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Research article

AI-Enhanced Visual Storytelling: Exploring Environmental Narratives in Literary Studies

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Abstract

The growing environmental crisis has encouraged new intersections between ecocriticism, digital humanities, and artificial intelligence (AI), prompting fresh approaches to ecological storytelling. This paper examines how generative AI, including image generation, illustration, and interactive multimedia, reconfigures the representation and reception of environmental narratives. Focusing on Amitav Ghosh's *The Living Mountain* and Hansda Sowvendra Shekhar's *The Adivasi Will Not Dance*, it explores how AI-mediated visualizations transform literary texts into multisensory experiences that deepen readers' engagement with landscapes, multispecies relations, extractive violence, and ecological degradation. Combining close reading with ecocritical and digital humanities perspectives, the study evaluates both the creative possibilities and ethical challenges of AI-assisted storytelling, including aesthetic commodification, cultural appropriation, and algorithmic bias. It argues that AI should function not merely as a visualization tool but as a critical medium for environmental interpretation, provided its use is guided by principles of environmental justice, cultural sensitivity, and narrative integrity. The paper proposes a framework for environmentally responsible AI storytelling that expands literary engagement while preserving the ecological and cultural complexity of the original texts.

Keywords: Artificial Intelligence, Eco-Criticism, Indian Eco-Fiction, Visual Storytelling, Environmental Humanities, Digital Narrative

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1. Introduction

Since the time of the ancients, images used to illustrate classical literature served not solely as decorative embellishments but also provided the means for conveying the essence of the story as well as providing visual representations of great literary works. Some of the most renowned artists of the Renaissance, such as Botticelli and Raphael, reinterpreted the content contained in books of classical literature, often from Ovid's Metamorphoses and Homer's Iliad (Wind, 1963, p. 21). William Blake's illuminated books, such as those illustrated for Paradise Lost, represented a synthesis of the two artistic disciplines, poetry and visual art, breaking down the distinction between word and image, and resulting in creating a composite artistic form (Eaves, 2003, p. 42). A milestone in the journey towards the democratization of classical literature occurred with Albert Kanter's creation of the Classics Illustrated comic book series in 1941. Through this series, Kanter adapted several of the world's most notable works, including the Iliad and the Odyssey by Homer, the Aeneid by Virgil, and various works of theatre by William Shakespeare into comic book format, thus providing a means by which younger and more diverse audiences could gain access to these classic works (Gordon, 1998, p. 7). With the increasing use of AI across all fields, literary studies have begun exploring artificial As environmental crises such as deforestation and air pollution become more severe, artificial intelligence (AI) and its associated narratives created through generative visions and illustrations (sometimes referred to as 'storyboarding') provide us with a basis for constructing new understandings of how these changes relate to both narrative and our audience. The focus of this study will be technological aspects related to the ways in which neural networks, virtual reality, and large language models have changed the traditional literary form into a multisensory experience for readers (Amato et al., 2019, p. 16).

Today, we are experiencing unprecedented environmental changes at the global level. These changes will not only have an enormous effect on our society; they are also creating an entirely new paradigm for considering environmental issues. Climate change, loss of biodiversity, deforestation, Extractivism, and degradation of the ocean have all historically taken on forms of 'slow violence' as described by Rob Nixon – actions ('slow violence') by which they are taking place do not follow a clear timeline, are often concealed from sight, and often go unnoticed until they are so widespread in impact (Nixon, 2011, p. 2).

Literature has played a crucial role as a medium of making environmental catastrophe visible and urgent through metaphors and characters, shaping what Lawrence Buell calls the "environmental imagination" which is necessary for ecological awareness (Buell, 1995, p. 2). In helping reader see complex connection between humans and nature, literary narratives contribute to cultural understanding of environmental change including pollution, apocalypse (Garrad, 2012). However, in the current media landscape with new form of visual storytelling are emerging as a tool for enhancing textual representation and broadening public engagement of ecological issues (Cisneros et al., 2023).

Artificial Intelligence, especially its recent strides in visual generation, natural language processing, and immersive simulations, offers promising new ways to visualize, animate, and circulate environmental stories. This paper explores the intersection of AI and environmental literary studies, examining how AI-generated illustrations, interactive digital storytelling, and virtual

environments are reshaping the affective and pedagogical power of eco-fiction. It can be seen as a way of making richer storytelling capabilities more accessible (Rashid, 2024).

