

# Anatolian Futures: A Memorium for Feminist Folklore

by

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# Abstract

**Anatolian Futures: A Memorium for Feminist Folklore** merges traditional mythology with speculative frameworks in an immersive virtual reality (VR) environment. The project employs game mechanics such as hidden object discovery, item collection, and physical interaction with a loom to weave kilims, flat-woven rugs handcrafted in regions such as Middle East and Central Asia. This weaving metaphor parallels digital creation—stitch by stitch, byte by byte—highlighting how meaning is formed and carried into the future.

Set in a futuristic landscape, the VR experience features the guiding presence of Umai, a shamanic figure who symbolizes the divine knowledge traditionally attributed to female characters in Turkic mythology. Her contemporary projection accompanies the participant within the virtual space, serving as both a narrative guide and a methodological tool. Through this framework, the project seeks to interrogate ingrained gender norms, challenge patriarchal narratives, and envision more equitable futures rooted in Anatolian heritage.

By converging artistic research and Critical Fabulations<sup>1</sup>, Anatolian Futures positions Anatolian identities and stories within the broader discourse of cultural futurisms. In doing so, it creates a transformative “memorium” where past and future converge, offering a forward-looking perspective on often underrepresented folklore while preserving its significance for generations to come.

## Keywords

Anatolian Futures / Feminist Folklore / Virtual Reality (VR) / Embodiment / Shamanic Figure (Umai) / Weaving Metaphor / Game Mechanics / Artistic Research / Speculative Design / Critical Fabulations / Representation / Cultural Preservation / Digital Archiving / World-making / Spatial Design

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<sup>1</sup> Rosner, Daniela K. *Critical Fabulations: Reworking the Methods and Margins of Design*. The MIT Press, 2020.

Critical fabulations, as mentioned here, is directly taken from the book with the same name. Rosner’s work outlines an alternative design methodology that integrates female perspectives to reframe conventional design theories.

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# A Introduction

## A1 Research Outline / Summary

This thesis seeks to reimagine Anatolian female folkloric characters and cultural narratives through a feminist lens, offering a futurist perspective that bridges tradition and science fiction. Anatolia is a region marked by its rich history and cultural diversity, where numerous civilizations have risen and fallen over the centuries. Each one left its imprint on the land, from ancient empires to medieval powers. Among them, the Turkic tribes from Central Asia arrived and settled, bringing with them their unique customs, beliefs, and traditions. Over time, these elements blended with the existing cultures, contributing to the vibrant and multifaceted identity of Anatolia. By employing virtual reality as its primary medium, the project leverages immersive 3D environments to create embodied, narrative-driven experiences towards conveying these cultural narratives. The integration of embodiment and immersive media acts as a powerful mediator, enhancing the depth of interaction and engagement with the presented content to foster personal connections with its audience. By bringing to light local, often overlooked, or hidden stories from mythology and folklore, this work aims to celebrate and preserve cultural heritage. This thesis also aims to develop the concept of Anatolian Futures, a visual culture that reimagines Anatolian heritage through a futuristic lens. By blending traditional folklore, mythology, and cultural narratives with contemporary speculative frameworks, the project seeks to position Anatolian identities and stories within the broader discourse of cultural futurisms.

## A2 Research Questions

The primary research questions of this thesis project are:

- How might Anatolian futures be imagined and enacted within virtual reality environments?
- How can feminist theoretical frameworks inform the construction and interpretation of Anatolian futures in immersive digital spaces?
- In what ways can material culture of ancient communities guide the development of future-oriented narratives and aesthetics within digital media contexts?

## A3 Previous Practices & Personal Motivation

### Fragments of a Place

My motivation to work in the intersection of virtual reality and cultural narratives developed gradually. Initially, I was intrigued by the intersection of 3D scanning and memory preservation—an interest that led to my project titled *Fragments of a Place*. I 3D scanned my grandmother's house, driven by a powerful emotional need to hold onto a space I feared I would lose forever. I scanned the house using Scaniverse, a 3D scanning app, just to access the 3D model using my phone as a medium. After arriving in Canada and

learning about virtual reality, I revisited the scanned environment through a VR headset. Wanting to express my personal narrative more vividly, I added mystical symbolism by modeling animated branches that envelop the space like ivy. My goal was to express my personal relationship with this interior through world building, and thus mystical symbolism became a tool to add onto the existing scan. It was an attempt to augment the 3D space according to what I felt about my memories there, a personal intervention. This experience—merging 3D technology with something deeply personal—solidified my fascination with how immersive media can serve as a conduit for memory keeping.



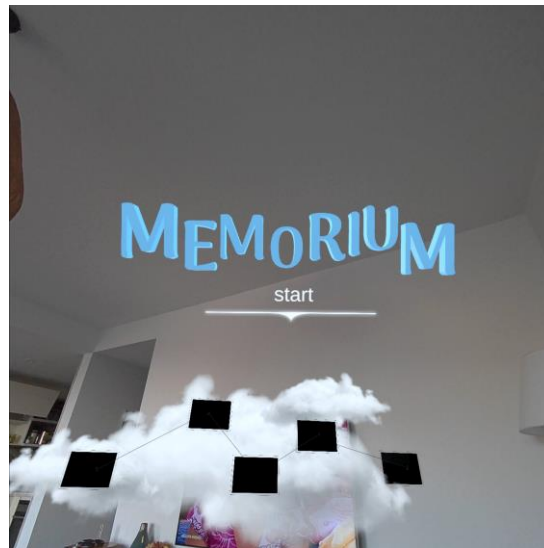
Ecem Ozturk. *Fragments of a Place*. Blender Screenshot of the VR Environment, 2024. Collection of the author.

Visually, my grandmother’s house was a typical Turkish 1980s interior. The parquet floor, stone tiles in the kitchen, world atlas and dictionaries collected from the newspaper in exchange for coupons, cuckoo clock, old, polished walnut furniture, velvet sofa covers— most of these details are universally recognized textures, specific to a certain time. A time when the portrait of this house was common, a regular scene. This led me to explore 3D scanning as a means of creating collective experiences. The house is shared memory, one that, when experienced in an immersive 3D virtual world, was solidified in a collective space. What began as part of my digital archive could now be experienced and interpreted by a wider audience, inviting a shared connection to the past.

### 3D Interfaces & Bodily Interactions

My practice has evolved through learning by creating small prototypes that focus on one or two key interactions. For my next experiment, I concentrated on creating 3D interfaces using mixed reality, specifically designing a digital archive interface. I created an interface in the shape of a cloud, envisioning it as a layer above the real world, symbolizing the accessibility of cloud storage. The interaction design was inspired by the potential to relive moments through hand gestures that would trigger a 360-degree video. This marked my initial exploration of hand-based interactions and gestures, through which I learned and refined

my approach. I experimented with pinch and drag gestures, paired with arm length motions to interact with the interface. The idea of a cloud holding snippets of memories, with the ability to activate a 360-degree video, laid the foundation for my development of the concept of a "memorium." However, I began to sense a missing piece: the need for a broader cultural focus. That void sparked my research into my own heritage, Anatolia.



Ecem Ozturk. *Memorium Prototype 1*. Screenshot from the VR Experience, 2024. Collection of the author.

## The Missing Piece: Anatolia

Anatolia, also known as the Asia Minor, is the name given for the prehistoric land bounded by the Black Sea, to the east and south by the Southeastern Taurus Mountains and the Mediterranean Sea, and to the west by the Aegean Sea and Sea of Marmara; culturally the area also includes the islands of the eastern Aegean Sea. (Brittanica.com) Today, the region known as Anatolia lies within the borders of modern-day Turkey and played a significant role in shaping the cultural mosaic of this area for thousands of years. This work uses Anatolia as its geographical focus because it encompasses a wide array of prehistoric cultures that once flourished here. Over time, various groups migrated into Anatolia, including Turkic-speaking pastoralist societies from Central Asia—often described as early or proto-Turkic nomadic groups. When these Turkic settlers arrived, they integrated with the local population, eventually contributing to a hybrid culture imbued with symbols and legends drawn from both the indigenous Anatolian traditions and their own Central Asian heritage.



"Asia Minor in the Greco-Roman period - general map - regions and main settlements" by Caliniuc is licensed under [CC BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/). Source: [Wikimedia Commons](https://commons.wikimedia.org/wiki/File:Asia_Minor_in_the_Greco-Roman_period_-_general_map_-_regions_and_main_settlements).

The missing element in my practice was a deeper connection to my heritage—a broader cultural purpose centered on the long-overlooked impact of female characters and iconography intrinsic to this region. This exploration is both a personal journey and a meaningful endeavor, aimed at creating work that empowers and inspires women—whether from Anatolia or elsewhere—toward a future where they are truly seen and represented.

The concept of memory and preservation finds a parallel in the distinctly Anatolian practice of kilim weaving—a tradition deeply rooted in the lives of girls and women. Kilims are flat tapestry-woven carpets or rugs, handcrafted by weaving geometrical shapes with vibrant colors. Kilim weaving is not merely an art form; it is a medium for self-expression, a channel for goodwill, and a repository of cultural symbols. In this practice, the kilim becomes an heirloom, archiving history and identity to be passed down through generations. This connection resonates with my interest in memory archiving and the simulation of cultural heritage in the virtual world, presenting both a significant and compelling opportunity for exploration.

## Female Characters of Turkic Mythology & Belief Systems

In the folklore of Anatolia and the nomadic Turkic communities of Central Asia, women are depicted as vital figures of strength, wisdom, and leadership. Their stories, preserved in epic literature, oral traditions, and legends, reveal them as warriors, advisors, and protectors whose actions shape the destinies of their people. These heroines emerge prominently in foundational Turkic epics such as the Book of Dede Korkut, the Alpamysh cycle, and the Manas epic, providing timeless narratives that continue to captivate and inform modern scholarship (Lacivert Dergi, 2021). Figures like Banu Çiçek, Burla Hatun, Gülbarçın, Tomris Hatun, Kanikey, and Canil Mirza illustrate the breadth of roles women have occupied in these epic tales, challenging conventional notions of women's contributions to heroic traditions and embodying virtues such as courage, resilience, and strategic acumen. They represent not only the values of their respective societies but also the transformative power of women in shaping collective identities.

In the cosmology of early Turkic nomadic peoples, sacred geographies and maternal symbolism intertwined to create a world infused with divine feminine power. The figure of Umai (Umay), widely regarded as a protective mother goddess, exemplified this central feminine principle. She presided over childbirth, growth, and the continuity of life, extending her guardianship not only to individuals but to entire communities and



lineages (Roux; Kafesoğlu). Her influence was perceived as an all-encompassing, generative force shaping both human affairs and the wider rhythms of the natural world. Ritual specialists—shamans or kam—were key mediators who bridged the mundane and spiritual worlds. While the exact form and nuance of these rites and beliefs could vary among different Turkic groups, their common threads highlight a cosmology focused on the female creator archetype. By placing a maternal force at the center of cosmic order, early Turkic nomadic peoples cultivated a worldview in which nature, ancestry, and spirituality converged, continually regenerated by the grace of the divine feminine.

## What is a ‘memorium’?

In the context of *Anatolian Futures: A Memorium for Feminist Folklore*, “memorium” is conceived as a closed terrarium that intertwines memory and memorialization with speculative storytelling. It draws on the idea of a memorial space yet moves beyond static commemoration by embracing fluid, evolving narratives in immersive digital environments. Here, personal and collective histories intersect with futurist perspectives, creating an ongoing dialogue between what has been, what is, and what could be. By situating ancient mythologies within a VR framework, the memorium becomes not only a site of remembrance but also a springboard for reimagining Anatolia’s cultural past and shaping forward-looking identities. The memorium enables a unique way to experience and build relations with the content, placing interactivity at its core. It’s a space in which culture becomes a performative activity thus enhances the connection one builds towards Anatolia’s folklore.

## Significance

Across the globe, including in Türkiye, women continue to face significant oppression, aggression, and violence. Female roles are often hard coded into socio-cultural and political frameworks, yet mythological figures from Anatolian folklore defy these rigid constraints. Unearthing these forgotten characters and reimagining them in a contemporary context can serve as a potent source of empowerment, while also enriching our shared visual culture. More artistic endeavors are needed in this arena—projects that bring these underrepresented narratives to light so that they can be seen, embraced, and ultimately revalued by wider audiences.

Furthermore, Anatolian futures remain largely underexplored: there is no established visual language or futurist perspectives rooted in Anatolia. By employing virtual reality as a medium, this project provides an immersive case study for both preserving and reinventing cultural heritage. Through VR’s ability to create immersive environments and provide interactivity, it breathes new life into these mythological figures, highlighting their power to challenge societal norms and expand the possibilities for female representation within Turkic/Anatolian cultures.

