Immersive Media in Selected Works of Science Fiction

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ABSTRAKT

Tato bakalářská práce se zaměřuje na reprezentaci imerzivních médií ve dvou dílech science fiction: *Neuromancer* (1984) od Williama Gibsona a *Ready Player One* (2011) od Ernesta Clinea. Imerzivní media zahrnují fenomén rozšířené reality (extended reality, XR) ve smyslu virtuální, augmentované a mixované reality. I přes komplexnost jak rozšířené reality, tak science fiction, si tato práce dává za cíl vytyčit a propojit alespoň některé klíčové rysy těchto dvou koncepcí, a následně je aplikovat na analyzovaná díla. Poslední kapitola teoretické části se potýká s filozofickou otázkou reality ve spojení s technologií rozšířené reality. Bakalářská práce potom následuje současný technologický vývoj v rámci imerzivních médií a také vliv této technologie a to, jak v rámci obou děl mohou utvářet a utváří společnost. Cílem anylýzy je porovnat a srovnat tato dvě díla z pohledu imerzivních médií a vývoje XR.

Klíčová slova: *Neuromancer*, William Gibson, imerzivní média, science fiction, *Ready Player One*, Ernest Cline, cyberpunk

ABSTRACT

This thesis focuses on the representation of immersive media in two science fiction novels: William Gibson's *Neuromancer* (1984) and Ernest Cline's *Ready Player One* (2011). Immersive media encompasses the phenomenon of extended reality (XR) in terms of virtual, augmented, and mixed reality. Although science fiction itself as well as extended reality are rather complex to describe, the thesis aims to identify and link at least some key features of the two concepts that are later applied to the analysed works. The last chapter of the theoretical background section deals with the philosophical question of reality in terms of XR technology. The thesis then traces recent technological developments in immersive media as well as the influence of this technology and how it shapes / may shape society as represented in the two novels. The analytical aim is to compare and contrast the two works in terms of immersive media and the development of XR.

Keywords: *Neuromancer*, William Gibson, immersive media, science fiction, *Ready Player One*, Ernest Cline, cyberpunk

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I hereby declare that the print version of my bachelor's thesis and the electronic version of my thesis deposited in the IS/STAG system are identical.

CONTENTS

INTRODUCTION

Immersive media, especially virtual reality, have been continuously evolving over the last few decades. It is no surprise then that technological development has found its way to literature as well, figuring mainly in the science fiction genre. This bachelor's thesis introduces the various types of immersive media, then traces them in the science fiction (Sci-Fi) genre throughout two novels from different generations.

The first chapter of the theoretical background provides background information on various types of immersive realities, as well as explains their main functions and utilization in the modern world. The second chapter of the thesis provides an overview of science fiction, as well as its sub-genre cyberpunk. This chapter also briefly discusses the main influences on science fiction in the second half of the 20th century in America, including postmodernism. The third chapter turns in the direction of technological phenomena to explore cyberspace, the metaverse and singularity as these ideas contribute to the overall understanding of technological development and possible future development. Last but not least, artificial intelligence is described in the chapter and discussed from various points of view.

In my analytical chapter, the aim is to use the concepts introduced in the background to compare and contrast two significant science fiction novels – William Gibson's *Neuromancer* (1984) and Ernest Cline's *Ready Player One* (2011). The analysis not only covers immersive media as represented in each of these, but also looks into other aspects of the novels such as cyberspace, artificial intelligence and the depth of each work's critique of modern society.

1 IMMERSIVE MEDIA

As stated in the *Cambridge Dictionary*, if something is "immersive" it means that it is "seeming to surround the audience, player, etc. so that they feel completely involved in something."[1] According to Kaplan-Rakowski (2018), immersive media can be understood "as media that stimulate physical senses to the point where we experience psychological immersion, also referred to as telepresence."[2] It can be therefore deduced that *immersive media* is any type of media that makes the user feel as if they were taken out of the real world and put somewhere else.

As immersion is the main goal, it is usually by using the different types of extended reality that it is accomplished. Extended reality (XR) is an umbrella term for virtual, augmented, and mixed reality. All the modes *extend* reality by creating a digital environment or by adding digital objects to the real world. Extended reality is not only a tool for entertainment, although in many cases it might seem like that is its only purpose. By extending the reality and digitally adding some information to the real world (augmented reality), by entering the virtual space (virtual reality), or combining both (mixed reality), the different types of XR can be used in marketing and sales, education, research and development, remote cooperation, and of course, entertainment.[3] As for some possible utilisation of XR, it is estimated that it will completely change the way people live in a few years. The importance of immersion has grown over the last few years as companies have started using various simulators to train their employees under conditions as close to "real" as possible. Flight simulators have been popular for a few years now since it is crucial for all pilots to be ready for everything and anything that could happen in the air. There is therefore undeniable pressure on the system to provide immersion so realistic that it simulates real-life scenarios, as well as the pressure the pilots must go through when flying to train their reactions.[4] Otherwise, the simulation would be found unavailing as the pilots would always know that nothing is real, and they do not have to worry too much about the outcome. The key point is immersion of as many senses as possible – the created environment must provide feedback so realistic human senses are momentarily deceived into

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[1] "Immersive," *Cambridge Dictionary*, accessed January 12, 2022, https://dictionary.cambridge.org/dictionary/english/immersive

[2] Regina Kaplan-Rakowski, and Kay Meseberg, "Immersive Media and Their Future," *Educational Media and Technology Yearbook* 42 (2019): 144.

[3] "What Is Extended Reality? Demystifying XR Tech," XR Today, Accessed January 19, 2022, https://www.xrtoday.com/mixed-reality/what-is-extended-reality/

[4] Marie-Laure Ryan, *Narrative as Virtual Reality* (Baltimore: Johns Hopkins University Press, 2001), 91.

believing that the situation presented is real and the brain and body should react in response to what is being perceived. The body then responds accordingly to the stressful situation by releasing hormones and being on high alert, as it would have been in real settings.

Nowadays, it has been proven useful in medicine, as humans have started using remote surgery machines which can be controlled by people operating in the virtual world and making the surgical machines work in the real world on the patient. That would mean an important breakthrough in the medical field as there could always be a specialist on call in the virtual operation room, saving lives that would have otherwise been lost due to the absence of a proper surgeon.[5] In his Connect 2021 speech, Mark Zuckerberg, the founder of the social media platform Facebook and the CEO of Meta, mentioned some other ways of using XR – holding business meetings in digital environments, gaming, fitness, education, and commerce. The utilisation ranges from having parties in digital space and working remotely from home while still virtually being in the office, to acquiring hands-on experience when studying to become a doctor or an astrophysicist.[6] The possibilities of creating virtual scenarios seem to be unlimited, which is also shown in Ernest Cline's *Ready Player One* (2011), a novel in which the characters enter a virtual world called the OASIS on daily basis to attend school, work, and have fun.

The speed of technological advancement was estimated by Gordon Moore back in 1965. He voiced out a prediction that "every 18 or so months, computer processing speed doubles."[7] Moore predicted that even though the price of computers goes down, the number of transistors grows, as well as the advance of microchips goes up exponentially.[8] Surprisingly, this "law" of his has been correct for the last 50 years.[9] Although the technologies are advancing, XR is still among the more expensive technologies on the market and not affordable for all. Some gadgets required for operating in virtual or augmented reality might be of a higher price, especially if the producer uses rare or higher quality materials. What is going to be important for the future of XR is the comfort and safety of the user. Safety both in the terms of physical safety while using the hardware and

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[5] Ryan, *Narrative as Virtual Reality*, 89.
[6] Meta, "The Metaverse and How We'll Build It Together – Connect 2021," Filmed October 28, 2021, video, https://www.youtube.com/watch?v=Uvufun6xer8&t=1205s&ab_channel=Meta.
[7] Nick Galov, "How Fast Is Technology Growing – Can Moore's Law Explain the Progress Still?" Accessed February 26, 2022, https://hostingtribunal.com/blog/how-fast-is-technology-growing/.
[8] Carla Tardi, "Moore's Law," Accessed February 22, 2022, https://www.investopedia.com/terms/m/mooreslaw.asp.
[9] Jason Dorrier, "Will the End of Moore's Law Halt Computing's Exponential Rise?" Accessed February 26, 2022, https://singularityhub.com/2016/03/08/will-the-end-of-moores-law-halt-computings-exponential-rise/.

software, and safety in the terms of the data shared being safe and protected.[10] Privacy is already becoming an issue when it comes to the Internet, as well as social media. It is therefore expected that the security of virtual spaces as well as cyberspace, which will be discussed below, will become a major issue.

