

Digital representations for natural heritage: enhancement strategies in the “De+Humans” project

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Alice Palmieri, <https://orcid.org/0000-0001-9899-4223>

alice.palmieri@unicampania.it

Department of Architecture and Industrial Design, Università degli Studi della Campania “Luigi Vanvitelli”, Italy

Abstract. The New European Bauhaus, through its implementation strategies, proposes a multidisciplinary vision to promote the values of beauty, inclusion, and sustainability. The “Designing with more-than-humans” project applies this vision to the Cratere degli Astroni Nature Reserve, utilising digital narratives that blend real and artificial images to raise awareness of the human-nature relationship and territorial identity. Through a transdisciplinary approach, the team analysed key local elements, exploring physical and perceptual relationships. The digital representation, combining macro and micro perspectives, visualises the dialogue between these elements in a video-graphic work that overlays aerial footage, textual content, and AI-generated images, offering new perspectives on natural heritage.

Keywords: Digital Narratives; Visual Perception; AI Representations; Drone Footage; Ecological Awareness.

Introduction

In 2021, the European Commission launched a policy and funding initiative called the “New European Bauhaus” (NEB) aimed at promoting sustainable solutions to transform the environment and contemporary lifestyles within the framework of green transition policies.

The multidisciplinary vision proposed by the NEB seeks to achieve numerous ambitious goals, rethinking current trends and practices while identifying new strategies for a less impactful way of living. NEB initiatives encourage the creation of projects that are ecological but also inclusive and aesthetically inspiring¹, fostering positive transformations centred on both environmental and social sustainability.

The NEB positions itself as a creative and transdisciplinary movement, bridging science, technology, art, and culture. This approach integrates diverse disciplines, advancing values of sustainability, aesthetics, and inclusion. Recent research has embraced this shared design perspective, particularly in architecture, design, and communication, promoting participation, transdisciplinarity, and the integration of global and local dimensions. This last aspect is essential for the “De+Humans” project, which stems from the observation of natural heritage and the need to narrate it, fostering awareness.

The reflections presented in this research emerge from site-specific themes linked to the Cratere di Astroni Nature Reserve (Naples), aiming to develop digital storytelling processes that raise public awareness of environmental balances. This approach connects with territorial identity while exploring contemporary technological innovations and experimenting with new visual languages.

Inspirations of the “De+Humans” project

The De+Humans project was inspired by these premises, funded through the Vanvitelli University grant dedicated to young researchers, and carried out in 2023. The project has a dual nature, both theoretical and applied, aiming to experiment with digital representation pro-

cesses and create design-nature hybrid products to raise awareness of multi-species coexistence and ecosystem preservation. The more-than-human approach, referenced in the project’s title, is expressed through an increasingly attentive and sensitive attitude toward diversity and the multiple ways in which reality manifests itself (Ranzo, Scarpitti, 2024).

Inspired by philosophical studies -particularly the thought of Arne Næss- the project explores the ongoing reshaping of the post-anthropocentric paradigm, questioning its dominance and experimenting with technologies and aesthetic practices that embody this shift.

Arne Næss, a contemporary Norwegian philosopher, provided the theoretical foundation for the project’s reflections. His work rejects a superficial view of ecology, which focuses solely on pollution and resource depletion, and advances the concept of deep ecology. Drawing from Gestalt psychology, Næss develops an ontology where reality is not composed of separate entities but perceived as a whole, in which everything is intrinsically interconnected. Replacing the conventional image of humans within the environment, he proposes a complex vision where organisms are nodes in the biospheric network, forming a web of interwoven interactions (Porro, 2023).

Deep ecology, with which Næss is often associated, is not a radical interpretation of human-nature interaction but a philosophical approach to ecological issues, rooted in a profound inquiry into things and the ways we represent them.

