Physical & Digital Workmanship in Fantasy Neo-Medieval Miniatures for Film.

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Declaration of Originality

This dissertation is submitted by the undersigned to the Institute of Art Design & Technology, Dun Laoghaire in partial fulfilment of the examination for the BA (Honours) 3D Design, Modelmaking & Digital Art. It is entirely the author's own work except where noted and has not been submitted for an award from this or any other educational institution.

Garrett Kavanagh.

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Abstract

This thesis is an exploration of the physical & digital workmanship in fantasy Neo-medieval miniatures for film. My aim for this thesis was to further my understanding of these subjects and find a connection that could link all three together. In doing so I have discovered that workmanship plays a crucial role in both the physical and digital world, either in the intricate details carved into the entrances of cathedrals or the use of 3D software to create a 3D render of a castle as a visual effect in a film. It's a combination of skill, knowledge and quality work that can only be achieved through dedication and commitment. Good workmanship is seen in the end result, showcasing the care and effort that was put in to produce a high-quality product.

In chapter one, I cover the physical aspect of the thesis, which includes craftmanship/workmanship, skill development, material awareness and model making. I also cover simulacra and simulation and make a connection to model making. In chapter two, I discuss Neo-medieval architecture, their use in fantasy movies and how a practical effect is achieved with miniature models. I also discuss the nostalgia in Neo-medieval architecture through restorative and reflective nostalgia and examine the workmanship of those buildings at that time. In chapter three, I explore the digital side of the thesis through the use of SFX and VFX. I examine the possibilities of 3D printing for film and the workmanship involved in the work of a VFX artist. I finish the chapter by making a connection to the use of CGI to simulacra and simulation.

All three areas that I have covered in this thesis also have another connection, the film industry. The principles of workmanship that are required as a VFX artist are also needed as a model maker when creating miniature models as a practical effect on screen. The film industry takes inspiration from Neo-medieval architecture for fantasy movies as a physical miniature model or a 3D rendition. The use of CGI and 3d printers as a tool to captivate the audience and maintain immersion are all tools that can be implicated for the film industry. The other areas that I cover can also be connected to the film industry such as the theory of simulacra and simulation that can be linked to the creation of miniature buildings and through the use of CGI in films.

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Introduction

Workmanship refers to the level of skill with which a product is made, or a job is done. The significance of workmanship remains an enduring and fundamental aspect of human creation. Workmanship is often described as the skill, artistry, and dedication invested in the creation of anything in both the physical and digital form. Many peoples first thought about workmanship surrounds the physical aspects of creating tangible objects, but workmanship also has a place in the digital and architectural world. Workmanship still stands the test of time and changing culture and serves as a testament to the human capacity for creativity and mastery.

My aim for this thesis was to explore the connections within workmanship, Neo-medieval architecture and digital technology used in film. Through my research I discovered many connections that tie these subjects to one another, including the art of workmanship and its importance across industries and through history. Medieval architecture that helped shape the fantasy genre and architectural models aided in sharing those stories on screen with the use of physical models as a practical effect or a digital rendition of a model through CGI. There are also areas within this thesis where I find connections to the theory of simulacra & simulation and also view medieval architecture through the lens of nostalgia. These may not be directly related to my research question but were an important addition to my overall research that helped me view medieval architecture, VFX and miniature model making in a different light.

In chapter one I firstly break down craftmanship and the idea that anyone can produce a good product as long as they have the desire to do so. I move on to workmanship next and examine the workmanship of risk and certainty followed by skill development and a discussion about learning by doing. I then discuss the importance of quality over quantity which leads into the next topic of material awareness and Richard Sennett's opinion on the matter. Lastly, I connect workmanship and model making before finishing the chapter by summarising Simulacra and Simulation and making a connection between its theory and concepts to model making.

In chapter two I discuss the history and aesthetic of medieval architecture and its development into Gothic styled architecture, which later became the inspiration for Neo-Gothic architecture. I move on to the use of Neo-Gothic architecture in movies such as Hogwarts castle from the Harry Potter films then continue my discussion about Neo-Gothic architecture from a different view by exploring restorative nostalgia and reflective nostalgia. Furthermore, I discuss how the fantasy sub-genre of sword and sorcery has relied on the medieval setting for their stories and why that is. I look into the workmanship that goes into Neo-Gothic architecture and to end the chapter, I discuss the process of how to use miniature models as a practical effect for movies from construction to filming.

In chapter three I dive into the world of special effects and examine the difference between SFX and VFX. I examine the balance and correct use of CGI and who's to blame for bad CGI. I continue this journey into the use of digital technology in movies as I move on to the application of 3D printing and how it can be used for fantasy films. The dedication and role of a VFX artist to create a visual effect and blend it seamlessly into the footage unnoticed is nothing short of good workmanship. I end the third chapter by returning to simulacra and simulation and make a connection to the use of CGI in movies. In short CGI mimics the behaviour and physics of our world but isn't real, it's a form of simulacra and can blur the lines between what is real and what is simulated.

The foundation of this thesis has been supported by the works of David Pye, Richard Sennet, Svetlana Boym, Jean Baudrillard, Glenn Adamson, Hod Lipson, Melba Kurman and Eran Dinur. David Pye for his concept of workmanship and its significance in the context of design and craftsmanship. Richard Sennet discuses that the skills and values associated with craftsmanship are essential for personal fulfilment and societal well-being. Jean Baudrillard's work on simulacra and simulation explores the complex relationship between representation, reality, and the impact of media in contemporary society. His concepts of hyperreality and the four orders of simulacra provide a framework for understanding how simulations shape our perception of the world. Svetlana Boym for her discussion on restorative nostalgia and reflective nostalgia. Glenn Adamson for his discussion and exploration

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Chapter 1: The Physical.

Craftsmanship

Craftsmanship is the practice of creating or producing a product. The product can be anything from designing and making bicycles as craftswoman Caren Hartley does (see Fig 1) to writing or debugging code for an open-source operating system like Linux. Performing these tasks requires a high level of skill, artistry, and dedication. It is characterized by the painstaking task of attention to detail, precision, and the pursuit of excellence in the work carried out.

Fig 1: Caren Hartley in her workshop.

In Richard Sennett's words, "It's the basic human impulse or desire to do a job well for the sake of it".[1] He also believes that everyone has the ability to produce good work in some degree, that there is an intelligent craftsperson in most of us.[2] Craftsmanship involves the use of many techniques from both traditional and innovative.

These techniques are taught and passed down but only developed and improve through experience in order to produce pieces of craftmanship or complete tasks with a level of quality that goes beyond basic functionality.

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[1] Sennet, Richard. *The Craftsman.* Penguin UK, 2009, p. 9.
[2] Ibid, p. 11.

Workmanship

Workmanship is the combination of skill, knowledge and quality of work presented in the creation or completion of a product or task. It reflects the dedication, commitment, and skill of an individual or team in the production of a product. Good workmanship showcases the care and effort invested in producing high quality results.