In 2000, Ian D. Pearson tried to predict the next 20 years of technology development according to the contemporary rate of advancement, as well as his own estimations. Although some of his predictions could not be farther from the truth (such as organic pets being outnumbered by electronic pets or customizing children by utilizing the "complete map of the human genome"), he happened to land relatively close with some others. Besides predicting having cars that would be fully automated and the passengers would only "sit back and watch the scenery," he suggested that cyberspace will play a significant role in human lives. He went as far as to say that "75% of the world's population [will be] using the Internet by 2020."[11] And he was not that far from the truth as, according to research, around 60% of the global population was using the Internet by the beginning of 2020.[12] Pearson created a timeline to predict what technological milestones will happen in the years 2025 ("robot population surpasses human in developed countries") and 2030 ("emotion chips used to control criminals"), however, whether these come true will only time show.[13]

1.1 Real and digital

It is crucial to explain how I am using terminology in this thesis, e.g., the difference between what is "real" and "non-digital," and what is "digital," "virtual," and "not real." These terms have been discussed and disputed by various experts in different academic and scientific fields.

Anything titled "real" refers to the physical world – the world surrounding every being. The title "non-digital" assigns the feature of not being created by a computer or not referring to anything related to technologies, computers, software, etc.

On the other hand, "virtual" refers to a virtual environment that is "simulated by a computing device,"[14] therefore anything created by computer software, whether it is a

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[10] XR Today, "What Is Extended Reality? Demystifying XR Tech."
[11] Ian D. Pearson, "The Next 20 Years in Technology: Timeline and Commentary." *The Futurist*, January-February, (2000), 18.
[12] Simon Kemp, "Digital 2020: Global Digital Overview," Accessed March 1, 2022, https://datareportal.com/reports/digital-2020-global-digital-overview
[13] Pearson, "The Next 20 Years in Technology: Timeline and Commentary," 19.
[14] Kim J. L. Nevelsteen, "Virtual World, Defined from a Technological Perspective and Applied to Video Games, Mixed Reality, and the Metaverse," *Computer Animation & Virtual Worlds* 29, no.1 (2017): 4.

hologram, a virtual reality, or a picture. The term "digital" belongs to the same category and depicts anything that was created by software, anything that can be divided into a code of zeroes and ones. And last but not least, "not real" can be titled anything that does not correspond with the typical understanding of the physical world, that is imaginary or is not true.

1.2 Virtual reality

Only 20 years ago most of the general public had never heard of the term *virtual reality*. Virtual reality as advanced technology has been evolving and improving for over 40 years, but its real escalation has only been in recent years. Nowadays, even kids know what *virtual reality* means, or what to imagine when they hear this term.

The term *virtual reality* (VR) usually means "a set of images and sounds, produced by a computer, that seem to represent a place or a situation that a person can take part in."[15] The term *virtual* instantly evokes technologies, computers, and the internet, supporting, therefore, the definition provided by the *Cambridge Dictionary*. The term VR itself was popularised by Jaron Lanier, a computer scientist,[16] who envisioned virtual reality as a meetup place for people, a shared space. As he explained in 2021, he is "still hoping VR might lead to a new level of communication between people."[17] Nowadays, virtual reality might work as a shared space mainly in terms of "cyberspace," a shared space on the internet where people can connect and interact, as introduced by William Gibson in his novel *Neuromancer* (1984), or the "metaverse," a phenomenon that has recently been popularised mainly thanks to Mark Zuckerberg and his company Meta.

Virtual reality simulates a virtual world and makes it seem as if the real world has disappeared and has been replaced by a virtual one. The system allows the user to move freely – as freely as they can in their real environment – and interact with their surroundings as if they really were a part of the virtual world. This technology permits people to visit places they have never been to before or even some that they could never have the chance to visit (such as worlds in video games, fantasy or science fiction movies, etc.).

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[15] "Virtual Reality," Cambridge Dictionary, accessed January 12, 2022. https://dictionary.cambridge.org/dictionary/english/virtual-reality
[16] Ryan, *Narrative as Virtual Reality*, 70.
[17] Niall Firth, "Virtual Reality: Meet Founding Father Jaron Lanier," Accessed January 12, 2022. https://www.newscientist.com/article/mg21829226-000-virtual-reality-meet-founding-father-jaron-lanier/

As explained by Richard (2006), "[…] integrating many senses into a single display system increases the feeling of presence in the environment and both cognitive and sensory-motor performance." Virtual reality is based on the fact that there is a complete immersion – everything affecting the senses is digital. "VR extends the traditional 3D graphics world in order to include stereoscopic, acoustic, haptic, and even other feedbacks, like smell and taste to create a sense of immersion." As of now, virtual reality cannot yet simulate smell and it is to be "exclusively a research issue."[18] In terms of digitalization, it occurs to be rather difficult to digitalize scents as mixing red, green, and blue to create a picture of anything is much easier than simulating thousands of olfactory detectors. And yet, as though it may seem that the sense of smell is not as important as sight or touch, "smell-related memories have a stronger emotional content than those triggered by other sensory modalities."[19] Of course, a variety of olfactory channels and displays have been built over the years, it is however not yet as developed as visual/spatial or verbal/auditory modalities. Virtual reality can simulate an object so that the user can feel the texture or the shape of it – provided they have haptic gloves which transmit the sensation from the simulation to the hand. The technology has advanced to the point where the user can feel the resistance of the simulated object and combined with realistic graphics, it creates an illusion that everything surrounding the user is "real" and not just a simulation.[20]

Virtual reality requires possession of certain hardware to be of use – some type of headset (a head-mounted display or HMD) is usually the core component needed for a functioning VR, whereas specialized joysticks, specialized VR treadmills, haptic gloves, or belts are mostly additional. The HMD itself allows the user to see through the eyes of their character (called avatar in the digital world), making it seem as if they are a part of the world, not just mere spectators. Specialized joysticks can be of use if the user aims to operate in the new world, whether it is to move in a specific direction using the joystick as a pointer, or – if the system allows it – to pick different items or choose from different options offered. The treadmills allow the user to move freely in the virtual world without having to be wary about their real surroundings as the treadmill moves in their designated direction while keeping the user in one place. A haptic belt is a new technology developed in 2020 in Germany, aiming at immersing the user into the virtual world more than before. The belt is supposed to give

[18] E. Richard, A. Tijou, P. Richard and J. L. Ferrier, "Multi-modal Virtual Environments for Education with Haptic and Olfactory Feedback," *Virtual Reality* 10 (December 2006): 207–208.
[19] Richard, Tijou, Richard and Ferrier, "Multi-modal Virtual Environments for Education with Haptic and Olfactory Feedback," 210–211.
[20] Ryan, *Narrative as Virtual Reality*, 78.

haptic feedback on a wide spectrum, just so that the user can experience every detail of the virtual world.[21]

Since virtual reality wishes to simulate the world as precisely as possible, its primary goal is to make the user forget they are using a computer to access it. VR's success lies within "its ability to 'immerse' the user and keep them immersed."[22] This phenomenon of the "disappearing computer" was depicted by many authors (such as Brenda Laurel or the founding father of VR Jaron Lanier), suggesting that the user should come to the point where they either completely ignore the physical body of the computer, as they are so immersed in the virtual world that nothing else matters, or the development might get the point where any computer-like device will not be needed at all and users will access the virtual world via a "full-body virtual reality suit."[23]

1.3 Augmented reality

Augmented reality (AR) is the type of medium that projects aspects of the digital world into the real one. The core idea is that the user interacts with their surroundings as they usually would, only with some digital information added to enhance the experience in the form of ordinary objects[24] or anything else that could be created digitally (which is basically anything the user can think of).[25] Augmented reality "expands on the real world by implementing virtual information, objects, and data into the world around [us]."[26] The user of AR is allowed to change particular parts of the digital information projected, such as colours, shapes, or location, or to create a completely new piece of information and add it to the simulation.[27] It is, however, impossible for the user to interact with the digital object as they would in a non-digital environment. The object that was digitally added to the real world is nothing but a hologram or a digital projection. If an AR application is used for interior design, the designer can move furniture around, change its shape and colour, but the moment

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[21] Bobby Carlton, "VR Haptic Feedback Wearable Feelbelt Lets You 'Feel' The Entire Frequency Spectrum," accessed January 12, 2022, https://www.virtualrealitypulse.com/gaming/haptic/?open-article-id=13841445&article-title=vr-haptic-feedback-wearable-feelbelt-lets-you--feel--the-entire-frequency-spectrum&blog-domain=vrscout.com&blog-title=vrscout

[22] Kelly McErlean, *Interactive Narratives and Transmedia Storytelling: Creating Immersive Stories across New Media Platforms* (New York: Routledge, 2018), 126.