The discipline of representation played a central role in the De+Humans project through storytelling practices and the construction of images and the imaginary aimed at “making visible”-to use a phrase dear to Paul Klee (2004)-the existing, widespread, and intricate yet generally invisible relationships. Our everyday perspective, often rooted in an anthropocentric dimension, is invited to reconsider the position of the human being not as an element within the environment, but as the environment itself, co-constituted by all organisms in their interdependence. This is a complex yet essential shift, a seemingly simple one that radically transforms how we perceive and think about our society, which should not see itself as separate from the environment but as an integral part of it.

Harold Glasser, in the most comprehensive collection of Næss’ works, describes his philosophy as “a non-dualistic, non-anthropocentric philosophy of life that upholds the interdependence and ultimate unity of all living beings while preserving their individuality. His philosophy celebrates the richness and diversity, both cultural and biological, of the Earth” (SWAN I, p. XVIII)².

Even more significant for the theme of representation is Næss’ own assertion that our world requires both a microscope and the open, perceptive gaze of a phenomenologist-one to explore the

micro-world surrounding us, and the other to observe vast territories from above. “His non-anthropocentric, relational, and respectful philosophy – toward both humans and non-humans – seems to reconcile these two perspectives: the microscopic, investigative gaze capable of capturing the diversity of the smallest beings, such as lichens and stones, and the macroscopic view that embraces vast landscapes from above, not to judge but to joyfully appreciate both totality and individuality, in a movement toward what Næss defines as Self-Realization” (Nasi, 2023).

This idea of constantly shifting perspectives and visualising reality at different scales translated into the creation of visual artifacts that explore nature through a micro/macro dualism. This approach synthesises the environment’s intrinsic tensions, emphasising the dialectical relationship between visible and invisible realities, between Figuration and abstraction.

Methodology and workflow structure

With the clear objective of structuring engaging and empathetic awareness-raising actions for a broad audience, the project staged perceptual experiences and digital representations. Through drone footage, photographs with varying focal lengths, and AI-generated images, it crafted a unique narrative deeply rooted in the Phlegraean landscape of the Astroni Reserve.

The Astroni Oasis is a protected natural area – a majestic crater preserved between the municipalities of Naples and Pozzuoli, part of the Phlegraean Fields Regional Park, and safeguarded by the WWF. It represents a remarkable volcanic formation with a diameter of 2 km. Its highest point, the Torre Nocera spur, rises over 250 meters above sea level, while the lowest point, near one of the oasis’ three bodies of water, is at just 9 metres above sea level (Fig. 1). The vast expanse and significant elevation changes result in a rich and diverse ecosystem of flora and fauna, characterised by an unusual inversion of vegetation. Indeed, tree species are arranged in reverse order based on altitude. Thus, Mediterranean scrub is found at the crater’s highest elevations, while vegetation typically associated with mountainous environments-such as chestnut trees-thrives at sea level (Fig. 2).

This site evokes magical images, likely due to the experience of immersion in an unspoiled environment, free of human presence (except for a few containment walls, a wooden staircase, and the historic Bourbon Vaccheria, all dispersed within the vast forest). Despite its biodiversity, certain recurring elements-particularly plant species-stand out, making it possible to identify distinctive landscape markers.

The multidisciplinary team involved in the project proposed various approaches but worked collectively on these same landscape markers, following a shared analytical methodology focused on the diverse organisms present in the area. Specifi-



cally, six kingdoms were examined, serving as the foundation for interdisciplinary research, analysis, inspiration, and representation. Each group collaborated on the initial identification of species, then pursued distinct but deeply interconnected disciplinary outcomes. The six kingdoms explored were animals, plants, fungi, bacteria, minerals, and digitalia.

By reflecting on the kingdoms beyond the anthropic realm, the project investigated human-nature interaction, specifically the physical-perceptual relationships between individual elements and the human dimension. This exploration led to considerations on disproportion-understood as a deliberate omission of dimensional reference-favouring a formal and morphological analysis of analogies between parts and the whole, between elements observed at an extremely close range and the landscape seen from a broad, comprehensive perspective.

