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1785 Parisian Salon Project: New Methods and Practical Innovations in Digital Heritage Reconstruction

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Abstract: The 1785 Salon Unreal Engine Reconstruction Project represents a significant advance in digital heritage and immersive art historical research by combining generative AI-based asset creation, modular user experience (UX) design, and historically informed workflows. During the Spring 2025 phase, the project achieved major milestones, including the successful development of a replicable pipeline for transforming 2D reference images into period-accurate 3D sculpture models using generative AI and digital sculpting tools. Simultaneously, a robust and adaptable Inspection System was engineered within Unreal Engine, offering granular interaction controls, bilingual (English/French) content integration, dynamic metadata display, and enhanced accessibility. These innovations collectively enabled historically faithful reconstruction of lost or dispersed artworks, while also establishing open-source methodologies and protocols for scalable virtual exhibition environments. By documenting stepwise processes for asset generation, UI system design, and troubleshooting, the project demonstrates a new standard for collaborative, reproducible digital heritage work, facilitating the responsible digital resurrection of cultural spaces and supporting broader accessibility and engagement with the art historical record.

Keywords: *Digital heritage, 3D asset pipeline, Digital restoration, Bilingual virtual environments, Interactive inspection system, Conservation, Generative AI, Salon of 1785*.

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1. Introduction

Developments in digital technologies have fundamentally transformed the practice of cultural heritage preservation, introducing advanced methodologies for recreating lost cities and reconstructing interior architectural spaces through three-dimensional modeling (Tzortzaki, 2001; Gabellone, 2022). The emergence of virtual environments and digital twins has provided both scholars and public audiences with unprecedented means of examining heritage sites and artifacts in immersive detail (Hutson & Olsen, 2021; Stanco, Battiato, & Gallo, 2011). Among the most influential of these tools are 3D scanning and photogrammetry, which have enabled the high-fidelity digitization of extensive collections, such as the Uffizi Galleries' sculptures, thereby supporting both scholarly research and ongoing conservation efforts (Brennan & Christiansen, 2018; Lei et al., 2021; Ni et al., 2022).

While these technologies marked a significant advance in the initial digitization of cultural artifacts, the recent proliferation of generative artificial intelligence has inaugurated a new era for restoration and reconstruction, offering the capacity to rapidly and convincingly reconstitute lost or damaged artworks (Baduge et al., 2022). The convergence of handheld scanning, state-of-the-art rendering engines, and generative AI models now facilitates the efficient production of complex, historically faithful digital assets (Kurtha & Balzanb, 2022; Barrile et al., 2022). These innovations raise important questions about the optimal integration of AI-driven automation with traditional manual restoration techniques, as well as the attendant ethical and interpretive challenges—a subject of increasing attention in the field.

Research in digital humanities has emphasized that authentic reconstructions of historical interiors must account for spatial configurations, object placement, and multisensory dimensions, including sound and movement, all of which are now analyzable through advanced photogrammetry and real-time game engine rendering platforms (Cuesta-Gómez et al., 2025; Earley-Spadoni, 2017; Li, 2025). The 1785 Parisian Salon project (2022-) **(Figure 1)** - a collaboration between Lindenwood University and The University of Alabama in Huntsville -provides a compelling test case for the application of these techniques, seeking to virtually resurrect a landmark exhibition complete with period-appropriate figures and decor, grounded in extensive archival study and site measurement (Olsen et al., 2024). Nevertheless, reconstructive efforts continue to grapple with substantial methodological challenges. Incomplete or contradictory historical records, the subjective nature of period documentation, and gaps in material evidence require ongoing interpretive decision-making, as was evident in the attempt to model the architectural features of the Salon based on a fragmented historical record and a lone etching that has survived **(Figure 2)** (O'Brien et al., 2023a; O'Brien et al., 2023b). These uncertainties, while unavoidable, underscore the ongoing need for transparency and rigor in digital heritage work.

The present article introduces several methodological innovations that address these complexities and extend the state of the art in digital heritage practice. Central to this phase of the 1785 Salon Unreal Engine Reconstruction Project is the deployment of a systematic 3D asset development pipeline: this workflow transforms 2D reference images into detailed, historically informed 3D sculpture models by combining generative outputs with human-guided digital sculpting and refinement. Parallel advancements include the creation of a modular, bilingual (English/French) inspection system, supporting dynamic metadata display and narrated content for artworks, as well as a fully redesigned UX/UI framework that enhances accessibility, interaction, and scalability for both research and exhibition contexts. Through thorough documentation of the protocols for asset generation, UI system design, and integration, this study offers a replicable and extensible blueprint for responsible, reproducible digital heritage environments. In so doing, it demonstrates not only the practical benefits of merging automated and manual processes, but also the promise of new strategies for fostering engagement and accessibility in the stewardship of cultural heritage.