[23] Ryan, *Narrative as Virtual Reality*, 80-81.

[24] Alan B. Craig, *Understanding Augmented Reality: Concepts and Applications* (Waltham, MA: Morgan Kaufmann, 2013), 2.

[25] Craig, *Understanding Augmented Reality: Concepts and Applications*, 18.

[26] XR Today, "What Is Extended Reality? Demystifying XR Tech."

[27] Craig, *Understanding Augmented Reality: Concepts and Applications*, 16.

they try to touch the surface of such an object, there will not be anything to touch – as it was a mere projection, there is no physical entity that would provide a tactile response.[28]

What is crucial is that unlike VR, in which the goal is to make the user believe they have left the real world and are now in a completely new one, AR focuses on the fact that the user remains in the physical world. The medium only adds to the real world; it does not try to recreate it completely or create a completely new world the user would enter. This mode requires the user to own a type of device capable of scanning the immediate physical surroundings in order to display the digital objects onto it via the screen of such a device.[29] AR can make use of a headset similar to the one of VR, but it should not completely block out the outside world – meaning that the user should still be able to see the physical world through the glasses and hear real-world sounds, even if they are wearing a headset with headphones.[30] One of the most common examples of AR is the popular smartphone game "Pokémon Go," in which the creatures (Pokémons) are visible in real settings only through the screens of smartphones.[31] Another use of AR has been presented by the well-known furniture and home accessories retailer IKEA. The company uses an AR application that puts the desired furniture into the real space of the customers' homes.[32]

1.4 Mixed reality

Mixed reality (MR) takes the real and the virtual world and combines them. This means that a virtual projection along with an image of the real world is combined on one screen. Mixed reality allows the user to interact with objects that come from the real as well as the digital world, combining features of both VR and AR.[33] The interactive aspect of MR is what differentiates it from AR, as AR does not allow the user to interact with the simulated objects. The concept of MR is more complex, as it adds to AR.[34] "While augmented reality embeds digital content into the real world, mixed reality actually merges the two environments to produce new visualisations, opportunities, and interactions."[35] Alan B. Craig (2013) adds

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[28] "The Important Difference Between Augmented Reality and Mixed Reality," Bernar Marr & Co., Accessed January 19, 2022, https://bernardmarr.com/the-important-difference-between-augmented-reality-and-mixed-reality/
[29] Andy Berendsen, "What is Immersive Media?" Accessed January 12, 2022, https://www.linkedin.com/pulse/what-immersive-media-6-examples-from-different-andy-berendsen?trk=public_profile_article_view
[30] Craig, *Understanding Augmented Reality: Concepts and Applications*, 16-17.
[31] XR Today, "What Is Extended Reality? Demystifying XR Tech."
[32] Bernar Marr & Co., "The Important Difference Between Augmented Reality and Mixed Reality."
[33] Berendsen, "What is Immersive Media?"
[34] Bernar Marr & Co., "The Important Difference Between Augmented Reality and Mixed Reality,"
[35] XR Today, "What Is Extended Reality? Demystifying XR Tech."

that "all AR applications are mixed reality, but not all mixed reality applications are AR." Craig uses GPS as an example of mixed reality, as GPS mapping combines the "real-world information (where I am) with digital information (an abstract map display)."[36] Another example could be the backgrounds during Zoom or Microsoft Teams calls, which combine the real movable image of the person using the app with the virtual aspect of the variable background effects. Mixed reality is the most recent and least developed of all the types of extended reality modes. This also means that the usage of MR is not yet as broad as it is with AR and VR.

[36] Craig, *Understanding Augmented Reality: Concepts and Applications*, 30.

2 SCIENCE FICTION

To describe exactly what the term *science fiction* means has over the years proven rather difficult. While many people cannot define the term precise, when they are shown a book or film, they can usually tell that it is science fiction. Works in the genre usually contain some stereotypical features such as time travelling, different planets, aliens, etc. As stated by Adam Roberts (2006), science fiction "as a genre or division of literature distinguishes its fictional worlds to one degree or another from the world in which we actually live: a fiction of the imagination rather than observed reality, a fantastic literature."[37] From this definition, it could be understood that science fiction depicts from the real world and then applies a layer of imagination as for what differences from the real world it is going to portray. Science fiction operates on a wide scale – going from a world just like the real one, with the slightest changes, up to going beyond anyone's imagination to a completely new world, future civilisations, using technology never seen before. That being said, defining what works still belong to the science fiction genre and what are already beyond the edge, is rather difficult.

As the name suggests, the genre marries science with fiction. The "science" part tends to include time travelling, space adventures, or technologies that are unthinkable at the moment of publishing the work. The fiction is presented in the storytelling itself, as it presents a story in a world that might or might not be like the real one, usually with something differentiating it making it impossible to be real. Adam Roberts (2016) says that "[science fiction] can be meaningfully identified as that form of Fantastika that embodies a technical (materialistic) enframing, as opposed to the religious (supernatural) approach we would today associate with genre fantasy."[38] As the fantasy genre is more natural for humans, considering people have been telling each other stories with elements of miracles, magic, and mysticism, the incline towards the supernatural is nearly palpable.

Even though it might seem like science fiction is focused on the future, aiming at future civilizations, technologies, etc., it is the history it is mainly focused on. Although it has happened that science fiction "predicted" the future in terms of technology, conflicts, or the state of the world, such as in George Orwell's *1984* (1949), Jules Verne's *Twenty Thousand Leagues Under the Sea* (1870) and *From the Earth to the Moon* (1869), the works mostly look back nostalgically and attempt to depict some long-standing issues. Science fiction is

[37] Adam Roberts, *Science Fiction* (New York: Routledge, 2006), 1.
[38] Adam Roberts, *The History of Science Fiction* (London: Palgrave Macmillan, 2016), 25.

not based on predicting or prophesying the future,[39] although in some cases it might be "representing possible futures." One such case can be seen in *Ready Player One,* the story of which is situated in the future and yet remains fixed on pop culture of the 1980s.