The Nature and Art of Workmanship, by David Pye introduces us to his most recognizable concept: the workmanship of risk. Pye describes the workmanship of risk as "workmanship using any type of technique or equipment, in which the quality of the result is not preplanned, but depends on the judgment, dexterity, and care which the maker practices as he works".[3] This suggests that the more complex a task by hand is the higher the risk of failure or imperfections are, as the outcome is not entirely predictable or fully within the maker's control.

Fig 2: Assembly line for furniture production.

Pye contrasts this type of workmanship with the workmanship of certainty. Workmanship of certainty can always be found in factories of mass production where the quality of the products are always predetermined before production.[4]

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[3] David Pye. *The Nature and Art of Workmanship.* London, Herbert Press, 1995, p. 20
[4] Ibid, p. 20

This ensures a consistent and flawless result that can be repeated with great speed and reliability.

Figure 2 is an example of an assembly line for furniture production. Stacks of perfectly cut and sanded planks of wood are seen, ready for the next stage in production. Pye recognizes the advantages of an automatic production line and how it can produce hundreds of objects like bolts without human intervention or observation. He acknowledges that this process reduces the risk of tasks that need to be accurate and cost effective.[5]

Pye makes key points about how each type of workmanship has their place and significance. He emphasizes that despite its imperfections, the workmanship of risk often holds beauty and value that the workmanship of certainty may lack. He underlines the importance of understanding and appreciating both types of workmanship in the context of craftsmanship and manufacturing.

Pye also discusses the difference between design and workmanship, or design proposes, workmanship disposes, as he states it. Design can be communicated through words or drawings to which workmanship cannot. In other words, design is the idea and workmanship is the creation of that idea in physical form.[6]

Skill Development

Skill is often described as the ability to perform a task with proficient manual dexterity and technical expertise. It requires a deep understanding of various materials and tools as well as the ability to adapt to changing circumstances. It not only consist of problem solving that may arise during the process of creation but also problem finding. To spot an issue before it occurs.

Glenn Adamson discusses the concept of skill in the context of craft in his book *Thinking Through Craft*. Adamson discusses the idea of learning by doing and thinking in situations, using examples from other artist and educators from various

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[5] Ibid. p.22.
[6] Ibid. p. 17

fields. One example of this is Adamson discussing the teaching methods of Josef Albers, who was a German American educator and artist who emphasized experiential learning.

Albert repeatedly exposed his students to an experience of process so that the students would acquire skill in the most generic way. Albert would stress the experience of the physical object and state that "Learning is not done through the mastery of theory or knowledge, but through the inductive experience of doing."[7]

Quality over Quantity

Pye discussed the quality of workmanship and suggested that quality is either the result of good or bad workmanship. The practise of good workmanship completes or improves the intended design while bad workmanship fails to follow the design. Pye states that he judges the goodness and badness by two different criteria, soundness, and comeliness. Soundness refers to the functionality and durability of a product, so that it performs its intended purpose effectively and reliably. Comeliness involves the visual aesthetic of a product, its design, and how well it fits the designer's vision.[8] To summarize, soundness and comeliness are about finding the balance between the function and form of a product's design and fabrication.

Companies like Ikea that mass produce furniture can't compare to the quality of a piece of furniture made by a carpenter. The carpenter will prioritize quality over quantity whereas a furniture company will focus on the opposite. This is not to suggest that these companies produce terrible products, but rather that they're cheaply made with little workmanship and requires assembly by the consumer. This is the reason why Ikea furniture has been coined disposable furniture.

The material used in both pieces of furniture is a great indication for identifying the quality of one product over the other. The Ikea table (Fig 3) is made primarily out of

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[7] Adamson, Glenn. *Thinking through Craft*. London, Bloomsbury Visual Arts, 2018, pp. 84-85.
[8] *Pye,* op cit., p. 30.

particleboard, also known as chipboard which is known to be a cheap and brittle material.

Fig 3: Round Table from Ikea

Fig 4: Round table from Antique Purveyor

The round table from Antique Purveyor (Fig 4) on the other hand is made from mahogany wood which is one of the most robust woods available in terms of durability and strength.[9] Not only will the mahogany table be around for generations to come, but the table is also a unique piece that was most likely made for an individual client as a commission job. A carpenter's focus when creating a piece of furniture is to create something that is both unique and exceptional, rather than producing many standardized items as companies do.

Material awareness.

A craftsperson will deeply value the materials that they work with. To make a quality product, you must use a quality material but furthermore the craftsperson must understand the properties and characteristics of the materials. For example, a woodturner must store their wood for a minimum of three weeks before using it on the lathe. This is to ensure that the wood is entirely dry to avoid cracking and

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[9] Parker, Walter. "Is Mahogany Wood Truly Strong." *Woodworkly*. May 30, 2023.

splitting in the end product.[10] In Fig 5 you can see the results from turning wood that hasn't been properly dried. In Fig 6 you can see an example of a dehumidifying chamber which will not only guarantee a proper drying process but also greatly reduce the time needed to complete the process.

Fig 5: A cracked bowl made from green wood.

Fig 6: Dehumidifying Chamber

From his book *The Craftsman* Richard Sennett writes about the importance of material consciousness. He states that a "craftsperson's proper conscious domain is the effort to do good quality work which depends on their curiosity about the material in hand."[11] He further states that people invest thought into the things that they can change. This form of thinking involves three key issues: the anthropomorphosis, metamorphosis, and the presence.

Anthropomorphosis takes place when we input human qualities into raw material. For example, some primitive cultures believed that a spirit lived in trees and so would the weapons made from the wood of these trees Metamorphosis can be as simple as a change in method.

Potters who switch from working on a flat base to a rotating wheel will be conscious of the difference in technique. Presence can be recorded simply by leaving a

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[10] Bauer, Daniel. "Does wood have to be dry before turning." *Modern Woodturning.* august 17, 2023. https://modernwoodturning.com/does-wood-have-to-be-dry-before-turning/
[11] Sennett, Richard. *The Craftsman.* Penguin UK, 2009, p. 119-120.

markers mark. A handcrafted piece of furniture, silverware, jewellery or even a brick all have some form of a markers mark.[12]

A craftsperson needs to have a deep understanding of materials and their properties. They need to be able to see not only with their eyes but also with their hands. This awareness helps by encouraging a deeper connection between the material and craftsperson.

Workmanship and Model making

When connecting workmanship with model making, we can start with design proposal which can be the initial concept for the model. This can be a simple sketch, digital rendering, or fully detailed description of a client's vision. It's this idea that will guide the model maker on how the model should look and function if applicable.

Workmanship disposes refers to the actual fabrication of the model. This involves selecting the correct materials, use of various tools and applying different techniques at different stages to turn the design into a physical object. The quality of workmanship will determine the accuracy to the original design and also the functionality and aesthetic appeal.

