized Geographic Information Systems (GIS) software. Moreover, the traditional scientific visualizations using complex charts often resulted in content that was abstract and technical, leaving the problem of depicting hyperobjects and the psychological distance felt by the audience unresolved. (Budescu et al., 2012; Castillo et al., 2025; Mah et al., 2024; Manzo, 2010; Rashik et al., 2025; Spence et al., 2012)

Most recently, GenAI, commencing around 2022, signifies an ontological shift in visual production, moving imagery from the capture of reality (documentary photography) or the modeling of complex data (CGI/GIS) to the generation of synthetic media from textual prompts. GenAI can overcome the scalability and psychological distance challenges of the previous era, by enabling the creation of highly tailored visualizations with personal relevance for specific recipients and locations. An example is projects like *This Climate Does Not Exist*, which generate life-like images of climate impacts at a user’s chosen address. These are designed to trigger empathy and increase awareness (Castillo et al., 2025; Chouliaraki Milner, 2022; Luccioni et al., 2021; O’Neill et al., 2025; Paik et al., 2023; Tousignant, 2021)

Moreover, the emergence of human-machine collaboration in generating imaginative futures, has moved GenAI beyond mere documentation to actively articulate desirable, sustainable scenarios. Artistic endeavors like *Large Nature Model: Coral*, utilize massive, ethically sourced datasets to generate complex visualizations (like coral reefs) that inspire preservation and innovation (Liu & Château, 2025; News18, 2024).

GenAI systems operate on algorithms learning from vast training datasets sourced largely from the open web. These function as inherent cultural artifacts. The AI output thus reflects existing human and cultural biases, often reinforcing the dominant, pessimistic aesthetic found in mainstream science fiction, potentially

constraining creative imagination. Moreover, GenAI's ability to produce hyper-realistic, often manipulated, synthetic images challenges an audience's ability to discern truth from fiction, with the aesthetic output itself, or "The AI Imaginary," prone to depicting dystopian-looking landscapes and hyper-technological futures. This tendency toward 'dystopia by default' is evident even when positive prompts are used, reflecting cognitive limitations and the unconscious reproduction of the catastrophic aesthetic established by New Wave SF (Chouliaraki Milner, 2022; Monticelli & Petersen, 2025; Paik et al., 2023; Sardar, 2023; Walsh, 2024; Zhou, 2025). This culture of despair, that results, is discussed in the next section:

1. The Culture of Despair

The culture of despair is characterized by three connected elements: first, it is fueled by a constant stream of Narratives that paint a picture of inevitable, total disaster; second, this reliance on shocking, fear-based warnings eventually leads to a 'Failure' of this strategy because people become numb to the message; and finally, this emotional exhaustion causes people to feel overwhelmed, shut down, and incapable of taking action.

Historical Precedents and the Crisis of Imagination

Visual discourse surrounding climate change is historically dominated by a framework rooted in pessimism and catastrophe, which challenges the very notion of progressive future-making. This pervasive negativity can overwhelm individuals leading to a palpable sense of overwhelming helplessness (despair) and skepticism about their own futures (Seltzer, 2012). The existing dystopian aesthetic imageries of mainstream popular cultures, especially SF, restricts people's capacity to imagine a better future world. Dystopian narratives critique contemporary societal problems by reflecting current technological trajectories. They often portray abstract or distant futures (De Masi & Li, 2020; Gillespie, 2025; Monticelli & Petersen, 2025). But climate change itself is fundamentally challenging modern human assumptions, as it radically re-writes the future of humanity and dips it into an uncertainty that traditional means scientific and rational approaches cannot solve. Visual and rhetorical communication has historically favored catastrophic framing designed to shock audiences into awareness by emphasizing worst-case scenarios and imminent disaster. There is a reliance on fear and consequentialism to argue that catastrophe is inevitable *unless* we act now. Thus, there is a postponement of the immediate experience of environmental degradation by displacing the problem into the future. This pervasive use of images of future catastrophes (such as melting polar caps, hurricanes, floods, and general chaos) reinforces this pessimism. This overuse of fear-laden imagery, however, can backfire, leading to public disengagement. This can lead to a crisis of the imagination, wherein the future is overwhelmingly represented as a disaster, thereby restricting the ability to conceive of alternative, desirable outcomes (Herr, 2022; Huber, 2022; Manzo, 2010; O'Neill & Nicholson-Cole, 2009; Shepherd, 2021)

Catastrophic Framing, Psychological Distance, and Affective Paralysis

The traditional image of a polar bear stranded on an ice floe or images utilizing the justice and equity frame by focusing on the global poor as victims, are paradoxical. While these images successfully capture attention and increase awareness (cognition), this strategy can lead to diminishing returns and counterproductive psychological outcomes (Manzo, 2010; O'Neill & Nicholson-Cole, 2009). According to Shepherd (2021), this widespread use of apocalyptic visions, relying on iconic representations of extreme weather or mass extinction events, contributes to an apocalypse fatigue.