# B Methodology

## B1 Research Creation / Artistic Research

Research Creation, sometimes referred to as Artistic Research, merges creative practice with academic inquiry by positioning the creative act at the center of knowledge production. According to Carole Gray and Julian Malins, “practice-based research offers a rigorous means of generating knowledge from within the creative process itself, rather than treating artistic work as supplementary data” (Gray & Malins 5). Gray & Malins calls this practice ‘reflective practice’ referencing Donald Schon’s book *The Reflective Practitioner*:

*How Professionals Think in Action*. “Schon identifies that the professional’s inability or unwillingness to articulate this kind of knowledge has led to a separation of academic and professional practice.” (Gray & Malins 22). Research creation unites research with practice, by including the practitioner’s intuition and knowledge using reflection in different ways as steps in critical research.

One of the core practices of research creation is to manage the information obtained through literary and contextual review. As highlighted by Gray and Malins, just like in other fields of research, artistic research also needs a concrete grounding, an argument and claims backed up by evidence (Gray & Malins 46). This thesis incorporates information from scholarly journals, books and relevant web archives along with a case study and visual research. A studio workbook in the form of an online repository using Notion was kept navigating the sources and research process.

There are reasons beyond academic goals and the creation of a thesis to embark on research creation as a practice. Practice-based research guides practicing professionals to articulate their knowledge into “clearer epistemologies” which leads to developing interdisciplinarity work and collaboration through better communication (Gray & Malins 59).

Research creation as a methodology has shaped the research of this thesis project by inspiring questions, constant reflection and guided further reading. The creative process then resumed in the light of the readings. This cycle, the making feeding the reading and vice versa, repeated itself throughout the process. An attitude of experimentation was followed aesthetically, and to develop aesthetic experimentation, a series of investigations were made using available software, such as Blender and Adobe Suite, and AI applications, such as meshy.ai. The visual research for this project has provided the aesthetic investigation with a plethora of found images, from archeological findings to actual photographs. These images were periodically input into AI or used as references for generating specific three-dimensional scenic compositions.

This iterative cycle of creation and reflection is at the heart of research creation. In this framework, creative practice is not merely a means to produce an end artifact but serves as an essential mode of inquiry itself. Every experiment with digital tools and every aesthetic decision contributes to a deeper understanding of what the practitioner is aiming to arrive at, through the cultural narratives being reinterpreted. By continuously allowing the process of making to inform further research—and vice versa—the project embodies a dynamic research methodology.

## B2 Critical Fabulations

Building on the feminist and intersectional insights introduced by scholars such as Saidiya Hartman and Daniela K. Rosner, *Critical Fabulations*, the book, operates at the nexus of imagination, lived experience, and historical analysis. The book *Critical Fabulations* presents itself as a methodology. This methodology challenges dominant narratives by “fabulating”—or reworking—archival material, speculative storytelling, and design interventions to reveal marginalized perspectives. From a feminist point of view, *Critical Fabulations* asks: Whose stories are being omitted or erased, and how can we re-center them through creative reinterpretation? By weaving conjecture with rigorous research, it opens new ways of interpreting the past and envisioning more equitable futures.

Rosner presents four orienting tactics that reflect her practice: alliances, recuperations, interferences and extensions. (Rosner ch. 4) *Alliances* are the total number of relations built within a design setting. This tactic breaks the design process free from isolating individuals and opens new possibilities through collectivity.

*Recuperations* recognize narratives that are absent, silenced or forgotten. *Interferences* considers disruptions in a dominant design narrative, highlighting uneven conditions and equalizes across differences. *Extensions* offers new possibilities by allowing the process to continue through enabling new circulations of content. This tactic offers an ongoing accountability that doesn't stop once the prototype is finished. (Rosner ch. 4) These four tactics each stem from feminist critiques of individualism, objectivism, universalism and solutionism. Feminist theory challenges individualism by arguing that a focus on isolated achievement can obscure the importance of community and interdependence. Similarly, critiques of objectivism question the dismissal of subjective experiences, especially those of marginalized groups. Universalist approaches, which claim one-size-fits-all solutions, often fail to account for the diversity of lived experiences, while solutionism challenges the idea that design is complete once a product is finalized. It argues for continuous engagement and adaptation, ensuring that design processes remain responsive to evolving social and cultural contexts. (Rosner ch. 4)

In this thesis, Critical Fabulations directly supports the reimagining of Anatolian female folkloric characters. Often overlooked or hidden in mainstream accounts, these stories are ripe for feminist reinterpretation. By harnessing VR's capacity for immersive narrative, the thesis employs two of Rosner's tactics: *Recuperations* and *Interferences*. The absence of representation and narratives surrounding female characters from Turkic mythology in interactive media—and more broadly in contemporary visual culture—is a primary reason for developing *Recuperations* as a tactic in this project. *Recuperations* allows designers to intentionally uncover and remember female narratives from the Anatolian and ancient Turkic communities. *Interferences*, on the other hand, recognize the limitations and biases inherent in storytelling—including those present in mythology and literature — and intervene through adapting for a futurist setting. When referencing legends and texts that shaped the perspective depicted in this VR experience, each is examined individually within their conditions, avoiding generalizations or out-of-context universalism. With any original textual inputs in the VR experience, too, the adaptation ignores any direct references to legends or mythology. It recreates a reality disrupted by this new perspective this thesis creates. Furthermore, this work purposefully states the one-of-a-kind nature of female centered narratives and simply highlights the need to produce more for its voice to be heard more.

## B3 Speculative Futures

Speculative Futures situates itself in the realm of possibility, using foresight techniques, world-building exercises, and design fiction to imagine alternative social, cultural, and technological trajectories. By intentionally stepping outside the bounds of what is deemed “realistic,” Speculative Futures allows researchers, artists, and audiences to interrogate current conditions and consider the ethical implications of emergent scenarios. This future-oriented stance complements Critical Fabulations: while Critical Fabulations revisits and reimagines the past to bring forth new narratives, Speculative Futures projects those narratives into forward-looking spaces.

Design is inherently a forward-thinking practice. Every solution a designer creates not only addresses a current problem but also shapes the future. As Anthony Dunne and Fiona Raby state in *Speculative Everything: Design, Fiction, and Social Dreaming* (2013), “as all design to some extent is future oriented, we are very interested in positioning design speculation in relation to futurology, speculative culture including literature and cinema, fine art and radical social science concerned with changing reality rather than simply describing it or maintaining it” (Dunne and Raby 3).

Speculative design draws on a rich tapestry of practices—from science and literature to ethics and sociology—making it a highly interdisciplinary medium. This approach stands apart from market-driven design by prioritizing ideas and possibilities over immediate commercial pressures. Known by many names—speculative design, critical design, design fiction, design futures, antidesign, radical design, interrogative design, design for debate, discursive design, futurescaping, and design art (Dunne and Raby 11)—these branches of design encourage designers to interrogate, question, simulate, and argue for alternative futures. The fictional worlds they create serve not as endpoints but as platforms to explore and materialize new possibilities through media production, products, or other hybrid formats.

Crucially, the speculative worlds constructed through these processes are not the destination; rather, they function as tools that allow us to explore potential futures and critically engage with contemporary issues. By envisioning alternative realities, designers can challenge existing paradigms, spark debate, and inspire innovative thinking that directly connects to real-world contexts. These speculative gestures act as “thought objects”—conceptual artifacts designed to provoke reflection on our current socio-political and technological trajectories.

A key aspect of speculative design is world-building or designing for fictional realms. As Dunne and Raby note, “if we are interested in shifting design’s focus from designing for how the world is now to designing for how things could be, we will need to turn to speculative culture and what Lubomír Doležal has called an ‘experimental laboratory of the world-constructing enterprise’” (qtd. In Dunne and Raby 69). Whether employing 3D technologies, 2D media, text-based narratives, collage, or critical product design, this approach offers an infinite array of iterations that challenge and expand our understanding of reality.

Julian Bleeker’s work at Near Future Laboratory exemplifies this practice by focusing on the near future. Bleeker, who describes his approach as “design fiction,” materializes speculative ideas today through product and graphic design. His book, *The Manual of Design Fiction*, alongside contributions like *Made Up: Design's Fictions* by Tim Durfee and Mimi Zeiger, reinforces the idea that speculative design is not an end in itself but a means to reframe our engagement with the world. Ultimately, these fictional worlds and speculative gestures provide a powerful means to interrogate current challenges and propose radical alternatives, thereby connecting visionary ideas back to contemporary, real-world contexts (Bleeker; Durfee and Zeiger).

For this thesis, Speculative Futures plays a crucial role in framing what is termed “Anatolian Futures.” By blending traditional folklore, mythology, and cultural narratives with contemporary speculative frameworks, the project repositions Anatolian identities and stories in a global discourse of cultural futurisms. Through narrative-driven VR experiences, a “future that might be,” anchored in Anatolia’s rich heritage is expressed. This approach shows how local stories can become universal content when re-envisioned through a futurist lens—ultimately preserving cultural heritage while simultaneously charting new directions for its evolution.

# C Literature

## C1 Intro to Futurism

### What is Futurism?

Futurism, as a practice of imagining worlds and lives beyond our present, has evolved alongside human culture, with contemporary society flourishing through its futuristic productions since the mid-twentieth century. While projections of futurist outcomes vary based on guiding principles and societal visions, the essence of futurism lies in its embrace of plurality and its exploration of multiple possibilities.

Imagination and storytelling have been one of the core outlets of entertainment, placing the storyteller on a special pedestal in social orders. Future projections have not only entertained but also informed and motivated the masses, often reflecting current issues and serving as powerful tools for critique. The term 'futurism' was invented in the early 20th century, as part of an artistic movement that emerged in Italy led by poet Filippo Tommaso Marinetti. Although the art movement was motivated by the negativity of fascism and hatred towards humanism and feminism, it's important to note the mark it made in developing the initial visual culture around future projections of urban life and machinery. Production of literature, art and design around the idea of a distant future never stopped. Italian Futurism affected everything from the futuristic aesthetics of mass-produced house appliances and furniture to futuristic architecture. Futurism marked the aesthetics of an era of industrialization. Detailed research on the timeline and historical development of the idea and practice of futurism can be found in Appendix A.

Science fiction emerged as a distinct genre in the early 20th century, reflecting societal concerns of the time. The mid-20th century, particularly the 1950s and 1960s, saw science fiction addressing themes influenced by the era's socio-political climate, including the rise of the working class and various political movements. The genre has been shaped by a multitude of influences, including technological advancements, political ideologies, and cultural shifts, making it a rich field for exploring contemporary issues through speculative narratives. Detailed research on the history of science fiction during the 20th century can also be found in Appendix A.

The emergence of science fiction carved out a unique space for exploring modern issues through the lens of imagined future worlds. It also became a platform for postmodernist thought, offering a space to grapple with the complexities and ambiguities of life. Over time, science fiction evolved into a powerful tool for marginalized groups and activism. In this context, futurism is not a unified movement or singular platform but rather a versatile tactic and arena for engaging with sociopolitical questions, all while acknowledging that some futurist ideals have led to harmful outcomes. Many feminist writers embraced science fiction as a genre, using it to envision alternative scenarios and reimagine the power dynamics between genders. Prominent examples include Ursula K. Le Guin, whose novels *The Left Hand of Darkness* and *The Dispossessed* challenge conventional gender norms and explore fluid social structures.<sup>2</sup> These works not

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<sup>2</sup> In these works, Le Guin disrupts traditional gender binaries and hierarchical social structures. In *The Left Hand of Darkness*, the inhabitants of Gethen are ambisexual, existing without fixed gender roles, which destabilizes conventional notions of masculinity and femininity. Similarly, *The Dispossessed* envisions an anarchist society that reimagines power relations and communal living, offering an alternative to entrenched capitalist and patriarchal models. These fluid social structures are not only central to the narratives but also

only expand the possibilities of futuristic narratives but also invite readers to reconsider established social hierarchies in profound and imaginative ways. From that body of work, emerged other genres like cyberfeminism. Futurism evolved into more than just a tool or a genre; it became a comprehensive framework. This framework offers a means to explore and uncover unique insights into societies, the concept of time, and the very nature of life itself.

Designers have incorporated the principles of futurism into their work by treating it as a framework of its own. At the core of their intersection, including their connection with futurism, lies the practice of building empathy and imagining "what-if" scenarios.

## C2 Cultural Futurisms: Case Studies

Futurism has served as a tool for various cultures to envision potential futures, giving rise to diverse interpretations grounded in specific socio-political and historical contexts. Cultural futurisms are not monolithic movements but rather dynamic strands—spanning art, design, and storytelling—that emerge from unique local circumstances. Understanding these various strands offers insights into how different communities have reimagined their own histories, identities, and possible futures. Parikka emphasizes that these futurisms "are not merely quirky collections of multiple narratives of the future-city, or the future-now, but function as complications of the sort that already featured in Afrofuturism too: articulating histories of dispossession as part of imaginary futures" (Parikka 42). This deliberate complication shifts focus toward "the infrastructures of the cultural politics of time," including explorations of imaginary temporalities (Parikka 42). By actively reconfiguring historical narratives and power structures, these practices challenge dominant linear conceptions of modernity and open new possibilities for rearticulating socio-political realities, ultimately serving as potent tools for deconstructing established narratives while envisioning liberatory futures.

