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GöttwAIg: An AI Co-created 21st-Century Reinterpretation of the Cabinet of Curiosities of Göttweig Abbey in Austria

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Abstract. The cultural heritage of monasteries is often overlooked in art and science projects that involve artificial intelligence (AI) applications. However, using current multimodal AI technologies artistically offers strong potential for interpreting monastic treasures in a timely manner and appealing to new user groups. This becomes evident in the analysis of selected works created in the first phase of the *GöttwAIg Wunderkammer (21). Baroque Digital* project in this paper. In collaboration with partners, Austrian media artist Markus Wintersberger has reinterpreted the fragmentary remains of the eighteenth-century cabinet of curiosities at Göttweig Abbey near Vienna. During the artistic exploration of objects from this culturally and historically significant abbey—which forms part of a UNESCO World Heritage Site—a magic lantern attracted particular interest. An AI short film about the new twenty-first-century cabinet of art and curiosities was also created. This artistic engagement with a former art and natural history collection reflects historical distance, while also addressing the challenges of using AI, including data training, creativity, and sustainability.

Keywords: Media Art · Artificial Intelligence · Cabinet of Curiosities

1 Amazement in the Past and Present

Cabinets of art and curiosities are considered forerunners of today's museums and art collections [1]. They have their origins in the Renaissance and brought together disparate objects from natural history, art, technology, and religion. As places of wonder and knowledge, they aimed to make the world's complexity tangible in a limited space. Reconfiguring or reimaging such cabinets has been a popular practice among museologists and artists for over 50 years [2]. For example, cabinets of art and curiosities have been recreated at venues such as the Houston Museum of Natural Science (HMNS), Ambras Castle near Innsbruck, and the DomQuartier in Salzburg. Contemporary artists inspired by cabinets of art and curiosities include Mark Dion [3], who questions organizational and representational regimes, and Fodayemi Wilson, who interrogates the Eurocentric gaze through a fictional "collection" of a nineteenth-century Black slave [4].

In today's society, strong amazement is also aroused a lot in the field of technology, namely by so-called artificial intelligence (AI) black boxes. Their rapid output of complex texts, images, and videos in response to simple prompts can appear mysterious, and is admired for its pretended effortlessness [5]. It is also often not possible to understand precisely how, why, and where the data is stored in the AI model, as the training data used often remains opaque. For new AI video applications, in addition to synthetic data, it appears that a significant amount of work created by artists, professionals in the creative and media industries, and private individuals has been used without permission or remuneration. Additionally, the training data sets appear to contain biases and discrimination [6]. It is also often overlooked that user behavior data are employed for further training purposes of the models [6]. Overall, the apparent wonder caused by AI obscures the automation of management tasks and the increase in precarious jobs resulting from AI [7]. Despite these challenges, AI is being prioritized in the European Union; for example, to support the development of 'Industry 5.0' [8].



Fig. 1. Göttsweig Abbey, photo: Günther Bogensberger, Graz (licensed under Creative Commons Attribution-Share Alike 3.0 Austria license).

The AI amazement—which can therefore be seen as very ambivalent—has motivated Austrian media artist and co-author of this article, Markus Wintersberger, to use the latest multimodal AI applications from the US and China released in 2024 and 2025 for developing a twenty-first-century cabinet of curiosities in the *GöttwAIg Wunderkammer (21). Baroque Digital* project. The starting point is the fragmentary baroque cabinet of curiosities at Göttsweig Abbey (see Fig. 1) in Austria. Wintersberger intends not a museum reconstruction of this historic cabinet, but an artistic reimagination. The creation of the new works reflects the historical distance, the possibilities of today's technologies, and the difficult questions associated with them. The AI applications used by OpenAI, Luma, and DeepSeek function neither as autonomous creative agents nor as passive assistants, but rather as collaborative partners of artistic research [6]. Markus Wintersberger not only edits but also co-creates with AI and self-efficacy [9]. The digital creations are not only presented on screens, but also as 3D prints and as art prints combining old printing

techniques with new ones (see Sect. 5), and will be exhibited—for example—at an event in Göttweig in 2026.