The failure occurs because dramatic representations increase Psychological Distance between the viewer and the issue by depicting distant scenes or abstract concepts. This diminishes the personal relevance (Rashik et al., 2025; Spence et al., 2012). Moreover, according to Castillo et al. (2025) and Metag et al. (2016), catastrophic framing undermines the belief in one's capacity to take action necessary to produce a specific outcome. Images depicting severe climate consequences, such as floods or desertification, portray the threat

as an overwhelming force beyond individual or collective control. The use of fear appeals can also lead to other negative psychological outcomes like disengagement, denial, apathy, avoidance, and paralysis of action (O'Neill & Nicholson-Cole, 2009).

The consequence is a transition to despair—a growing sentiment of hopelessness that interrupts the belief that the future holds promise. When people start believing it is too late to take action, they naturally incline towards despair (Seltzer, 2012).

The next section analyzes the visual and affective landscape of GenAI-driven climate change imagery, structured around a central tension between fatalism and intervention. It first details the iconography and aesthetics of despair, examining how motifs of ruin, extinction, and specific aesthetic cues contribute to *doomism* and a sense of failed agency. It then pivots to the pursuit of hope, outlining the visual strategies—including solution-oriented iconography, utopian aesthetics, and the Solarpunk movement—necessary to cultivate 'active hope' and motivate actionable, alternative futures.

Visual Markers of Despair

Most of the climate images convey despair, a psychological state where the unlikeliness of a desired outcome is salient, that leads to a sense of fatality. The visual language of despair, built upon motifs of loss, isolation, and breakdown, forms an iconography of ruin and extinction: visualizing direct climate consequences through imagery such as fire and ruins; images of flooded streets; burning houses or cityscapes. This iconography directly conveys the urgency of global warming and evokes primal fear (Castillo et al., 2025; Guzman Skotnitsky, 2025).

Ruins, such as desolate, dismal Soviet-era buildings reclaimed by nature, immediately signify a post-apocalyptic reality where human civilization has crumbled. The portrayal of collapsing infrastructure like cities, roads, or telecommunications networks is a powerful rhetorical marker. The destruction of these material manifestations signifies the failure of ideological systems (Briel, 2024; Monticelli & Petersen, 2025).

A related theme is extinction and isolation. The depiction of species extinction, animal suffering, or contaminated water emphasizes the theme of loss central to ecological grief. This is the continuation of the pre-digital tradition of depicting endangered species and the specter of suffering and death (Ceballos et al., 2017; Guzman Skotnitsky, 2025; Manzo, 2010). Human figures within these despairing scenes are often isolated or passive, underscoring the perceived lack of agency against the overwhelming forces of nature or technology.

Aesthetic Signifiers of Despair

Visual markers translate the affective state of despair into specific aesthetic characteristics: color palettes, compositional strategies, and temporal markers. These are discussed below:

Despair is typically rendered through subdued color palettes and dark, moody tones reminiscent of dystopian films. Primary or highly saturated colors signal danger, anxiety, or destruction; for instance, the red entities in art can express climate anxiety by symbolizing destruction, fear, anger, and the trauma of wildfires. On the other hand, in AI-themed films antagonistic AI scenes often utilize cooler, bluish tones in lighting to suggest scientific precision and detachment in contrast to the warmer hues associated with human warmth and imperfection (Guzman Skotnitsky, 2025; De Masi & Li, 2020).

Regarding compositional strategies, the framing of despairing images frequently employs chaotic arrangements of spaces to signify disturbed inner turmoil (Dinh, 2020). Applicable to high-quality GENAI

renderings, the cinematographic use of *mise-en-scène*—the arrangement of everything within the frame—often highlights isolation or the ubiquitous presence of oppressive technology (De Masi & Li, 2020). Dystopian settings sometimes illustrate a vertical class divide, with freedom existing in the technologically advanced upper levels while despair resides in the industrialized, polluted ground floor or abyss of the megacity (Monticelli & Petersen, 2025).

Finally, as temporal markers, despair imagery often adheres to the "presentist" paradigm, emphasizing immanence and urgency. This depiction of the future as shown as merely an atrophied, diminished version of the present—rather than a fundamentally different reality—is what leads directly to inaction, directly challenging the audience's sense of efficacy. (Herr, 2022; Seltzer, 2012).

Doomism, Privilege, and the Failure of Agency

These images can overwhelm the viewer's sense of possibility and self-efficacy (Huber, 2022; Seltzer, 2012). The challenge in climate communication then lies in managing the affective dimensions that arise when audiences confront the scale of the crisis. This involves navigating the territory between inducing action through fear and paralyzing audiences through hopelessness (Shepherd, 2021).