Fig 7: Perfectly cut pattern on a MDF sheet.

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[12] *Ibid, p. 120.*

The workmanship of certainty and risk can also be linked to model making. With the use of 3d printers to create physical objects and laser cutters to cut out perfect patterns with little to no flaws, (Fig 7) a model maker can produce accurate objects repeatedly which would be a form of workmanship of certainty. The workmanship of risk lies where the quality of results is not predetermined and instead relies on the judgment and dexterity of the model maker as he or she works. An example of this would be using a scalpel to perform a precise cut and accidentally cutting away more material than intended. Fig 8

Fig 8: Model maker using a scalpel to cut material.

Simulacra and Simulation

Simulacra and Simulation by Jean Baudrillard is a philosophical treatise written in 1981. In his writings, Baudrillard introduces this concept of simulacra and simulation in which he believes is prevalent in today's postmodern society. The difference between simulacra and simulation is that simulation is the term used to describe something that appears real but is not actually real. For example, when you are watching a movie, you are viewing a simulation.

The characters and surrounding world may appear real but are actually representation that don't just depict reality but become a reality in itself by creating a hyperreality that blurs the distinction between real and simulated. Simulacra on the other hand are copies that portray things that either had no original or the original no longer exist. Looking at film's once again we can see an example of simulacra with the use of miniature buildings. The miniature buildings may have been created specifically for a film and therefore have no original but are a

simulacrum of a real building. In Fig 9 & 10, we see the Collinwood manor which is a miniature building that was fabricated in 2012 for the movie *Dark Shadows*, which used several elements of gothic architecture, but was not based on a specific original building.

Fig 9: Collinwood manor from Dark Shadows 2012.Fig 10: Collinwood manor from Dark Shadows 2012.

Baudrillard suggests that in our current postmodern society, reality has been replaced with symbols and signs. These symbols and signs can be seen in various aspects of our daily life such as advertisements. A luxury car advertisement on a billboard might not just be selling a car, but also the idea of status, wealth, and success as seen on this Lexus car advertisement. (Fig 11) Baudrillard argues that these symbols and signs simply simulate reality which leads to a state where our individual experience is a simulation of reality, rather than reality itself.

Fig 11: Car advertisement for Lexus.

In Baudrillard's opinion, our society has outgrown the production of traditional goods and services with the production of signs. These signs have no connection to our reality but rather refer to other signs. The car advertisement showcases two good looking, successful individuals next to the Lexus, indicating that sexy wealthy people own this car and if you believe you belong to that social group of people, then you need to but this car. Baudrillard called this a hyperreal state, which is the breakdown between reality and the portrayal of reality.[13]

With Baudrillard's theory in mind, I can state that a miniature model is a depiction of reality. It's a simulacrum, a representation of a real building. When a model maker creates a model, be that a miniature building created for a fantasy medieval setting. (See Fig 12 & 13). The purpose isn't to replicate a real building perfectly, but rather to create a representation of a building that captures certain aesthetic features for the camera.

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[13] Baudrillard, Jean, and Mark Poster. *Selected Writings.* Stanford, Calif., Stanford University Press, 2001, P. 167.

Fig 12: Medieval Buildings by Neil from Real Terrain hobbies.

Fig 13: Greifenstein Castle by Frank Wetekam.

For example, a miniature model of a building doesn't capture every single detail of a building, especially when it's being used in film. It doesn't use the same materials in the fabrication process. The model is scaled down and the interior will be completely bare, with no furniture or interior details. This can vary, depending on the film and shot needed, but a basic rule is if the camera can't see it then it doesn't need to be made. So, in this sense, model making of miniature buildings involves both simulacra, the model itself as a representation of a real building, and simulation as the process of creating and filming the model to depict reality.[14]

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[14] Sexton, Timothy. "Simulacra and Simulation Study Guide: Analysis". *GradeSaver,* 3 November 2023. https://www.gradesaver.com/simulacra-and-simulation/study-guide/analysis

Chapter 2: The Architecture.

Neo-Medieval Architecture

In this chapter I examine the history of Neo-medieval architecture, its use in movies and connection to nostalgia and workmanship before finishing the chapter by exploring the stages of using miniature models as a practical effect in film.

European medieval architecture such as castles from the Middle Ages were constructed in three different styles depending on their purpose or use such as a stronghold against invaders. The earliest fortification style used by the Normans was Pre-Romanesque (Motte-and-Bailey) which had a walled courtyard surrounded by a ditch for defence. The second style was Romanesque (Norman Castles) which were stone keeps with towering walls and turrets. This style of fortification was the start of castles as we know them today. And lastly, was the Gothic castle that were built to withstand sieges. These castles were built with defensive features such as moats, drawbridges, and machicolations.[15]

Gothic architecture is a style that emerged in the late medieval period and evolved over time from the 12th to the 16th century in Europe. These types of buildings were characterised by their rib vaults, flying buttress, stained glass windows, pointed arches and ornate decorations.[16] An example that still exist today is the Burgos Cathedral in Spain that began its constructed in 1221. (Fig 14) The rib vaults and flying buttress acted as both a solution and an aesthetic choice as these supports allowed for a taller construction while also preserving as much natural light as possible.

Neo-medieval takes inspiration from the Gothic Revival movement which is a design style that mimics the aesthetic elements of medieval European architecture. These buildings, however, were constructed in a later period of history, most often in the 18th and mid-19th centuries and were more so inspired by medieval art and culture

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[15] Gleimius, Jeanne. Medieval Castles Design & Architecture. August 14, 2023. https://www.revisitinghistory.com/medieval/castles-design-and-architecture/
[16] Stewart, Jessica. Richman, Kelly. What We Can Learn from the Exquisite History and Ornate Aesthetic of Gothic Architecture. My modern met. February 11, 2022. https://mymodernmet.com/gothic-architecture-characteristics/

rather than an accurate recreation.[17] The Sacred Heart Church in Kőszeg, Hungary constructed between 1892 and 1894 is a great example of this made evident by the similarities in Gothic architecture. (Fig 15) Two very prominent architects that played a significant role in promoting this design style were Augustus Pugin[18] and George Gilbert Scott.[19]

Fig 14: Burgos Cathedral, Burgos, Spain

[17] Haj Ali, Jana. Gothic Revival: From Medieval Inspiration to Victorian Grandeur. Rethinking the future. Accessed December 18, 2023. https://www.re-thinkingthefuture.com/architectural-styles/a10171-gothic-revival-from-medieval-inspiration-to-victorian-grandeur/
[18] Jr Curtis, William. Augustus Pugin (1812-1852) The architectural review. 24 April 2022. https://www.architectural-review.com/essays/reputations/augustus-pugin-1812-1852
[19] Gilbert Scott, Robert. Sir George Gilbert Scott. Gilbert Scott. 2018. https://gilbertscott.org/sir-george-gilbert-scott/

Fig 15: Sacred Heart Church, Kőszeg, Hungary.

