# iNVENTX 2025 Creative Exhibition

## SUSTAIN*AISSANCE*: Emotion . Expression . Identity

## Seasons of the Tree: A Symbolic Journey

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## Abstract

'Seasons of the Tree' is a looping holographic animation that explores the cyclical rhythms of nature as a metaphor for emotional, ecological and personal transformation. Rooted in the theme SUSTAINAISSANCE: Emotion, Expression, Identity, the artwork reimagines the tree not as a literal object, but as a symbolic anchor for renewal and continuity. Each season, spring, summer, autumn and winter, embodies distinct emotional tones, hope, joy, nostalgia and contemplation. These invites viewers into a meditative experience of time and change. The work addresses sustainability not only as environmental concern but as a philosophical return to balance and harmony with the Earth's natural cycles. Through the use pseudo-holographic display technology, the piece creates an immersive, ambient space that encourages stillness, reflection and emotional engagement. It also explores identity by prompting viewers to consider as stewards of the environment and participants in the broader ecological narrative. Overall, this artwork offers a poetic and sensory dialogue between technology, nature and the human spirit.

**Keywords** Sustainability, Holography, Nature Cycles, Emotional Expression, Seasons
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# Artist Statement

## *Concept and Theme*

Seasons of the Tree was inspired by the quiet yet profound rhythm of natural cycles, which often go unnoticed in our increasingly mechanised and disconnected world. Trees, as living archives of time, represent endurance, patience and transformation. These qualities resonate with the principles of sustainability. This work aligns with the overarching theme "SUSTAINAISSANCE: Emotion, Expression, Identity" by using the tree as both literal and metaphorical symbol of renewal. Just as the Renaissance marked a rebirth of art and thought, the tree's seasonal journey reflects the rebirth of ecological consciousness. Emotion is embodied in each season; hope in spring, joy in summer, nostalgia in autumn and contemplation in winter, offering an expressive lens through which to view the climate dialogue. Identity emerges as we consider our role as stewards of the environment and reconnect with our own cyclical place within nature.

Sustainability, in this context, is not just a technical solution. It is a philosophical return to balance, harmony and respect for life's natural rhythms. The tree becomes a silent witness to time, inviting us to rediscover our emotional and technical relationship with the Earth.

## *Approach and Process*

The work was created as a looping holographic animation designed to function as a seamless visual meditation on natural rhythms. A non-interactive, cinematic approach was adopted to maintain the reflective and observational quality of the piece. Each season was carefully composed with distinct visual motifs such as buzzing bees in spring, lush foliage in summer, golden leaves in autumn and falling snow in winter, captured in soft transitions that mirror the gentle passage of time.

At the conceptual stage, the tree was imagined as a symbolic form rather than a literal one. Its role was not to depict a specific species of tree, but to serve as a visual anchor for environmental transformation. The creative process focused on shaping a sense of emotional continuity and poetic pacing. Storyboarding was used to map seasonal flows, and transitions were refined through visual iteration rather than narrative planning. The intent was to create a contemplative visual experience that honours nature's cycles and subtly encourages reflection on sustainability and temporal balance.

## *Meaning and Impact*

This work aims to convey a simple yet profound truth: everything in nature moves in cycles, and we are part of that movement. Seasons of the Tree is not a linear narrative, but a continuous loop, just as Earth does not begin or end, but transforms. In that loop is the story of the renewal, decay and possibility.

It is in hope that viewers will walk away not only with a visual impression, but with a moment of stillness and introspection. The piece is an invitation to reconnect with slowness, to feel the passing of time emotionally rather than digitally, and to reconsider what it means to live sustainably, not just materially, but emotionally and ethically. Ultimately, this hologram is not about the tree alone. It is about us. Our impact, our memory and out future.

### *Materials and Techniques*

This digital artwork was developed using Autodesk Maya, a 3D software used for modelling, animation and scene construction. The tree was modelled with mid-level detail, enough to suggest organic structure, but designed with stylisation to prioritise expressive movement and silhouette clarity.