2. Literature Review

The field of digital preservation within cultural heritage, when examined through the dual lenses of digital art history and digital humanities, continues to evolve as a dynamic and contested area of inquiry, a trajectory underscored by recent academic contributions (Hutson & Olsen, 2022a). Early experiments in the digitization of cultural artifacts and built environments trace their origins to the first decade of the twenty-first century, often originating in academic and institutional research settings. For example, the Foundation of the Hellenic World's application of Computer Assisted Virtual Environment (CAVE) technologies enabled the creation of immersive digital reconstructions, with the digital model of Miletus serving as a paradigmatic case for cross-cultural engagement (Tzortzaki, 2001). These pioneering efforts foreshadowed the subsequent recognition of digital replication's value for museums and the broader heritage sector, a shift captured by Roussou's influential framing of "edutainment" as both scholarly pursuit and public engagement (Roussou, 2001). Technological advances in the 2000s accelerated the adoption of extended reality (XR) and virtual reality (VR) within museum contexts, facilitating hybrid experiences that bridged physical and virtual domains. Projects such as The Museum of Pure Form and The Virtual Museum of Sculpture were intentionally structured for broad audiences and used time-limited sessions to manage visitor engagement, representing a transition point between on-site exhibitions and fully virtual spaces (Loscos et al., 2004; Carrozzino & Bergamasco, 2010). The rise of institutionally funded virtual exhibitions, exemplified by initiatives like The Exploratorium and the CREATE project, further expanded the reach and ambition of immersive heritage encounters (Hutson & Olsen, 2022b). These early projects collectively laid the groundwork for the subsequent expansion of digital heritage practices, situating digital tools as indispensable resources for both research and public engagement.

The subsequent decade witnessed the democratization of digital museum experiences through the advent of virtual learning environments (VLEs), which redefined accessibility and audience reach on a global scale. Google's launch of the Arts & Culture platform in 2011, followed by the introduction of the low-cost Google Cardboard headset in 2014, dramatically lowered barriers to VR participation and educational integration (Boel et al., 2021). This period also saw a proliferation of bespoke institutional VLEs, such as those developed for the Rijksmuseum and the National Archeological Museum of Marche, which leveraged immersive technologies to offer remote, interactive engagement with significant cultural collections (Favro, 2006; Clini et al., 2018). In tandem, augmented reality initiatives, such as the digital cataloging projects at the Center for the Art of East Asia at the University of Chicago, contributed to the comprehensive digitization of museum holdings and expanded the modes of public access (Christou, 2010). The convergence of these technological innovations rendered cultural heritage more accessible than ever before, transforming how scholars, educators, and the public interact with the art historical record. Yet, as digital repositories and virtual museums matured, new questions emerged regarding the standards, methodologies, and reproducibility of digital heritage practices, especially in contexts requiring fidelity to historical detail. This critical turn has spurred the development of interdisciplinary frameworks capable of integrating archival research, technical innovation, and curatorial sensibility into unified virtual environments. Such frameworks set the stage for more ambitious projects that push beyond static representation to foster dynamic, user-driven experiences.

In recent years, the emphasis in digital heritage research has shifted toward the development and application of digital twins, a movement catalyzed in part by the need for remote access during global disruptions such as the COVID-19 pandemic. The creation of digital twins—precise, interactive replicas of physical spaces or artifacts—has facilitated a new era of conservation, education, and engagement, with high-profile examples including Italy's First Parliament and the Charterhouse of Pisa in Calci (Bevilacqua et al., 2022). Meanwhile, parallel efforts in Asia have demonstrated the utility of digital twins for archiving unique architectural features such as Xiegong, highlighting the necessity for cross-disciplinary partnerships between technologists and heritage scholars (Tan et al., 2022). This trend underscores a growing recognition that sustainable digital preservation demands collaboration between those who develop the technical infrastructure and those who possess deep domain knowledge of cultural contexts. Yet, despite significant advancements in the field, most research has focused on the technical feasibility and descriptive value of digital twins, often neglecting the potential for generative artificial intelligence to expedite and enrich the recreation of lost or fragmented artifacts. Indeed, while machine learning and computational modeling have been widely adopted for documentation and visualization, their application to the creative reconstruction of missing cultural materialities remains nascent. As a result, contemporary digital heritage practice stands at a crossroads, poised between the established protocols of documentation and the emerging opportunities for AI-driven restoration.