As environmental concerns become increasingly urgent, there is a greater requirement for creative solutions that can optimize the efficacy and efficiency of restoration activities Environmental storytelling is an important method to teach young people about ecological awareness, moving away from condescending approaches (Dewi, 2017). These themes encompass issues such as air pollution, industrial waste, Extractivism, mining, deforestation and the impact on ecosystems.

To illustrate the potential of AI in environmental storytelling, this paper will analyse two novels, first is Amitav Ghosh's *The Living Mountain*, story of explore the theme of human greed, Extractivism and carelessness towards nature. Despite the community's warnings and rituals, the *Anthropoi* proceed, leading to ecological collapse and cultural erasure. The story satirizes colonial views toward nature, the destruction caused by extractive capitalism, and the loss of Indigenous knowledge. By depicting a fertile mountain turns into symbol of ecological suffering, Ghosh incorporates myths and environmental themes to tell a cautionary tale of a fractured relationship between humans and earth. As a once fertile mountain turned into an environmental disaster, the story is a reminder of the cost of humanity's abuse of nature. Using an analysis of this story under the paradigm of AI-based visualization, the aim is to highlight the potential of using AI technologies to emphasize the emotional aspect of environmental narratives. Additionally, the paper will examine the ethics associated with the application of such technology. Using an analysis of this story under the paradigm of AI-based visualization, the aim is to highlight the potential of using AI technologies to emphasize accessibility of environmental narratives. Additionally, the paper will examine the limitations associated with the application of such technology.

The second novel is *The Adivasi will not dance* by Hansda Sowvendra Shekhar story of an Adivasi dance-troupe is commissioned to perform on the completion of a power plant, but at the end protest by not dancing in front of the President. The narrator, Mangal murmur, is the elderly Santhal man who once proudly led a tribal dance troupe that performed at various national event. However, when asked to perform at the inauguration of a coal mining project and power plant in Pakur, Jharkhand, he refuses. He sees the event not as a celebration, but a mockery of Adivasi suffering, the cause of displacement, destruction of the forest and exploitation by large cooperation. The act of denial to perform in the inauguration event in front of president is a metaphor as protest state, powerful agencies capturing land of the forest for their own benefit.

2. Literature Review

Recent studies by Lin et al. (2025) proposes the concept of "writing is coding" which provide framework for sustainable education by demonstrating how students engage with AI- mediated creation to address environmental challenges. Similarly, Tumedei et al. (2005) demonstrate how AI-enhanced narrative visualization can help with environmental education by combining children's drawings into an interactive storytelling experience. Their study also showed this method not only boost children's grasp of ecological issues, increased awareness about environment challenges and foster concern for conservation.

Marie-Laure Ryan (2006) and N. Katherine Hayles (2005) in the digital humanities investigate how narrative changes as its material mode becomes digital, interactive, and multimodal. The advent of AI models DALL·E, Midjourney, Sora, and GPT-4 brings these theoretical proposals together to become a new domain: digital ecocriticism. This method acknowledges that environmental storytelling more often engages computational creativity, image generation, and immersive design. To contextualize the importance of AI-augmented visual narrative in literary analysis, this paper is based on eco-criticism and digital humanities. Eco-critics such as Ursula Heise (2016) and Stacy Alaimo (2016) have posited the need for "imaginative storytelling" in representing the global scope and local everyday experience of ecological change. Heise highlights "eco-cosmopolitanism" a form of envisioning planetary citizenship transnational and humanist boundaries while Alaimo's "trans-corporeality" underscores the intersection of human bodies with polluted worlds and nonhuman life. Therefore, in this paper, an interdisciplinary perspective comes into play that recognizes AI not only as a means but as a cultural artefact with the potential to reimagine ecologies, identities, and human-nonhuman relations.

3. Research Gap

Although scholars have touched on environmental storytelling, digital media, and AI-assisted education, there's lack of research on using AI-generated visualizations to teach environmental literature. The studies that do exist focus more on digital communication rather than converting literary stories into visuals with AI prompts. Because of this, there is a significant lack of study about how AI-assisted visuals might boost students' grasp of eco-themes. This study aims to fill that void by creating AI illustrations of scenes from an Indian environmental novel. By doing this, it shows how visual storytelling can help children learn literature while promoting environmental consciousness.