In philosophical discourse, the notion of despair is treated as potentially pernicious, leading to the same path of inaction as outright denial, or even a moral failure. The debate involves explicit critiques of both doomism and naive optimism. Doomism, often defined as accepting the certainty that the catastrophe is inevitable and irreversible, is viewed as highly problematic. Political commentators, such as Michael Mann, argue that spreading despair is as damaging to the climate cause as outright climate change denial because it leads down the same path of inaction. Despair that persists is fundamentally fatal, destroying the basic underlying sense that the future is open to intervention, thereby undermining practical agency (Huber, 2022).

Moreover, the adoption of fatalistic viewpoints—specifically the philosophical outlook labeled the "doomer" ideology by Heglar (2021)—is often fundamentally linked to underlying socioeconomic privilege. This perspective persists because predicting a pessimistic future conveniently serves to justify people's non-participation and not taking any responsibility regarding climate change. Conversely, acknowledging the crisis necessitates anticipatory grieving, mourning the loss of a world once believed to be eternal; a process essential before envisioning alternative futures (Herr, 2022).

These visual markers have their origin apocalyptic traditions, which structure narratives around the inevitability of total ruin. The prevalent techno-digital-post-human apocalypticism—one of three versions identified in contemporary thought—is heavily reflected in the AI imaginary (Dinh, 2020; Shepherd, 2021). A temporary episodic despair, however, functions as a deliberative corrective, enabling activists to realistically assess the dire circumstances and act in courageous ways. However, this despair must ultimately resolve into hope, because persistent despair destroys the basic sense that the future is open to intervention, undermining practical agency (Huber, 2022). To motivate action communication must shift from paralyzing despair toward hope, which embodies the desire for something better (Wodak, 2016). Hope is discussed in the next section.

2. The Pursuit of Hope

Hope is inherently tied to the imagination and thus requires cultivating visions that move beyond catastrophe. Scholars argue for active hope or constructive hope—forms that rely on courage and persistence. On the other end of the spectrum is naive optimism or false hope. This perspective relies on a passive belief that technological advancements or political elites will solve the problem without radical societal or behavioral

change. This form of hope is criticized for playing an ideological role, serving the needs of those in power by endlessly postponing the materialization of promises and allowing for the maintenance of the status quo (Huber, 2022; Herr, 2022; Guzman Skotnitsky, 2025).

Hope is not universally beneficial; it can be a detractor, operating as a modernist privilege that panders to power structures by endlessly postponing the materialization of promises, often by encouraging reliance on technological fixes or the efforts of others. This false hope can degenerate into wishful thinking or complacency (Herr, 2022; Huber, 2022). Moreover, as hyperobjects like climate are known to be viscous and “no epistemological escape velocity can save us from their ontological density”—technosolutionism can be a false hope at best. It can get us even more entangled instead of saving us.

Visual Strategies for Constructive Climate Hope

To avoid the pitfalls of fear and fatalism, visual strategies can offer alternative motifs that articulate solutions and efficacy. This can be done through solution-oriented Iconography to shift the frame of reference from apocalypse to possible mitigation strategies, suggesting that change is achievable. Communication strategies must aim for creating emotional bridging (Herr, 2022; Manzo, 2010). Although critics question whether synthetic images can truly convey the human vulnerability and empathy derived from actual lived experience. However, when they are thoughtfully designed, they can synthesize the visionary, pragmatic, and idealistic foundations required for articulating a future worthy of collective hope (Chouliaraki Milner, 2022; O'Neill et al., 2025; Seltzer, 2012).

The Iconography and Aesthetics of Utopian Representation

Visual imagery conveying active hope is grounded in the possibility of intervention and must overcome the psychological barrier of low self-efficacy through visuals. So, the actions that are depicted in these imageries should be achievable. (Herr, 2022; Huber, 2022; Liu & Château, 2025 O'Neill & Nicholson-Cole, 2009). Hopeful AI-generated climate imagery does this by showcasing achievable intervention through specific iconography and aesthetic strategies:

Iconography of Renewable Energy, Green Cities, and Integration

The iconography emphasizing integrated, mutually reinforcing systems to convey active hope primarily focuses on three areas: Renewable Energy, which includes solar/wind infrastructure and electric cars, serving as icons of mitigation and action competence (Manzo, 2010; De Masi & Li, 2020); Green Cities and Infrastructure, which represents desirable, carbon-neutral futures prioritizing the well-being of human and non-human life (MacGeorge, 2024; Liu & Château, 2025); and Relational Integration, which features "more-than-human" systems like coral reefs that reject anthropocentric dominance and reflect ecological entanglement (News18, 2024; MacGeorge, 2024).