Within this context, select research initiatives have begun to explore the intersection of AI and cultural heritage conservation, highlighting both the promise and limitations of these approaches. Kim and Lee (2021) investigated the restoration of cultural assets by applying artificial neural networks to identify and differentiate subtle typologies in architectural ceramics, thereby enhancing restoration precision and efficiency. Li (2021) further emphasized the synergistic potential of integrating virtual reality with AI, positing that multi-modal strategies can address the multifaceted needs of heritage conservation. Recent methodological advances extend beyond restoration alone; D'Orazio, Bernardini, and Di Giuseppe (2023) utilized Long Short-Term Memory (LSTM) neural networks to optimize conservation maintenance workflows, while Moreno et al. (2022) harnessed fuzzy logic to evaluate and mitigate environmental risks to heritage buildings. Comprehensive reviews, such as that by Bordoni et al. (2013), have cataloged the broad spectrum of AI applications in cultural heritage, establishing a foundation for further empirical and theoretical exploration. The work of Ranaldi and Zanzotto (2021) suggests that AI's self-empiricist logic may fundamentally transform the field, urging caution and reflexivity in the adoption of new computational paradigms.

Despite these advancements, a significant gap persists at the intersection of generative AI, immersive 3D asset pipelines, and innovative user experience (UX) frameworks for historically grounded digital reconstructions. The extant literature primarily delineates two paradigms: one focused on the restoration and preservation of tangible objects and built environments, and another concerned with the design of virtual spaces for engaging with intangible cultural heritage. Xiaoli Yu et al. (2021) exemplify the latter, exploring AI's capacity to structure interactive, narrative-rich virtual environments for intangible heritage. Yet, neither paradigm has sufficiently addressed the challenges of integrating generative AI models, modular and bilingual content delivery, and customized UX/UI systems within large-scale historical recreations. Thus, there is a pressing need for case studies and methodological exemplars that demonstrate how these technological advances can be operationalized in the context of culturally significant spaces. The present work responds to this lacuna by detailing innovations in 3D asset development, multilingual content integration, and user-centric interface design as applied to the 1785 Salon Unreal Engine Reconstruction Project, offering a replicable model for future digital heritage initiatives.

3. Historical Background: Salon 1785

The Academic Salon, inextricably linked with the Royal Academy in Paris, played a central role in shaping the trajectory of French art from the seventeenth through the nineteenth centuries. The visual arts in France, especially oil painting, achieved a privileged status due in large part to direct state involvement—manifested both in the careful selection of academy members and the financial support provided to artists educated within the Royal Academy's system. The Salon itself functioned as a critical forum for artistic recognition, serving as the primary venue in which an artist's reputation could be forged or undone; success or rejection at these exhibitions could set the course of an artistic career. Beyond its professional implications, the Salon became a fertile ground for the emergence of art criticism, as leading Enlightenment thinkers and writers subjected the exhibited works to rigorous public debate, evaluating technical innovation, moral content, and aesthetic achievement.

Given this history, contemporary research teams have recognized the imperative to reconstruct the Salon environment in digital form, with the aim of providing a richer, more immersive understanding of its historic influence. While select individual works from the Salons have survived and are preserved in collections such as the Louvre, reassembling the full complement of artworks once displayed at any specific Salon remains a daunting, if not impossible, task due to the dispersal, loss, or destruction of many original pieces. Digital technology, however, offers a means to bridge this gap, allowing for the creation of reconstructed exhibition spaces in which academics, students, and the public can more fully appreciate the shifting values, themes, and stylistic developments that characterized successive generations of French art.

The selection of the 1785 Salon for this digital reconstruction project is especially significant. This year marked the presentation of Jacques-Louis David's Oath of the Horatii, a painting that dramatically departed from prevailing artistic norms by privileging bold, gestural expression over the subtler cues of facial emotion, and which has since been recognized as a watershed moment in the history of French painting (Johnson, 1989). Reconstructing the 1785 Salon enables critical engagement with these stylistic innovations, providing insight into the aesthetic currents that shaped not only David's career but also the broader cultural context of the time. Moreover, the existence of detailed visual documentation by Pietro Antonio Martini—whose engraving, View of the Salon of 1785, meticulously captured the exhibition's arrangement—provides an invaluable reference point for virtual reconstruction.

The institutional history of the Salon is equally important to understanding its relevance as a case study. Established in 1667 by the Royal Academy of Painters and Sculptors, the Salon gradually evolved into a locus of intellectual and artistic exchange, where honors, patronage, and scholarly critique intersected. Artists and chroniclers memorialized the Salon through engravings, paintings, and written accounts, contributing to a lasting cultural archive. The choice of the 1785 Salon as the focus for digital reconstruction is justified both by Martini's comprehensive documentation, which enables the identification and placement of many exhibited works, and by the significant architectural modifications to the Salon Carré in subsequent decades, which have rendered its eighteenth-century appearance a moving target for historical recovery. In this respect, the 1785 Salon serves not only as a subject of art historical investigation, but also as a proof of concept for the methodologies and technical strategies advanced by this project.