Neo-medieval architecture gained popularity during the 19th century with the rise of the romantic movement.[20] The romantic movement was an intellectual and artistic development from Europe that emphasized individualism, the emotional, nature, and the past, often choosing the medieval design over classical.[21] Architects took inspiration from European medieval architecture to create buildings that featured elements of Neo-medieval. This design style was often used in many public buildings such as cathedrals around this period.

Neo-medieval architecture is recognised by its interpretation of buildings from the Middle Ages, with more of an emphasis surrounding the decorative elements rather than an exact recreation from the past. This inspired recreation design style may lack historical accuracy in term of construction techniques and structural authenticity but are without a doubt a lasting influence on the architectural landscape found in many cities and towns today.

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[20] Von Toll, Gritta. "From Neo-Gothic to Knightly Romanticism: Medieval Revival in the 19th Century." Barnebys.com, 15 Feb. 2024, www.barnebys.com/blog/from-neo-gothic-to-knightly-romanticism-medieval-revival-in-the-19th-century.
[21] Seiferle, Rebecca. Romanticism. The art story. 25 Sep 2017. https://www.theartstory.org/movement/romanticism/

Neo-medieval architecture in fantasy movies

Neo-medieval architecture is a common design choice in fantasy movies as the medieval period is often associated with a sense of timelessness and mystery and possibly conveys a world of simpler times which is reflected in the designs of the buildings at that time. Neo-medieval architecture aids in creating a setting that feels both ancient and enduring, which is well-suited to the otherworldly nature that many fantasy movies portray.

J.R.R. Tolkien and his work can also be credited for shaping the fantasy world as we know it as his work continues to influence other writers to this day. His work established many of the tropes associated with the fantasy genre including its connection to the medieval time period.[22]

The design elements of medieval architecture, such as castles, cathedrals, and stone fortifications, are visually striking structures that demand your attention. They often feature intricate details, grand scale, and a sense of grandeur that can enhance the visual appeal and awe of a fantasy world.[23] These architectural structures often include hidden passages, grand turrets, and towering spires, which can contribute to a sense of magic and wonder as seen in Hogwarts castle from the Harry Potter movies. (Fig 16)

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[22] Medieval Fantasy: A Success and an Impasse. The Artifice. Aug 28, 2018. https://the-artifice.com/medieval-fantasy/
[23] Nair, Mythili. The Use of Fantasy Architecture in Movies and TV Shows. Re-thingthefuture. April 2013. https://www.re-thinkingthefuture.com/fun-architecture/a4609-the-use-of-fantasy-architecture-in-movies-and-tv-shows/

Fig 16: Photo by Eamonn McCormack for WireImage.

Hogwarts Castle, as portrayed in the Harry Potter movies, is a perfect example of Neo-gothic architecture. While the world setting in the Harry Potter series is set in a present yet magical environment, the castle's design on the other hand draws heavily from medieval architecture.

Hogwarts castle acts as an example that reflects Marks J.P Wolf's principles of invention, completeness, and consistency.[24] To explain briefly, invention refers to the differences or changes from our world to the secondary world. This can include changes to history, biology, physics, language and so on. Or in the case of the Harry Potter movies that shares a lot in relation to our world, but with the addition of magic and mythical creatures. Completeness refers to how much of the world is revealed, providing enough detail to make the world feel believable and lived in, but a more complete a world is the harder it is to keep consistent and therefore requires more invention. Consistency is all about maintaining coherence in the secondary world. The more inventions and changes the secondary world contains increases the difficulty of keeping it all consistent.

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[24] Lore Master. "Invention, Completeness and Consistency in Worldbuilding." LoreMaster.io, 8 July 2022, www.loremaster.io/invention-completeness-and-consistency-in-worldbuilding.

The portrayal of Hogwarts Castle throughout the film series is consistent, with the castle's iconic towers, moving staircase and grand halls remaining relatively the same across the movies. This is crucial to maintain the viewers connection to the world, providing a sense of familiarity throughout the movies.

However, trying to achieve completeness in relation to every aspect of Hogwarts Castle as described by J.K. Rowling's book would not only be challenging for filmmakers but also unnecessary. To include all the intricate details of the castle, every hidden passage and room that was mentioned in the book but not featured in the movie would increase the production time and budget but have little to no effect on the narrative or the enchanting essence of Hogwarts overall. This incompleteness is a necessary element when trying to translate a rich literary world into a visual medium.

Hogwarts Castle as portrayed in the movie represents Wolf's principles by demonstrating consistency in maintaining the Neo-gothic architecture style of the castle throughout the movies while also facing limitations in completeness due to the constraints of filmmaking.

Medieval castles and fortresses are symbols of authority and power, which can be important in many fantasy narratives. They can serve as the stronghold for a wizard, king, tyrants, or other important characters, reinforcing the social and political dynamics of a fictional world. For example, in the fantasy/adventure movie *Inkheart*, the primary antagonist resides inside an abandoned castle overlooking a small Italian village. (Fig 17)

Fig 17. Capricorn's castle model from Inkheart 2009.

Capricorn's castle features a design that is reminiscent of medieval fortresses. Its towering stone walls, impenetrable gate, and imposing turrets reflect the typical architecture of castles from the Middle Ages. The Neo-medieval design of this building enhances the sense of a bygone era, creating a visually captivating structure.

Many classic fantasy themed movies, particularly those belonging to the sub-genre of sword and sorcery, have relied on the medieval setting for their stories. The Dark Ages is a term used to describe western Europe during the Middle Ages. This time period is characterised by its economic, intellectual, and cultural decline. The term "The Dark Ages" alludes to dark magic, curses, and death along with the Christian church influencing fears of demonic possession, evil spirits and plagues sent to punish all sinners gives writers a good base line to work from.[25] There's also a certain amount of romanticism linked to the Middle Ages, the concept of chivalry, fighting in epic battles with only a sword and shield and going on long adventure to complete a quest. These were real elements of living in a medieval world and provide a suitable backdrop for writers of the fantasy genre.

Neo-medieval architecture plays a crucial role in transporting viewers into the world of fantasy and is fundamental to creating the immersive settings and atmospheres that make these films so fascinating. It serves to enhance the sense of escapism and

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[25] Medieval Fantasy: A Success and an Impasse. The Artifice. Aug 28, 2018. https://the-artifice.com/medieval-fantasy/

wonder in the genre, allowing viewers to experience the appeal of a former era that is infused with magic and mystery.

Nostalgia in Neo-Medieval Architecture.