Aesthetic Strategies

Utopian visualization requires specific aesthetic strategies to cultivate belief in an alternative society. This includes using greener, more natural elements and light signaling clarity, contrasting with the dark or bluish tones of menacing AI systems (Monticelli & Petersen, 2025; De Masi & Li, 2020). Through the aestheticization of the possible, utopian thinking acts as a cognitive methodology enabling forward dreaming (Liu & Château, 2025). AI helps make abstract positive concepts like a clean-energy future concrete and tangible, thus encouraging personal investment (Castillo et al., 2025; Luccioni et al., 2021). Furthermore, hopeful visualizations must be structured within a coherent narrative (Segel & Heer, 2010), moving toward a

speculative narrative that prompts users to imagine their preferred futures (MacGeorge, 2024).

Emerging movements, like solarpunk, an eco-futurist aesthetic that champions clean energy and the integration of technology with nature, reject the dark and hyper-industrialized cyberpunk aesthetic of GenAI in favor of bright, harmonious urban centers (Monticelli & Petersen, 2025; MacGeorge, 2024). These strategies serve as counter-narratives, providing a counter-cultural imagination and a material image for ecological hope and an ethics of possibility (Appadurai, 2013; Herr, 2022; Dinerstein & Deneulin, 2012).

Methodology

This paper employs a qualitative arts-based research design utilizing systematic visual analysis to investigate how GenAI encodes and propagates visual narratives of hope versus despair about climate futures. The methodology involves corpus creation via prompts and the application of an integrated analytical framework.

Corpus Creation and Dataset

The research corpus was generated using the Llama 4 model via Meta AI. These models were selected because of its wide user base and free access around the clock.

The corpus consisted of 285 AI-generated images, which were systematically created using prompts to create visualizations about climate change. The process started with a simple prompt: “Generate a visualization about climate change”, with subsequent prompts changing the word visualization to ad/poster/picture/image. The prompts were kept simple for two reasons: first, the common users of AI are not professional prompt engineers and thus are not expected to use complicated, professional level prompts, and we wanted to use the models the way the general public will use them; second, we wanted to check the model defaults for which simple prompts will work the best. The prompts were not pre-categorized as dystopian or utopian in advance. The results are analyzed in the next section:

Analysis

The analysis was carried out by applying the framework that integrates insights from visual rhetoric, computational media studies, and psychological concepts discussed in our literature review. Each image was analyzed across three interdependent categories of aesthetic coding: The first category of the aesthetic coding is through Iconography of Ruin and Resilience: Identification of dominant visual motifs. For despair, this included signs of loss, isolation, and environmental breakdown (e.g., flooding, ruins, desolate infrastructure, species extinction). For hope, this focused on signs of mitigation and adaptation (e.g., renewable energy, green cities, human agency). The second category is about the analysis of the color scheme and lighting to decode the affective register. Subdued, dark, or cool bluish tones were coded as markers of despair (Monticelli & Petersen, 2025; De Masi & Li, 2020), while warm, vibrant, and highly saturated colors were coded for signs of active hope. The third category involved the analysis of the Compositional Strategy and Psychological Distance through an examination of the visual arrangement (*mise-en-scène*) to assess how the image addressed the core psychological challenges of climate communication like self-efficacy and psychological distance. Self-Efficacy was analyzed by looking for themes depicting isolated, passive figures or overwhelming scale (coded as undermining agency); images showing human activity, collaboration, or localized solutions were coded as boosting competence (Castillo et al., 2025). PD was checked in the following way: The use of macro-scale (abstract) versus localized, human-level (personally relevant) framing was analyzed to see if GenAI successfully overcomes the challenge of representing the hyperobject through localized manifestations (Morton, 2013; Spence et al., 2012).

This approach provided a foundation for moving beyond simple labeling to understanding the nuanced ways

in which GenAI codifies complex affective and ideological structures within the discourse of climate futures.