4. Methodology

This section outlines a replicable and systematic approach to the digital reconstruction of eighteenth-century sculptural busts and their integration into an immersive Unreal Engine environment, as developed for the 1785 Salon Unreal Engine Reconstruction

Project. The process unfolds across two major domains: (1) 3D asset generation and refinement, and (2) modular user interface and user experience (UI/UX) implementation. By carefully combining generative artificial intelligence with manual digital sculpting and robust, modular blueprint architecture, this methodology supports historical fidelity, workflow efficiency, and future scalability. The detailed protocols described below are intended to serve as a transparent guide for researchers, digital artists, and cultural heritage professionals wishing to replicate or extend this process in their own digital heritage initiatives.

4.1. 3D Asset Development: Generative AI Modeling and Digital Sculpting

The initial phase of 3D asset generation leverages the Meshy.ai platform (https://www.meshy.ai/workspace), a credit-based generative AI tool optimized for image-to-3D conversions, particularly for busts and simpler sculptural forms. Users begin by creating an account—either institutional or personal—before navigating to the main workspace and selecting the "Image to 3D" workflow. Reference images of target sculptures are uploaded, and it is advisable to assign clear, descriptive filenames; otherwise, Meshy will auto-name models, potentially making future identification cumbersome. The default AI model (Meshy-5 Preview), with license set to CC BY 4.0 and symmetry detection set to auto, is typically sufficient. The generation process takes several minutes and produces four candidate mesh variants for each input image. At this stage, users should select the best approximation for further refinement, bearing in mind that generative AI often loses subtle facial structure and surface detail, especially when dealing with more complex or multi-figure compositions **(Figure 3).** Upon confirmation, follow the prompts for polycount and topology (default settings are recommended for compatibility), and ensure that a texture file is generated and included in the downloadable ZIP folder.

Once the preferred model and associated texture are acquired, the next stage is digital refinement using Autodesk Mudbox. Users unzip the FBX file and import it into Mudbox, where they will focus on enhancing facial definition, anatomical accuracy, and intricate surface details lost during the AI generation process **(Figure 4).** Three tools are particularly crucial for this workflow: the knife tool (for emphasizing deep lines and fine hair), the bulge tool (for correcting volumetric anomalies, especially in cheeks, browlines, and lips), and the flatten tool (for eliminating unwanted topological bumps, notably around hair regions). Precision is managed through the careful adjustment of size and strength parameters: knife (size 2.50, strength 32.50), bulge (size 0.50–2.50 for small features, 2.50+ for major corrections, strength ≤2.50), and flatten (size 5.00, strength 30.00). After sculpting, the mesh is selected (spacebar > select mesh), exported as an OBJ, and assigned a clear, versioned filename **(Figure 5).**

4.2 User Interface and User Experience (UI/UX) System Design

The Inspection System developed for the project is designed to provide a seamless, highly modular framework for object-focused interaction, metadata display, and accessibility. To use this system, developers first right-click "BP_BaseParentInspectItem" and select "Create Child Blueprint Class," placing the new child under "InspectionSystem > Blueprints > ChildItems." For each item to be inspected, the asset must be converted to a static mesh—if starting with a brush, use "Details > Brush Settings > Advanced > Create Static Mesh"—and saved within the "StaticMesh" directory. Assign the static mesh as the Item Mesh Reference in the corresponding child blueprint, which ensures that the system recognizes the object as available for inspection **(Figure 6)**.

Default controls are intuitive and designed for both desktop and VR contexts: the left mouse button triggers inspection (active only within a configurable proximity), while either the left mouse button, "E," or "Escape" exits the inspection interface. Holding the right mouse button enables rotation, allowing users to manipulate the inspected item in real-time, and the mouse wheel provides smooth zoom functionality. Pressing "R" instantly resets rotation and zoom to their default values, facilitating rapid re-engagement with the asset from a neutral viewpoint. This interaction logic is encapsulated within the InspectionSystem folder, with the exception of a commented "Reticle Detection (Mouse Overlap)" section that must be added to "BP_FirstPersonCharacter." Editing the "sphereCollision" radius in "BP_BaseParentInspectItem" allows project-wide adjustment of how close users must be to trigger inspection.