Within this expansive landscape, Arab Futurism and Indigenous Futurism provide particularly compelling examples of how cultural futurisms can challenge colonial frameworks and empower cultural self-definition. This section concentrates on two illustrative works: Larissa Sansour's *In the Future They Ate from the Finest Porcelain* for Arab Futurism, and Lisa Jackson's *Bidaaban: First Light* for Indigenous Futurism. Both pieces employ speculative narratives to critically examine histories of dispossession and placelessness, articulating alternative temporalities that challenge dominant cultural narratives and imagine potential futures deeply rooted in their respective cultural identities and ongoing struggles for place and recognition.

### Arab Futurism: Larissa Sansour

Larissa Sansour's practice exemplifies Arab Futurism by blending science fiction tropes, political commentary, and Palestinian iconography to question the power structures behind historical narratives. Her film, *In the Future They Ate from the Finest Porcelain* (2015), builds on themes from earlier works (*Nation Estate*, 2012 and *In Vitro*, 2019), and offers an incisive perspective on how archaeology, mythology, and futurism intersect to reimagine national identity and collective memory. As Sansour has noted in her

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serve to question and ultimately reconfigure normative assumptions about gender and societal organization (Le Guin, *The Left Hand of Darkness*; Le Guin, *The Dispossessed*).

Le Guin, Ursula K. *The Left Hand of Darkness*. Ace Books, 1969.

Le Guin, Ursula K. *The Dispossessed*. Harper & Row, 1974.

interview in Third Text journal, archaeological artifacts frequently serve as “time machines” that grant the present authority over the past—an idea she upends by creating “future relics” bearing Palestinian motifs. (qtd. in Hassouna) This approach highlights the political stakes of manipulating origin stories and legitimizing (or invalidating) entire communities based on material evidence (Sansour).

In her interview with Silvia Hassouna, Larissa Sansour elaborates on the complexities of national identity by addressing themes of loss, belonging, heritage, and ecology. She emphasizes that the Palestinian experience inherently involves navigating tensions between physical displacement and cultural continuity, highlighting how individual and collective histories are shaped by broader political contexts. Sansour’s exploration of heritage transcends mere nostalgia, actively interrogating how narratives of identity evolve in response to historical and environmental conditions. This resonates with a central tenet of Arab Futurism: the use of speculative art not just to envisage possible futures, but to reclaim narratives in a present fraught with external control over land and identity.

Visually, *In the Future They Ate from the Finest Porcelain* presents stark, dreamlike settings in cool grays and sandy neutrals, evoking both desert expanses and lunar landscapes. Such liminal environments feel simultaneously familiar and alien, compelling the audience to scrutinize its own assumptions about home and belonging. Characters navigate austere interiors bathed in an almost clinical light, while close-up shots of the porcelain fragments glisten against the film’s muted backdrops. These contrasts accentuate the tension between authenticity and artifice: the relics appear ancient and precious, yet viewers know they have been purposefully fashioned to rewrite a future archaeological record.

Throughout the film, science fiction serves as a creative language that suspends the usual rules of temporality, allowing Sansour to foreground the absurdities of everyday political constraints. By placing Palestinian experiences of displacement within a speculative framework, she illustrates that the status quo is not fixed, but rather the product of specific power dynamics that can be challenged or reimaged. This subversion echoes wider postcolonial critiques—namely, that empire-building often relies on controlling whose stories get told and how. In this sense, Sansour’s film not only imagines a Palestinian future but actively constructs one, affirming that cultural identity is shaped as much by what lies ahead as by what has been left behind.

Beyond its immediate political commentary, *In the Future They Ate from the Finest Porcelain* also offers a generative model for other cultural futurisms. Its fusion of local mythologies, futuristic aesthetics, and tangible artifacts highlights the importance of weaving together material culture and imagined possibilities. For this thesis project that explores Anatolian Futurism, Sansour’s work illustrates how speculative art can serve both as critique and as a survival strategy. Rather than escaping from difficult realities, it transforms them into a platform for activism, reflection, and the reshaping of collective memory. By revealing the vulnerability of official accounts and the power of constructed evidence, Sansour illustrates that reclaiming one’s future also entails actively re-authoring the past.

A parallel emerges between Sansour’s porcelain—an emblem encoding contested histories—and this thesis’s use of kilim motifs and archaeological figurines. Just as the embedded Palestinian imagery on Sansour’s porcelain fragments reflects cultural memory and resilience, woven kilim patterns serve as carriers of Anatolian heritage, while Balbal figurines act as memorabilia from the past. Both mediums encapsulate stories, symbolism, and aspirations for a more equitable future, reinforcing the idea that material artifacts—whether shards of porcelain or threads of woven design—can enact political commentary

and preserve collective identity across time. The political dimension of the porcelain shards lies in their capacity to preserve meaning. Although different in form, a similar motivation appears in this thesis's interaction mechanic, which involves collecting objects of the past and using a loom to create kilim symbols. In essence, it is a process of unveiling and reclaiming what came before.

## Indigenous Futurism: Lisa Jackson's *Bidaaban: First Light* (2018)

Lisa Jackson's *Bidaaban: First Light* (2018) stands as a vital example of Indigenous Futurism, integrating immersive technology, ecological reimagining, and the revitalization of Indigenous languages to challenge conventional assumptions about "progress" and "modernity." By envisioning a Toronto reclaimed by dense vegetation—vines draping over skyscrapers, roots cracking through concrete, and water flowing where city streets once existed—the VR experience subverts settler-colonial myths that confine Indigenous cultures to the past. Rather than a relic of a bygone era, Indigenous presence emerges as an active, guiding force in this transformed urban future. In interviews, Jackson has emphasized that Indigenous peoples have continually adopted new tools and media, making immersive technology a logical extension of storytelling traditions rather than a novelty. This approach positions VR as a conduit for re-mapping physical and imaginative spaces, enabling Indigenous voices to assert sovereignty over narratives that have historically been shaped by colonial perspectives.

Within *Bidaaban: First Light*, participants enter a multi-sensory environment that disrupts linear notions of time and development. Faint echoes of modern urban life—distant car horns and electronic hums—are interwoven with the rhythmic cadence of Anishinaabemowin phrases. Jackson has commented that this fusion "invites audiences to experience Indigenous knowledge not as a relic of the past, but as a living, evolving continuum," (Jackson) underscoring the dynamic interplay between ancestral language and futuristic city sounds. One participant shared their reaction, saying, "Hearing my language in a VR setting moved me to tears. It was overwhelming to see it alive in this way" (Jackson), highlighting how immersive art can break down ingrained narratives of erasure. By situating Indigenous presence squarely in a speculative Toronto, *Bidaaban* reframes the conventional storyline of inevitable dispossession and reaffirms cultural continuity despite ongoing colonial pressures.

Visually, the piece adopts a post-apocalyptic yet revitalizing atmosphere. Once-familiar buildings remain recognizable but appear enveloped by lush greenery and illuminated only by shafts of sunlight or reflected neon. This juxtaposition of decaying urban infrastructure with flourishing plant life evokes both ruin and renewal, accentuating how the future might accommodate ancestral knowledge systems and environmental harmony rather than rigid Western models of urban progress. Anishinaabemowin, woven throughout the environment, serves not only as a narrative device but also as a sonic anchor for Indigenous identity. Hearing an Indigenous language in a futuristic setting destabilizes the notion that such languages belong solely to past cultural memory, instead extending them powerfully into the future.

In this way, *Bidaaban: First Light* connects to broader themes of continuity and survivance central to Indigenous Futurism. Rather than viewing time as linear—where "traditional" cultures fade as "modern" societies evolve—the VR project presents a cyclical or relational sense of progress in which past, present, and future coexist. Indigenous Futurism challenges the dominant grand narrative of linear progress, which has historically erased Indigenous peoples from visions of the future. Vine Deloria Jr. critiques the Western concept of linear time, which he argues has been deeply tied to imperialist ideologies. He states, "The very essence of Western European identity involves the assumption that time proceeds in a linear fashion; further, it assumes that at a particular point in the unraveling of this sequence, the peoples of Western



Europe became the guardians of this world” (Deloria, qtd. in Gale). Every vine, root, and trickle of water threading through the cityscape symbolizes Indigenous resilience, rejecting the idea that colonial narratives must define what lies ahead. By actively challenging linear timelines and reclaiming Indigenous agency in a technologically advanced framework, Jackson demonstrates that artistic speculation can function not merely as escapism, but as a form of cultural reclamation and empowerment.

### C3 The Possibility of an Anatolian Futurism

The exploration of Anatolian Feminist Futurism finds resonance within the broader framework of cultural futurisms as discussed in the previous section. While each of these movements emerges from distinct cultural, historical, and geopolitical contexts, they share a foundational commitment to reclaiming narratives and challenging dominant power structures. This shared ethos offers valuable insights for conceptualizing a feminist futurism rooted in Anatolian mythology and legends, emphasizing decoloniality and feminist reimagining of historical narratives.

One key theme that connects these cultural futurisms is the reclamation of agency. Anatolian Feminist Futurism can foreground Anatolia’s mythological female figures to challenge patriarchal interpretations of these stories. By positioning these characters as central agents, Anatolian Futurism could "reconfigure the dominant frameworks of territoriality and time" to critique geopolitical narratives (Parikka 51). This reclamation is not merely about representation but about reasserting the power and relevance of cultural narratives in shaping alternative futures.

### Embodiment

Embodiment can manifest in various forms, ranging from fashion that places ancient motifs directly onto the body to inhabiting digital avatars in virtual reality environments. When contemporary designers like Bunyamin Aydin and Vita Kin integrate ancestral symbols and traditional textiles into modern garments, each wearer establishes a tangible connection to cultural narratives, literally weaving tradition into every movement. On the other hand, virtual reality creates intangible embodiments: participants navigate simulated worlds, extending their sensory experiences into digital landscapes inspired by ancient topographies. Both physical and virtual forms of embodiment deepen engagement with cultural heritage, transforming it into a lived, interactive experience that seamlessly bridges the physical and digital realms.

Anatolian Futures: A Memorium for Feminist Folklore merges VR immersion with a simulation of the traditional craft of kilim weaving. This bridge between physical and virtual realms is enabled through symbolic, movement-based interaction design. Passed down through generations to ensure its continuity, kilim weaving is delicate yet invaluable—materializing cultural symbolism in every thread. Symbols such as *elibeline* (hands on hips) represent female strength, fertility, and motherhood, reflecting the empowerment and foundational roles of women within the family structure. Meanwhile, the *koc boynuzu* (ram’s horn) motif symbolizes strength, masculinity, and bravery, acting as a protective charm meant to safeguard the family against misfortune and the evil eye. Additionally, motifs like *saçbağı* (hairband) symbolize a young woman's yearning for marriage and union, while *küpe* (earrings)—indispensable as wedding gifts in Anatolia—communicate a girl's desire to marry when woven into her kilim, highlighting the cultural significance placed on family continuity and prosperity (“Kilim Motifs”).

Another vital aspect of embodiment in this Anatolian Futurism piece is role-playing—the capacity for users to inhabit the perspective of a folkloric figure or artisan within the VR experience. Role-playing is how this

experience unites the past with the future, by simulating a traditional process elsewhere. In taking on these roles, participants not only perform the physical motions of weaving but also engage with the values, rituals, and emotional nuances that shape Anatolian mythology. This performative embodiment transforms a passive viewing experience into an active, sensory-based process: one that invites reflection on how communal roles, spiritual practices, and craft-based labor intersect with contemporary discussions of identity. By moving from mere observation to direct participation, role-playing links bodily movement with cultural storytelling, encouraging participants to explore, negotiate, and even reshape the narratives they encounter—thereby underscoring the transformative power of embodiment as both a creative and a learning practice.

## Why Anatolian Futurism Could be Considered Feminist

Looking at the narratives and artifacts described, what stands out is a pattern of cultural frameworks that afford women substantial agency, authority, and reverence. In the medieval European world—against which we often measure cultural norms—women’s leadership roles in warfare, politics, and spiritual life were much more circumscribed. Yet, in these Anatolian and Turkic nomadic traditions, female characters were integral to social cohesion, political stability, heroic achievement, and even cosmic order. This is not “feminist” in a modern activist sense, but it does present a proto-feminist worldview in which women are not relegated to passive or ornamental roles.

From Anatolian literary traditions, we see figures like Banu Çiçek, Burla Hatun, and Kanikey operating at the highest levels of decision-making, while Tomris Hatun stands as a military strategist, and Gülbarçın demonstrates resilience and moral strength. These epics depict women as equal partners in shaping destinies—be they familial, tribal, or even imperial. Such narratives contrast sharply with many contemporary societies, including much of the medieval West, where social, religious, and political institutions often systematically limited female authority. In these Turkic and Anatolian contexts, the presence of women as advisors, warriors, and rulers challenges any simplistic notion of universal patriarchal norms in pre-modern times.