It is only in the later periods, mainly towards the beginning of the 19th century, that science fiction as a genre blooms. The century witnessed advances in technologies and science, and the focus turned towards the future, as the "arena for science fiction storytelling."[40] An author worth mentioning in this period could be Mary Shelley, the wife of the famous British poet Percy Bysshe Shelley. Mary Shelley made a revolution with her *Frankenstein* (1818), as the novel turned out to be one of the crucial influences on what later became science fiction. Some scholars even consider *Frankenstein* to be the very beginning of the genre,[41] though she would have to share the title with Edgar Allan Poe, another important author of the period. Like Shelley, he is often called the originator of the genre, with his short story "The Unparalleled Adventure of One Hans Pfaall" (1835), in which a journey to the moon is depicted. The 1850s brought Jules Verne, arguably the most famous science fiction author of all time.[42] And it is Jules Verne and Herbert George Wells who collect the merits for the initial bloom of science fiction, with both the French and English writers exerting an undeniable influence upon the genre.[43]

At the time of Verne's most famous works, the world had already been thoroughly explored, and yet the stories he wrote found their core in travelling the Earth and finding something extraordinary, not yet discovered by any adventurer. This of course appealed to the readers, as there is an omnipresent desire to keep finding more. Another of Verne's appeals was the fact that all the adventures, all that was interesting, and captivating took place in an isolated space – sea depths (*Twenty Thousand Leagues Under the Sea*), Earth's core (*Journey to the Centre of the Earth* (1864)), a deserted island (*Two Year Vacation* 1889)), etc. Verne always isolated his characters before returning them back to the "real world," where they belong. As expected, the characters underwent a change "as a result of their extraordinary experiences."[44]

The early 20th century brought Modernism, where the goal was to *make it new*, as expressed by Ezra Pound, one of the most important and controversial poets of the pre-war

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[39] Roberts, *Science Fiction*, 26.
[40] Roberts, *The History of Science Fiction*, 121.
[41] Roberts, *The History of Science Fiction*, 127-128.
[42] Roberts, *The History of Science Fiction*, 152.
[43] Roberts, *Science Fiction*, 38.
[44] Roberts, *The History of Science Fiction*, 184.

and post-war period. And new it was, with machines and technology included in experimental works – ranging from poetry to novels. With the exception of Futurism, Modernism generally took a negative approach towards technologies, mainly because of all the machinery used in the First World War. These Modernists no longer viewed technology as something that could save and protect them but as a weapon that rather could harm them.[45] Some influential science fiction authors of this era were Karel Čapek with his *R.U.R* (1920), a play in which he coined the word *robot* as well as Mikhail Bulgakov with his novella *"*The Fatal Eggs" (1924).[46] The works of this period were mostly about the "bad" technologies, as technological progress was viewed with suspicion.[47]

Even though the crucial development of the genre happened in the 19th century, the term "science fiction" was not used until the 1920s.[48] Science fiction only became a formal genre in 1926, when Hugo Gernsback used the term in his magazine *Amazing Stories*, which focused solely on science fiction, making Gernsback what some science fiction fans and critics called "the Father of Science Fiction."[49] The 20th century came with a developed film industry and some works became its subject of interest. It was however a science fiction movie not based on a book that made a breakthrough – *King Kong* (M.C. Cooper and E.B. Shoedsack, 1933).[50] The science fiction genre blossomed during the 1930s, especially in terms of cinema. It was during the Cold War, when the US and the USSR battled silently against each other, when science fiction got spurred into action as many authors got inspired by the atomic threat and started imagining worlds after the explosion of the bomb – whether it is Jack Finney's *Body Snatchers* (1955) or Ray Bradbury's "There Will Come Soft Rains" (1950).[51] Although recent years have proven that humans are being controlled by machines and are even "redefining the human,"[52] the 20th century trend was more focused on the machines becoming human as their goal was to be on the same or higher level than humans.

The Golden Age of science fiction which took place between 1940 and 1960 gave birth to a few phenomenal American authors like Jack Vance, Alfred Bester, and Algis Budrys. One of the most famous authors of this time was Isaac Asimov, a Russian raised in America,

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[45] Roberts, *The History of Science Fiction*, 229–232.
[46] Roberts, *The History of Science Fiction*,), 242–244.
[47] Roberts, *The History of Science Fiction*, 253.
[48] Roberts, *Science Fiction*, 50.
[49] Roberts, *The History of Science Fiction*, 257.
[50] Roberts, *The History of Science Fiction*, 279–280.
[51] Justin Quinn, ed., *Lectures on American Literature* (Prague: Karolinum, 2011), 242–243.
[52] Roberts, *The History of Science Fiction*, 14.

who, in his first robot novel *The Caves of Steel* (1954), came up with the three fundamental laws of robotics that many other authors took as a dogma to follow.

1) A robot may not harm a human being, or, through inaction, allow a human being to come to harm.
2) A robot must obey the orders given to it by human beings, except where such orders conflict with the First Law.
3) A robot must protect its existence as long as such protection does not conflict with the First or Second Law.[53]

On the other side of the Pacific, George Orwell stands out as one of the most influential authors of this time. His dystopian work *Nineteen Eighty-Four* (1949) stands on the edge of science fiction, as all the technology used in the novel suggests it belongs to the genre, and yet the world itself finds no use of the technology. Neither does the work depict any possible future, as "there is no future [in] Oceania, only a continual present of party power."[54] Elements of dystopia also appear in the two novels analysed below.

The New Wave came after the 1960s. It was by that time that the science fiction genre had under its wing so many works that coming up with new ideas, new stories was harder than ever before. It was during these times that the Russians made a breakthrough with their space programs by successfully launching *Sputnik,* an artificial satellite. This, followed by Apollo 11's trip to the Moon in 1969, dismissed all the doubts regarding space travel, which then boosted science fiction as many of the previously fictional stories and predictions started becoming reality. But, as tactfully depicted by Roberts (2016), "reality let SF down." The space program was nothing like what the science fiction fans imagined, as it quickly became commercial, and the thrill of it eventually died out. New Wave according to Roberts (2016) referred to "a loose affiliation of writers from the 1960s and 1970s who […] reacted against the conventions of traditional SF to produce avant-garde, radical or fractured science fictions." The aim of the New Wave was to improve the quality of the current science fiction scene, whether the quality is literary or stylistic. However, coming up with something new turned out to be rather difficult as many concepts had already been covered and there was no point in repetitiveness. At that point, the authors took "a genre that had been, in its popular mode, more concerned with content and ideas that form, style or aesthetics, and reconsider it." A strategy that might have at first seemed effective soon turned sour, as the fans of

[53] Roberts, *The History of Science Fiction*, 290.
[54] Roberts, *The History of Science Fiction*, 308-309.

science fiction revolted against such practices, saying that "this was nothing less than a betrayal of what SF was all about." Of course, some authors kept following the "old way" of writing science fiction, not following the New Wave agenda. This era gave birth to "a great quantity of tungsten-hard, mechanically literate and often militaristic SF," which was highly appreciated by the fans. This period is considered to have produced some the best works of science fiction of that time, as it stayed true to the concepts of the genre. Some of the authors of this period worth mentioning could be Frank Herbert (with his famous novel *Dune* (1965)), and Philip K. Dick (known for his novels *Do Androids Dream of Electric Sheep?* (1968) and *Ubik* (1969)).[55] Science fiction eventually spread all over Europe and Asia. The genre spread to Russia and in the 1960s it underwent a boom in Japan, often described "as the golden age of Japanese SF." The genre turned out to be the best fit for describing and analysing the impact of the technological advancements.[56]

Onwards, the genre blossomed mainly due to the development of the visual media – TV and cinema. It was because of such advancements that the series *Star Trek* (1966-1969) and *Doctor Who* (1963-1989, 2005-present) became so popular and became "the two most influential TV serials in science fiction." Visual media, mainly TV, became popular and what would some call "world's major narrative mode." Science fiction undoubtedly gained from the exposure, however, it also influenced the structure of the works. Authors no longer aimed for stand-alone novels, the focus shifted towards sequels and series of texts that would follow and complete each other, "planned in advance as megatexts."[57]

The following decades were dedicated to the film industry, producing a variety of science fiction movies that have become classics – *E.T. the Extra-Terrestrial* (Steven Spielberg, 1982), *The Terminator* (James Cameron, 1984), *Predator* (John McTiernan, 1987), and *A.I.: Artificial Intelligence* (Spielberg, 2001).[58] It was the last two decades of the 20th century when the written science fiction suffered, as the visual media took over. Nevertheless, there were some authors actively publishing during these times, though not exactly well-known. Roberts (2016) described the situation as follows: "One of the things that happened in the 1980s is that some of the most talented writers of prose SF distanced themselves from genre fiction and worked instead as, or were promoted as, mainstream or non-SF authors."[59] He also argues that "very few SF novels published in the 1980s are living

[55] Roberts, *The History of Science Fiction*, 333–336.
[56] Roberts, *The History of Science Fiction*, 376.
[57] Roberts, *The History of Science Fiction*, 392.
[58] Roberts, *The History of Science Fiction*, 409–413.
[59] Roberts, *The History of Science Fiction*, 421–424.

works of literature today." Although majority of the titles thriving during this period eventually lost their popularity, some works quite literally made history, as they are now considered to be among the classics. Such works include William Gibson's *Neuromancer* (1984), a novel that established the sub-genre of science fiction – cyberpunk; Orson Scott Card's *Ender's Game* (1985), and Margaret Atwood's *The Handmaid's Tale* (1985).[60] As for the last decade of the 20th century, one of the names that stand out is Neil Stephenson, known mainly for his novels *Snow Crash* (1992) and *The Diamond Age* (1995), and the Japanese novelist Haruki Murakami with *Kafka on the Shore* (2000).[61]

The genre was heavily influenced by the development of the game industry – whether it was arcade, video or computer games. Considering how some of the important works of science fiction were made into games (such as *Star Wars*) or games into movies (the case of *Tron* (Steven Lisberger, 1982), the gaming industry put science fiction into the spotlight. At the beginning, games like *Space Invaders* (Taito, 1978), replaced by Atari's *Asteroids* a year later, suggested that games might take after science fiction novels, due to their nature of combining technologies and space travel. These works were the stepping stone for later science fiction games, such as *Doom* (id Software, 1993).