Extending the UI is straightforward and does not require custom scripting: add a new element in "W_InspectUI," switch to the graph, and create a variable (text type recommended), setting it as public and "Expose on spawn." This variable must then be added in the "BP_InspectInterface," connected in "BP_BaseParentInspectItem," and finally linked within "BP_InspectionSystem" so it is passed during the interaction event. These connections enable dynamic display of additional metadata such as artist, date, or dimensions, and the system supports toggling between English and French text. The widget itself is designed for 4K resolution, with background blur and strategic text placement for optimal readability and aesthetic cohesion **(Figure 7).**

The current system includes an AI disclaimer toggle, volume and narration controls (sliders/buttons—hidden by default but easily activated in the widget's Behavior > Visibility settings), and a fade-in/fade-out effect for the interface. Volume control is tied to the master system volume, but does not retain settings between sessions in the final build. Developers are encouraged to add new features by following the event-driven blueprint structure, which facilitates quick adaptation for new requirements or devices.

Robust bug-fixing guidance is provided for future users. If the UI does not appear, confirm "Inspectable?" is enabled. If inspected items are invisible, ensure "Inspect Scale" has valid (nonzero) X, Y, and Z values and that "Inspect Rotation" is oriented toward the camera. If the inspection background is no longer invisible, this often means the skybox is too large—adjust the "Spawn Inspected Item Outside Skybox" X value in "BP_BaseParentInspectItem" to resolve this. Minor Unreal 5.5 lighting artifacts may be fixed by switching to standard Shadow Maps under Project Settings.

Throughout development, compatibility with Meta XR was tested, including manual plugin installation and migration procedures, ensuring the system works with VRTemplateMap as a base level and supports future Meta headsets. All blueprint logic is thoroughly commented, so variable and anchor names should be double-checked for consistency as the system evolves. Collectively, this approach yields a flexible, scalable solution for deep object inspection and interactive metadata, supporting both immediate scholarly analysis and future adaptation in digital heritage environments.

5. Results

The process of integrating the finished Mudbox product into Unreal Engine marks a pivotal phase in achieving a historically resonant and visually coherent digital reconstruction. After finalizing the sculpted OBJ file in Mudbox, the user initiates the import through Unreal Engine's content drawer, selecting "Import" and navigating to the appropriate OBJ. High-density meshes may require additional time to process, reflecting the high fidelity and detail of the digital asset. Once loaded, the object appears within the project directory, ready for precise positioning in the virtual scene. Standard Unreal Engine transform controls—"R" for scaling, "E" for rotating, and "W" for moving—allow the researcher to accurately situate the bust or artifact, referencing period documentation and spatial logic gleaned from archival sources **(Figure 8)**.

It is common for some textural information to be lost during this import process, a limitation attributable to differences in file handling and shading models between Mudbox, AI pipelines, and Unreal Engine. In cases where the original texture is compromised or fails to render, users can substitute one of Unreal's built-in material presets or opt for additional refinement in Substance Painter, which supports seamless texture mapping and detail recovery. Select sculptural features, such as the bridge of the nose, subtle facial planes, or specific strands of hair, often survive this pipeline intact and require only minor adjustment, whereas other features—particularly those with fine undercuts or complex concavities—may necessitate iterative corrections.

This hybrid workflow—melding rapid, AI-driven base model generation with high-touch manual refinement and robust engine integration—yields a visually credible asset that balances efficiency with art historical accuracy. The import and adjustment process is designed to remain flexible, enabling iterative repositioning and retracing of earlier steps if needed. Figures illustrating the stepwise transformation from archival image, to AI-generated mesh, through Mudbox enhancement, and finally to Unreal Engine integration, are provided for reference in Figure 6, offering visual transparency into the technical process and its outcomes.

A significant innovation in this iteration of the project is the demonstration of a fully bilingual inspection interface, building directly upon the previously developed Inspection System. When viewing the imported bust of Claude Edme Labille, users may trigger the UI overlay to examine metadata, labels, and historical context, all available in both English and French. Toggle controls within the interface allow seamless language switching, dynamically updating all relevant fields for the object under inspection. This bilingual implementation is not merely cosmetic; it underscores a scalable approach for internationalizing cultural heritage content and increasing accessibility for diverse user groups **(Figure 9)**. Additional UI features—such as text overlays, AI disclaimers, and dynamically populated detail fields—have been rigorously tested within the interface, and their successful deployment further validates the robustness of the inspection framework. Overall, these results confirm the viability of an end-to-end pipeline that couples generative AI modeling, high-fidelity sculpting, and sophisticated, user-friendly digital inspection—demonstrating the technical and interpretive advances now possible in digital heritage reconstruction.