Archaeological findings further bolster this perspective. At Neolithic Anatolian sites like Çatalhöyük—where, as noted on the official Çatalhöyük website, the settlement was first stumbled upon by local residents, prompting further investigation and eventually leading to the pioneering excavations led by British archaeologist James Mellaart and his team—female figurines were discovered that highlight the symbolic centrality of the feminine in prehistoric societies (“Çatalhöyük”). Rather than realistic portrayals of typical women’s bodies, these figurines exhibit exaggerated features that emphasize generative power—fertility, abundance, and nurturing energy. Their strategic placement in domestic and communal spaces, along with their association with sustenance and well-being, reflects a reverence for the feminine that transcends mere biological fact, embedding itself in the spiritual and social imagination. This suggests that the respect for feminine principles and the recognition of potential leadership roles may be deeply rooted in ancient traditions, rather than being later or foreign innovations.

Taken as a whole, the literary epics and the figurines speak to a worldview that accorded women a revered place in the moral, social, and cosmological order. While we must acknowledge differences in historical context and avoid idealizing the past, these examples remind us that notions of female equality, authority, and creative centrality are not exclusively modern or Western.

Bringing these narratives and archaeological insights into a futuristic lens—such as a narrative or embodied VR experience—has the potential to be deeply empowering. By re-envisioning past worlds that embraced

women's agency and spiritual significance, we can challenge entrenched patriarchal histories and inspire new narratives where feminine leadership, wisdom, and creative power are once again foregrounded. In virtual environments, viewers and participants can immerse themselves in these alternative cultural memories, experiencing firsthand how reverence for the feminine can shape communities, values, and creative possibilities. In doing so, we not only resurrect voices from the past but also offer a transformative framework for imagining egalitarian futures.

## C4 Folklore, Digital Age & Preservation

### Magnetic Core Memory

Magnetic core memory stands as a fascinating intersection of textile craftsmanship and early computer engineering, underscoring the critical role of women who literally “wove” each bit of data into physical form. According to Knowledge House for Craft, “these tiny, ring-shaped ferrite ‘cores’ were carefully threaded with wires by hand, in a process more akin to sewing than traditional manufacturing” (“That Time When Computer Memory Was Handwoven by Women”). Further explored by Handwoven Magazine, this process involved painstaking skill and dexterity, traditionally associated with textile crafts, which allowed for the minute precision the work demanded (Smith).

Magnetic core memory establishes a compelling link between the traditional craft of kilim weaving and the concept of digital data storage. Historically, magnetic core memory was constructed through intricate weaving techniques, involving wires threaded by hand into precise configurations, functioning much like coded patterns to store data. This intersection of textile craftsmanship and computing is directly referenced within the narrative of this thesis, which simulates the preservation and encoding of information through symbolic hand movements reminiscent of weaving. The act of creating handmade objects capable of storing data—and thus capturing time—is not merely metaphorical but historically factual, as demonstrated by the women who physically wove ferrite cores to embody digital memory in early computing. This parallel emphasizes weaving as both a literal and symbolic practice of embedding and preserving cultural and digital histories.

Notably, the Apollo space program relied heavily on this handmade technology: the so-called “little old ladies”—often younger than the term implies—painstakingly threaded ferrite cores for the spacecraft's guidance computer. “With every passing wire, they were essentially ‘programming’ the spacecraft's operational instructions” (Knowledge House for Craft). Their labor converted intangible computer code into tangible artifacts, as bytes became loops of wire carefully laced through minuscule rings. This intimate merger of craft-based skill and cutting-edge science reveals how women's work in weaving converged with the era's most advanced technological pursuits. By harnessing textile-like techniques, developers effectively transformed abstract computer instructions into a tactile, embodied form of memory—each thread a testament to the synergy of human hands and mechanical logic.

Building on Daniela K. Rosner's concept of Critical Fabulations—a methodology that re-examines dominant narratives by highlighting hidden labors, marginalized voices, and craft-based expertise—the history of handwoven core memory exemplifies how seemingly peripheral or “feminized” forms of work can be central to technological progress (Rosner). By foregrounding women's vital role in physically weaving computer logic, Critical Fabulations recast what is typically framed as a purely scientific breakthrough into a story equally driven by dexterous craftsmanship. This perspective not only questions the boundaries that separate “technical” from “artisanal” labor but also disrupts the male-centric mythos often attached to the field of

computing (Rosner). In doing so, it challenges designers, historians, and technologists to integrate embodied, craft-oriented knowledge with contemporary design practice, echoing Rosner's call to probe the social and cultural dimensions of technical innovation beyond conventional narratives.

A parallel to magnetic core memory further underscores the conceptual emphasis on weaving as a method of preserving and encoding information. Much like the handwoven cores in early computers. This thesis simulates weaving through a collider mechanic in a virtual loom, digitally generating cubic kilim symbols. In both cases, data or cultural motifs are "woven" into a structured framework, binding intangible elements (bits of information or symbols of heritage) into a coherent, meaningful whole. This alignment with the history of magnetic core memory situates the thesis project in a lineage of craft-based data preservation, suggesting that even as technology evolves, the act of weaving—whether physical or simulated—remains a potent metaphor for storing, transmitting, and reimagining collective knowledge.

## D Creation

This section focuses on design and development. *Anatolian Futures: A Memorium for Feminist Folklore* is a VR experience developed to be experienced in Meta's Quest VR headsets. It was made using Unity. To achieve its visual quality, Meshy.ai was used together with Blender and Photoshop to produce assets. The VR experience utilizes 360 spatial renderers, 360 sound, controller interaction and haptic feedback capabilities of Meta Quest 2, Quest 3 and Quest 3+ headsets. The goal of this VR experience is to create an immersive environment where users can actively "perform" cultural activities rather than merely reading about them. Participants can interact with virtual objects and share space with a virtual character, providing a tangible connection to Turkic mythology. The experience highlights artifacts representing female identities and narratives, enabling deeper engagement with these cultural elements through embodied participation.

The final prototype is defined by its use of game mechanics such as item collection, grab and release. Therefore, there is a need to write custom scripts for certain mechanics. Chat GPT O3-mini-high was used for the advanced reasoning and coding task. The custom code along with the ChatGPT text inputs can be found at the Appendix.

The biggest benefit of using ChatGPT for coding is the ability to prototype without having the knowledge of C# coding. As a creator with a background in design, I could not have developed this functional prototype without the assistance of AI. This also applies to prototyping and the entire development process, as creating mechanics and logic involves iterative refinement. Such iteration requires an ongoing dialogue with AI, enabling the continuous addition and removal of features in custom scripts throughout development.

## D1 Representation

### Adaptation Techniques of Representing a Feminist Anatolian Future

Reimagining and adapting Anatolian folklore and ancestral narratives through a feminist lens in the contemporary era involves a careful, critical approach. Feminist scholarship has long argued for the selective appropriation of historical and cultural material to challenge oppressive structures while affirming empowering aspects of heritage (Haraway; Mohanty). In the case of Anatolian tales and mythic figures, this means embracing stories and archetypes that highlight women's agency, resilience, and strategic acumen, while discarding or reevaluating elements that reinforce restrictive norms—such as valorizing only mothers at the expense of women who do not bear children.

One adaptation technique involves “situated knowledge” (Haraway), where researchers make their positionalities explicit, acknowledging cultural biases and contemporary values. By doing so, researchers, artists, and educators can recontextualize ancient narratives to resonate with current feminist principles, emphasizing solidarity, multiplicity of identities, and the rejection of hierarchical value systems that privilege certain forms of womanhood over others. Such an approach aligns with feminist archaeological and ethnographic methodologies, which advocate critical self-reflexivity and nuanced interpretation of the past to avoid reproducing patriarchal or essentialist tropes (Conkey & Gero).

Another technique involves multimodal adaptation and representation, drawing from media and literary studies. Henry Jenkins’s concept of transmedia suggests that stories thrive when retold across various platforms—print, digital installations, audio narrations, VR experiences—thereby reaching wider audiences and encouraging interactive, participatory interpretations. (Jenkins) While many Anatolian female figures and symbols currently persist in scholarly writings or book illustrations, their translation into contemporary media can facilitate re-encounters with these characters. This reframing not only fosters cultural dialogue but also helps correct a representational imbalance. By materializing these figures—through sculpture, digital art, film, or interactive exhibitions—communities can rewrite the historical record, making visible the complexities and strengths of these archetypes (Butler; Zylinska).

Importantly, the goal is not to romanticize or simply “update” folklore but to offer a deliberate, critical reframing that echoes current feminist debates on intersectionality and inclusivity. Such adaptations can challenge narrow definitions of womanhood and heroism, highlight varied forms of female leadership and wisdom, and inspire contemporary women to find models of empowerment rooted in their own cultural past. By giving these underrepresented figures a renewed platform, creators and scholars affirm that cultural heritage is not static; it evolves, guided by ongoing social critique and aspiration for equality and agency (Freedman).

A further dimension of adaptation in this project involves the design and representation of the female shamanic figure, inspired by the goddess from Turkic mythology and belief system, Umai. To create this character, an experimental approach was taken using meshy.ai, a text-to-3D generation platform. The prompt— “animating female shaman, futuristic costume, mouth rigging, Turkic Anatolian nomadic references, feminine futuristic female character with Turkish Anatolian references, folded legs sitting on the floor, praying pose, animating hands and mouth talking female shaman”—functioned as a conceptual blueprint that fused ancestral and futuristic elements. Although meshy.ai automatically generates textures, the original material was deliberately edited in Photoshop to achieve a less descriptive, more ambiguous aesthetic.



Ecem Ozturk. *Female Figure*. Screenshot from VR Experience, 2025. Collection of the author.

This design choice reflects the character’s role as a female creator archetype in Turkic mythology, historically revered as a bearer of divine knowledge and placed on a cultural “pedestal.” By depicting her seated on the ground, legs crossed in a meditative state, the project foregrounds her spiritual significance without locking her into an overly literal or hyper-realistic portrayal. Instead, this more enigmatic visual language preserves her mystic dimension, inviting viewers to bring their own interpretations to the figure. In so doing, the VR experience underscores that this mythic archetype remains a timeless and shape-shifting source of inspiration—both honoring her significance in traditional culture and aligning her presence with contemporary discussions about feminism, heritage, and futurism.

The integration of AI into cultural approximation presents a complex array of challenges, particularly in maintaining accuracy and sensitivity to nuanced cultural contexts. One major concern is aligning algorithmic processes with the intricate, context-specific nature of cultural identities. As one study on culturally responsive artificial intelligence notes, “the limitations in data representation can lead to significant misinterpretations of cultural elements, resulting in outputs that are at best superficial and at worst deeply stereotypical” (“Culturally Responsive Artificial Intelligence”). This issue is compounded by the fact that many AI models are trained on datasets that lack sufficient cultural diversity, further exacerbating biases and inaccuracies. Additionally, research available on arXiv cautions that even state-of-the-art algorithms may “struggle to capture the fluid and dynamic characteristics of cultural practices,” highlighting a fundamental gap between technological capability and cultural authenticity (Bravansky, Trhlik, and Barez). Addressing these challenges necessitates a multidisciplinary approach that blends technical innovation with cultural expertise to develop AI systems capable of truly reflective and respectful cultural approximation.

In the context of this research creation project, the aesthetic direction and creative choices are driven by my personal vision. AI is employed strictly as a tool—a means to visualize and construct the work according to the parameters I set. This deliberate integration of technology does not absolve me from responsibility;

rather, it underscores the need for critical oversight. I carefully select how and when to use AI, ensuring that its outputs align with the intended cultural narrative. Recognizing the inherent biases present in AI systems, I take full responsibility for mitigating these biases, affirming that the final cultural depictions are the result of thoughtful, human judgment rather than solely automated processes.

## Representational Possibilities of VR

Virtual Reality (VR) provides an immersive medium that surpasses static texts and images, enabling multi-sensory, interactive encounters with content. Users can enter 3D environments that simulate the physical aspects of sites, objects, and narratives otherwise confined to fragmentary folklore or archival records. By combining visual, auditory, and kinesthetic inputs, VR facilitates a deeper grasp of traditions, beliefs, and social practices that might otherwise remain abstract or overlooked.

A defining advantage of VR is its ability to integrate physical gestures as a primary mode of engagement. In this project, for instance, participants may use hand controllers to manipulate digital representations—such as hidden artifacts or weaving tools inspired by Anatolian motifs. These actions prompt the user to “perform” cultural practices rather than simply read about them. Whether mimicking the repetitive motions of weaving or adopting a reverent posture at a mythical site, these embodied interactions reveal dimensions of culture typically obscured by text or static images. By encoding knowledge into the user’s muscle memory, VR has the ability to promote empathy and deeper understanding.

Sound further enhances immersion by linking auditory cues to cultural context. An Anatolian-focused environment employs 360-degree soundscapes weaving traditional instruments, spoken Turkic dialects, and ambient noises reminiscent of wind, water, or wildlife. These audio layers adapt to the user’s movements and gaze, guiding them through specific story fragments tied to certain symbols or locations. Glancing toward a mountain peak might cause ancestral voices to swell, transitioning seamlessly into a short narrative about that landmark’s significance.