A dynamic structure of materiality, code, and imagination is intended as the new twenty-first-century cabinet of art and curiosities. Art thinking differs from design thinking, which aims to solve problems based on customer needs [10]. However, the creative process related to art thinking can involve vague questions, offer a variety of perspectives, and yield incomplete results [10]. To deepen the reflection on cultural heritage and new technologies, discussions are being held with researchers from the University for Continuing Education Krems, including co-author Viola Rühse, who has already worked with the graphic collection of Göttweig Abbey as part of her research activities.

By combining historical heritage with the digital present and a decidedly human-centered use of AI [8], the aim is to create a positive example of AI application that is of higher artistic quality than the many commercial applications now found—for example—in social media feeds, which are also leading to restructuring in the media industry. The project also aims to counteract the widespread misuse of AI deepfakes for political manipulation, cyber-mobbing, or even pornography with a positive purpose. The *GöttwAIg* art and science project is funded by the State of Lower Austria from 2025 to 2026. Thus, this is a text on a work in progress, as the project results and considerations are not yet complete. This paper presents and analyzes some of the works created during the preparatory and first phases of the *GöttwAIg* project, up to summer 2025, which were inspired by the cabinet of art and curiosities in general and selected important areas within it, namely the technical apparatus and art prints.

2 Göttweig Abbey and Its Inspiring Cabinet of Art and Curiosities

The project offers the opportunity to combine AI applications with the cultural heritage of monasteries, which has not yet been possible in many monasteries due to a lack of expertise and resources. Markus Wintersberger has selected an institution of great cultural and tourist significance for this purpose. Since 2000, Göttweig Abbey—together with Melk Abbey and the historic center of the nearby city of Krems—has been part of the UNESCO World Heritage Site of the Wachau, a Lower Austrian cultural landscape in and around the Danube Valley near Vienna. The Benedictine abbey is characterized by its impressive baroque architecture (see Fig. 1), designed by the renowned architect and imperial court engineer Johann Lucas von Hildebrandt [11]. With its state rooms, museum treasures of national importance, and a baroquized church from the fifteenth century, the imposing monastery is visited by around 100,000 tourists every year, many of whom come from the US as part of Danube cruises.

Göttweig Abbey was founded in 1083 as a canonry and handed over to the Benedictines in 1094. In the first half of the eighteenth century, the monastery flourished due to its excellent financial resources and the influence of the important scientist and diplomat Gottfried Johann Georg Bessel (1672–1749; see Fig. 2). He was rector of the University of Vienna twice (1714/5 and 1726/27) and abbot of Göttweig Abbey from 1714 to 1749 [12]. In Göttweig Abbey, he promoted art, science, and music, among other things. After a fire in 1718, he had the abbey rebuilt in the baroque style. In a part of the building completed in 1723, Abbot Bessel established the art and natural



Fig. 2. Gottfried Johann Georg Bessel (1672–1749), unknown painter, Archive of the University of Vienna, Picture Archive Signature: 106.I.1839.

history collections in two prominent rooms (see Fig. 3) [13]. He built up this collection intensively from around 1723 to 1733 with the help of assistants. Collections from the imperial family and the nobility served as an inspiration for him, and his international network proved advantageous.



Fig. 3. Salomon Kleiner, *Musaei Contignatio media* (left), *Musaei Contignatio superior* (right), 1744, Graphic Collection of Göttweig Abbey (Hc_024, Hg_013), scans: University for Continuing Education Krems.

The Göttweig cabinet of curiosities comprised numismatic artifacts and the abbey's very important graphic collections, which remain largely intact today [14]. There were also ancient artifacts and works of art, only some of which remain in the abbey today. Many other natural objects, trophies, scientific instruments, arts and crafts, and ethnological artifacts have been lost, apart from a small part of the mineral collection. Many of the objects collected in the abbey's cabinet of curiosities can therefore only be recognized today due to old illustrations and written sources. Important but also limited

clues are provided by a late baroque inventory that was only rediscovered in 2017 [14]. It is precisely these gaps—the missing and fragmentary—that form the starting point of the present project. These lost artifacts are not reconstructed in the sense of a search for authenticity, but rather artistically transformed into artistic and speculative objects at the intersection of historical traces and imagination.