Svetlana Boym describes restorative nostalgia as a type of nostalgia that seeks to rebuild or restore the past. It can often include an idealized and simplified view of history and culture. Restorative nostalgia is a mean to recapture a sense of home and belonging by resurrecting elements from our past. This type of nostalgia is often embedded in a desire to return to a time that was believed to be more secure and authentic.[26]

Boym mentions that restorative nostalgia can be a powerful yet problematic force. It can be used for political purposes to promote a specific perspective of the past, overlooking its difficulties which can lead to marginalization, exclusion, and the suppression of alternative narratives.[27] An example of this happened in 2016 by former US President Donald Trump and use of his campaign slogan "Make America Great Again" during his presidential campaign. The slogan evoked a sense of nostalgia in the people of the time when America was more prosperous and powerful.[28]

Restorative nostalgia can also be deeply personal individuals who reminisce about a time when they felt a strong sense of identity and comfort. This longing may be a source of comfort but can hinder an individual's personal growth and acceptance of change.

Neo-medieval architecture can be associated with restorative nostalgia. When applied in a restorative method, it seeks to recreate and idealize the past. Buildings that are designed in this style may aim to encapsulate a romanticized vision of the medieval period with a focus on the positive aspect of that era. The desire to

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[26] Boym, Svetlana. The Future of Nostalgia. New York, Basic Books, 2001. Pg. 53.
[27] Ibid. Pg. 54.
[28] Subramaniam, Aditi. What Psychology Tells Us About the Nostalgia Paradox. Psychology today. May 29, 2021. https://www.psychologytoday.com/au/blog/parenting-neuroscience-perspective/202105/what-psychology-tells-us-about-the-nostalgia-paradox

construct castles, cathedrals, restaurants, or entertainment venues inspired by the medieval era is indicative of restorative nostalgia, as it seeks to recapture the aesthetics and feel of a bygone age without the hardship and troubles of that time. A real-life example is the Bunratty Castle Banquets in Clare[29] and in film, movies such as *A Knight's Tale*. In this manner, Neo-medieval architecture can be used as a tool to express and fulfil the desires of restorative nostalgia through the revival and preservation of these buildings around the world.

Boym describes reflective nostalgia as a type of nostalgia that is more about individual and cultural memory. It doesn't aim to recreate or restore the past, but rather use one's memories as a starting point of self-exploration and understanding. This type of nostalgia recognises both the negative and positive aspects of one's past. It doesn't idealize or simplify the past, but rather accepts the complexities of personal and cultural memories.[30]

Reflective nostalgia encourages people to reflect on how their past experiences have shaped their lives. It's a method of integrating the past into the present to understand how it characterizes an individual's identity and values. Boym highlights that reflective nostalgia may be a healthier approach to dealing with the past by acknowledging the impossibility of returning to the past, and instead focusing on the emotional and aesthetic aspects of memory. It mourns the past, but also imagines the future.[31] As opposed to restorative nostalgia, reflective nostalgia is not linked to attempts to recreate or return to the past but rather learn from it.

When viewing Neo-medieval architecture through the lens of reflective nostalgia can appear as a means of self-exploration and identity development. It grants individuals the ability to contemplate on how architectural designs have influenced their personal and cultural identities. This self-awareness and introspective approach is a key element to reflective nostalgia.

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[29] "Medieval Banquet | Bunratty Castle and Folk Park." Bunratty Castle & Folk Park, www.bunrattycastle.ie/medieval-banquet.
[30] Boym, Svetlana. The Future of Nostalgia. New York, Basic Books, 2001. Pg. 61
[31] Ibid, Pg. 66.

Fig 18: Cathedral of the immaculate conception in Russia

Fig 19/20: Westminster Abbey and the Milan Cathedral

Reflective nostalgia highlights that by learning from the past, we can use that information and use it to adapt to the present and future. When approaching Neo-medieval architecture with this mindset, it can be an environment where societies learn from the historical narratives of their surrounding architecture. From these lessons, they can adapt to present day challenges and changes while at the same time appreciate the historical aesthetic and values, they represent. An example of reflective nostalgia is the Cathedral of the Immaculate Conception of the Holy Virgin Mary (Fig 18). This cathedral is one of the largest Catholic churches in Russia and was built in 1911. It was designed by Foma Bogdanovich Dvorzhetsky, who was inspired by Westminster Abbey built in the 13th century (Fig 19) and the Milan Cathedral which was built in 1386. (Fig 20) The cathedral represents a historical and cultural connection to the Polish Catholics in Russia who were suppressed and

marginalized by the soviet regime during that time. The cathedral is a reminder and symbol of resilience and faith that continues to inspire Catholics in Russia today.[32]

Workmanship and Medieval Architecture.

The work of David Pye, particularly his distinction between the workmanship of risk and the workmanship of certainty,[33] can be applied to the construction of medieval architecture, but more so with the construction of cathedrals as they were considered a visual representation of God's kingdom. Craftsmen during the medieval era were faced with various challenges and uncertainties as the work being produced was done by hand. Making a mistake could have resulted in starting from scratch which was not only a waste of material but also time.

Pye's concept of the workmanship of risk aligns with many aspects of the construction of medieval architecture. The craftsmen involved would face a degree of risk that is unavoidable when working by hand, especially when creating intricate and highly detailed elements of the building. Using simple hand tools along with years of experience they would carve ornate decoration and sculpt delicate stonework's for the exterior of a cathedral. A breath-taking example of the level of skilled required to do this type of work can be seen in one of the entrances of the Notre Dame Cathedral. (Fig 21)

[32] Yegorov, Oleg. From persecution to peaceful coexistence. Russia Beyond. Dec 22, 2017. https://www.rbth.com/lifestyle/327123-russian-catholics-in-orthodox-moscow
[33] David Pye. The Nature and Art of Workmanship. London, Herbert Press, 1995, p. 20

Fig 21: Notre Dame Cathedral - Paris, France.

The workmanship of certainty also plays a role in the construction of medieval architecture, especially when it comes to larger scale projects like cathedrals. Standardized practices and building techniques to ensure structural integrity such as the use of flying buttresses which required a high degree of precision and certainty in their execution.

The workmanship of risk and certainty needed to create a medieval building such as a cathedral shows an intricate balance between calculated risk, artist expression, and technical skill. The medieval craftsmen have exhibited this through their work that still stands today. Their contribution to the enduring legacy of awe-inspiring architectural masterpieces are some of the world's most unique and memorable buildings.

Using Miniature models as a practical effect for a movie.

Using miniature models as a practical effect for a movie requires a combination of careful planning, cinematic techniques, and skilful craftsmanship. This process involves the creation of scaled down architecture model to be seamlessly integrated

into a live action scene either as a backdrop, city landscape or point of interest or direction depending on the narrative.

Having a clear understanding of the scene's requirements is crucial to the rest of the process. Directors will work closely with the production designers, art directors and visual effects team to fully grasp the vision for the model in the scene. They will decide on the scale, the level of details required, and aesthetics of the model or models being shot.

Miniature buildings are built to a scaled-down size of a life-sized building. The scale can vary depending on the requirement needed for the scene. The most common scale used for movies is 1:24 scale but many miniature sets exceed this scale and are referred to as bigatures.[34] The chosen scale is an important detail to ensure that the model will seamlessly fit within the scene while maintaining visual accuracy and realism.