4. Research Methodology

This research employs an interdisciplinary qualitative approach which draws on multiple disciplines: literary analysis, environmental humanities and digital media studies with an emphasis on practical application for research purposes. The specifically, methodology is to investigate whether the use of Artificial Intelligence (AI) in conjunction with visual storytelling can create stronger emotional connections and perceptions within environmental narratives and specifically those located in eco-fiction from India, as well as global ecological literature. The overall methodology is made up of three components; these will be described here in order: 1) Textual analysis of eco-literary texts. 2) Experimental combination of AI-generated visual media. 3) Critical interpretive approach using eco-critical and digital humanities perspectives.

5. Research Objectives

The article aims to

- Explore the role of AI-enhanced visual storytelling in improving the representation and audience engagement of Indian environmental narratives.

- Analyse and compare the AI-generated illustration of Indian eco-fiction for their adaptability to pedagogy.

6. Research Questions

- How can AI visualization enhance the representation and reception of Indian environmental literature?
- Can AI-generated visuals support pedagogical and activist goals within literary studies and the broader environmental humanities?

7. Theoretical Framework

Narrative activism and affective engagement are two important ideas behind AI-assisted visual storytelling, especially from an ecocritical, postcolonial, and digital humanities perspective. An example of this is Rob Nixon's term "slow violence," which describes how environmental degradation, an often-unnoticed harm that occurs over long periods of time, tends to have a disproportionate impact on marginalized communities. As a result of Nixon's work with slow violence, storytellers must create narrative forms that make this type of violence visible and emotionally impactful. Through AI-generated visual storytelling, ecological harms can be represented with vivid detail to help fill in the gaps in time and senses associated with slow violence. In addition, by using digital humanities ideas to remediate literary texts using digital tools, people are provided with increased access to and easier ways of interpreting literature, which enables people to participate in an interactive form of ecological engagement through narratives. Ethical uses of AI technologies have the potential to "amplify" the voices of marginalized people by facilitating the mapping of Indigenous cosmologies, place-to-place views, and ecological futures in a manner that is contrary to extractivist views. These types of activist aspects are reflected in Indigenous Eco-Fiction writers/poets such as The Adivasi Will Not Dance and The Living Mountain, in that the narrative serves as a protest the use of these Indigenous Eco-Fiction writers/poets' work, to provide testimony to their cultures and environmental concerns. By being expanded into visual and digital spaces using AI, the activist nature of the stories is amplified, and thus increases the potential for eliciting empathy and public involvement in the environmental movement. Therefore, the integration of affect theory, digital humanities, and postcolonial ecocriticism builds a solid theoretical foundation for demonstrating how AI-enhanced visual narratives can re-frame environmental narratives of the past into more engaging and emotional narratives for the future.

8. Reimagining Indian Eco-Fiction Through AI

Indian eco-fiction, with its strong interlinkages to tribal livelihoods and postcolonial development histories, has a bountiful content for AI-augmented visual narratives. Literary Fiction such as, Amitav Ghosh's *The Living Mountain*, and Hansda Sowvendra Shekhar's *The Adivasi Will Not Dance* are focused on the lives of marginalized people in forests, mines, and countryside scarred by Extractivism. Through AI-generated illustrations, images and visual maps, such texts can be brought to life for a broader audience. For instance, using AI tools like Midjourney or ChatGPT, a

classroom or exhibition could present visual sequences showing the gradual deforestation of tribal lands, juxtaposed with cultural motifs, musical performances, sacred groves, or ritual processions. In *The Adivasi Will Not Dance*, AI animations could depict the contrast between the joy of dance and the desolation caused by mining corporations, as illustrated in figure 1.

Figure 1: the contrast between the joy of dance and the desolation caused by mining corporation source: illustration is created through AI Gemini (created on 20 June 2025).

The comparison of the generated outputs shows that how you structure your prompts really shapes how the visuals turn out. AI models seem to favour simple and clear instructions over complex ones. Scene-based prompts led to more accurate visual representations of the stories, as shown in Figures 2 and 3. Longer prompts often made the AI miss the context and symbolism. This means prompt creation is essentially an interpretive task in AI-assisted visual storytelling. Researchers need to spot the important bits of the narrative first, then convert those literary parts into visuals.

While these figures 2 and 3 depicts scene from the same story with identical prompts, AI significantly changes the setting, structure of houses, clothing of villagers and even the mountains in the background. This discrepancy could make the narrative flow of the story disjointed. Therefore, it is essential to rectify these differences by giving multiple prompts and sorting them manually.