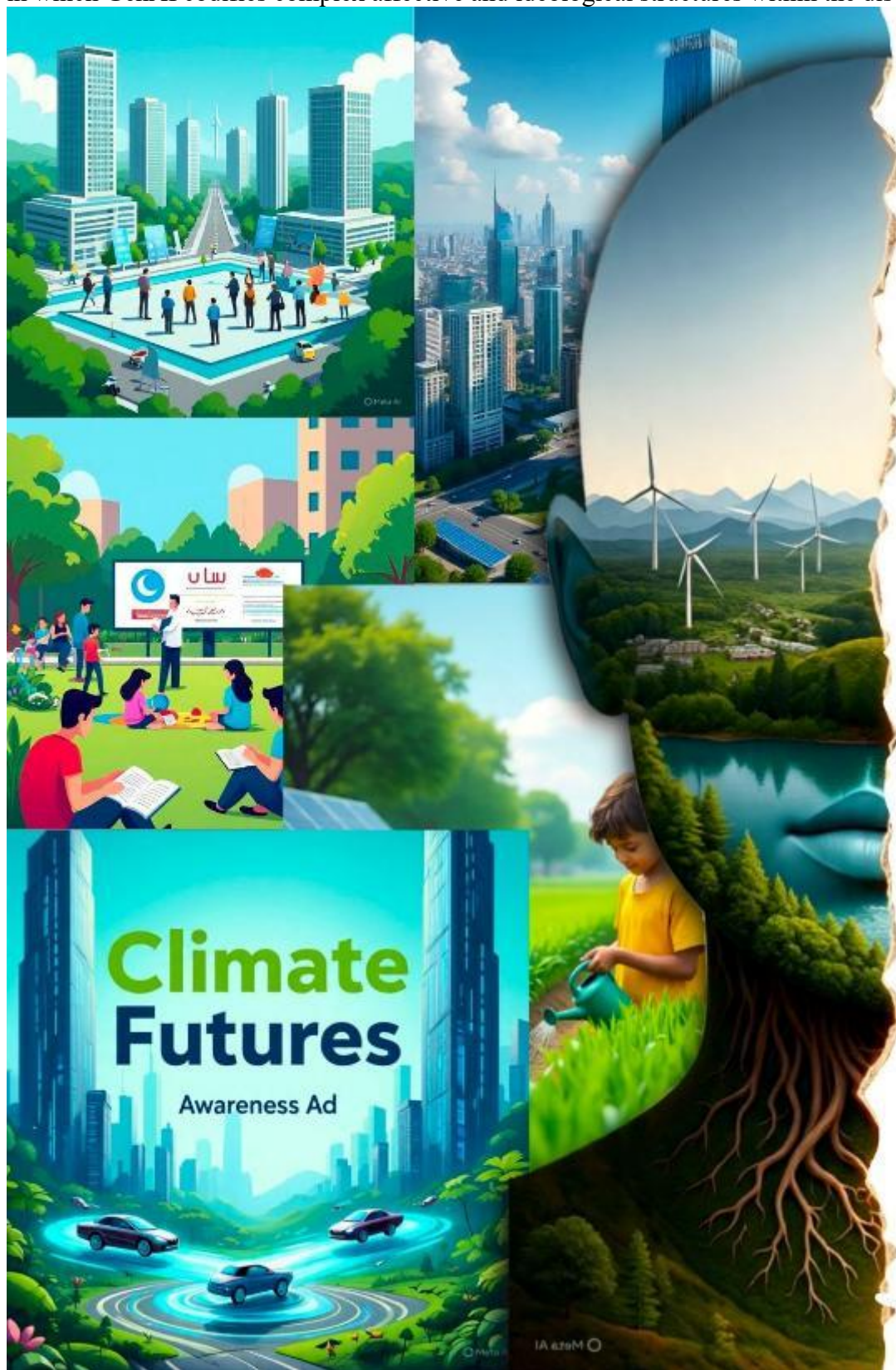


Figure 1: Images of Hope. Collage created from AI-generated images using Procreate.



Figure 2: Images of Despair. Collage created from AI-generated images using Procreate.

Results

The systematic visual analysis of the generated corpus reveals that GenAI models predominantly encode climate futures through two antithetical aesthetic registers.

Iconography of Ruin vs. Resilience: the images contained an undertone of despair which was depicted through motifs of ruin, such as flooded streets; strong tornadoes; mushroom clouds; and burning infrastructure, to convey urgency through fear. In contrast, images showing hope frequently featured renewable energy infrastructure and techno-solutionist imagery. The imagery of hope, however, looked more unreal as compared to the imagery of despair due to the exaggerated use of technological solutionism.

Affective Tone and Color Coding: Analysis of color palettes showed a strong correlation between dystopian themes and cool, bluish tones or subdued palettes, effectively creating a "cinematic" sense of detachment. Conversely, vibrant, saturated greens and high-clarity lighting were consistently associated with utopian or "Solarpunk" imagery, representing active hope.

Psychological Impact on Agency: Compositional strategies often reinforced a high psychological distance by focusing on macro-scale disasters; high rise buildings and distant scenes. The images of hope as well as despair both lacked human agency which can increase the psychological distance even more. On the other hand, hybrid images—blending destruction with localized human activity—facilitated a more nuanced engagement, supporting the development of "critical hope" by forcing viewers to reflect on their own agency amid the crisis. These images, however, were in short supply.