The construction of miniature buildings includes a variety of materials to achieve a realistic finish to a model, such as Foamex, balsa wood, styrene, blue foam and so on. The model maker must pay close attention to the details when replicating the architectural elements, wall textures, weathering, and painting of their full-sized counter parts.[35]

When using a miniature building in a scene that will include actors, directors will often use forced perspective to create the illusion of depth. By positioning the miniature buildings at a specific distance from the camera and actors, they can manipulate the perception of scale, making the models appear larger than they are for the shot. See Fig 22 as an example with a miniature car.

[34] Ramsden, Steve. How to film Miniatures | Top 10 filmmaking tips. Steve Ramsden. Apr 16, 2022, https://youtu.be/HdqyfEXcw4A?si=Eqn6cklU7O9YHFRO
[35] Masters of cinema. Practical Effects Series: How to Film Miniatures. January 13, 2019, https://mastersofcinemablog.blogspot.com/2019/01/practical-effects-series-shooting.html

Fig 22: An example of forced perspective.

A Cinematographer uses a specific camera technique to enhance the illusion by manipulating the depth of field to keep both the miniature buildings and live-action elements in focus. Smooth camera movements and composition are used to maintain the visual integrity of the scene along with proper lighting to ensure that all elements blend seamlessly together. The most important element when filming miniatures is to ensure everything is the same scale.[36]

Before filming, a director will carefully choreograph the interaction between the actors and the miniature buildings. This might involve actors walking pass a building in the background or interacting with the building in some way. For example, shooting an actor hanging from a skyscraper with a miniature city in the background. Fig 23. In addition to filming it live using forced perspective, a director may decide to film the actor and miniature separately using a green screen and then later merging the two shots together in the editing process.

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[36] CME senior seminar 2018. The Basics of Shooting Miniatures. March 1, 2016.
https://cma4962.wordpress.com/2016/03/01/the-basics-of-shooting-miniatures/

Fig 23: Photos by Michael McAlister from the production set of the movie "The Hudsucker Proxy" 1994.

To further clean up and enhance the integration of the miniature building within the scene, the visual effect team can be used to remove any wires or support structures that were needed to make the shot possible but would otherwise break the immersion if left in the final production. They will also fix any imperfection that are visible and blend the practical and digital elements if a greenscreen was used.

For the final editing process of the production, directors will ensure that every scene is perfect with the transitions between live action and miniature appearing seamless. To guarantee that the miniatures appearance fits with the film's aesthetic, some post processing work will be performed to correct the colour and light of the entire scene. When successfully executed, this practical effect can transport the viewers into a fantastical or realistic world that not only enhances the storytelling aspect but also the visual experience.

The use of miniature buildings as a practical effect requires a professional level of skill in craftsmanship and attention to detail. It requires the coordination of many departments within the film industry to create the illusion of a full-scale

environment within the world of the film. The model making process involves a level of workmanship of risk as the finished model's quality is not predetermined and relies on the craftmanship, judgment and care of the model maker. The details are particularly important as the model needs to look realistic, blown up to the size of a cinema screen. Each model that is hand crafted is unique and reflects the skill and style of crafting of the maker.

In chapter 3, I show an example of a 3D printed castle (Fig 33) and the same concept can be applied here. A model maker could 3D print all the architectural models for a practical effect. They could even print many copies of the same building and just arrange the models at different angles for the shot, to appear different. This however would come with the loss of variety, value and the unique qualities that are bedded in models that are handcrafted. In a world that continues to rely on the use of technologies for almost everything, it's easy to assume that a sense of nostalgia would arise among model makers for a time when everything was handmade for films.

Chapter 3: The Digital.

SFX & VFX

Special effects and visual effects are often mistaken to be the same type of effect by the general public and media. Historically this was accurate in the pre-digital days, as the film crew created effects with various cameras using optical tricks, miniatures, practical techniques, and shooting on location. There was no clear difference between special and visual effects.

Things are a lot different with the movies being produced today and the terms special effects and visual effects are used to describe two very distinct and different crafts. Special effects involve real-life effects such as an explosion or a building on fire that is captured by a camera on set or location (see Fig. 24). Visual effects on 9the other hand is the practice of digital manipulation and enhancement of a piece of footage using software such as Adobe After Effects, which could also be an explosion that is added by the VFX team during postproduction (see Fig. 25).[37]

Fig 24: The Dark Knight (2008) - Hospital Explosion

[37] Dinur, Eran. *The Filmmaker's Guide to Visual Effects: The Art and Techniques of VFX for Directors, Producers, Editors, and Cinematographers*. New York, Routledge, Taylor & Francis Group, 2017, p. 7.
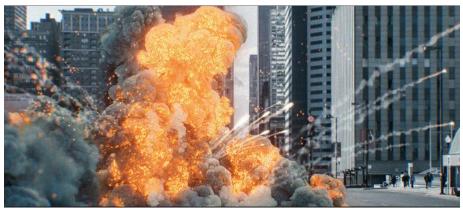
Fig 25: Explosion in a city created using After effects.

The skillset needed for each craft couldn't be more far apart. For a practical explosion, a secure location and a pyrotechnician is required, who are specialized professionals responsible for the handling, securing, and activation of various types and sizes of explosive devices (see Fig 24). To create a digital equivalent of an explosion a VFX artist is equipped with a different set of skills and tools. The knowledge and operation of various 3D software's, UV meshes, lighting, colour, and the ability to visualise the end result before completion. (see Fig 25)

The choice to use either one or a combination of both, boils down to what the director is trying to capture for the look and feel of the movie.

Computer-generated imagery or CGI falls into the category of VFX but has a more specific definition. CGI or more commonly referred to as just CG is the distinction between VFX elements that are created artificially using software vs real-world elements that were captured using a camera and green screen. For example, a medieval castle that was digitally created by a VFX artist and rendered using software and then composited into a scene would be referred to as a CG element. (See Fig 26 & 27)[38]
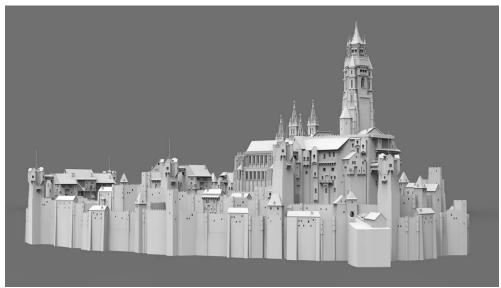
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[38] Ibid. Pg 8-10.

Fig 26: 3d render of Ophelia Castle by Hamza Butt for the 2018 movie *Ophelia*.

Fig 27: Ophelia Castle composed into the scene.

On the other hand, if the medieval castle was a miniature building that was shot in front of a green screen and later edited into the scene, it would be considered a visual effect rather than CGI. Many shots involving VFX don't use CG and instead are achieved by manipulating the footage by combining it with other footage or using a still image as a background, such as a mountain landscape or endless junkyard as seen in the 2017 movie "Blade Runner 2049" (see Fig 28 & 29)

Fig 28: Actor standing in front of a green screen.   Fig 29: Edited shot to depict an endless junkyard.