2.1 Influences on science fiction in the USA in the second half of the 20th century

In the post-war period, the US was "the only nation to emerge from the Second World War with its manufacturing plant intact and its economy strengthened."[62] Even though the war had ended, there was still some tension between the two most powerful countries – the US and the USSR. The conflict that has become widely known as the Cold War dragged on from the end of the Second World War, up until 1991, when the Soviet Union dissolved. The US stood for capitalism and consumerism, with its prosperity spreading to Europe with the Marshall Plan and even, eventually, to Japan by the 1950s. The economic growth enhanced the sense of individualism of US citizens and the belief in American "exceptionalism."[63]

The second half of the 20th century in America was a time of television, as every American family had had a TV set by the 1960s.[64] It served mainly as entertainment, and its educative use came into importance much later. As movies were used for propaganda, the

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[60] Roberts, *The History of Science Fiction*, 428.
[61] Roberts, *The History of Science Fiction*, 452–454.
[62] Richard Gray, *A History of American Literature* (New Jersey: Blackwell Publishing, 2005), 553.
[63] Quinn, *Lectures on American Literature*, 239.
[64] Quinn, *Lectures on American Literature*, 242.

film industry suffered quite a lot, since the movies played after the Second World War were mainly anti-communist and anti-propaganda, while being propaganda in its own sense. [65]

The post-war period made the science fiction genre flourish – it picked up themes like technological takeover or war but made it so that the ending would be better than the ending of the real war not so long ago. This of course piqued interest in people and science fiction fast found its readers and fans. Going from a few magazine articles and stories to full-length novels, science fiction aimed at "technically trained, mature men," avoiding anything fantasy or fairy-tale-like.[66] In these times, people started looking back at works of the past periods, such as works of Walter Scott or Charles Dickens. Works of these authors came out in much cheaper editions, as people did not have as much money and could not afford the higher quality ones, because books became rather expensive.[67]

The period after the 1970s witnessed the end of the Vietnam War, a student protestant being killed by a member of the US National Guard, the disgrace of President Nixon, and the presidency of Ronald Reagan, George Bush, and Bill Clinton. The Cold War was still very much present, [68] and communism was fought against while being referred to as the "evil empire" by Ronald Reagan.[69] The technologies had advanced yet again with the invention and widespread of video and cable, as well as computer technologies. Computers served to the literature as they became the one media that widespread the digital forms of books and magazines, creating online databases and archives. Yet again did science fiction gain attention thanks to this period. The genre gained popularity thanks to TV series and movies and later reached its peak when *Neuromancer* by William Gibson introduced the public to cyberpunk and cyberspace.[70] The evocative first line of the novel, which has been interpreted in many ways, sets the tone: "The sky above the port was the colour of television, tuned to a dead channel."[71]

2.2 Cyberpunk

Technology and machinery play an important role in the science fiction genre, as it is usually the first thing people might recall when thinking of the genre. As familiarised as people are

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[65] Quinn, *Lectures on American Literature*, 240.
[66] Quinn, *Lectures on American Literature*, 243.
[67] Roberts, *The History of Science Fiction*, 253.
[68] Quinn, *Lectures on American Literature*, 277.
[69] Manuel Olivas, "'Evil Empire' Speech by Ronald Reagan," YouTube video, 32:18, January 3, 2012, https://www.youtube.com/watch?v=SNtplPrxSj8
[70] Quinn, *Lectures on American Literature*, 280–281.
[71] William Gibson, *Neuromancer* (London: Gollancz, 2016), 3.

with technologies, considering how much has the world evolved and how big of a role is technology playing in it, it is still something they are distant from – because they do not know for sure what it is capable of and how exactly it works.

Science fiction usually operates with high-tech technologies and machines such as robots, spaceships, "alien" technology, or computers like never seen before.[72] In certain narratives, the technology becomes the master, as some kind of artificial intelligence overpowers humanity and fends for itself. In other scenarios, it serves solely as a vehicle or a tool for the protagonist. *Merriam-Webster* defines cyberpunk as "science fiction dealing with future urban societies dominated by computer technology."[73] The core of the genre is a technologically developed (usually dystopian) world, with characters, that stand at the very edge of the society, not being capable of affording living in such a world. Some of the core authors of the science fiction sub-genre are William Gibson (who not only coined the word *cyberspace* but is also called "the founder of Cyberpunk," even though it was Bruce Bethke who coined the word in 1983 in his short story "Cyberpunk"),[74] Bruce Sterling, Philip K. Dick, and, more recently, Neal Stephenson. Cyberpunk was, however, never only about literature – it influenced the film industry as well as music and art. Two essential works of science fiction would be *Blade Runner* (Ridley Scott, 1982, directed by), which was crucial for the cyberpunk of the film industry (based on Philip K. Dick's novel *Do Androids Dream of Electric Sheep* (1968)), and Gibson's *Neuromancer*, as the one key element of the literary cyberpunk.

The word *cyberpunk* is a compound word consisting of two parts – *cyber* and *punk*: "Cyberpunk marries the *cyber-* of cybernetics with the countercultural *punk* attitude of the 1970s, and this attitude is evident in the at-times tempestuous attitude cyberpunks had towards earlier SF."[75] The world of cyberpunk appears to have "no meaning, no security, no affection and no communal bonds." Postmodernism played an important role in the creation and function of cyberpunk, as the genre was considered to be on the same level as postmodern culture. However, expressing postmodern ideologies turned out to be rather difficult and cyberpunk, among other postmodern narratives, faced a challenge as to "how to shape plot and agency in a way that matches the postmodern ideology and aesthetic it

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[72] Roberts, *Science Fiction*, 111.
[73] "Cyberpunk," *Meriam-Webster*, Accessed January 19, 2022, https://www.merriam-webster.com/dictionary/cyberpunk.
[74] Roberts, *The History of Science Fiction*, 439.
[75] Graham J. Murphy, "Cyberpunk and Post-Cyberpunk," in *The Cambridge History of Science Fiction*, ed. Gerry Canavan and Eric Carl Link (Cambridge: Cambridge University Press, 2016), 519–520.

embraces." The authors of cyberpunk found it surprisingly easy to express the cultural and technological changes, effectively creating a believable postmodern world, but the way they worked with plot and agency was everything but just as smooth.[76]

Although cyberpunk, as explained *Merriam-Webster*, deals with "future urban societies," its main goal is not to predict the future even though its futuristic manner has proven to be quite precise in prophesying the development of technologies. Brain-controlled prosthetics, the backbone of cyberpunk, have come from technological progress, the wealthiest are getting richer, while the poorest are barely capable of making the ends meet. The cyberworld is slowly creeping its way among people with the excessive usage of the internet, social media, and all the electronic gadgets people are surrounded with nowadays. The digital world is slowly emerging with the physical world. It almost seems as if the worlds the aforementioned authors wrote about in their novels are slowly becoming reality. And as depicted by Sponsler (1992), cyberpunk was known for crossing most of the "traditional boundaries between organic and inorganic, natural and artificial, human and machine," which adds to the overall characteristics of cyberpunk. She also portrays one way of understanding cyberpunk as "an extended investigation into the postmodern identification of man with machine."[77]