The observation of natural forms within the oasis highlighted the continuous shifts in scale inherent to the landscape. Consequently, the working methodology experimented with the development of digital representations based on the macro/micro dualism. In this context, macro refers to a large-scale view, offering a general perspective that encompasses the whole, while micro indicates a close-up perspective, accessible only through advanced optical instruments. These micro-level images, which cannot be captured using conventional analogue tools, were created using AI-based platforms, enabling the generation of



evocative and immersive visuals. While not aiming for scientific accuracy, these images allow viewers to transcend the physical limits of vision, fostering a deeper (both visual and conceptual) engagement with the natural heritage.

The interplay of macro and micro encapsulates the inherent tensions within the landscape, emphasising the dialectical relationship between visible and invisible realities, between Figuration and abstraction.

Graphic experimentations between layering and AI

This contribution presents part of the project's outcomes, with particular focus on representation as a tool for analysis, transmission, perception, and dissemination of existing tangible and intangible values. The final phase of the research activities culminated in an interactive exhibition, held at Officina Vanvitelli (Caserta) in December 2023. Various prototypes and artefacts were displayed during this event, expressing the shared vision of the research group. These works aimed to define a multisensory experience and foster empathetic engagement with visitors.

The exhibition was accompanied by a large-scale projection of a video based on visual storytelling, narrating the remarkable landscape of the Astroni Nature Reserve. This visual narrative combined unconventional perspectives with AI-generated images, surreal and close-up, prompting viewers to question the structure and ecological role of individual elements that define the territory's identity. Starting from real photographs taken in the Reserve, the project created representations of invisible subjects (such as bacteria) and virtual animations in which fungi, plants, and minerals seemingly came to life, dynamically aligning with the movement of aerial footage. These cognitive-visual processes invite viewers to explore natural heritage from a new perspective-sometimes incredibly distant, at other times surreally close-allowing each observer to reinterpret and reassign

meaning, creating value through their individual experience and exposure to new types of images and vision technologies (Pinotti & Somaini, 2016).

The production and editing phases relied on drone footage acquisition, graphic grid generation, AI-generated imagery, and the layering technique to hybridise and overlap elements.

Hundreds of photographs were taken during numerous on-site explorations, which fostered a deep connection with the natural heritage, experimenting with varied perspectives and focusing on individual elements of the forest-elements that seemed to vanish and reappear within the dense vegetation (Fig. 3). A pivotal moment in constructing the visual narrative of Astroni was the use of drone footage, captured from multiple locations within the reserve. These aerial images revealed aspects of the landscape that are imperceptible from the ground, providing a powerful visual-communicative resource detached from the human observer's viewpoint (Crary, 2013).

In narrating the elements of this visual ecosystem, a particularly intriguing aspect was the alteration of the observer's point of view, leveraging high altitude imagery to explore micro/macro relationships and the abstract, visionary nature of the zenithal perspective. Suddenly water, for example, previously regarded as a focal point due to its aquatic plants and diverse wildlife, took on an entirely new meaning. The analogy between the reflective quality of lakes and that of mirrors led to the creation of coplanar representations of opposite viewpoints where an imaginary observer could simultaneously look above and below the "projection centre" through a natural yet technical device (Maldonado, 2005) (Fig. 4).

This heterotopic condition recalls Foucault's concept of "other spaces", particularly his reflection on the mirror as an extraordinary object: "After all, the mirror is a utopia, for it is a place without a place. In the mirror, I see myself where I am not, in an unreal space that virtually unfolds behind the surface-a kind of shadow