To achieve a believable visual effect, you can't just rely on high resolution and a perfect integration of an animation into your scene. There's more to it than just that. Many people are quick to blame the VFX team when they see poor use of CGI in movies but in reality, it is the director's responsibility to make the decision to use CGI or not[39]. The use of CGI can be seen as an indispensable tool for some directors. The possibility of making any idea into a visual reality without the physical restraints sounds limitless and it is to a point.

When CGI is done realistically with respect to physics and light, it can be the highlight of any movie and a powerful tool to ensure that the audience stays immersed within the story of the movie. However, when a director chooses to over or misuse the capabilities of CGI, the movie suffers for it. Especially in this day and age as the general public have become so familiar with the use of CGI. If the effect isn't flawless, it sticks out as an irritating excess.

Eran Dinur who is a visual effects supervisor and author of *The Filmmaker's Guide to Visual Effects* describes a situation where he worked with a director who wanted every shot to have a dramatic sky in the background. Dinur struggled to explain to the director that having a dramatic sky that didn't correspond with the lighting of the original footage wouldn't improve the movie, but later argued that by adding the sky in the background would cause all the other VFX shots to stand out. Dinur states that "Visual effects are like magic tricks; the magic only happens when the trick isn't seen." Dinur further states that it is the responsibility of the visual effects

[39] Metz, Nina. Don't blame VFX artist. The guam daily post. Jul 25, 2022. https://www.postguam.com/entertainment/lifestyle/dont-blame-vfx-artists-for-bad-cgi-blame-terrible-work-conditions/article_4e409d82-0a8a-11ed-95e3-037c7249da9a.html

team to make the perfect magic trick, as is the director's responsibility not to overuse this magic.[40]

3d Printing for Movies

3D printing is a manufacturing process that produces three-dimensional objects by layering material in small amounts over and over again to form a physical object of a digital design. The most common types of materials used for this process are plastic (PLA) and UV resin. Each material requires a different type of 3D printer in order to utilize it. A filament printer works from the base up, melting the PLA through a nozzle into the given design (see Fig 30). A resin printer also starts from the base but works upside down. Curing each thin layer to the build plate with UV light (see Fig 31).
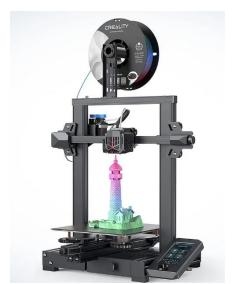

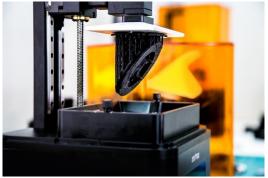Fig 30: Photo of a filament 3D printer.

Fig 31: Photo of a resin 3D printer.

3D printing is often referred to as additive manufacturing due to how it produces physical objects layer by layer.[41] The process of creating something with a 3D printer begins with the digital design. A digital sculptor can use a variety of software to

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[40] Dinur, Eran. The Filmmaker's Guide to Visual Effects: The Art and Techniques of VFX for Directors, Producers, Editors, and Cinematographers. New York, Routledge, Taylor & Francis Group, 2017. Pg 14.
[41] Lipson, Hod and Kurman, Melba. Fabricated: *The New World of 3D Printing*. Indianapolis, Indiana, John Wiley & Sons, 2013.Pg 15.

create their design such as Blender, 3D Max, Z-brush, and so on. 3D scanning is also an option if an individual needs to 3D print an object that already has a physical form and doesn't want the hassle of trying to recreate the object perfectly in a digital space. The 3D scanner uses lasers, cameras, and other sensors to form a detailed 3D image of the object.[42] This process isn't as clean as creating a digital design from scratch and therefore will need to be repaired and adjusted using one of the software's mentioned above before it can be sent to the 3D printer. In a sense a 3D print can be seen as a third order of simulacra as the printer doesn't reproduce the original object, but rather creates a new reality that may appear more real than the original, depending on the object. This is more so the case if the 3D print is a representation of something that had no original or no longer has one.

Model makers who work in the film industry often use 3D printing for rapid prototyping or replicating multiple copies of the same object as a backup or specifically for a destructive purpose.

The use of 3D printing in movies isn't something a viewer can spot while watching a film. Just like a visual effect, if it stands out then it doesn't work. This is mainly to do with the expertise of the model makers who can make props look realistic regardless of what it's made of. For example, artist Melissa Ng spent 500 hours designing and 3D printing the outer frame for a fantasy themed Armor. Once sanded (to remove layer lines) and glued together, the plastic can be primed, painted, and weathered to look like an authentic piece of armour that was made from steel. Fig 32

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[42] Artist 3D. How Does a 3D Scanner Work? May 16, 2023. https://artist-3d.com/how-does-a-3d-scanner-work/

Fig 32: 3D printed fantasy Armour by Melissa Ng.

3D printing for movies isn't just limited to the fabrication of different types of fantasy armour. The possibilities are near endless and only limited by the skills of the 3D sculptor. The process of using a 3D printer to completely produce an architectural model may not be common practise among model makers yet but it is entirely possible. In Fig 33 is an example of the Trideo's 3D printer that has a one-meter squared build area and is more than capable of producing a highly detail architectural model that could be used for film.
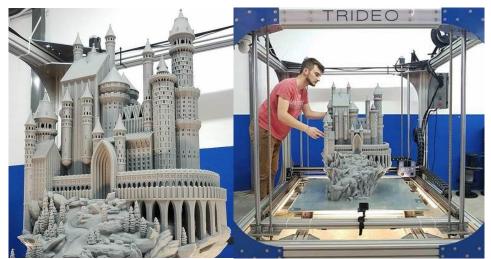

Fig 33: Trideo's 3D printer showcasing a printed castle.

Another example can be seen in Fig 34, a 3D print of the Notre Dame Cathedral and in Fig 35, Hogwarts castle and surrounding landscape completely 3D printed. With the level of detail captured in these models and the ever-growing availability of 3D printers, the use of 3d printed miniature models for film makes for an affordable choice when compared to the physical labour and material cost of making it by hand.

Fig 34: 3D print of Notre Dame Cathedral by Mini world 3D.

Fig 35: 3D print of Hogwarts Castle by Joshua Neil Arthur.

Workmanship and VFX

The work of a VFX artist is similar to the work of other film crew members such as model makers, set designers, costume designers, make up, lighting and camera operators. The VFX artist needs to implicate all of these factors but in a digital space. In the first chapter, I spoke about workmanship in relation to model making and I intend to do the same here to show that the practice of workmanship doesn't just apply to physical creations, but also the digital.