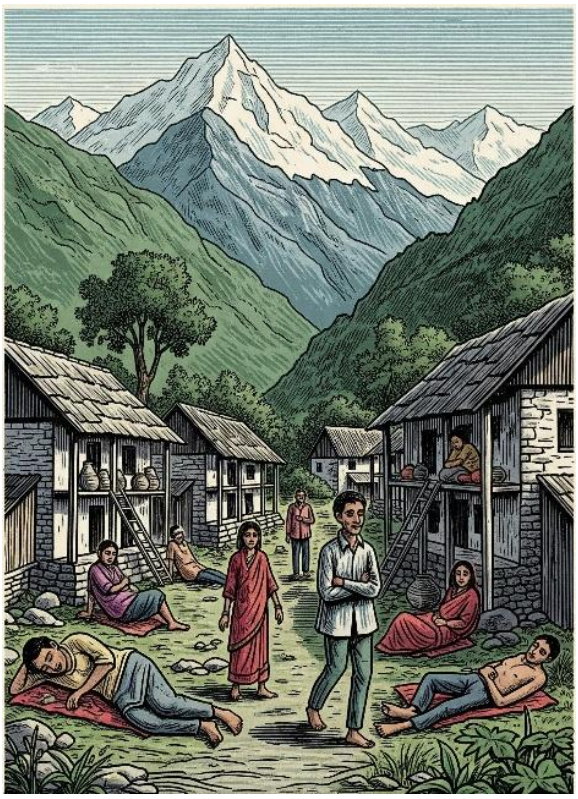

Figure 2: Villagers reduced to quiescence with drug source: illustration is created through AI Gemini (created on 20 June 2025).

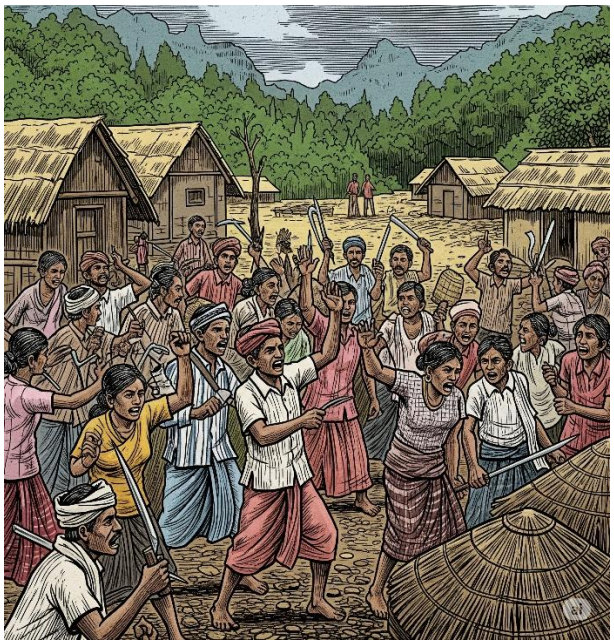

Figure 3: Villagers tricked into attacking their neighbour source: illustration is created through AI Gemini (created on 20 June 2025).

The image given below is generated by ChatGPT when given the following command "make an image with text from the extract of novel *The Living Mountain* "sentry came racing down from the

mountain pass: an army of Anthropoi had arrived, he said. They were not many in number, but they had very powerful weapons and were skilled in the art of war. They had stormed the portcullis and taken all the sentries captive. He alone had been set free to bring a message to the Valley, to let us know that the Anthropoi had decided to conquer the Great Mountain!" as illustrated in figure 4 (Ghosh, 2022, p.14).