6. Conclusion

The 1785 Salon Unreal Engine Reconstruction Project demonstrates the powerful confluence of generative AI, digital sculpting, and modular UI/UX architecture in advancing the practice of digital heritage reconstruction. By carefully orchestrating a workflow that begins with AI-driven model generation and progresses through nuanced manual refinement and iterative technical integration, the project delivers not only historically resonant digital surrogates but also a reproducible methodological standard for future research. The ability to generate accurate sculptural assets rapidly with Meshy.ai, refine their fidelity and period specificity in Mudbox, and integrate them seamlessly into Unreal Engine ensures that efficiency does not come at the expense of scholarly rigor or visual credibility. The flexible inspection system, with its robust support for object metadata, interactive manipulation, and bilingual accessibility, marks a significant leap forward in user engagement and inclusivity, offering audiences a direct and dynamic interface with reconstructed artifacts. By documenting every step—from model acquisition and texture troubleshooting to the extensible event-driven architecture of the inspection overlay—this project establishes a replicable framework for digital curation that is both open and adaptable.

Furthermore, the successful implementation of bilingual content within the inspection interface serves as a blueprint for broader internationalization and accessibility in digital humanities projects, illustrating how multilingual design can meaningfully expand the reach and impact of virtual heritage. The cumulative outcome of this work is a deeply contextualized, interactive digital environment that not only restores lost historical objects to contemporary viewership but also elevates standards for documentation, transparency, and collaboration in the field. As scholars, museum professionals, and digital artists continue to confront the challenges of preserving and presenting cultural heritage in the digital age, the approaches piloted in the 1785 Salon project point the way toward more equitable, efficient, and empirically grounded futures for virtual reconstruction and interpretation.

Figures

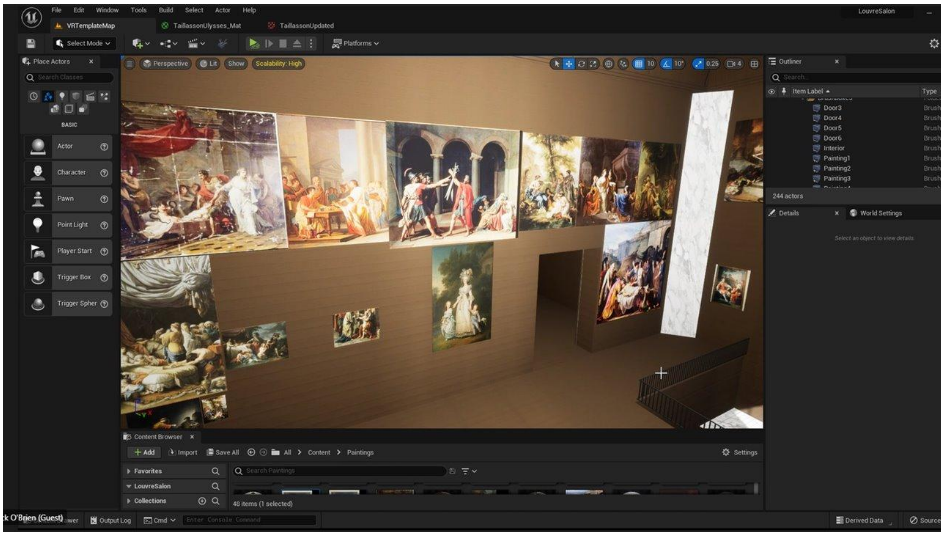

Figure 1. Charles O'Brien, Salon Carré with Reconstructed Staircase and Repatriated Paintings, Salon 1785 Project, Unreal Engine 5, 2022, The College of Arts and Humanities, Lindenwood University, Saint Charles, MO, USA

Figure 2. Pietro Antonio Martini, *View of the Salon of 1785*, engraving. The Metropolitan Museum of Art, New York. Creative Commons Zero, Public Domain Dedication.

Figure 3. Kayla Kraff, Example of Salon Sculpture: Original, Untextured, Textured. Meshy-5, 2025.