3 Analogue and Digital Illusion Machines

The optical devices that were presumably found in the cabinet of curiosities at Göttweig Abbey—such as a magic lantern—hold particular interest in the *GöttwAIg* art and science project. From the perspective of media archaeology, a magic lantern can be seen as an early precursor of today’s digital illusion technology. According to historian Manuela Mayer’s research, a series of glass lenses that have survived to this day suggests a magic lantern that may have been housed in a cabinet of curiosities. It is possible that one of these was acquired in Erfurt by Georg Heinrich Büchner (1693–1772), a student and apparatus builder at that time [13].

The magic lantern comprises a housing with an opening for a light source, such as a candle or oil lamp. A concave mirror behind it magnifies its radiant power. At the front is a lens system through which the light penetrates to the outside. The images to be projected are inserted into a device at the front. The Dutch scientist Christiaan Huygens (1629–1695) is regarded as the first designer of such a magic lantern [15]. It was further developed by the German Jesuit Athanasius Kircher (1601–1680). In a German annotated translation of Kircher’s *Ars magna lucis et umbrae*, the potential for converting and catechizing “godless people” was highlighted. The magic lantern’s “images and shadows in dark chambers” are seen as “more terrible than those of the sun” [16]. After all, people far removed from faith could thus “easily be deterred from many vices / if one casts the image of the devil on the mirror and places it in a dark place” [16].

Due to the weaker luminosity of the light sources of the time, the images of a magic lantern could only be projected up to approximately 2.5 m from a distance of 3–4 m. Thus, the images could be shown to an audience of up to approximately 40 people in cabinets, upper-class salons, church services, schools, or by touring minstrels in public squares, inns, or farm barns. The interest was strong, likewise the effect. It was not until the introduction of the Argand lamp at the end of the eighteenth century that projections could take place in front of a larger audience and more effects could be integrated [15]. At Göttweig Abbey, the magic lantern was probably used for scientific demonstrations in the cabinet, in school lessons, and perhaps also in church services or at religious celebrations or events. For example, on March 21, 1723, a magic lantern performance took place in the school theater in Horn, Austria, on Palm Sunday, for which a priest painted Passion scenes on glass panes [17] (the authors would like to thank Bernhard Rameder for bringing this performance to their attention). The magic lantern in Göttweig Abbey might have been used for a similar purpose.

Inspired by this, Markus Wintersberger made various images and microfilms related to the magic lantern with Sora as co-creator in early 2025. This AI image and video app was released by the US company OpenAI, which was founded by Sam Altman—among

others—in 2015 and previously developed the popular AI chatbot ChatGPT [18]. The company published only a vague technical report on Sora in 2024, although it appears to combine various AI technologies such as latent and cascade models, recaptioning techniques, as well as diffusion and native vision transformer architectures [19, 20]. While there is little reliable information about data training, it is suspected that the company might have used YouTube videos unlawfully, for example [21].



Fig. 4. Markus Wintersberger, *GöttwAIg AI meta fiction*, 2025 (AI co-creator: Sora).

With Sora, Wintersberger created—for instance—a magic lantern with the projection of a very real-looking human figure in a flood of light resembling jets of fire (see Fig. 4 left). This emphasizes the dependence of the magic lantern image on a light source and its event-like character. In this way, the temporality and image magic are conveyed. However, the logic and history of the magic lantern—which requires a projection surface, e.g. on a wall and often projected in colored images—was not taken into account by the AI application at first and further fine-tuning was required here (see Fig. 4 right). The creations are based—among other things—on historical depictions of a magic lantern projection of a man in hellfire from the seventeenth century. The new visualizations revive earlier catechetical practices of the Counter-Reformation in color or with moving images. They also encourage reflection on current indoctrination practices, which also use digital AI illusion machines. For example, Donald Trump publishes many deepfake videos on his social media platform, Truth Social, to defame Democrats [22]. This manipulates voters and endangers democracy [23].