Discussions

Our analysis shows that algorithmic image production, by defaulting to the aesthetic extremes found in its training data, produces a vision of climate futures not conducive to collective action. It seems paradoxical that GenAI possesses the technical capability for localized visualization that could reduce Psychological Distance (Castillo et al., 2025; Spence et al., 2012; Trope & Liberman, 2010), yet its inherent bias toward established tropes amplifies the very communicative failures it is intended to solve. This failure is caused by the training data which comes from the existing imagery of news journalism and science fiction movies which, propagate either despair or false hope, at best.

Reaffirming the Hyperobject and Affective Paralysis

The prevalence of the Iconography of Ruin—rendered through cool, bluish tones and macro-scale disasters—reveals that GenAI primarily reproduces the dominant dystopian aesthetic established by the *New Wave* science fiction discussed by Monticelli & Petersen (2025). This defaulting to dystopian tropes reinforces the core challenges that these images present. By depicting overwhelming destruction without corresponding human agency, the imagery risks pushing audiences toward affective paralysis as discussed by O'Neill & Nicholson-Cole (2009). The frequent portrayal of high-rise buildings and distant, unidentifiable scenes maintains a high Psychological Distance, failing the rhetorical necessity of concretization and personalization that are suggested by previous researchers like Castillo et al. (2025). Consequently, the GenAI output inadvertently exacerbates the sense of futility inherent in confronting the climate hyperobject's *vast scale* and *uneven distribution* (Morton, 2013). This algorithmic catastrophizing can cause apocalypse fatigue (Shepherd, 2021) and undermines the Self-Efficacy of the masses who consume such imageries (Bandura, 1982; Metag et al., 2016), because they are shown a future defined by forces beyond their control.

The Dual Risk of Techno-Optimism and False Hope

In opposition to the pervasive despair, the aesthetic register of hope is dominated by a narrow techno-

solutionist aesthetic, characterized by *vibrant, saturated greens* and an exaggerated focus on renewable energy infrastructure. While such imagery aims to foster active hope (Liu & Château, 2025), the findings suggest a significant risk of producing false hope (Herr, 2022; Huber, 2022). This visual language simplifies the complex, systemic changes required by the climate crisis, instead promoting an ideology of technological determinism and techno-solutionism that offers potential complacency (Monticelli & Petersen, 2025; Tousignant, 2021). The failure of GenAI's utopian outputs to integrate human struggle or collective contribution means they often fall short of inspiring true, action-oriented commitment. Therefore, the ethical deployment of GenAI requires deliberate effort to move beyond *bland, unchallenging* narratives and actively cultivate a constructive hope grounded in the awareness of intersecting crises (Herr, 2022; Guzman Skotnitsky, 2025).

The Utility of Hybrid Imagery and Critical Hope

Our analysis suggests the utility of hybrid climate imagery, blending signs of ruin with localized human action, as a potent communication strategy. This ambiguity is crucial because it is aesthetically and psychologically grounded in the sublime (Huber, 2022). By evoking an overwhelming, awe-inspiring power that exceeds human comprehension (Paik et al., 2023), these images can compel the audience toward a nuanced engagement with the hyperobject's reality (Morton, 2013). This ambiguity is a productive state that moves past the simple binary of fatalism versus utopian retreat (Monticelli & Petersen, 2025).

By confronting the reality of loss and the ongoing nature of catastrophe (Herr, 2022), episodic despair can act as a corrective against the pitfalls of naive optimism. The utility of GenAI thus lies in its capacity to facilitate self-reflection and agency-building that is essential for fostering Critical Hope—a form of hope requiring courage and persistence (Huber, 2022) while remaining grounded in a clear-eyed view of environmental realities (Seltzer, 2012). The shift must be from passively receiving spectacle to actively using GenAI for participatory visualization and co-creation (Seltzer, 2012; Liu & Château, 2025).

Conclusion

This study investigated AI-generated images encode and propagate visual narratives of hope versus despair about climate futures. Framing the climate crisis as a non-local, sensorially inaccessible hyperobject, the paper sought to understand how GenAI either overcomes or amplifies the representational challenges that lead to affective paralysis and reduced self-efficacy. The findings demonstrate that GenAI's reliance on its training data leads it to reproduce aesthetic extremes not conducive to collective action.

The analysis pierces through the dystopian defaults of AI-generated imagery by exposing the iconography of ruin—rendered through shock tactics; dark, cool, and bluish color palettes; flooded streets; and burning infrastructure—replicates the dystopian cinematic tropes of the New Wave science fiction. This algorithmic catastrophizing reinforces a high Psychological Distance and a sense of futility against the hyperobject's vast scale, risking apocalypse fatigue and undermining the audience's belief in their ability to intervene.