2.3 Postmodernism

As postmodernism covers the period from 1950 up until the present day, the movement was important for the literature created during this time, including the works within the science fiction genre. The movement was a direct reaction to the preceding modernism, problematizing modernist ideas. Where Modernism often views certain features as rather tragic or negative, postmodernism on the other hand supports and celebrates ideas like "the fragmented view of human subjectivity." One shared feature of both modernism and postmodernism is its view of reality and truth – they both state "that there is no absolute truth and truth is relative." Postmodern writing is characterised by frustration as a consequence of the WWII as well as the ongoing Cold War – this frustration results in a recurrent use of irony and black humour.[78] This period makes use of what is called metafiction, sometimes even referred to as "the exemplary form of postmodernism," which is, in simple terms, a

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[76] Claire Sponsler, "Cyberpunk and the Dilemmas of Postmodern Narrative: The Example of William Gibson," *Contemporary Literature* 33, no. 4 (Winter, 1992), 627.
[77] Sponsler, "Cyberpunk and the Dilemmas of Postmodern Narrative: The Example of William Gibson," 631.
[78] "What Is Postmodernism? What Are the Characteristics of Postmodern Literature?" Literary Articles, Accessed January 19, 2022, http://www.literary-articles.com/2013/08/what-is-postmodernism-what-are.html

self-reflexive work, literature discussing itself or other texts within its own body.[79] Another feature of postmodernism is the aforementioned rejection of meaning. The movement accepted disorder and the works often force readers to find their own meaning, if any at all. One of such cases could be pastiche as it allowed the reader a certain amount of freedom, as even the reader also became the creator of texts, allowing both the reader and the writer to "engage in the language games openly, and explicitly."[80] According to Sponsler (1992), postmodernism started questioning "the relation between objects, events, language, and meaning" making it nearly impossible to explore the novel, as one of the types of narration. Especially since postmodernism is more focused on the art of simulation, rather than representation, which works counter to narration.[81]

[79] Matthias Stephan, "Characteristically Postmodern," in *Defining Literary Postmodernism for the Twenty-First Century*, (London: Palgrave Macmillan, 2019), 36.
[80] Stephan, "Characteristically Postmodern," 42.
[81] Sponsler, "Cyberpunk and the Dilemmas of Postmodern Narrative: The Example of William Gibson," 643.

3 WHAT IS "REAL"?

By the standard of postmodernism, what is "real" relies solely on each person's understanding of reality. The true matter of reality is rather delicate. What used to be considered surreal, possible only in science fiction novels and movies, has now become reality. As the technologies progress, questions are being asked about whether the new *modern*, *technological*, and *digital* age will become ground-breaking, and whether the scientists will come up with something that would put humanity on a completely new level of being. The answer might be hidden in XR. Covering VR, AR, and MR, with extended reality comes the possibility of taking everyday life to a virtual space, *cyberspace* even. A situation depicted by many science fiction (and cyberpunk) novels, humanity is now walking towards a digital age so advanced there will no longer be the need for "real" jobs or "real" anything for that matter. Ernest Cline's novel showcases this extremely well as working in the real world has completely lost its appeal and the characters of the novel study and work primarily in the virtual world. Everything known and desired will be in the digital space, on shared platforms, in group chatrooms. Humans might only have one thing to worry about – their physical bodies. Another question arises then, whether it would be possible to transfer the human brain into the digital space, and if so, will the person keep their memories, experiences, or identity? Could humans become immortal thanks to this transfer? Or would humanity need to undergo a different kind of transfer – our physical brains would be moved to an artificial body of a robot?

The issue of brain relocation has been discussed by Susan Schneider (2009), who defined two possible approaches – psychological and somatic. The psychological approach suggests, that if the human brain is transferred from one body to another, it will take its memories and experiences along and therefore the new body would have the same identity as the old body.[82] This approach sounds favourable as it would mean that in times of need, humans could simply switch bodies and never lose "themselves." The somatic approach on the other hand suggests that one's identity is preserved only if it stays within one body that undergoes the changes and experiences.[83] This means that once the original body is dead, so is the identity of the person and there is no way of preserving their mind and memories. To test these approaches would mean going through a variety of tests and experiments, all of which would need a living human being to become the "lab rat" the tests would be run on.

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[82] Susan Schneider, *Science Fiction and Philosophy* (Malden, MA: Wiley-Blackwell, 2009), 76-77.
[83] Schneider, *Science Fiction and Philosophy*, 84.

Such practices are reasonably considered unethical, however, using some of the technologies aforementioned, such as VR or MR, humanity could possibly run some tests in the virtual space as to whether the relocation could be possible and potentially even succeed in the transfer itself. John Bucher (2018) added that "virtual experiences may hold answers beyond those we've been able to grasp thus far in human development."[84]

As Alan B. Craig (2013) said: "In today's world we have become sufficiently aware that technology can fool us that it is not always a given that we will even raise an eyebrow when we see something that seems to be unreal in some way." Differentiating what is real and what is just an illusion has become exponentially harder in recent years. The technologies have advanced so much, that the moment a user is immersed in the virtual world and receives sufficient feedback from their surroundings, they would not even realise they are not in the physical world. As of now, it is various gadgets, such as haptic gloves, that provide the user with tactile feedback but by the time the scientists come up with full-body suits that would provide realistic feedback to the human nervous system (such as the body suits depicted in Ernest Cline's *Ready Player One*), users would not be capable of recognizing the real world from the virtual one.[85]

One of the biggest problems that is already occurring and is going to cause even more problems in the future, is the loss of privacy. Smartphones, laptops, smartwatches – all of those are collecting personal data and uploading it somewhere, whether it is to the Internet or sending it to the creator of such device. People use social media and share everything there – their favourite food, music, or where they spent their vacation – all that is being collected, analysed, and systematically uploaded to the Internet, where it remains because anything that has ever been uploaded to the Internet stays there, no matter how hard anyone tries to delete all the traces, someone will always find it.[86] People live in the illusion that they are safe on the Internet as long as they use strong passwords, cover cameras on their laptops, use incognito tabs, and do not click on pop-ups. Neither of those precautions could possibly prevent any data from being stolen or leaked, and people do not realize that. With the advances in technologies, that nowadays' smartphones recognize faces, fingerprints and already know when the owner goes to sleep, exercises, or works, there is very little to be kept private. Devices provide users with an illusion of control and safety by constantly

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[84] John Bucher, *Storytelling for Virtual Reality: Methods and Principles for Crafting Immersive Narratives* (New York: Routledge, 2018), 25.
[85] Craig, *Understanding Augmented Reality: Concepts and Applications*, 156.
[86] Andrew Couts, "What Happens on the Internet Stays on the Internet," Accessed January 19, 2021, https://www.digitaltrends.com/computing/what-happens-on-the-internet-stays-on-the-internet/

requesting tracking and giving the user the option to decline and "ask app not to track," but how many of such apps actually stop? Considering how "primitive" devices smartphones are compared to high-tech XR machines, there is no doubt immersive technologies are going to track and collect the user's data as well, creating an even bigger risk of the personal data being exploited.