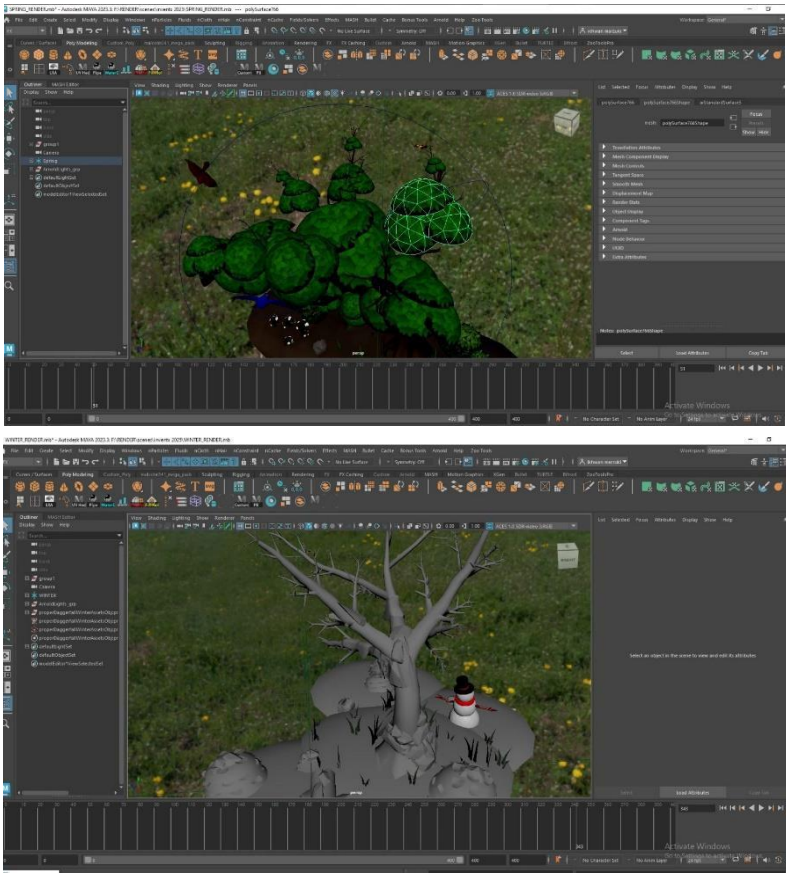

Figure 1. Selected Screenshots Showcasing the Process of Creating the 3D Model in Autodesk Maya

Seasonal changes were animated using keyframe animation combined with particle systems and dynamic simulations to produce effects such as blooming flowers, wind-driven leaf fall and snow accumulation. These elements were choreographed to transition fluidly, enhancing the immersive quality of the loop without abrupt visual breaks. These animations were exported as a seamless video loop with

a transparent alpha channel background.

The projection was delivered via a stand-mounted hologram fan display, which uses high-speed light-emitting diode (LED) blades to render 3D visuals in mid-air (Figure 3). The final animation was formatted to meet the fan's specifications (including resolution, frame rate and background masking) and synchronised to play smoothly in loop. This type of display was chosen for its ability to create free-floating, ambient visual effect without requiring a physical screen, enhancing the contemplative, almost ephemeral quality of the artwork.

Additional adjustments such as alpha masking, light contrast optimisation and edge cleanup were applied to ensure clarity during spinning the projection. The result is a dynamic, volumetric display that visually "hovers" in space, reinforcing the installation's immersive and meditative intent.

The integration of digital 3D modelling, light-based holography and subtle environmental sound design aimed to evoke a layered sensory experience, inviting the viewer into a space of quiet observation. Though the technology is advanced, the underlying creative process centred on simplicity, rhythm and visual poetry. These are qualities intended to echo nature's own language.

Figure 2. Prototype of the 'Seasons of the Tree' Hologram

Figure 3. The 3D Animation Projected using Hologram Fan

**Hologram Fan: Pseudo-holographic Display Technologies**

Despite their widespread branding as 3D holograms, hologram fans do not produce true holograms in the optical or scientific sense. Rather, they employ a visual illusion technique grounded in persistence of vision (POV) and can be more accurately classified under volumetric or pseudo-holographic display technologies [1].

Hologram fans function by rotating LED-embedded blades at high-speeds, synchronised with a control system that illuminates specific LEDs at precise intervals [2][3]. This creates the illusion of a tree-floating three-dimensional image in mid-air. The viewer perceives depth and motion due to the rapid succession of two-dimensional image frames, which the human system integrates into a seemingly coherent volumetric form.

Although hologram fans do not reconstruct light fields via interference as in true holography, they generate a compelling three-dimensional visual effect through the synchronisation of LED timing and rotational motion (LR19). This pseudo-holographic effect is sufficient for most commercial and experiential applications, where the perception of depth and mid-air projection is more critical than optical authenticity [2].

## *References and Influences*

The artwork is shaped by a range of influences, including the concept of holographic art, technical expertise and knowledge in 3D modelling and animation, understanding of sustainability, and the artists' personal experiences, particularly childhood interests and formative upbringing. These elements come together to inform both the creative direction and the thematic focus of the piece.