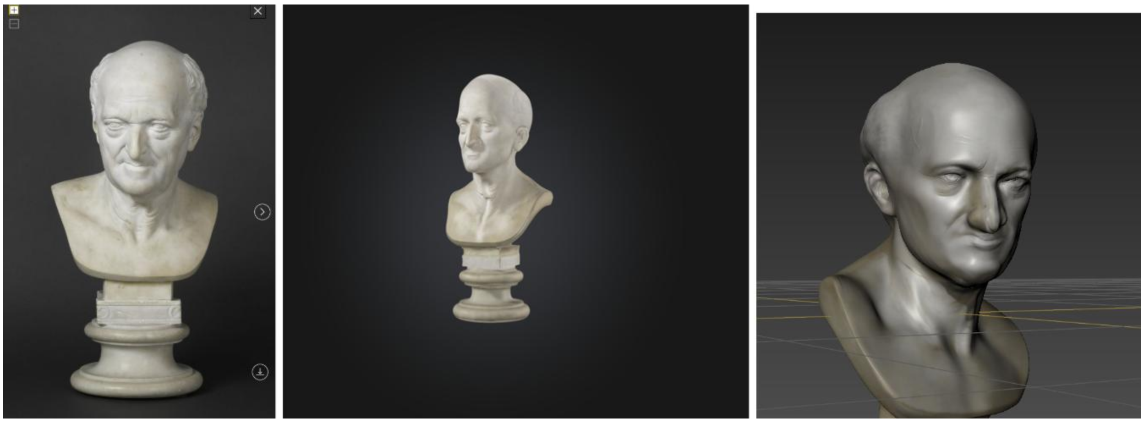

Figure 4. Kayla Kraff, Example of Salon Sculpture of Claude Edme Labille: Original, Meshy, Mudbox, 2025.

Figure 5. Kayla Kraff, Finished Mudbox Render of Portrait Bust of Claude Edme Labille, 2025.