Wintersberger has also integrated the magic lantern into a representation of the cabinet of curiosities as a creative laboratory of the present, which was also created in collaboration with Sora. A blue figure is projected in several views, resembling a pop art representation of Saint Mary (see Fig. 5). It can be seen as a reminiscence of the special Marian devotion in Göttweig Abbey, depicted within a surrealistic-looking pictorial structure. Mary is the patron saint of the monastery, and blue is considered the color associated with the Virgin Mary. The religious figure is paired with other objects, some of which are quite fantastical. The surrealistic interior offers a glimpse of the larger presentation of the reimagined cabinet of curiosities in progress, where past and present, fact and fiction, material and virtual are intermingled. It emphasizes that the new cabinet of curiosities operates as a creative and speculative archive, as well as a transdisciplinary resonance space between past and present [24].



Fig. 5. Markus Wintersberger, *GöttwAIg AI meta fiction* (AI co-creator: Sora), 2025.

4 AI as the Protagonist in a Short Film on Göttweig Abbey’s Cabinet of Art and Curiosities

In addition to this artistic exploration of the magic lantern as a historical medium of illusion, Wintersberger also focuses on today’s AI technology. He centers it in the plot of a short film on Göttweig Abbey’s cabinet of art and curiosities created with two AI applications [25]. The first film teaser was completed in the spring of 2025 (see Fig. 6). For the screenplay, Wintersberger used DeepSeek—a tool from a Chinese startup of the same name—as co-writer. At the end of 2024 and the beginning of 2025, DeepSeek released two advanced language models that compete in particular with OpenAI’s ChatGPT. Both models were apparently developed with less computational effort and lower financial costs than their US competitor products [26]. Transparency and global collaboration were promoted through the open-source release of the DeepSeek models, although the training data and training pipeline were not disclosed [27]. In addition, system prompts were added to the model to censor critical political topics. DeepSeek is generally regarded as a significant example of China’s AI policy and was specifically trained for Chinese users. However, its high performance and low prices have led to global use. DeepSeek has also performed well in writing tasks. Due to serious data security concerns, the DeepSeek app has been banned on government devices in several countries and was therefore used sparingly in the *GöttwAIg* project, primarily at the beginning of 2025. AI tools generally collect personal data and a significant amount of user behavior data, which is even more problematic in China’s centralized control regime than in the US [26].

In the film story, the AI technology makes it possible to find a hidden code in the objects of the cabinet of curiosities, which manifests itself in a glitch painting. It enables the cabinet of curiosities to function as a living archive through integrating art and technology. Thus, ultimately, the AI creates “a digital cabinet of curiosities that transcends time and space” [25]. As with other AI tools, the story remains formulaic and incoherent [28]. However, the mix of different genres such as fantasy and mystery (e.g., *The Da Vinci Code*, directed by Ron Howard, USA 2006) is ideal for reaching a younger target audience. While the extremely effective moments of suspense are striking, DeepSeek lacks detailed historical knowledge about Göttweig Abbey. For a longer film

version, the story can be enriched with more historical details, allowing history to be conveyed in a lively way.



Fig. 6 Markus Wintersberger, *GöttwAlg AI meta fiction*, 2025, screenshots [AI co-creators: DeepSeek (screenplay), Luma Dream Machine (visuals and audio)].

Markus Wintersberger generated photorealistic film scenes for the first film teaser using Luma Dream Machine and edited them together (see Fig. 6). Luma AI Inc. is a US startup founded by the engineers Amit Jain and Alberto Taiuti, who previously worked at Apple. Dream Machine utilizes a multimodal transformer model, enabling highly realistic camera motion and lighting effects. In addition, its interface is easy to use, and the video generation is very fast, which makes it attractive to many users. In comparison to Sora, it was more openly available and received a lot of real-world feedback for improving its important features and addressing deficits. The data used for the training model has not been disclosed [29].