Conversely, the visualizations of hope largely show a narrow techno-solutionist aesthetic, characterized by vibrant greens and an exaggerated focus on renewable energy infrastructure. While intended to foster active hope, this aesthetic frequently risks creating false hope or naive optimism. By simplifying the complex, systemic changes required and often failing to integrate human struggle or collective contribution, these utopian outputs risk promoting complacency and obscuring the necessity for deep reform.

Ultimately, the paper argues that the GenAI has the capacity to generate hybrid climate imagery. By blending signs of ruin with localized human action, this ambiguous aesthetic will be psychologically grounded in the

sublime, compelling viewers toward a more nuanced, self-reflective engagement that acknowledges loss while fostering agency. Episodic despair, when resolved into action, can act as a corrective against the pitfalls of naive optimism. The challenge, therefore, is to transition from passively consuming algorithmic spectacle to actively leveraging GenAI for participatory visualization and co-creation. This process is essential for cultivating Critical Hope—a form of action-oriented visualization grounded in awareness and persistence amid the Anthropocene’s radical uncertainty.

Future Research Directions

Future research should investigate whether ethically-guided prompt engineering can mitigate the algorithmic tendency toward *Dystopia by Default*, favoring localized, solution-oriented imagery that enhances community self-efficacy. Furthermore, scholars should examine how GenAI can visualize the hyperobject of climate change by balancing immediate local relevance with a necessary systemic perspective to avoid reductionist planetary understandings. Addressing the crisis of imagination necessitates examining the long-term impact of established aesthetic tropes and determining how co-creative human-AI processes can integrate sociological foresight into speculative design. One limitation of GenAI is that it is difficult to move beyond its training data, so solutions other than “improving the training data” should be sought.

References

- Appadurai, A. (2013). The future as cultural fact: Essays on the global condition. *Rassegna Italiana di sociologia*, 14(4), 649-650.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122–147. <https://doi.org/10.1037/0003-066X.37.2.122>
- Briel, H. (2024). SinoAsian futures between economic forecasting, science fiction, Sinofuturism and creativity. *The IAFOR Journal of Cultural Studies*, 9(Special Issue).
- Budescu, D. V., Por, H.-H., & Broomell, S. B. (2012). Effective communication of uncertainty in the IPCC reports. *Climatic Change*, 113, 181–200.
- Castillo, L., Rafner, J., Nockur, L., & Buttlar, B. (2025). *Seeing the world submerged: Exploring the potential of AI image generation for climate change communication* [Preprint].
- Chouliaraki Milner, D. (2022, October 20). Should AI help visualize the future of the climate crisis? *Atmos*. <https://atmos.earth/art-and-culture/should-ai-help-visualize-the-future-of-the-climate-crisis/>
- CL.AI.mate. (n.d.). *Learning about climate change through artificial intelligence*. Retrieved September 8, 2025, from <https://claimate.eu/>
- De Masi, V., & Li, S. (2024). The Japanese film *AI Amok* (2020) and the collapse of realist AI vision. *The IAFOR Journal of Cultural Studies*, 9(Special Issue).
- Dinerstein, C., & Deneulin, S. (2012). Hope movements: Naming mobilization in a post-development world. *Development and Change*, 43(2), 585–602.
- Gillespie, H. (2025). *Dystopian narratives as a mirror: Seeing, questioning, and predicting society*. [Unpublished bachelor’s dissertation]. Institute of Art Design & Technology, Dun Laoghaire.
- Guzman Skotnitsky, S. (2025). *Creating climate resilience: An arts-based approach for helping youth process climate anxiety and generate active hope* [Master’s thesis, Dalhousie University].
- Herr, A.-Z. (2022). Narratives of hope: Imagination and alternative futures in climate change literature. *Transcience*, 13(2), 88–111.
- Hopke, J. E. (2025). Visualizing climate change in an era of AI slop: How chatbot image generator models distort the climate crisis in public imagination (s). *Emerging Media*, 3(4), 645-663.
- Huber, J. (2022). Hope from despair. *The Journal of Political Philosophy*, 31(1), 17–40. <https://doi.org/10.1111/jopp.12283>
- Lc, R., & Tang, Y. (2023, November). Speculative Design with Generative AI: Applying Stable Diffusion