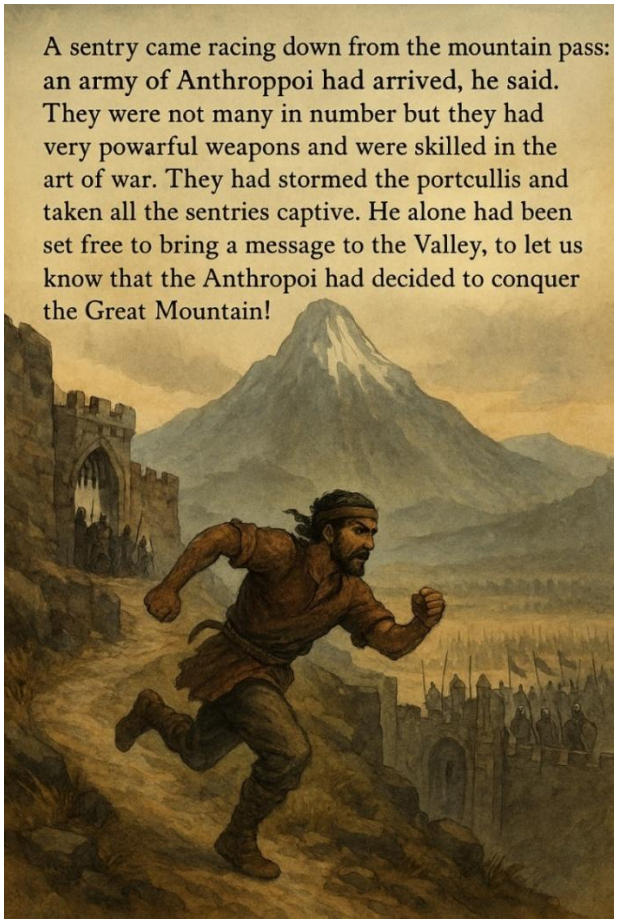

Figure 4: A man had been released to deliver a message. source: illustration is created through ChatGPT (created on 18 June 2025).

9. Pedagogical Potential: AI in Environmental Literary Classrooms

AI-assisted visual storytelling holds immense potential in the pedagogy of literature. Students of preliminary classes usually struggle to visualize and contextualize the ecological stakes of novels or poems, especially when disconnected from their current environment. AI tools like Canva, Gemini, and ChatGPT can help create a visual illustration of significant eco-literary scenes. Putting text inside the image can help students to imagine the situation better and visualise the story in effective way. The significance of visual learning is supported by evidence indicating that visual information processing skills are positively associated with academic achievement in young learners (Hopkins et al. 2019). Merging of AI and visual storytelling creates unique opportunities for analysing environmental narratives in literary studies at a time when ecologically based crises are demanding new types of communication strategies (Nishant et al., 2020). Boaventura de Sousa

Santos (2018) refers to this type of engagement as the "ecology of knowledges," recognising the importance of valuing diverse knowledge systems (epistemologies) and resisting the practice of epistemic extractivism.

With a plethora of Eco fiction in not just Indian literature but in global literature, it is possible using the AIs available to co-create visual projects and climate fiction, students build their ecological and technological awareness and understanding of UNESCO's objectives for Education for Sustainable Development (ESD). Educating these ideas to students contributes directly to the achievement of Sustainable Development Goals (SDG) 4th (Quality education), which aims to ensure that learners gain knowledge to promote sustainable development through education. By incorporating eco-pedagogical and sustainability-focused perspectives in literary education, the study helps to fulfil Indicator 4.7.1, which assesses how global citizenship education and education for sustainable development are integrated into educational policies, curricula, teacher training and assessment of learners (United Nations, n.d.). These Indian eco-fiction acts as a constant reminder of the importance of sustainable practice to ensure wellbeing us as well as our future generations and inculcating such ideas in young age fosters mindfulness about consumption

10. Conclusion

Artificial Intelligence (AI) applications for visual storytelling could change how we research and teach literature in significant ways and more directly involve environmental issues. For example, AI can create environmental empathy and motivate people to act by providing narrative context for environmental issues. This study explores the ways by which stories can be reimagined in visual form by using two Indian eco-fiction. AI such as Gemini and ChatGPT can produce illustrations with short prompts of key events from the text effectively. Illustrations with text written inside transform textual narrative into comic book or graphic novel and therefore making these ecological stories available to wider audiences, even to those working new to reading novels and fiction. This study provide framework on how AI can be used to teach literature with environmental themes

Since technological advancement in the capabilities of AI is rising at a significant rate, it is essential for future research to explore different features of AI to inculcate environmental consciousness, ecological literacy and sustainability-oriented thinking among students among students from an early age. For AI to truly benefit the environmental humanities, we've got to stay critically aware and ethically responsible, cross-pollinate ideas, and collaborate across fields. This way, we can make sure that technology helps ecology and storytelling keeps fuelling justice, solidarity and sustainability.

11. Disclosure on AI use and bias

This study used generative AI to make illustrations from literary works. We know the AI might have biases in its output, such as cultural, social, and representational biases that are in its training data. This could make it draw stereotypes or distortions. To avoid these issues, we created prompts straight from the book's actual words, detailing only characters, setting, and environmental conditions. Then we made lots of different images and checked them against the original text for

both accuracy and theme. We got rid of anything that added details not in the text or that leaned too hard on stereotypes. The final images passed a careful review, making sure they fit right with the story's themes and cultural aspects. Even with these steps, though, AI images will always be an interpretation and not a direct picture of the text. So, we're using the images in our study only as pedagogical tools and aids for analysis.

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