The strength of Luma’s Dream Machine lies in the generation of scenes with special effects set in the present in Göttweig Abbey. The hologram effects used for the AI’s role in the movie are particularly impressive (see Fig. 6). These also compensate for the application’s limitations in terms of facial expressions. A special visual idea is based on the collaboration with the AI, whereby the historical cabinet of curiosities is imagined from a large model of the abbey, which stands in the inner courtyard of Göttweig (see Fig. 7). Similar to the wardrobe in the *Chronicles of Narnia* [30], this model acts as a gateway to another world: in this case, the historic cabinet of curiosities in the eighteenth century.

It is striking how strongly the visual character of the historical locations in the scenes created with the AI is determined by fantasy films such as *The Chronicles of Narnia*, fantasy games, and Disney films such as *Beauty and the Beast* (d: Bill Condon, USA 2017), or how specially recorded material is changed accordingly. For instance, the baroque architecture of Göttweig was supplemented by older annexes. This is not historically accurate because, in the well-known baroque ensemble of Göttweig, much of the earlier building fabric was lost due to a fire in 1718 and subsequent reconstruction. The cabinet of curiosities was also only set up in the eighteenth century. Thus, the historical situation differed from the AI-generated depiction of earlier art collections and their visitors, including women from lower classes, who were probably not among the historical visitors to the cabinet of curiosities in Göttweig in the eighteenth century. Of course, the design of film locations often differs from the real places they represent,



Fig. 7. Model of Göttweig Abbey by Erwin Praunseis, photo: Wikimedia Commons user called Wikiwien01, licensed under Creative Commons Attribution-ShareAlike 4.0 International license).

and also resembles the materials used to train the AI, which are criticized in terms of intellectual property rights (see Sect. 1 above).

However, with further fine-tuning of the AI applications, a longer film version can appear even more authentic and convey the beauties and special features of Göttweig Abbey [11] and Austrian baroque culture on film such as the monumental imperial staircase with a illusionistic ceiling fresco by Paul Troger 1739, the baroque church—which dates back to the fifteenth century—or the idyllic apricot garden and the special location on the summit of the Göttweig mountain that earned Göttweig Abbey the name ‘Austrian Montecassino’. The magnificent baroque library or the Erentrudis Chapel from the twelfth century at Göttweig Abbey—which are rarely open to the public—can also be conveyed in this way. Even if there remains room for optimization regarding fine-tuning the AI for this special baroque topic for a longer film version, the artistic film teaser clearly demonstrates how much monastic cultural heritage—especially for education and outreach purposes—can benefit from AI in art and science projects, even with a short timeframe and low production costs. Before the introduction of multimodal AI, a film with such special effects would have required considerable resources and much more time [31]. However, in comparison—for instance—to contemporary topics, considerable human intervention is necessary to thematize the baroque cabinet of art and curiosities in Göttweig in films created with AI.

5 The AI Afterlife (“Nachleben”) of Renaissance Portraits

The aforementioned graphic collection of Göttweig Abbey—which was also systematically built up by Abbot Bessel and integrated into the cabinet of curiosities—is particularly well known. Today, the collection contains 32,000 sheets and is the largest private collection of historical prints in Austria [32]. Markus Wintersberger has created various self-portraits with AI applications based on earlier scholarly prints. In the project, such AI-generated images are further processed, digitally transferred to metal plates with a laser plotter, and printed from these plates on paper at the Neuhausener Kunstmühle in Austria. This gallery and print workshop was founded and is led by the Austrian lawyer and gallerist Nikolaus Topic-Matutin [33]. In this way, the project contributes to conveying the value of the historical craft of art printing techniques, which is in danger

of being lost. Rather than allowing digital technologies to frequently displace analog printing techniques, the *GöttwAIg* project encourages collaboration between the analog and the digital realm.