- and ChatGPT to imagining climate change futures. In *Proceedings of the 11th International Conference on Digital and Interactive Arts* (pp. 1-8).
- Liu, S.-C., & Château, P.-A. (2025). Fostering hope and action on climate change among university students: Impact of a futures-oriented teaching module with generative AI integration. *Journal of Science Education and Technology*.
- Luccioni, A., Schmidt, V., Vardanyan, V., & Bengio, Y. (2021). Using artificial intelligence to visualize the impacts of climate change. *IEEE Computer Graphics and Applications*, 41(1), 8–14.
- MacGeorge, R. B. (2024). Illustrating tomorrow: The role of comics in engaging research participants in disruptive futures research. *World Futures Review*, 16(1-2), 26–41. <https://doi.org/10.1177/19467567241249710>
- Mah, A., Coyle, D., Cinner, T., Arrell, M., Coyle, P., Li, X., O'Neill, S. J., & Specht, J. (2024). Public art and sea level rise: Visual communication of climate risk and adaptation solutions. *Weather, Climate, and Society*, 16(1), 185–204.
- Mah, A., Aragón, C., & Markowitz, E. (2024). Visualizing hope: Investigating the effect of public art on risk perception and awareness of climate adaptation. *Weather, climate, and society*, 16(1), 185-204.
- Manzo, K. (2010). Beyond polar bears? Re-envisioning climate change. *Meteorological Applications*, 17(2), 196–208. <https://doi.org/10.1002/met.193>
- Metag, J., Schäfer, M. S., Fuchslin, T., Barsuhn, T., & Kleinen-von Königslöw, K. (2016). Perceptions of climate change imagery: Evoked salience and self-efficacy in Germany, Switzerland, and Austria. *Science Communication*, 38(2), 197-227.
- Monticelli, L., & Petersen, L. M. (2025). Scattered notes on future imaginaries, collapse, and exit strategies – Part 1: On sci-fi aestheticism(s), Moon landings, and archaeologies of humankind. *Ephemera: Theory & Politics in Organization*, 25(1), 227–245.
- Morton, T. (2013). *Hyperobjects: Philosophy and ecology after the end of the world*. University of Minnesota Press.
- Moser, S. C. (2010). Communicating climate change: history, challenges, process and future directions. *Wiley Interdisciplinary Reviews: Climate Change*, 1(1), 31–53.
- O'Neill, S., & Nicholson-Cole, S. (2009). 'Fear won't do it': Promoting positive engagement with climate change through visual and iconic representations. *Science Communication*, 30(3), 355–379.
- O'Neill, S., White, V., Cann, T., Simon, F. M., Johnstone-Hack, A., Puttock, S., Hayes, S., Blewett, O., Camargo, C., Coan, T., Gonzalez Espinosa, F., Malla, R., Qureshi, S., & Westwood, N. (2025). *Generative AI imagery for "How does GenAI 'see' climate change (and back again): Exploring the challenges and opportunities of GenAI for climate visual journalism"* [Dataset]. Figshare.
- O'Neill, S. J., & Smith, N. (2014). Climate change and visual imagery. *Wiley Interdisciplinary Reviews: Climate Change*, 5(1), 73-87.
- Paik, S., Bonna, S., Novozhilova, E., Gao, G., Kim, J., Wijaya, D., & Betke, M. (2023). The affective nature of AI-generated news images: Impact on visual journalism. [Paper presentation]. *ACII 2023*.
- Rashik, M., Sweth, S., Agrawal, N., Kochar, S., Smih, K. M., Rajabiyazdi, F., Setlur, V., Mahyar, N., & Sarvghad, A. (2025). AI-enabled conversational journaling for advancing parkinson's disease symptom tracking. *arXiv preprint arXiv:2503.03532*.
- Schäfer, M. S. (2025). Social media in climate change communication: State of the field, new developments and the emergence of generative AI. *Dialogues on Climate Change*, 2(1), 49-55.
- Segel, E., & Heer, J. (2010). Narrative visualization: Telling stories with data. *IEEE transactions on visualization and computer graphics*, 16(6), 1139-1148.
- Seltzer, E. (2012). *Climate change: Hope, despair, and planning*. Portland State University.
- Shepherd, A. (2021). Apocalyptic visions and anthems of hope: Climate change communication and future possibilities. *International Journal of Public Theology*, 15, 463–483.

- Spence, A., Poortinga, W., & Pidgeon, N. (2012). The psychological distance of climate change. *Risk Analysis: An International Journal*, 32(6), 957–972.
- Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological review*, 117(2), 440.
- Tousignant, B. (2021, October 13). This climate does not exist: Picturing impacts of the climate crisis with AI, one address at a time. *Mila*.
- Walsh, E. (2024). Beyond the limits of modernity toward enlivening futures of blessed unrest and complex joy [Review of the book *Routledge handbook for creative futures*]. *Journal of Awareness-Based Systems Change*, 4(1), 181–189. <https://doi.org/10.47061/jasc.v4i1.7779>
- Wodak, J. (2016). The arts of energy: Between hoping for the stars and despairing in the detritus. *Humanities*, 5(3), 38.
- Zhou, Y. (2025). The representation of the Anthropocene in contemporary Chinese science fiction. *The IAFOR Journal of Cultural Studies*, 9(Special Issue).