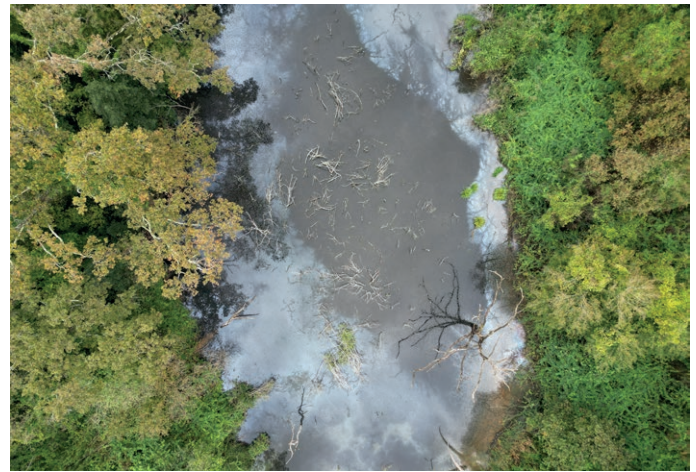
that returns my own visibility, allowing me to see myself where I am absent: the utopia of the mirror” (Foucault, 2011, p. 24). With the deliberate goal of experimenting with new technological innovations, engaging with Artificial Intelligence laboratories and their growing role in visualisation and imaginary scenario construction became inevitable. These systems operate through an exploratory approach to image-making, one that does not necessarily adhere to scientifically accurate representations of tangible reality. Instead, they generate digital renderings, which act as conduits for fantastic conceptual spatial visions, placing them on equal footing with real world objects (Vitta, 2012).

To approach this work methodically, without being seduced by the infinite expressive possibilities of AI, the prolific image production followed the logical structure of the six kingdoms, resulting in a rich and evocative visual repertoire (Figs. 5, 6). Critical reflections on the role of drawing and the control of the process between image and language are complex, particularly concerning visual culture and the emerging aesthetics that AI introduces. However, it is crucial to recognise that these reflections foster a heightened awareness of the methods and implications of this paradigm shift, where the concept of design and creative process is redefined. This transformation moves away from an exclusively anthropocentric perspective, embracing a new vantage point, a shift that lies at the heart of the De+Humans project. The project aspires to propose a new way of seeing, where human perception is understood as merely a small fragment within an infinite universe.

AI-generated imagery enabled the creation of digital representations of elusive subjects-bacteria, algae, dragonfly wings, which typically evade direct human perception yet exist vividly in our mental imagery. AI thus served as a tool to give form to those thoughts, not to depict individual elements in isolation, but rather to illustrate the relationships between them.

Once again, the true value of things resides in their relationships, aligning with the vision that nature is the sum of all existing entities, considered in its holistic form, within the totality of phenomena, and forces it manifests (Sposito, 2017).

The combination of these elements was achieved through the superimposition of layers, different levels of information that enrich the representation, establishing relationships and references between the various components. Starting from drone footage taken at different altitudes (both above and below the tree canopy, with the camera oriented in multiple directions), the first layer of information is composed of geometric grids. These grids change throughout the video, serving as a framework for short textual content and AI-generated images (Figs. 7, 8). These graphic elaborations confirm how even a simple indication within an image can alter the hierarchy of represented el-



ements, constructing a radically different perception of reality. This process induces a perceptual shift, wherein the superimposition of successive layers onto the original photograph gradually distances it from our perception, selectively highlighting or excluding parts of what we see (Dotto, 2020).

The final outputs thus result from a critical interpretation in which the dynamic nature of video editing guides the viewer's gaze, alternating focus between different subjects. This continuous and intricate sequence of frames sustains the viewer's attention, emphasising one element and then another in an engaging visual rhythm.

Conclusions

The creation of a digital videographic work with a strong emotional impact (also due to the significant presence of sound) invites reflection on the human dimension in relation to the whole, challenging the anthropocentric perspective in favour of a renewed interaction with nature. The narrative seeks to offer an interpretation of ecological issues by placing the biosphere and its interconnections at the centre, while also acknowledging that human beings themselves originate as symbiotic entities. It is perhaps within this very essence that ecological awareness is rooted (Morton, 2018).