**Holograms: The Definition**

A hologram is a three-dimensional image created by recording light patterns reflected from an object [4], often produced by splitting and interfering light beams [5]. It is ephemeral, transparent and weightless, evoking a sense of impermanence and delicacy. It manifests as a volume of light that occupies space, redefining how we perceive form and depth. It becomes a sculptural entity that merges the real with the abstract, challenging conventional boundaries [6]. Holography is the only 3D display technology capable of rendering all optical cues used by the human visual system, including depth, parallax, occlusion, and accommodation [7][8].

The cultural evolution of the term "hologram," has shifted from a technical term to a concept associated with futuristic and magical imagery. Holograms are popularly imagined, especially in science fiction, where they often appear as floating, lifelike projections [5]. The science behind holography is

complex and has been developed for nearly 75 years, evolving steadily from its early beginnings to the advanced technology of today [5].

**Holography: How It Started**

Holography originated in 1947 when Dennis Gabor, a British scientist from Hungary developed its theoretical foundations to enhance electron microscope resolution. The term "hologram" derives from Greek, which means "whole message". Early progress of holography was limited by the lack of coherent light sources until the invention of the laser in 1960. Dr. T. H Maiman's pulsed-ruby laser enabled high-speed and live-subject holography, leading to the first human hologram in 1967 [9].

In 1962, Emmet Leith and Juris Upatnieks advanced holography using laser and radar techniques to create 3D images with realistic depth. Further innovation came in 1968 when Dr. Stephen Benton developed "rainbow" holography, enabling mass production and popularised holography in commercial sectors. In 1972, Lloyd Cross combined holography with cinematography to create moving 3D images, while in the 1970s, Victor Komar and colleagues developed a prototype for projected holographic movies, making significant steps towards immersive visual media [9].

In the 1980s, hologram exhibitions drew thousands of visitors, as both artists and entrepreneurs embraced the potential of holography during this period. Despite the early excitement, the practical applications of holography failed to keep pace with expectations. The field evolved more into a cultural artefact than a transformative breakthrough. Although holography was envisioned to replace photography or as a medium for holographic television and cinema, these ambitions never fully materialised [10].

**Holograms and Emotions**

Holograms were described as lifelike, mystical and visually impactful. It is seen as more emotionally engaging than traditional 2D displays. The dominant emotions include curiosity, wonder, excitement and shock [11]. Holograms are also not just visual tricks but are used to evoke soul, presence and duality.

A study by Xu et al. (2025) suggests that participants developed a deeper understanding of the artefacts due to the tridimensionality and intricate detail holograms. The displays were found to enhance memory retention, learning outcomes and historical comprehension. Moreover, participants expressed increased anticipation for future museum visits, viewing holograms as tools that enrich the visitor experiences, stimulate exploration and maintain engagement.

**Holography in Visual Arts**

Artists have been exploring holography since the 1960s. Margare Benyon (Figure 2) is noted as a pioneer

in British creative holography [4][5][12]. Holograms are not just 3D images or stereo photographs but are virtual sculptures and animated visuals made from light [4][13]. Their visual impact is highly dependent on how they are displayed, especially the lighting, angle of view and spatial arrangement [13]. A study by Crenshaw (2019) suggests four guidelines for effectively displaying holograms in art settings:

i. Proper Installation: Holograms require specific lighting and spatial conditions.
ii. Illumination is Critical: The light source does not just illuminate the hologram; it becomes the images.
iii. Angle of View (AOV): Holograms have a horizontal parallax (and sometimes vertical), which defines the AOV.
iv. Exhibition Layout Matters: The spatial arrangement of holograms should consider AOV to avoid "dead zones" where the images are not visible.

Figure 4. The Tigirl Hologram by Margaret Benyon. ©Margaret Benyon
(Source: Jonathan Ross Hologram Collection)

Despite the early enthusiasm, holography struggled to gain full acceptance as a legitimate art form. Museums and galleries often excluded holographic works unless the artist was already established in traditional media [14]. The technical complexity of displaying holograms require precise lighting and viewing angles, which poses a barrier to widespread exhibition [5].

Donations and collaborations have helped integrate holography into major museum collections. Institutions like the Victoria and Albert Museum, the Museum of Modern Art (MOMA) and the Getty have begun to include holograms into their collection [14]. Furthermore, museums are beginning to adopt

360° holographic projections and gesture-based interfaces to enhance visitor engagement [15]. Dinsmore (2019) contends that for holography to gain full acceptance, it must be evaluated on its artistic merit rather than technological novelty.