> Every major modality shift in technology has brought with it new threats and dangers. From the fax machine making information vulnerable to loss and theft to the internet making malware easy for susceptible users to download, malicious actors will always find a way to exploit our naivety and ignorance.
>
> As users and consumers of digital technology, we need to be aware of the privacy risks involved when hooking ourselves up to sensor-laden devices. Virtual reality can be really useful and fun but remember to make sure [your] biometric data isn't getting [funnelled] to a third party.[87]

3.1 Cyberspace

As the usage of technologies has increased in recent years, there occurred a possibility to create some kind of "space" that would serve as a meeting point or a safe space when people connect to the Internet and the virtual world. This is what has become widely known as cyberspace. Adam Roberts (2006) explains cyberspace as follows:

> [Cyberspace] refers to the notional space of the internet and virtual reality, to the computer-generated environments into which human beings can enter through a computer or virtual-reality suit.[88] […] Cyberspace itself is not a real space but a notional space, a metaphorical space.[89]

Cyberspace works as a meeting point for people to interact. However, it is not the usual face-to-face interaction, interactions in cyberspace are solely on the virtual level, with people "existing" as data in created bodies, known as avatars, interacting somewhere in digitally created worlds.[90] The term became popular thanks to William Gibson's novel *Neuromancer* (1984), where it was used for the first time, making Gibson the founding father of the term.[91]

A big advantage of cyberspace (as well as the Internet in general) is its anonymity. Unless willingly shared, one's identity usually stays hidden. That works well for people who

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[87] Penno, "When the Tool Uses You: How Immersive Tech Could Exploit Our Illusion of Control."
[88] Roberts, *Science Fiction*, 123.
[89] Roberts, *Science Fiction*, 127.
[90] Ryan, *Narrative as Virtual Reality*, 74.
[91] Roberts, *The History of Science Fiction*, 439.

want to escape their daily lives and "live" as if they are someone else, at least for a few hours.

> In cyberspace, it is well known, one's body can be represented by one's own textual description. […] The fact that self-presentation is written in text means that there is time to reflect upon and edit one's 'composition,' which makes it easier for the shy to be outgoing, the 'nerdy' sophisticated. The relative anonymity of life on the screen – one has the choice of being known only by one's chosen 'handle' or online name – gives people the chance to express often unexplored aspects of the self.[92]

Cyberspace gives people the freedom to become whoever they desire to be but comes with some psychological repercussions. For some people, cyberspace could be a platform to vent their problems, a place where they can "let go" and get rid of their frustration, while others might use it to work on themselves and their own issues, utilizing the resources the cyberspace provides.[93]

3.2 Singularity and artificial intelligence

As depicted by many science fiction novels and films, the one thing humanity has been predicting and dreading for decades is machines overpowering humans. The term "singularity" was created to describe the "hypothetical future where technology growth is out of control and irreversible."[94] One early frightening and thought-provoking depiction can be found in Karel Čapek's *R.U.R.*, in which robots rebel against their master, take over the manufactory, as well as over the whole world, and kill every human they can find except their one "pet," the engineer Alquist.

The term *singularity* was coined by mathematician John von Neumann, who used it in the 1950s to describe the impact the ever-growing technological advance could have on humans. In the very next decade, a mathematician Irving John Good tried to describe an "intelligence explosion," in which the machines' intellect beat the humans' intelligence by a large margin.[95]

According to Ray Kurzweil (2009), singularity is "a future period during which the pace of technological change will be so rapid, its impact so deep, that human life will be

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[92] Sherry Turkle, "Cyberspace and Identity." *Contemporary Sociology* 28, no. 6 (November 1999): 643.
[93] Turkle, "Cyberspace and Identity," 644.
[94] Andrew Zola, "Singularity (the)," Accessed January 12, 2022, https://www.techtarget.com/searchenterpriseai/definition/Singularity-the
[95] "The Singularity," Techopedia, accessed January 12, 2022, https://www.techopedia.com/definition/29265/the-singularity-artificial-intelligence

irreversibly transformed."[96] Thanks to singularity, he says, the human mind will overcome its limitations and this way, people might become immortal as the length of their lives will be up to them since mortality will no longer be a problem.[97] One example can be found in *Neuromancer*, as a character called Dixie Flatline became "immortal" despite the fact that he flatlined and, therefore, died. His mind was preserved owing to the technological development of the novel. His life had then, quite literally, irreversibly transformed.

> It was disturbing to think of the Flatline as a construct, a hardwired ROM cassette replicating a dead man's skills, obsessions, knee-jerk responses…[98]
>
> ***
>
> '[…] The Flatline here, If you were all like him, it would be real simple. He's a construct, just buncha ROM, so he always does what I expect him to.'[99]

Closely connected to singularity is artificial intelligence (AI). As machines have been helping humanity out for decades now, it became a question of whether they would ever be capable of thinking on their own, making their own decisions, and becoming "human" in a way. The question itself "Can machines think?" was first asked by Alan Turning in the 1950s in his essay "Computing Machinery and Intelligence."[100] Creating a thinking entity out of metal and silicone might sound like a science fiction novel, but scientists have already come close to such creation. Robots thinking for themselves, having feelings, and operating based on their "common sense" or "gut feeling" have become more than just a vivid dream of the future. The main reason for such creation would be using these "machines" for the humans' own good – using them to work, to do all the things humans are either too lazy or too scared to do. However, as expressed by Nick Bostrom (2009), AI "may be the last invention humans ever need to make." Considering how developed the intelligence must be by the time self-reliant, thinking machines are let out of the lab, there seems to be no other technological invention that could possibly outperform AI. Nevertheless, if there still occurs the need for scientific research and innovations, the robots that were gifted with artificial intelligence might prove to be better at research than any human could ever be. It would be highly

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[96] Ray Kurzweil, "Superintelligence and singularity," in *Science Fiction and Philosophy: From Time Travel to Superintelligence*, ed. Susan Schneider (Malden, MA: Wiley-Blackwell, 2009), 201.
[97] Kurzweil, "Superintelligence and singularity," 203.
[98] Gibson, *Neuromancer*, 86.
[99] Gibson, *Neuromancer*, 226.
[100] Matthew S. Williams, "Technological Singularity: An Impending 'Intelligence Explosion,'" accessed January 12, 2022, https://interestingengineering.com/technological-singularity-an-impending-intelligence-explosion.

unlikely for them to make mistakes or forget certain facts, as their brains are programs, extremely effective and productive. That would also mean that the technical evolution and overall development would take less time and would be faster than ever before.[101]

The fast development of technologies could lead to the overall development of AI which could then lead to the issue discussed beforehand – the singularity. Humans strive for technical development; it is however a question of how long it is going to take until the sought technologies become in over their heads. The thing about using machines, robots, and AIs for work initially created for humans, could lead to the unemployment of a vast majority of people. If humanity can figure out how to program robots to do as many jobs as possible (without major collisions), human workers will no longer be of need. This problem was discussed by Max Tegmark in 2017:

> During the Industrial Revolution, we started figuring out how to replace our muscles with machines, and people shifted into better-paying jobs where they used their minds more. Blue-collar jobs were replaced by white-collar jobs. Now we're gradually figuring out how to replace our minds by machines. If we ultimately succeed in this, then what jobs are left for us?[102]

Tegmark depicts a crucial problem, as many people might eventually become "unemployable" since their abilities will be nowhere near as good as the abilities of machines. This might create a problem with the living situation of many people, because having a job means having an income and therefore being able to provide for the family. If the situation gets to the point where having a technological development will be there at the expense of people being capable of affording *to live*, a question arises whether humanity really needs to undergo such development at all.

3.3 Gamification

Ever since childhood, people are taught games and encouraged to consider everything a game. This logic transitioned itself into something called "gamification," which the *Cambridge Dictionary* describes as "the practice of making activities more like games in order to make them more interesting or enjoyable."[103] Turning ordinary activities into games

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[101] Nick Bostrom, "Ethical issues in advanced artificial intelligence," in *Science Fiction and Philosophy: From Time Travel to Superintelligence*, ed. Susan Schneider (Malden, MA: Wiley-Blackwell, 2009), 278–280.
[102] Max Tegmark, *Life 3.0: Being Human in the Age of Artificial Intelligence* (London: Penguin Books, 2017), 123-124.
[103] "Gamification," *Cambridge Dictionary*, accessed January 15, 2022, https://dictionary.cambridge.org/dictionary/english/gamification

is a practice all people are familiar with. The problem occurs when the "game" is taken too far and starts controlling the person's life. As games are considered an escape from the real world, sometimes it could be hard to differentiate what is still a game and what is not. Even though for some people it might seem like games are nothing but some harmless entertainment for kids, and perhaps a waste of time for adults, games are much more than that. Games engage the players and are primarily based on the player's effort and voluntary participation. The core idea of gamification is not transforming the real-life settings into something more game-like, to resemble computer or video games. It is more about adding elements of games into real life – rewards, budges, scores. Games teach the players about goals and accomplishing goals – gamification stands for the same thing, only in real-life settings and with no physical budges or visible score.