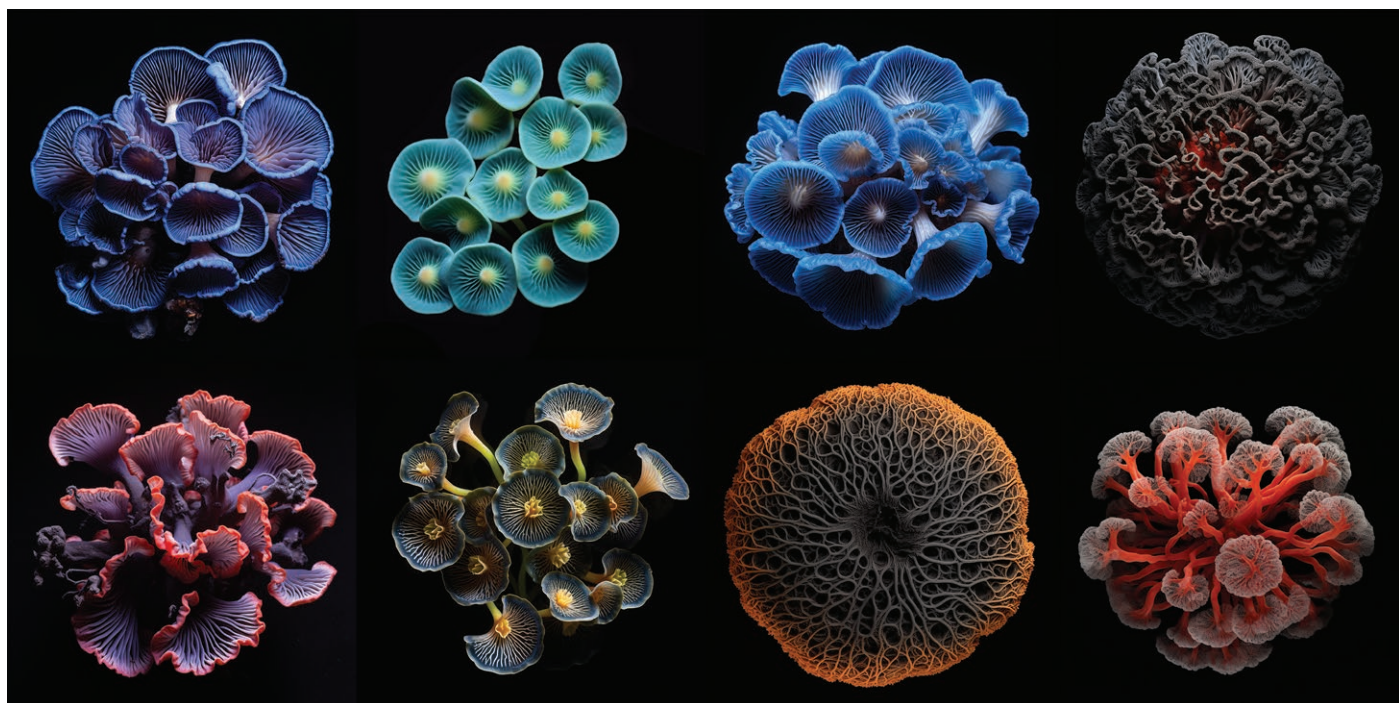
The intended outcome of the visual storytelling strategies outlined above is to activate a process of dissemination and awareness, encouraging an integrated way of observing nature, one that engages both the body and the gaze. This approach fosters an understanding of how human life is inextricably dependent on the interconnected balance of all living beings, and highlights how the narration of ecological issues, even when employing digital tools and AI, can still retain a profound human dimension.

NOTES

¹ Beauty, sustainability, and inclusion are the three fundamental keywords identified by the NEB https://new-european-bauhaus.europa.eu/index_en

² The acronym SWAN refers to the 10-volume collection of Arne Naess' life's work, "The Selected Works of Arne Naess", first made available by Springer in 2005.

³ Concept by Chiara Scarpitti, Alice Palmieri and Giulio Giordano.



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07 | Edited sequences from the video, clearly showing the superimposition of real images, textual content, and AI-generated suggestions (A. Palmieri, G. Giordano, 2023)

08 | Edited sequences from the video, clearly showing the superimposition of real images, textual content, and AI-generated suggestions (A. Palmieri, G. Giordano, 2023)

07 |



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