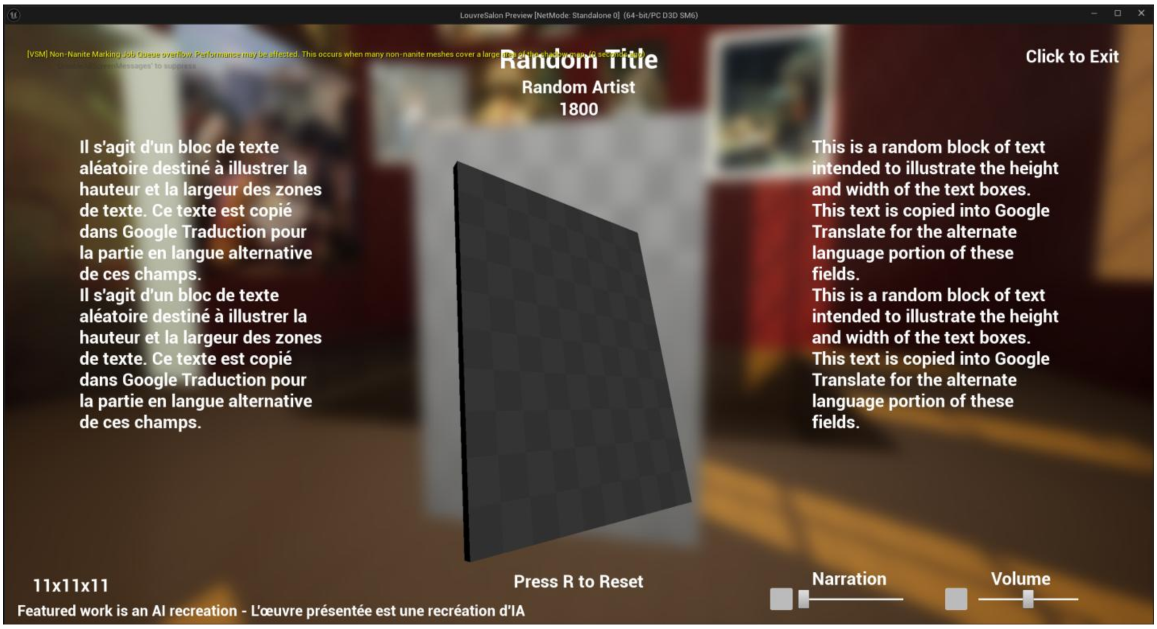

Figure 6. Wesley Wolfe, Inspection System: Phase 1, Unreal Engine, 2025

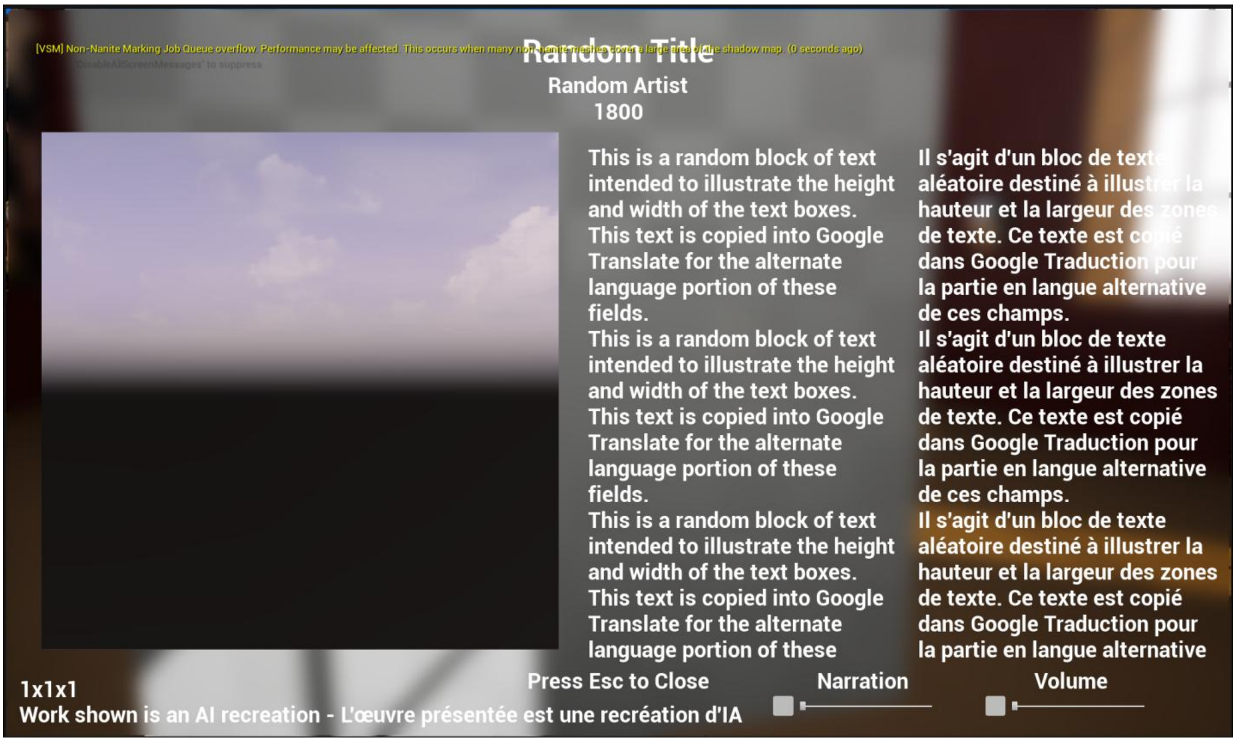

Figure 7. Wesley Wolfe, Inspection System: Phase 2, Unreal Engine, 2025

Figure 8. Kayla Kraff, Finished Mudbox Render in Virtual Environment, Unreal Engine, 2025.

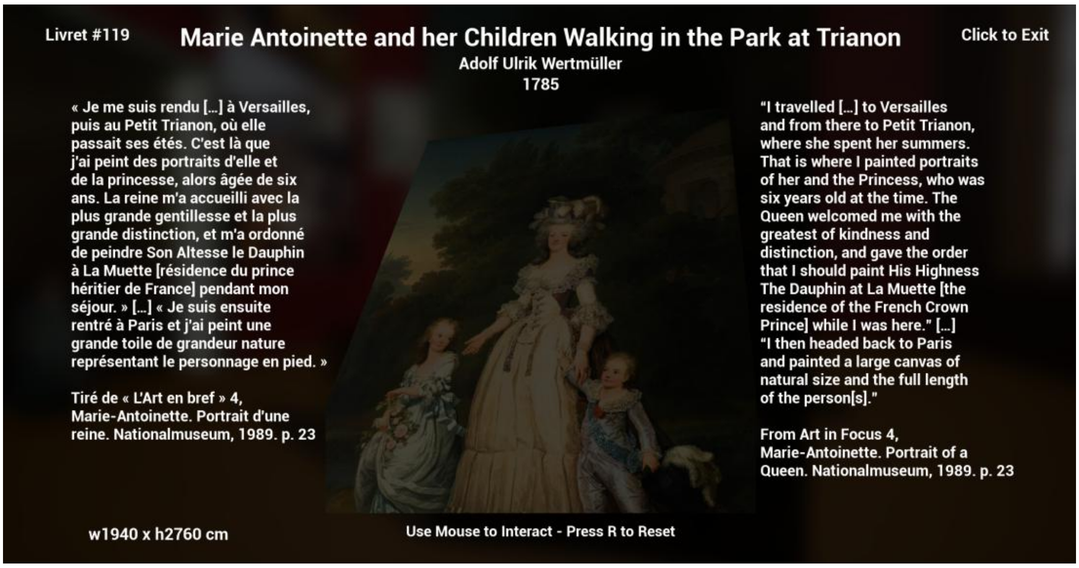

Figure 7. Wesley Wolfe, Bilingual Inspection System: Phase 3, Unreal Engine, 2025

Data Availability

NA

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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NA

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