A sepia-colored self-portrait by Markus Wintersberger (see Fig. 8) with Sora as co-creator (see also Sect. 3) is inspired less by the representative baroque portraits of Abbot Bessel than by the humanist portraits of Renaissance scholars. The connection to the cabinet of curiosities is established by the ‘studiolo’ objects arranged around Markus Wintersberger on a balustrade, which the Italian Renaissance artist Titian liked to use as a pictorial element in portraits. The well-known limitations of AI in photorealistic images are also evident in this sepia-colored depiction, which looks like an engraving. As with the Renaissance portraits, the details of the picture encourage interpretation. On the one hand, Markus Wintersberger is wearing a turtleneck jumper and a jacket, reminiscent of high-tech company owners such as Apple Inc. co-founder Steve Jobs.



Fig. 8. Markus Wintersberger, *GöttwAIg AI Meta Fiction*, montage (AI co-creator: Sora), 2025.

The stand in Markus Wintersberger’s hand is reminiscent of depictions of Renaissance polymath Nicolaus Copernicus with a sphere, which refers to his astronomical research. The AI-caused deformations of the sphere also remind one of impossible figures of the Netherlandish artist Maurits Cornelis Escher. With this sphere, Wintersberger visually refers to the aim of the new cabinet of curiosities to imaginatively question the relationship between matter and meaning, creation and construction, as well as cosmos and code. The portrait also prompts reflection on broader questions, such as the artist’s self-image in the digital age, where they now collaborate with AI. This extends beyond earlier ideas of the artist as a technician [34]. Instead of humanist debates, post-humanist debates must now be included in self-reflection [35]. In addition, the Renaissance-style image incorporating some contemporary elements encourages reflection on the nature of creativity, authenticity, and the associated ethical implications [18].

6 Summary and Outlook

The selected works from the first phase of the digital reimagination project for the baroque cabinet of art and curiosities at Göttweig Abbey in Austria demonstrate how contemporary digital art forms open up new approaches to objects in a monastery collection. Such collections can be very significant in terms of cultural history, theology, and church history, but rarely serve as inspiration for contemporary media art. In the *GöttwAIg* project, monastic cultural heritage is reinterpreted in a timely manner. The use of AI applications actually enriches the artistic exploration and reimagination of the historic cabinet of art and curiosities in Göttweig Abbey and can be seen as a positive application of AI [6]. The creation of a twenty-first-century cabinet of curiosities with AI applications also emphasizes Göttweig Abbey's active involvement with technology in the past and present. In the eighteenth century, the abbey was involved with optical devices, while at the beginning of the twenty-first century, it had become a pioneer of digital humanities in Austria with a major digitization project of the graphic arts collection. Now, Göttweig Abbey supports the scientific and artistic project titled *GöttwAIg* in which AI plays a central role.

The project is conceived as a laboratory, not as a self-contained production, but rather an open space for thought and experience characterized by both artistic and scientific reflection. The challenges of working with AI also play a special role here. Recent multimodal AI applications raise numerous questions concerning data training, copyright questions, and artistic creativity. It has become clear that there is a lack of data on the diverse cultural heritage of Europe in the datasets. The visual worlds of the AI applications used are strongly influenced by fantasy films and games, highlighting the need for further fine-tuning with historical facts and imagery. This requirement is especially important when working with AI to generate visuals in connection with Austrian monastic baroque culture.

In addition, sustainability aspects play an important role in the *GöttwAIg* project. For example, digitized material from an earlier project is being reused. Since multimodal AI tools remained in their infancy in spring 2025 and the historic data is incomplete, as described, trial and error and fine-tuning were inevitable. Nevertheless, efforts were made to use the AI applications particularly efficiently, especially regarding the energy and water consumption of the data centers that power AI. There are also plans for intensive artistic follow-up work with the visualizations generated for additional films and a game. Nevertheless, concerning sustainability, it makes sense to implement 'voluntary compensation' for the energy and water resources required in research projects involving AI, in addition to the sustainability strategies of technology companies.

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