Workmanship refers to the level of skill in which a product is produced, or a job is completed.[43] In relation to a VFX artist, this can be the creation of a medieval castle as seen above in Fig 26, or even the creation of a creature for a horror movie such as the alien from the 2011 movie *The Thing*. The workmanship lies within the quality of the visual effect created for the film. This involves aspects such as how realistic the effect is, does it blend seamlessly with the live action footage and how creative their design was.

A VFX artist with good workmanship skills would be well equipped to create a high-quality visual effect that is not only visually convincing, but also aids in enhancing the storytelling aspect of the project that they're working on. When it comes to using tools to create or complete a job, you can imagine a particular software as a workshop where all your tools are in one place. (Fig 36)
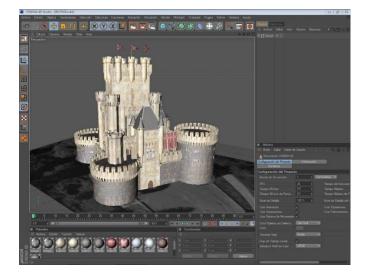

Fig 36: Butron Castle created in Cinema 4D studio.

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[43] Pye, David. *The Nature and Art of Workmanship*. London, Herbert Press, New York, 1995. Pg.20

An experienced VFX artist would need to be skilled in using various tools within the software to achieve a certain task or visual effect and also have a clear understanding of colour, light, shadows, and team work to bring a director's vision into reality. Richard Sennett states in his book that "the carpenter, the lab technician and conductor are all craftspeople because they are dedicated to good work for its own sake."[44] This certainly applies to the field of visual effects and is a key element for any VFX artist's success and career.

Simulacra & Simulation

In the first chapter, I made a connection between Jean Baudrillard's philosophical treatise on simulacra & simulation to miniature model making, but Baudrillard's theory can be further explored and examined through the use of CGI in movies. Baudrillard's treatise examines the relationship between reality, symbols, and society. Baudrillard claims that our society has replaced reality and meaning with signs and symbols and that the human experience is merely a simulation of reality.[45]

When we consider the use of CGI in movies, we can see a connection with Baudrillard's work. CGI in short is the creation of hyper-realistic digital representations of objects, environments, creatures, and characters. Therefore, CGI blurs the line between what is real and what is simulated. For example, in a CGI-animated movie such as *Spider-Man: Into the Spider-Verse*, the characters, environments (see Fig 37) and story are all simulations of real-world counterparts. The CGI mimics the behaviour and physics of our world but isn't real, it's a form of simulacra. It can be considered a form of third order simulacra as it is a stylized version, different from its real-world counterpart but still accepted by the audience as real within the context of the movie.

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[44] Sennett, Richard. *The Craftsman*. Penguin UK, 5 Feb. 2009. Pg. 20.
[45] Baudrillard, Jean, and Mark Poster. Jean Baudrillard Selected Writings: Second Edition, Revised and Expanded. Cambridge Polity, 2001. Pg 171-172.

Fig 37: Brooklyn bridge to New York by Nick Hiatt for *Spider-Man: Into the Spider-Verse*.2018.

A famous example of Simulacra & Simulation in a movie is *The Matrix*, written and directed by Lana and Lilly Wachowski in 1999. The movie was heavily inspired by Baudrillard's philosophical treatise and even featured a book titled *Simulacra & Simulation* at the beginning of the movie that Neo hollowed out and used as a secret safe. (see Fig 38)

Fig 38: Simulacra & Stimulation book safe from the Matrix.

In the movie, the matrix itself is a simulated reality of our world which is a perfect example of simulacra and simulation. It appears to be the real world to the billions

that inhabit it but in reality, it's just a computer-generated construct. The real world no longer exists, making this a fourth order of simulacra, pure simulation. The concept of *The Matrix* movie can be seen as a criticism of the consumer culture that we live in, a culture that is designed to distract us from the reality of being exploited by someone or something, just as the machines from *The Matrix* movie exploit the oblivious humans for bioelectricity.

Conclusion.

The practice of good workmanship within the film industry has several important implications. The quality of a film can be directly affected by the level of workmanship performed by the film production team involved. Attention to detail, combined with the dedication to do a good job for the sake of doing so can greatly enhance the storytelling aspect of a film. The time and resources required to complete a film can also be reduced by good workmanship through a more efficient production process. The more experience and skilled the production team is, the less likelihood of mistakes leading to a loss of time and money.

Working in the film industry as a model maker, VFX artist or any other role will result in gaining valuable experience and learning knew techniques that will increase their skill level and advance their careers. Practicing good workmanship within the film industry will aid in building trust and establish a positive reputation leading to more opportunities in the future. Ultimately, good workmanship in the film industry results in a well-crafted film that captivates the audience and creates a memorable experience. Good workmanship showcases the care and effort invested in producing a high-quality product, but it must be considered for every stage of production and not just the end result.

Looking into the past we can see clear evidence of workmanship in Neo-medieval architecture which is made evident by the stonework on the exterior of a cathedrals around Europe. Due to the lack of machinery and technology at that time means that this was a form of workmanship of risk which required years of experience and skill. The workmanship of certainty was integral to the construction of Neo-medieval architecture to ensure structural integrity where a high degree of precision and certainty were needed.

Workmanship is absolutely essential in the creation of Neo-medieval inspired fantasy buildings for film in both the physical and digital form. The creation of physical models requires meticulous craftmanship due to the small intricate details displayed on a model of that scale. This is especially important when trying to provide a sense of realism on a cinema screen. The level of artistry, dedication and attention to detail to achieve a believable practical effect using a physical model is nothing sort of good workmanship. On the other hand, the level of detail put into a digital rendition of a model requires just as much work but a different set of skills. A VFX artist takes on many roles, creating the models and controlling the lighting, colour and camera position at their fingertip, utilizing the digital tools available in the software of their choice. The skill and expertise needed to create a realistic effect and have it blend seamlessly into a scene is the result of good workmanship.

Regardless of the physical or digital creation of neo-medieval fantasy themed buildings. Both processes require an understanding of historical architecture, design principles, a keen eye for detail and an overall dedication to creating a realistic model for film. Whether the models are digitally rendered or physically created, the principles of good workmanship apply to both areas. In conclusion, neither method of creation is universally better nor more effective than the other. The best choice depends on the specific requirements of the film, the resources available, and the intended use of the model. It's also worth mentioning that these two methods of creation can also complement each other. For example, a physical model maker could utilise a 3D printer for the small and time-consuming details of a project such as the doors and windows of a building which would save on time and cost.

After conducting my research for this thesis, I concluded that the principles of workmanship when applied to any job can result in the best overall outcome. With a driven motivation to do a good job for the sake of doing it

along with a sense of pride in its completion is a recipe for excellence. The idea that workmanship and craftmanship only apply to those who create tangible objects is far from the actual truth. When workmanship is applied to the occupations within the film industry, both physical and digital work, the end result of a great movie speak for itself and reflects the dedication, commitment, and skill of all those involved.

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