Equally important, VR permits spatialized and non-linear storytelling. Rather than following a fixed sequence, this project encourages users to discover “fragments” of Anatolian myths by exploring symbolic objects—like kilim patterns or archaic figurines—placed throughout the environment. Each discovery activates a brief vignette or historical note, resulting in a mosaic of heritage that each user assembles uniquely. This approach mirrors the additive nature of weaving, where each strand contributes to a larger tapestry, highlighting how cultural legacies are pieced together from diverse, often scattered sources.

## D2 Technical Developments

### Meta’s All-In-One SDK

Meta’s All-In-One SDK, (software development kit), provides a robust framework for building immersive VR experiences by integrating essential tools such as hardware tracking, real-time rendering, hand tracking, controller interactions, and interactable components. In this project, the SDK formed the backbone for spatial awareness, seamlessly mapping head, hand, and controller movements to their virtual counterparts. By compiling multiple modules—including gesture recognition and support for interactable objects—it streamlines development while enhancing the immersive quality of the experience. Moreover, Meta supplies a wealth of comprehensive sample scenes and building blocks free of charge, making the platform both easy to use and highly compatible across diverse VR applications. This SDK can be downloaded directly from inside Unity, accessed through the Package Manager found under Window on the top horizontal menu.



One of the nine other SDKs that are part of the all-in-one SDK is the Interaction SDK. With its easy to jump-in tutorials and sample scenes, Interaction SDK truly makes developing VR using Unity an easier experience. The package has a ready to use Camera Rig, which is basically the eyes of the body inside the virtual application. The Camera Rig also features pre-designated hands and controller prefabs. These prefabs are automatically connected to controllers and real hands. The headset receives information seamlessly and continuously. This seamless operation is made possible through interaction with listeners in the prefabs. The Camera Rig labelled 'interaction comprehensive' from the sample scenes of Interaction SDK is the one used in this thesis, enabling easy development with all the interactions possible. These interactions are grab, poke, ray, distance grab and locomotion made possible with both the controllers and hands.

## Custom Gestures Using Meta's Interaction SDK

Meta's Interaction SDK also enables Quest to report back on the state of individual fingers and the palm. Therefore, it is possible to combine conditions, like the movement of individual finger and palm's orientation – either facing the face or away from the face. For the second prototype of the thesis, custom gestures and interactions based on them were tested. Although serious performance issues ultimately halted progress with custom gestures, the interaction design remains an important part of the project and is worth discussing.

Each hand pose that's created should be stored in a game object of its own. This game object would be named after the hand pose and would contain two recognizers of active state: shape recognizer and transform recognizer. These components are added without the need of custom scripts. After adding these from the components menu, an active state group and active state selector is added to combine shapes and transform recognizers that are combined in a gesture. Finally, an event wrapper is added at the bottom to trigger actions ("Unity ISDK Hand Pose Detection").

The second prototype featured a space to be free-roamed and explored; therefore the first gesture that was designed was for moving in the space. Using Interaction SDK's infrastructure mentioned above, a condition of palm facing away from the face and all fingers open was created for both hands. Then with a custom code written using ChatGPT GPT 4O-mini, both events were connected to the Camera Rig's movement. The direction is determined by where the palm is pointed at. The custom code also created a float to change the speed of the movement easily, to achieve a smoother movement. This custom code along with the ChatGPT text input can be found in the Appendix.

The significance of creating custom gestures is the ability to interact with the virtual world without a facilitator, which is the controllers. Interacting directly with hands provides a unique experience in terms of embodiment. This interaction, being free roaming in a visual space, opens opportunities to build a unique relationship with the space explored. Travelling to wherever the palm points at, is a "nice to have" interaction. However, this interaction design comes with its own challenges. First of all, the Camera Rig movement should be optimized using a black halo covering the corners of the vision to tackle movement sensitivity that will be caused by rapid movement of the camera. Secondly, because each movement occurs within a specific time interval, Unity repeatedly executes the same action every passing second, creating substantial computational overhead. This continuous processing places excessive strain on the VR headset.

## Using AI for C# Coding in Unity

Ray Collectable custom script allows objects to be collected, and when collected the objects to be disable. The same code also triggers the spawn of a loom object. This script is essential to simulate the collection of



objects that are scattered around the world and spawn the loom object which will trigger the making of kilim symbols.

The Collision Sequence Manager handles the sequence of enabling kilim patterns upon each collision between the looms and the weaving machine. When the last pattern is enabled, the 3D version of the symbol is activated, and all previous steps are simultaneously disabled. This script is attached to the prefab of spawned looms.

An important aspect of using AI for coding is the ability to write precise and descriptive text inputs. The working principle of an AI chatbot is the ability to modify prompts as the dialogue proceeds. However, it's crucial to give exact information first, like the software, version and SDK information. Then explaining needs based on experience sequences and mechanic needs is very important. For using AI to code for Unity, for example, it's important to use appropriate jargon and names that are used by Unity documentation for AI to solve code-based problems.

## D3 World Design

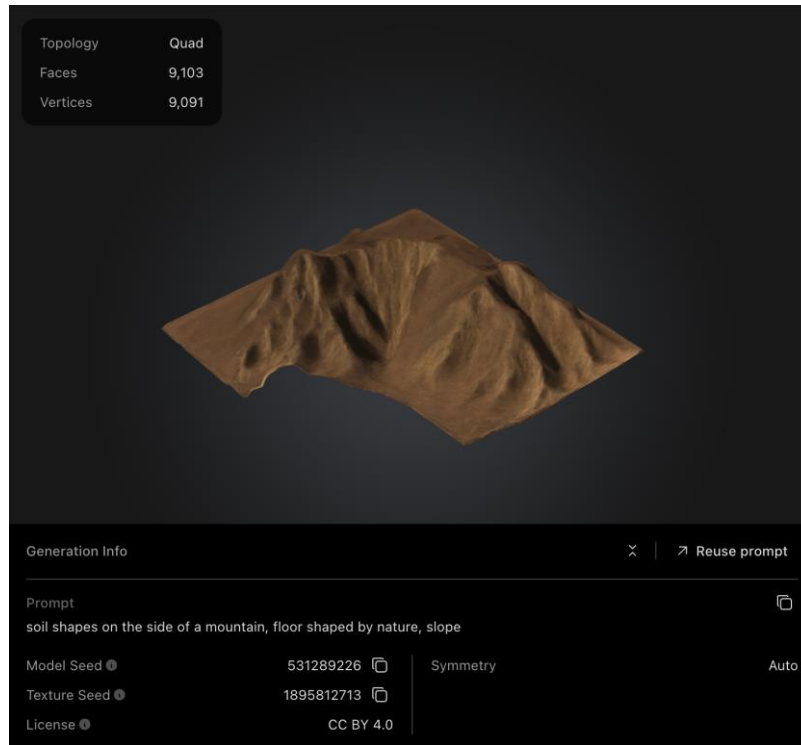
World building, as conceptualized by Mark J. P. Wolf in *Building Imaginary Worlds*, is not merely the backdrop for a narrative but a deliberate construction of a coherent, rule-based environment that can persist and grow beyond any single story. It involves defining cosmologies, geographies, cultural norms, and media-agnostic frameworks that invite exploration and adaptation. Through carefully established internal logic and consistency, these worlds foster engagement and investment (Wolf 35).

Ian Cheng and Venkatesh Rao's notion of 'What is a World?' in 'Worlding Raga 2' complements Wolf's perspective by emphasizing the emergent, pattern-rich, and relational character of worlds. Cheng and Rao suggest that a world can be recognized through stable structures and recurring motifs that enable orientation and navigability, rather than through static, prescriptive designs. Worlds arise as stable-yet-open systems shaped by iterative acts of interpretation, recombination, and performance (Cheng and Rao). Taken together, these views highlight world building as both an art and a practice of establishing a stable substrate upon which cultural, narrative, and experiential elements can accrete, evolve, and transform.

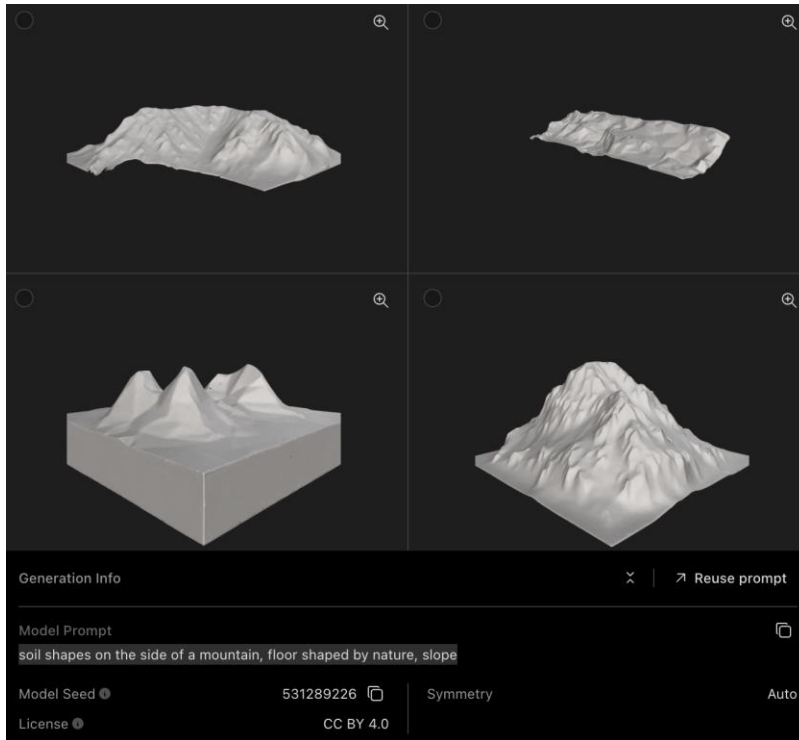
## Designing the Topography

In this project, world design transforms a mountain territory—steeped in ancient Turkic belief—into a space that resonates with cultural memory. This topography is not a static backdrop, but a living narrative reimagined through immersive VR. According to the traditions and belief of early Turkic nomads, caves and mountains served as vital intermediaries between the human sphere and Umai's creative domain. Caves were conceptualized as the literal womb of Umai where new beginnings and "türeyiş" (emergence, genesis of a people) occurred. Rather than inert geological formations, these subterranean spaces were imagined as dynamic crucibles of vitality. There, ancestral lineages were forged or renewed, linking human communities directly to the primordial motherhood of the earth. Mountains, similarly, played a crucial role in this landscape of belief. Their towering slopes and peaks were not merely topographical features; they acted as divine guardians, echoing Umai's steadfast nature. These beliefs connect directly to narratives wherein certain tribes trace their lineage to a protective mountain or valley, linking the stability and endurance of the physical landscape to the nurturing oversight of the mother goddess.

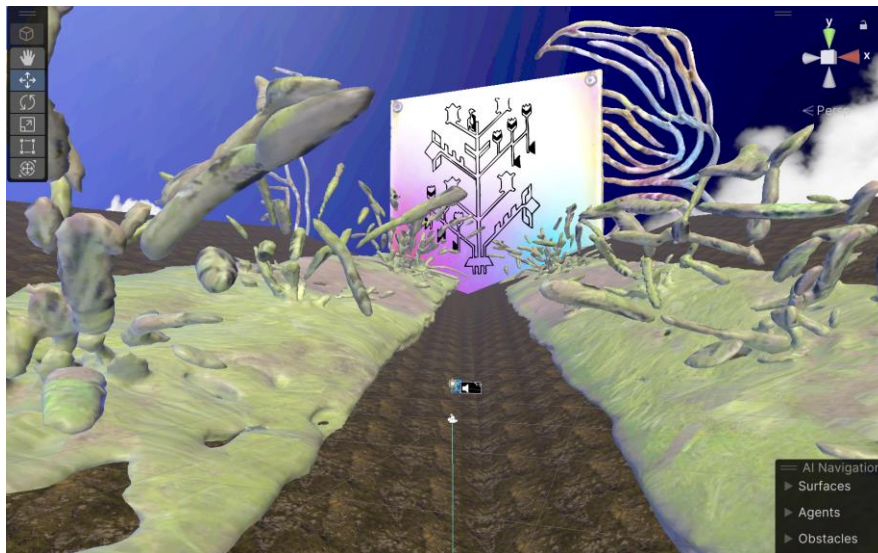
The mountain's terrain, emblematic of divine guardianship and ancestral legacy, is generated using Meshy.ai's text-to-3D generation tool. By inputting the phrase "soil shapes on the side of a mountain, floor shaped by nature, slope," the tool creates organic, nature-inspired forms that capture the inherent sculpting power of the natural world.