**Holography: How It Influence the Artwork**

One of the most iconic scenes in science fiction appears in the original Star Wars (particularly Episode IV - A New Hope, 1977) where the droid R2-D2 projects a three-dimensional image of Princess Leia onto a tabletop (Figure 3). As a miniature hologram, she pleads, 'Help me, Obi-Wan Kenobi. You are my only hope'[16].

This cinematic moment has become deeply embedded in popular culture and remains a compelling vision of holographic communication. It also served as a key source of inspiration for the artists' artwork. The striking juxtaposition of futuristic technology with emotional urgency sparked a fascination with the expressive possibilities of holography.

This influence is reflected in the artists' exploration of how holographic forms can be used not merely for visual spectacle, but to evoke memory, intimacy and human connection to the cycles of nature. Although such free-standing 3D projections remain largely fictional, their imaginative impact continues to shape artistic practice and conceptual inquiry, encouraging viewers to engage emotionally with the themes of renewal, decay and sustainability portrayed in the artwork.

Figure 5. R2-D2 Projected Hologram of Princess Leia's Scene
(Source: @tyv7033 YouTube, 2025)

Another hologram that influenced this artwork is the holography of Zordon, the mentor of Rangers in the series Mighty Morphin Power Rangers (1993). Zordon's hologram presents a unique form

of presence: while it can communicate verbally and offer guidance, it remains intangible and non-interactive, unable to be touched or physically engaged with.

This sense of presence that communicates without physical contact mirrors the artwork's exploration of cycles, transformation and the human connection to nature. Just as Zordon's hologram offers wisdom without physical form, 'Seasons of the Tree' invites viewers into a contemplative space where time and growth are felt emotionally rather than physically manipulated. The intangible and floating quality of Zordon's image resonates with the artwork's intention to evoke stillness and introspection, encouraging a slow, mindful engagement with the continuous cycles of renewal and decay.

In both cases, the hologram serves as a bridge. Connecting presence and absences, memory and hope, urging reflection on our relationship with the environment and the lasting impact of our actions beyond materiality, extending into emotional and ethical realms.

Figure 6. Zordon's Hologram in the Series Mighty Morphin Power Rangers
(Source: @PowerRangers, YouTube, 2025)

## Conclusion

'Seasons of the Tree' stands as a poetic convergence of technology, nature and human introspection. Through its seamless holographic loop, the artwork transcends traditional visual storytelling to embody the cyclical essence of life, echoing the rhythms of the natural world. By using the tree as a symbolic anchor, the piece invites viewers to reflect on sustainability not merely as an environmental imperative, but as an emotional and ethical journey, one that calls for balance, patience and renewal.

The work's immersive design rooted in digital and craftsmanship and inspired by both scientific and cultural interpretations of holography. It evokes a quiet yet powerful emotional resonance. Each season becomes a metaphor for human experience: spring's hope, summer's vitality, autumn's nostalgia and winter's contemplation. In doing so, the piece fosters a deeper awareness of our interconnectedness with nature and our responsibility towards it.

As a fusion of art and emerging technologies, Seasons of the Tree also opens new pathways for creative expression in sustainability discourse. Its potential extends beyond the gallery space, into education, public installations and therapeutic environments. Its meditative qualities can inspire mindfulness and ecological empathy.

Looking forward, future iterations might explore interactivity, soundscapes or augmented reality to deepen engagement. Yet, even in its current form, the artwork offers a timeless message. By observing and appreciating how nature changes through the seasons, we can better understand ourselves and our connection to the Earth. It reminds us that we are part of a larger, living system, and that living in harmony with it can bring meaning and balance to our lives.

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## Authors' Bio

***Mohd Ikhwan Mohd Marzuki*** graduated from Multimedia University, Cyberjaya, with a Bachelor of Multimedia (Hons) in Film & Animation in 2008. He started his career at Shock3D! as a 3D Modeler and Lighting Artist, eventually becoming the Lead Modeler. He then moved to Netcarbon Sdn Bhd, where he worked as a 3D Modeler and Texture Artist. Later, he joined Gluestudios, contributing to the "Rimba Racer" series on TV3 and Netflix as a Texture, Modeler, Render, and FX Artist. In 2016, Ikhwan transitioned to education, spending three years as a Multimedia Trainer at SG Academy. Currently, he is a Lecturer and Programme Coordinator for the Diploma in 3D Modelling and Animation at Multimedia University, Cyberjaya. He holds a Master's Degree in Visual Communication and New Media from UiTM Shah Alam.

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