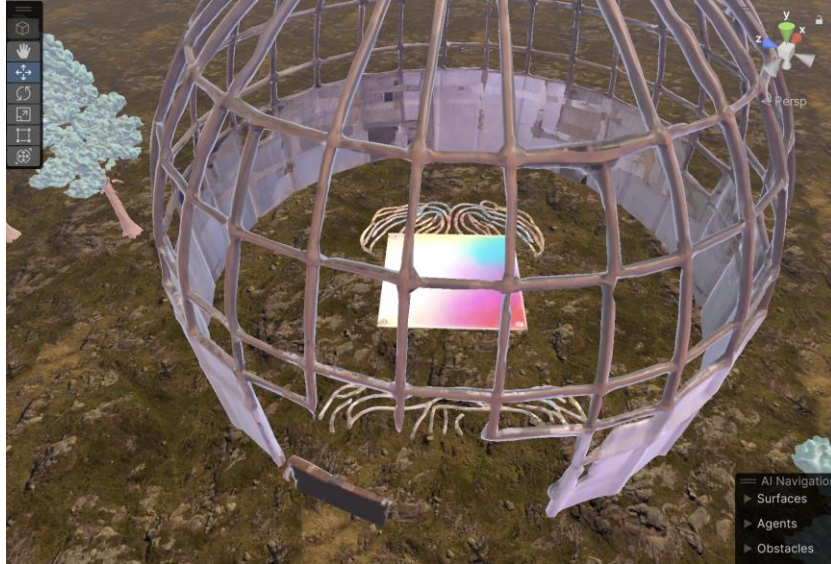
Ecem Ozturk. *AI Generated Territory*. Screenshot from Meshy.ai, 2025. Collection of the author.



Ecem Ozturk. *AI Generated Territory*. Screenshot from Meshy.ai, 2025. Collection of the author.



Ecem Ozturk. *Memorium Prototype 2 Scene 1*. Screenshot of VR Experience, 2024. Collection of the author.



Ecem Ozturk. *Memorium Prototype 2 Scene 2*. Screenshot of VR Experience, 2024. Collection of the author.



Ecem Ozturk. *Screenshot from Anatolian Futures*. Screenshot from the VR Experience, 2025. Collection of the author.



Ecem Ozturk. *Screenshot from Anatolian Futures*. Screenshot from the VR Experience, 2025. Collection of the author.

## D4 Character & Collectibles

### Designing Objects to be Collected

This VR experience utilizes a mini-game design mechanic to inspire the interaction it desires. The game mechanics are collect, grab and release mechanics. The collection of objects is done through ray interaction, which means the objects are interactable from a distance enabling flexibility to where to place them.

The design of the collectibles is critical, as they, along with the immersive 360-degree 3D environment, constitute the primary interactive elements within this virtual space. Collectibles serve as key entry points for users to fully explore and understand the detailed world design, enhancing both engagement and comprehension of the experience.

Archeology is a material source that could be used to create collectibles from. The reason for examining archeology of Central Asia in this context is that the narratives surrounding community structures and the roles of women, often more flexible or significant in certain steppe traditions, appear to resonate with aspects found in Anatolia's prehistoric archaeological record. Although prehistoric evidence is limited and does not include written documents, the material remains hint at social organizations distinct from those of later historical periods. This justifies incorporating such evidence into our understanding of Anatolia's cultural evolution. Folklore and archaeological artefacts together serve as powerful conduits for cultural preservation and the transmission of collective memory. While archeology recovers material traces of the past—artifacts, architectural remains...—folklore safeguards intangible heritage, such as myths, legends, rituals, and oral histories (Ihueze & Njoku, 2023; Manggau, 2018). Each approach, with its distinct methodologies and focal points, contributes to a more holistic understanding of cultural continuity, identity formation, and societal values over time.



## Balbals, Kilim Symbols, The Legend of Amazonia and Shahmaran

This section dives into the objects that are collectible in the VR experience. Each object group has a significance, and when interacted with, they assist in the construction of meaning this thesis aims to arrive at. The section also outlines the making process of the prefabs of these objects in the 3D space.

Balbals are archaic stone sculptures found across Central Asia. They are often placed alongside burial sites or significant routes, as memorials. Typically carved as human figures, balbals symbolize warriors and respected individuals of the past. There are male and female balbals. It is believed that these stone sculptures contain the souls of the ones they represent. Therefore, their presence reflects beliefs about ancestry and the enduring connection between the deceased and the present. They witness the continuity of heritage. Along with what they represent, they are also part of the visual language surrounding ancient Turkic tribes. According to UNESCO, Balbals found in archeological sites across the Altai Mountains near frozen burial zones, also significantly followed east (“UNESCO”).

Archaeology, through excavation, classification, and interpretation of artifacts, has produced ideas about how ancient communities lived and structured their living. Excavations sites such as Boncuklu Höyük near Konya have revealed intricate details about the transition from hunter-gatherer lifestyles to settled agricultural villages. Archaeologists identified physical artifacts, such as mudbrick structures layered upon earlier buildings, which indicated continuous occupation and community organization over generations (Fairbairn). Figurines, architectural layouts, and settlement patterns uncovered in regions like Anatolia provide tangible insights into religious practices, economic strategies, and governing systems.

Material source also includes textiles, prominently Anatolian kilims, whose motifs encode cultural narratives and local beliefs. Patterns like Elibelinde (hands on hips), Koç Boynuzu (ram’s horn), Muska (amulet), Çengel (hook), and Yıldız (star) visually represent concepts of fertility, protection, good fortune, and spiritual guidance (Kilim.com, n.d.). These motifs facilitate memory perseverance by simplifying and distilling complex events and ideas into forms that can be easily communicated within a tightly knit community. This process allows for the preservation of core meanings, even as specific historical details evolve or fade over generations (Tallentire 205). Recent research emphasizes that such symbolic representations play a crucial role in maintaining cultural continuity, effectively embedding collective memory within everyday practices and material culture (Henrich et al.). Thus, by investigating these material sources, how intangible beliefs achieve tangible forms could be studied.

The drawing of Shahmaran is perhaps one of the most famous and repeated icons from Turkish folklore. It is a highly recognizable illustration, featuring a form that combines a woman’s head on one end and a snake’s head on the other. A regular day trip to the Grand Bazaar in Istanbul would reveal the phenomena surrounding this icon, as it remains a popular motif among souvenirs. The significance of Shahmaran’s tale lies in what it embodies as the mythological character and as a symbol in contemporary culture. It is still widely believed that the Shahmaran icon protects houses against evil spirits. The myth tells the tale of the betrayed ruler of Snakes, Shahmaran. She is an icon not only in Türkiye but also in Indo-Iranian cultures, Uyghur and Uzbek literatures as well. Sometimes she is associated with sacrifice and wisdom. A university LGBTQ community has also depicted Shahmaran as a symbol of activism and resilience. According to Gruber, they may have even interpreted it as a trans icon (Gruber). In the thesis, Shahmaran is depicted up in the clouds floating. She is in front of a broken sphere, shaded like a hologram. The placement of Shahmaran is a symbolism to her non-material being. Therefore, interacting with her is different from interacting with the balbals scattered across the terrain.

The Amazons are a community of warrior women, a village governing and defending itself. Once considered purely mythological, recent archaeological discoveries in Türkiye have uncovered significant artifacts suggesting the existence of a female-led warrior society. Among the artifacts are bones with battle and axe wounds and spears alongside bones. It is believed that this warrior women community was formed from a Scythian tribe (Mayor). Mosaics depicting these warrior women portray them as skilled horse riders, wielding bows and arrows, emphasizing their agility. It is even said that these women tied one of their breasts to throw spear and use the bow better. These women were depicted in the thesis based on one of the mosaics that was found, a women warrior on horse. The 3D model based on the mosaic depiction is placed under the soil, and when a specific interaction is made, the women warriors move on-ground and thus are revealed. All this is triggered by a dialogue introducing the myth of Amazon women.

For the creation of these collectibles, Meshy.ai was fed with found images. Then they were edited further using image editing software to create desired materials. A table with details of this AI generation process along with the seed information can be found under Appendix.

## Designing The Female Shaman Character



Ritual specialists—shamans or kam—were key mediators who bridged the mundane and spiritual worlds. Positioned at the intersection of earthly life and divine influence, they performed ceremonies within caves or near revered mountains, calling upon Umai's favor. Through rites involving drums, rhythmic chanting, and trance states, these shamans communicated with ancestral spirits and the divine maternal force. Such acts affirmed that human existence was not haphazard but embedded in a sacred cosmological order that began with a maternal source. The community's moral codes, social cohesion, and prospects all relied on sustaining a harmonious rapport with Umai's domain.

Certain interpretations, informed by modern cultural and historical commentary on Turkic traditions, emphasize that these maternal associations did not merely place women at the periphery of society. Instead, they positioned feminine creativity at the heart of cosmology, echoing a worldview in which the cyclical processes of birth, growth, decay, and renewal were underpinned by a maternal archetype. Such perspectives propose that the reverence for Umai fostered respect for women's roles in family and society, even as power structures evolved over time.

The visual research informing the design of the shaman character in this scene draws on photographs of contemporary female shamans still practicing on the Central Asian steppes. While these images provided an initial visual direction, one of the primary goals of this project is to embrace the inherent ambiguity of this concept. Therefore, an overly stylized depiction of the shaman would not align with the subtle atmosphere that the project aims to achieve. For this reason, I decided to employ AI in the character-design process as well. AI-generated meshes rely heavily on relational interpretation, occasionally resulting in unexpected or "drippy" forms. Rather than viewing these irregularities as errors, I chose to embrace their ambiguity. However, the materials produced by the AI were often overly descriptive and illustrative, prompting me to intervene through careful editing and redesigning, ensuring the visual language remained aligned with the project's intended subtlety and abstraction.

The edited final texture here is edited using an effect native to Photoshop and then re-painted to obscure some details and enhance others.

Text Input	Model Seed	Texture Seed	Edited Final Texture	Outcome
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animating female shaman, futuristic costume, mouth rigging, turkic anatolian nomadic references, feminine futuristic female character with turkish anatolian references, folded legs sitting on the floor, praying pose, animating hands and mouth talking female shaman	2031130268	1006208285		
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## E Outcome

### E1 Exhibition Reflection

#### Exhibition Design

The exhibition presents a VR headset with the experience pre-installed, accompanied by a monitor displaying video recordings from inside the experience showing different perspectives. The monitor screen offers a glimpse from the world design to the exhibition visitors. The computer also plays the sound design of the VR experience in a loop, offering a glimpse of what the experience is in terms of the world design. The videos on the monitor show both collectibles and the environment. Notably, there is no cast-on view of the VR headset—encouraging visitors to fully immerse themselves in the experience on their own.

To enhance the environment and to create a visually immersive space, screen grabs from the 3D world design are printed and put on walls. Two of these printouts feature the environment as landscape shots. The remaining three are cut-outs of some collectibles and the kilim symbol.

A red marker on the floor designates the position where visitors should stand to engage with the VR headset, ensuring an intuitive and structured interaction with the installation.





Ecem Ozturk. *Photo taken of the exhibition space*. Photo, 2025. Collection of the author.

## Insights

There have been many valuable insights that are relevant to mention here. Isolating the experience and not casting the inside of the experience on a monitor worked as a barrier between the outside and the inside. This greatly affected some of the first-time experiences with the virtual reality world. The ambiguity before putting the VR headset has proved to be a successful entry point for an experience such as this which is heavily dependent on the narrative.

Onboarding the experience sometimes needed my assistance, especially with visitors that are first time users of the gadget. Which was expected and proved to be an effective way of forming personal dialogues with me as the maker.

The videos shown on the monitor also served as a good conversation starter to expand on the world design and artistic choices. The futuristic construction and unique textures sparked interest and immediately was recognized by an audience native with futuristic work.

## E2 Self-Evaluation

Prior to this project, I had some experience with Unity, but this was my first time undertaking a large-scale, well-rounded project using the platform. With no prior coding skills or background in programming, I began

by familiarizing myself with Unity's interface, components, and game objects. This foundational knowledge significantly improved my ability to leverage AI for coding assistance.

Without AI's capability to generate and troubleshoot code, completing this thesis within the given timeframe would have been nearly impossible. AI not only bridged my technical gaps but also allowed me to focus on design, interaction, and world-building, making the project achievable despite my lack of coding expertise.

The same challenge applied to Blender and 3D modeling. While I have nearly five years of experience with Rhino, my knowledge has been primarily practical, focused on interior design and architectural modeling, which mostly involves sharp-edged structures. Creating organic 3D assets, shaders, or animations was completely outside my skill set.

Using meshy.ai for some 3D generation allowed me to explore animation and shader development, skills I had never worked with before. This process not only enabled me to complete this thesis successfully but also gave me a deep sense of accomplishment and pride in what I was able to achieve.

Learning and applying research creation has given me the opportunity to understand this profession and the process of making it from a new perspective. I thoroughly enjoyed maintaining an active research repository and engaging in a framework that allowed me to move fluidly between making and reading. This iterative process enabled me to experience and deepen my cultural understanding, allowing me to reflect on my insights through hands-on creation. As a result, my personal practice has evolved profoundly, expanding in ways I never anticipated.

Another goal for me was to construct a world that is neither entirely illustrative nor entirely abstract. I aimed to express ideas through 3D models, but without conforming to the typical aesthetic of most VR experiences—bubbly faces and rounded objects. At the same time, using hyper-realistic, 3D scan-like models did not appeal to me, as their precise, documentary-like accuracy felt too rigid for this project's speculative nature.

By blending different stylistic approaches and incorporating AI-generated drippy, organic shapes, I was able to embrace ambiguity and construct a world that exists between recognizability and abstraction, allowing for interpretation rather than strict representation.

## E3 Conclusion

The completion of the final prototype and the exhibition marks the conclusion to this study. Reflecting on how this study has progressed, we can evaluate how this thesis addresses the research questions established in the Introduction.

Virtual reality enables the creation of immersive 3D environments designed to convey specific narratives through world-building and interaction design. This thesis has served as a research creation tool for envisioning a futuristic interpretation of Anatolian folklore, drawing inspiration from female narratives and material cultures rooted in memory preservation. By integrating interactive mechanics, virtual reality not only enhances storytelling but also fosters an experience that embraces both ambiguity and representation—free from the constraints of traditional media. The process of creating a virtual reality environment—researching context, interpreting findings, and building the 3D world—has been the core practice of this thesis. Rather than viewing the final VR experience as the goal, this thesis positions the act of making itself as the central objective. Hence, through this process, the act of 'imagining' is not only explored but fully realized.

Feminist theoretical frameworks have established the context of this thesis. It's through the attempt at interpreting female narratives that the conceptual design of kilim symbol weaving was formed. Key symbols and icons were researched and interpreted around the idea of a futurist feminist narrative. Therefore, feminism as a foreground enriches the Anatolian futures as an immersive digital space, through its rich visual and contextual materials.

Material culture from ancient communities presents a rich tapestry of shape, aesthetics, and texture; however, its true richness lies in the cultural meanings, rituals, and ways of knowing that these artifacts carried through generations. The creation of a futuristic lens around such research allows a space to be available to reflect on contemporary issues through the creation of a future rooted in a long-lost past. It opens possibilities for new interpretations, offering critical reframing by positioning historical artifacts and traditions not as relics of a distant past but as dynamic agents in shaping speculative futures. This approach challenges linear notions of progress and modernity, demonstrating that innovation is not solely forward-looking but can emerge from re-engagement with ancestral knowledge. By recontextualizing these cultural elements in digital media, designers and researchers can explore alternative forms of storytelling inviting pluralistic narratives where memory, materiality, and futurity intersect, while envisioning radical new possibilities.

## E4 Limitations of the Project

Interaction design is heavily used in support of the futuristic narrative build, as part of the project's premise of exploring imaginative enactments using VR. Kilim weaving interaction is designed to support the futuristic narrative of "the mountain of knowledge". The only way to store information on this mountain is to weave knowledge on the mountain using kilim weaving as a concept. The interaction of weaving kilims is introduced only as a mode of embedding knowledge into the mountain. The VR experience does not explicitly reference real-world function of kilims; however, it invokes a metaphor. Kilims act as heirloom objects that carry knowledge through the symbolic motifs chosen by their weavers. While the experience never states this explicitly, it refers to the metaphor by assigning kilim weaving a new role within the virtual world.

The new role assigned by this construct to the action of kilim weaving is directly referenced by its real-world meaning, but it was an intentional choice to not reference it explicitly. Because as part of practicing imaginative enactments, the work exercises the ability to reposition cultural phenomena in futuristic settings. It does so without inviting existing dialogues and traces of lived experiences but focuses on building new meanings and new functions based on previous understandings around these cultures. This body of work specifically chooses to avoid recreating representations of exploitation.

Acknowledging those lived experiences of exploitation regarding kilim production in Anatolia is important and essential, however the choice of avoiding such a reproduction of representation in VR was intentional to allow formation of a new meaning and new function around kilims and kilim weaving. This work prioritizes the potential to tell a unique narrative and produce new voices. This approach risks reframing lived experience through a nostalgic lens, romanticizing both the exploited workers and the obscurities of ancient labor. Nevertheless, because the medium of virtual reality intentionally constructs an alternate reality, sustaining a playful tone within this imagined world remains appropriate.

Textile production around Anatolia has been closely related with women's labor and this relationship has long been tied to exploitation. Under in house manufacturing systems, women have been weaving kilims and

other various textiles in their own homes often supplying their own looms and raw materials but earning per piece rates and no legal protection. Alongside women, underage girls have been a part of these manufacturing systems, often without any formal structure (Saglik). After the production was factorized and the manufacturing process was carried out to factories after 1950s, women's conditions scarcely improved, often work shifts extending sixteen hours and hourly pay not even close to men's wages for same tasks (Saglik). Most female workers during this era were still recorded as "unpaid family helpers", excluded from formal contracts and social security coverage (Saglik). These lived experiences in Anatolia regarding the actual practice of producing kilims are valuable for a study such as Anatolian Futures. There is an untold story behind and a missing representation regarding women of Anatolia. It is essential to mention here as a limiting factor for the scope of this project and mark a future interest towards inviting these narratives in new forms as part of the futuristic enactment this project aims to practice.

Another limiting factor is the size of the work and its world. In order to introduce such experiences into the build, there has to be other dialogues and other formations in the VR world designed. At this stage, the project only focuses on introducing the relation between the mountain and the weaving machine. Recognizing the interaction between the loom and the controllers as physical labor would introduce a new set of motivation for the narrative to build its set of values. First and foremost, the basic game mechanic between the controllers and the machine would have to be extended to count the physical interaction made. There has to be a system which would recognize the amount of labor that would indicate success, which would further be extended with a deeper connection with the mountain. Perhaps the narrative around the mountain would be extended through a more transparent construction, such as seeing how the mountain would function with these woven objects or how it would produce kilim symbols. Ultimately, acknowledging of the physical labor of interaction further extends the world build while embedding intimate references to Anatolian female labor.

## E5 Future Directions

The context of Anatolian Futures relies heavily on the material cultures of Anatolia. This creates an active repository of both visual and embodied practices that could be represented through the medium this project proposes. The opportunity to create less isolating and more collective experiences would be very valuable because cultural symbols are capable of resonating with larger audiences. Although VR in this prototype is built for only one set of controllers, with the capability of making multiplayer virtual worlds, creating a more collective experience would be possible. This would enable new dialogues to be formed, potentially would increase the ability to create collective ways of interacting in terms of weaving and other possible embodied practices.

Anatolian Futures: A Memorium for Feminist Folklore presents a replicable framework that could be followed to make other embodied practices around cultures of Anatolia, expanding on the world that has been created for this project. These additions would create a cohesive habitat of interconnected Anatolian stories.

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## G Appendixes

### G1 Custom Scripts Written with ChatGPT

GPT 4O-mini and GPT O3-mini-high was used for advanced reasoning and coding.

Function in Unity	Text Input	C# Script Outcome
<b>Hand Pose Move Rig Right &amp; Hand Pose Move Rig Left</b> ( allows the recognised hand poses to trigger Camera Rig movement which is horizontal and decides on the direction of	<b>GPT Model Used= GPT 4O-mini</b> write a script to trigger the movement of the OVRCameraRig. I defined a hand pose, the index finger pointing front. i used active state selector and have a Selector Unity Event Wrapper.	<pre>using System.Collections; using System.Collections.Generic; using UnityEngine;  public class HandPoseMoveRigRight : MonoBehaviour {     public GameObject cameraRigParent; // Reference to the parent GameObject (OVRCameraRigInteraction)     public Transform handTransform; // The hand's transform (where the palm is)</pre>

<p>movement according to where the palm points at) = Attached to a game object of its own</p>	<p>this script should make the rig move 0.4 m when pointed out. as long as the pose is up, it should continue to add 0.4 m as the hand is up (every 2 seconds). the movement should be towards where the finger is pointing at. give me a strategy to achieve this. if you cant make it all in a single code. step by step tackle this problem//</p> <p>limit the movement to only x and z, meaning only horizontal movement. also, right now the movement is only forward. it doesnt change direction. is there a way to fix this?//</p> <p>can you redesign the code for this pose: the palm looks away from the face and the fingers are all open. the direction where the palm is facing could be the direction where the rig should move//</p> <p>Link: <a href="https://chatgpt.com/c/670dd715-3420-8000-a6ae-72f6fa3d7dea">https://chatgpt.com/c/670dd715-3420-8000-a6ae-72f6fa3d7dea</a></p>	<pre> public float moveDistance = 0.3f; // Distance to move each time public float moveInterval = 0.6f; // Time interval between movements private bool isMoving = false; // To track if we are currently moving  // Called when the palm pose is active (e.g., palm facing away, fingers spread) public void OnPoseActivated() {     // Ensure that no other movement coroutine is running     if (!isMoving)     {         StartCoroutine(MoveCameraRig());     } }  // Called when the palm pose is deactivated (palm no longer active) public void OnPoseDeactivated() {     isMoving = false; // Stop the movement loop }  // Coroutine to move the camera rig's parent every interval private IEnumerator MoveCameraRig() {     isMoving = true; // Set moving state     while (isMoving)     {         // Calculate the direction to move based on the hand's upward direction         Vector3 moveDirection = handTransform.up;          // Project the direction onto the XZ plane (ignore vertical Y movement)         moveDirection.y = 0;         moveDirection = moveDirection.normalized; // Normalize direction vector for consistent speed          // Update the camera rig's position by the calculated distance and direction         cameraRigParent.transform.position += moveDirection * moveDistance;          // Debug: Log the current move direction and position for troubleshooting         Debug.Log(\$"Moving in Direction: {moveDirection}");         Debug.Log(\$"New Position: {cameraRigParent.transform.position}");          // Wait for the specified interval before the next movement         yield return new WaitForSeconds(moveInterval);     } }  using System.Collections; using System.Collections.Generic; using UnityEngine;  public class HandPoseMoveRig : MonoBehaviour {     public GameObject cameraRigParent; // Reference to the parent GameObject (OVRCameraRigInteraction)     public Transform handTransform; // The hand's transform (where the palm is)     public float moveDistance = 0.3f; // Distance to move each time     public float moveInterval = 0.6f; // Time interval between movements     private bool isMoving = false; // To track if we are currently moving      // This method should be called when the palm pose is active (palm facing away, fingers spread)     public void OnPoseActivated()     { </pre>
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		<pre> if (!isMoving) // Ensure only one movement loop is running at a time { StartCoroutine(MoveCameraRig()); } }  // This method should be called when the palm pose is deactivated (palm no longer facing out) public void OnPoseDeactivated() { isMoving = false; // Stop the movement loop }  // Coroutine to move the camera rig's parent every 2 seconds private IEnumerator MoveCameraRig() { isMoving = true; while (isMoving) { // Calculate the direction to move based on the hand's upward direction (which represents the palm facing direction) Vector3 moveDirection = handTransform.up;  // Project the moveDirection onto the XZ plane (ignore the Y component) moveDirection.y = 0; moveDirection = moveDirection.normalized; // Normalize to ensure consistent movement  // Move the OVRCameraRig's parent (OVRCameraRigInteraction) in the calculated direction cameraRigParent.transform.position += moveDirection * moveDistance;  // Wait for the next move interval yield return new WaitForSeconds(moveInterval); } } </pre>
<p><b>Ray Collectable</b> (allows ray interactable to disable the objects, enable their absent shading and spawn loom objects at a designated location) = attached to collectible items</p>	<p><b>GPT Model Used= GPT O3-mini-high</b></p> <p>I am making a VR game using Unity. i am using meta all-in-one sdk. please write me a custom code named Ray Collectable. here is what i want: i have several objects in the 3d space, that have ray interactable attached as a component. i would like a custom script that would enable me to: when selected these objects, they should be disabled or destructed. therefore the player will feel as if they collected these objects, and with each collection, another prefab named "green-loom" should be spawned at a certain location. this prefab should keep on spawned at each time another object is collected. please write this code based on meta all-in-one, considering i also have a camera rig that has</p>	<pre> using UnityEngine; using Oculus.Interaction; // For RayInteractable, InteractableState, InteractableStateChangeArgs, etc.  /// &lt;summary&gt; /// Attach this script to any collectible object that uses a RayInteractable. /// When selected, the collectible is collected (destroyed or disabled) and a new Green Loom prefab is spawned. /// &lt;/summary&gt; [RequireComponent(typeof(RayInteractable))] public class RayCollectible : MonoBehaviour { [Header("Green Loom Settings")] [Tooltip("Drag a prefab here to spawn a new Green Loom instance each time.")] [SerializeField] private GameObject _greenLoomPrefab;  [Header("Collection Settings")] [Tooltip("If true, the collectible is destroyed when collected; if false, it is merely disabled.")] [SerializeField] private bool _destroyOnCollected = true;  [Header("Spawn Location")] [Tooltip("Optional transform to define where the Loom will appear. " + "If left null, the collectible's position &amp; rotation are used.")] [SerializeField] private Transform _spawnLocation;  // Reference to the RayInteractable on this GameObject. private RayInteractable _rayInteractable;  private void Awake() { _rayInteractable = GetComponent&lt;RayInteractable&gt;(); if (_rayInteractable == null) { </pre>



	<p>comprehensively all the interactables attached to it. Thanks //</p> <p>i would like to use ray interactable, and i would like to be able to select using ray interactable. so i wanted to go with the second code however it gives error at "RayInteractable"//</p> <p>my meta all in one uses: com.meta.xr.sdk.interaction.ovr and com.meta.xr.sdk.interaction//</p> <p>fix everything and give me a code to copy and paste. please double check that there is a ray interactable, the interaction will be 'select', and then the object should be disabled from the scene (or destroyed) for the effect of collection. next the spawn of another object should be triggered.//</p> <p>i want this code to spawn a new loom each time. please modify accordingly//</p> <p>Link: <a href="https://chatgpt.com/g/g-p-67bf758faa0881919417d88248d84b76-thesis/c/67bf7669-e0cc-8000-8b13-a26abe9edecf">https://chatgpt.com/g/g-p-67bf758faa0881919417d88248d84b76-thesis/c/67bf7669-e0cc-8000-8b13-a26abe9edecf</a></p>	<pre> Debug.LogError(\$"[RayCollectible] No RayInteractable found on '{gameObject.name}'. Disabling script."); enabled = false; return; }  // Subscribe to state changes on the RayInteractable. _rayInteractable.WhenStateChanged += HandleRayInteractableStateChanged;  // Optional: Check if a Collider is attached. if (GetComponent&lt;Collider&gt;() == null) {     Debug.LogWarning(\$"[RayCollectible] '{gameObject.name}' has no Collider attached. " +     \$"A Collider is required for RayInteractable to function properly."); } }  private void OnDestroy() {     if (_rayInteractable != null)     {         _rayInteractable.WhenStateChanged -=         HandleRayInteractableStateChanged;     } }  /// &lt;summary&gt; /// Handles the state changes of the RayInteractable. /// When the state changes to Select, it triggers the collection logic. /// &lt;/summary&gt; /// &lt;param name="args"&gt;State change arguments.&lt;/param&gt; private void HandleRayInteractableStateChanged(InteractableStateC hangeArgs args) {     if (args.NewState == InteractableState.Select)     {         OnCollected();     } }  /// &lt;summary&gt; /// Executes the collection behavior: /// - Hides or destroys this collectible, /// - Spawns a new Green Loom prefab at the defined spawn location. /// &lt;/summary&gt; private void OnCollected() {     Debug.Log(\$"[RayCollectible] '{gameObject.name}' was collected!");      // Remove the collectible from the scene.     if (_destroyOnCollected)     {         Destroy(gameObject);     }     else     {         gameObject.SetActive(false);     }      // Determine spawn position and rotation.     Vector3 spawnPos = _spawnLocation != null ? _spawnLocation.position : transform.position; Quaternion spawnRot = _spawnLocation != null ? _spawnLocation.rotation : transform.rotation;      // Ensure the Green Loom prefab is assigned.     if (_greenLoomPrefab == null)     {         Debug.LogWarning(\$"[RayCollectible] Green Loom Prefab is not assigned. No Loom will be spawned.");         return;     } </pre>
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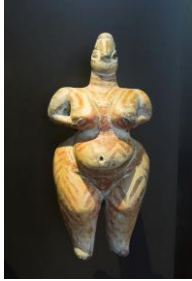
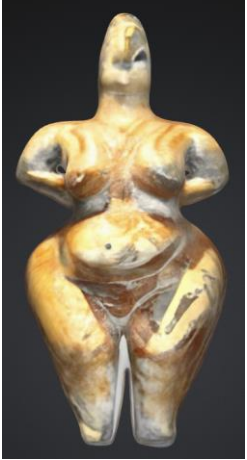


		<pre>// Spawn a new instance of the Green Loom. GameObject spawnedLoom = Instantiate(_greenLoomPrefab, spawnPos, spawnRot); Debug.Log(\$"[RayCollectible] Spawned new Loom '{spawnedLoom.name}' at {spawnPos}."); } }</pre>
<p><b>Collision Sequence Manager</b> (with each collision between the looms and the weaving machine, this code manages the sequence in which the kilim patterns are enabled, when last pattern is enabled 3D version of the symbol is enabled and previous steps are then disabled at the same time.) = attached to prefab of spawned looms</p>	<p><b>GPT Model Used= GPT O3-mini-high</b> i am making a VR game using unity and meta's all-in-one sdk. keep in mind that we can work with custom script and interactable unity event wrapper together. I need a custom script that will: show some 2d sprites and an object in a specific order, when a collision happens. the collider of my object should get in touch with another collider. when this collision happens, a specific order of sprites should be shown one by one with each collision. and finally a 3d object will be shown. another note too, with each collision; my object should be destroyed. because my object is spawned with another game mechanic, the player is instructed to constantly grab my object and then make a collision, and then grab another of the spawned objects and collide again and so on to reveal all the 2d sprites etc. please help//</p> <p>sprites are in sequence: motif1_1, motif1_2....motif1_9; final 3d object is named motif1_3d; the collider that will trigger the collision is named machine_collider. please fill accordingly. (i am using trigger)//</p> <p>Link: <a href="https://chatgpt.com/g/g-p-67bf758faa0881919417d88248d84b76-thesis/c/67bfe4e0-28b4-8000-adf8-d426213fda44">https://chatgpt.com/g/g-p-67bf758faa0881919417d88248d84b76-thesis/c/67bfe4e0-28b4-8000-adf8-d426213fda44</a></p>	<pre>using UnityEngine; using UnityEngine.Events;  public class CollisionSequenceManager : MonoBehaviour {     [Header("Sprite Sequence (set these GameObjects in the     Inspector and make sure they are inactive at start)")]     public GameObject motif1_1;     public GameObject motif1_2;     public GameObject motif1_3;     public GameObject motif1_4;     public GameObject motif1_5;     public GameObject motif1_6;     public GameObject motif1_7;     public GameObject motif1_8;     public GameObject motif1_9;      [Header("Final 3D Object (set in Inspector, inactive at     start)")]     public GameObject motif1_3d;      [Header("Collision Settings")]     // Only process collision if the other collider's name     matches this.     public string triggeringColliderName = "machine-     collider";      [Header("Events")]     // You can add additional actions (e.g., playing a sound)     via the Inspector.     public UnityEvent onCollision;      // Static counter to track the sequence across spawned     objects.     private static int collisionCount = 0;      // Array to hold the sequence for easier access.     private GameObject[] spriteSequence;      void Start()     {         // Initialize the sprite sequence array.         spriteSequence = new GameObject[]         {             motif1_1, motif1_2, motif1_3, motif1_4, motif1_5,             motif1_6, motif1_7, motif1_8, motif1_9         };     }      // Using trigger colliders.     void OnTriggerEnter(Collider other)     {         // Only process collisions with the designated collider.         if (other.gameObject.name != triggeringColliderName)         {             return;         }         Debug.Log("Collision detected with " +         other.gameObject.name + ". Current collisionCount: " +         collisionCount);          // Invoke any additional actions.         onCollision?.Invoke();          // Activate the next sprite in the sequence, or the final         3D object if all sprites are shown.         if (collisionCount &lt; spriteSequence.Length)         {             if (spriteSequence[collisionCount] != null)             {                 spriteSequence[collisionCount].SetActive(true);                 Debug.Log("Activated sprite: " +                 spriteSequence[collisionCount].name);             }         }     } }</pre>







		<pre> } else if (collisionCount == spriteSequence.Length) {     if (motif1_3d != null)     {         motif1_3d.SetActive(true);         Debug.Log("Activated final 3D object: " +             motif1_3d.name);     } }  // Increment the counter. collisionCount++;  // Destroy this object so the player can grab a new one. Destroy(gameObject); } } </pre>
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## G2 AI Generated Game Assets: Meshy.ai

The first type of AI generation is made by photo input to 3D using Meshy.ai. The photos to these inputs were carefully selected from Creative Commons licensed photos that are taken directly from the first sources. Although the goal with this AI generation is not accuracy, it's still important to use firsthand taken photos. The next step within this process is to edit these generated textures according to aesthetic preferences, to achieve the desired effect within the 3D world design.

Photo that was fed	Outcome	Model Seed	Texture Seed
 <p><b>Dmitriy Stepanov.</b>  <i>Tibetan Monk.</i> Flickr, 2005. Licensed under CC BY-NC-ND 2.0.            Source:  <a href="https://www.flickr.com/photos/75273355@N00/159573208/">https://www.flickr.com/photos/75273355@N00/159573208/</a>.</p>		1567108334	1141743009

 <p><b>"The Seated Woman of Catalhöyük"</b> is a clay sculpture dated to around 8,000 years old. Photo by <b>Nevit Dilmen</b>, licensed under CC BY-SA 3.0. Source: <a href="https://www.middleeasteye.net/discover/mother-goddess-amazon-warriors-female-legends-anatolia-history">https://www.middleeasteye.net/discover/mother-goddess-amazon-warriors-female-legends-anatolia-history</a>.</p>		97592912	1792510111
 <p><b>"Female Figurine, Anatolian, 5500 BC, Berlin, 144279"</b> by <b>Anagoria</b> is licensed under CC BY 3.0. Source: <a href="https://commons.wikimedia.org/wiki/File:Femalefigurine,_Anatolian,_5500_BC,_Berlin,_144279.jpg">https://commons.wikimedia.org/wiki/File:Femalefigurine,_Anatolian,_5500_BC,_Berlin,_144279.jpg</a>.</p>		1578141508	680997464
 <p><b>"Sahmaran.jpg"</b> by <b>José-Manuel Benito Álvarez</b> is licensed under CC BY-SA 2.5. Source:</p>		1467966674	1577226326

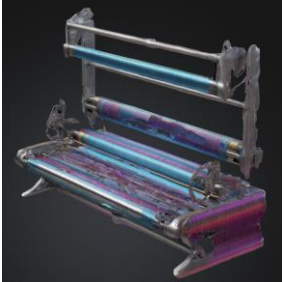

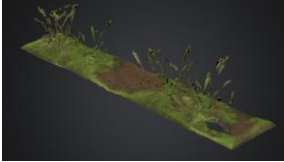

<a href="https://commons.wikimedia.org/w/index.php?curid=17200838">https://commons.wikimedia.org/w/index.php?curid=17200838</a> .			
 <p><b>"Mardin Sahmaran (2)"</b> by <b>Pelin of Episkopê</b> is licensed under CC BY-SA 2.0. Source: <a href="https://www.flickr.com/photos/7923752@N02/2195181908/">https://www.flickr.com/photos/7923752@N02/2195181908/</a>.</p>		1925153699	2031361099
 <p><b>"Neolithic Female Figurine from Hacilar"</b> by <b>Mary Harrsch</b> is licensed under CC BY-NC-SA 2.0. Source: <a href="https://www.flickr.com/photos/mharrsch/3330142387/">https://www.flickr.com/photos/mharrsch/3330142387/</a>.</p>		1396104557	1742163621
 <p><b>"2015-09-06-090821 - Balasagun - Balbals (Steinfiguren)"</b> by <b>Zossolino</b> is licensed under CC BY-SA 4.0. Source: <a href="https://commons.wikimedia.org/w/index.php?curid=48663444">https://commons.wikimedia.org/w/index.php?curid=48663444</a>.</p>		1374476636	1035816726

 <p><b>"Balbal"</b> by <b>Matthias Buehler</b> is licensed under CC BY-NC-ND 2.0. Source: <a href="https://www.flickr.com/photos/kakadu/14806938752/">https://www.flickr.com/photos/kakadu/14806938752/</a>.</p>		1632019480	677227315
 <p><b>"Balbal in Mongolia"</b> by Arian Zwegers is licensed under CC BY-SA 2.0. Source: <a href="https://www.flickr.com/photos/15655687@N00/252988402">https://www.flickr.com/photos/15655687@N00/252988402</a>.</p>		874827291	1167943866
 <p><b>"Balbal, 6th-10th cents., Burana, Kyrgyzstan (5)"</b> by Richard Mortel is licensed under CC BY 2.0. Source: <a href="https://commons.wikimedia.org/w/index.php?curid=141229098">https://commons.wikimedia.org/w/index.php?curid=141229098</a>.</p>		2014641446	2021813675



 <p><b>"Bal bal 03"</b> by Vilya Shoni is licensed under CC BY 4.0. Source: <a href="https://commons.wikimedia.org/w/index.php?curid=156061531">https://commons.wikimedia.org/w/index.php?curid=156061531</a>.</p>		742910833	832328960
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The second type of AI generation is made by text to 3D using Meshy.ai.

Text Input	Outcome	Model Seed	Texture Seed
a futuristic weaving loom, metal and shiny surface, electronic and high tech, fantasy imagines weaving loom to make hologram kilims		1949394458	1737739438
a computer chip's infinite cables inside, colorful shiny metal		2117342077	975263106
very tall grass, underneath is soil, high detailed, a path of grass and soil, realistic, soil after rain, grass very long and three dimensional		1951248352	212902128
an old tree, very big and grand, fall season, lively leafs and old bark, wisdom tree, nature's wisdom		1343586754	1640068313