> […] the use of gamification should be done with clear intentions, an insight of what it can and cannot do, and a level of educated comprehension. You should be aware that it is a method that 'simplifies' complex interactions to promote more efficient understanding of various concepts and activities.[104]

3.4 Metaverse

At the annual Connect event for software and hardware developers, Mark Zuckerberg, the founder of the Facebook, announced that his company would now carry the name Meta. On October 28, 2021, Zuckerberg talked about his vision for the company, as well as his vision of the so-called "metaverse." As explained on the official website, "the metaverse is the next evolution of social connection. Our company's vision is to help bring the metaverse to life, so we are changing our name to reflect our commitment to this future."[105] The company also announced new inventions such as the so-called Presence Platform, an MR environment, or their intention to "invest in immersive learning to train the next generation of creators."

Metaverse is supposed to be an environment that would allow people to "share immersive experiences with other people even when you can't be together – and do things together you couldn't do in the physical world."[106]

> The "metaverse" is a set of virtual spaces where you can create and explore with other people who aren't in the same physical space as you. You'll be able to hang out with friends, work, play, learn,

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[104] Albert van der Meer, "The Shadow of Gamification," accessed January 19, 2022, https://uxdesign.cc/the-shadow-of-gamification-3055b97b70e8.
[105] Meta, "Homepage," Accessed February 23, 2022, https://about.facebook.com/meta/.
[106] Meta, "Introducing Meta: A Social Technology Company," Accessed February 26, 2022, https://about.fb.com/news/2021/10/facebook-company-is-now-meta/.

> shop, create and more. It's not necessarily about spending more time online — it's about making the time you do spend online more meaningful.[107]

The company claims that building a functioning metaverse is a long process, estimating about 10-15 years to finalise certain aspects.[108] This period gives all the scientists, developers, programmers, etc. an opportunity to make sure every detail of metaverse is working as it should and perhaps even make some upgrades in terms of the technology required for a functioning metaverse. A decade is a long time, especially with the pace the technologies keep developing, so there is no doubt that by the time the metaverse is "fully functioning," it will use gadgets different and much more affordable than the ones used now.

The term Metaverse was first used by Neil Stephenson in his novel *Snow Crash* in 1992. Stephenson created his metaverse just a year after the introduction of the Internet, and he met a few of the characteristics of Zuckerberg's Metaverse in the process:

- The metaverse is three-dimensional.
- The metaverse is a metaphor for the real-world
- Uses can access the metaverse using goggles, much like today's VR headsets
- Users experience the metaverse from a first-person perspective
- The virtual avatars of users are partially customisable[109]

Zuckerberg mentioned all of these points in his Connect 2021 speech, proving that Stephenson might have as well prophesied the future development of the metaverse, or – which is more likely – Zuckerberg got inspired by Stephenson's ideas and made them a reality.

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[107] Andrew Bosworth and Nick Clegg "Building the Metaverse Responsibly," Accessed February 26, 2022, https://about.fb.com/news/2021/09/building-the-metaverse-responsibly/.
[108] Bosworth and Clegg "Building the Metaverse Responsibly."
[109] Anwesha Roy, "Unpacking Meta: Where Did the Word Metaverse Come From?" Accessed February 26, 2022, https://www.xrtoday.com/virtual-reality/unpacking-meta-where-did-the-word-metaverse-come-from/.

4 IMMERSIVE REALITY IN *NEUROMANCER* AND *READY PLAYER ONE*

This chapter analyses two works of the science fiction genre – *Neuromancer* (1984) by William Gibson and *Ready Player One* (2011) by Ernest Cline. Extended Reality (XR) in both novels is explored in detail and the works are compared and contrasted.

4.1.1 *Neuromancer*

William Gibson is among a handful of recent authors who made a tremendous impact with their very first published novel. Gibson's *Neuromancer* (1984) remains one of the key works of modern science fiction, creating a new subgenre called cyberpunk along the way. Although his later novels have not had as big of an impact as *Neuromancer* did, "Gibson remains a talismanic writer for many in the world of SF, someone who determined a particular style, a post-industrial lightweight-postmodernism coolness."[110]

Gibson's first novel *Neuromancer* follows the character Case, who had once been a console cowboy (a person who connects to cyberspace to navigate through it and steal information). When he started stealing from his employer, his employer permanently damaged Case's nervous system so that he could never again gain access to cyberspace. The story becomes more complicated as Molly, a professional killer with various body modifications also called a razorgirl, gets involved as well as Armitage, a mysterious ex-soldier, who, as an intermediary for a mysterious employer, hires both Case and Molly to carry out a series of heists. Using cyberspace, also called the matrix, Case meets two powerful AIs – Wintermute and Neuromancer. While Neuromancer is portrayed as a separate entity, an AI working on its own with no desire to change its own status, Wintermute, after decades of being locked in a complex system of locks that restrain it from interacting with the characters directly, seeks to merge with its sibling entity. On their journey, Case and Molly attempt to free Wintermute so that he can become one with its sibling entity Neuromancer and become superintelligence – an "intellect that greatly exceeds the cognitive performance of humans in virtually all domains of interest."[111]

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[110] Roberts, *The History of Science Fiction*, 440.
[111] Nick Bostrom, *Superintelligence: Paths, Dangers, Strategies,* (Oxford: Oxford University Press, 2014), 22.

4.1.2 Ready Player One

Born during an era when science fiction was again becoming more popular with the general public and inspired by legends of the genre such as William Gibson and Orson Scott Card, Ernest Cline wrote a novel that attracted a wide audience. *Ready Player One* (2011) won many awards, such as the Prometheus Award[112] and Alex Award,[113] and was even used as a template for an eponymous movie directed by Stephen Spielberg with a script co-written by Cline. The novel takes gaming and puts it on a whole new level, creating a world where *everybody* is literally playing the game of their lives. Not only did Cline write a novel about playing, but to understand all the references and jokes, and to decode all the Easter eggs planted in there, the reader needs gaming knowledge. However, as discussed later, the reader does not need to possess the knowledge to successfully finish the novel.

Ready Player One "presents readers with a world steeped in paradox. Cline imagines an environment that is simultaneously [utopian] and dystopian and depicts an immersive game-obsessed world that fuses high-tech virtual reality with 1980s nostalgia." The novel presents a story narrated by Wade, a teenager who lives in trailer slums in the suburbs of Oklahoma City, in a dystopian world where everybody connects to the OASIS – "a massively multiplayer VR world that allows players to travel into space, experience high fantasy, attend lavish parties, or simply socialize with friends."[114] In the course of the novel, Wade joins forces with a few friends as they undergo numerous adventures in the OASIS when looking for a set of keys left behind by the creator of the OASIS, James Halliday. Collectively, they reach the desired goal – they "win" the game by finding all the keys and inheriting tremendous wealth, as well as the whole of the OASIS, while successfully sabotaging a company called Innovative Online Industries (IOI) which wanted to take over the OASIS and make it commercial and no longer affordable for everybody to enjoy.

As Professor Justin Nordstrom points out, "scholars of popular culture and science fiction have not yet considered the scholarly merits of *Ready Player One*, particularly as an example of the overlapping functions of gaming and utopianism." As for the popularity of the novel, it cannot be denied that it made a breakthrough even among non-science fiction fans. The novel's reach went as far as to become "recommended reading for employees at

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[112] "2012 Prometheus Best Novel Winners Announced," Libertarian Futurist Society, Accessed April 20, 2022, http://www.lfs.org/releases/2012Winners.shtml.
[113] "Alex Awards 2012," American Library Association, Accessed April 20, 2022, https://www.ala.org/yalsa/booklists/alex/2012awards.
[114] Justin Nordstrom, "'A Pleasant Place for the World to Hide:' Exploring Themes of Utopian Play in *Ready Player One*," *Interdisciplinary Literary Studies* 18, no.2 (2016): 239.

Oculus VR."[115] However, other scholars have found that the intellectual value of the novel is slightly lacking. It is mainly the lack of innovation in terms of the plot that probably makes it so difficult for academics to appreciate it. Nordstrom admits that the work "presents some of the same tensions that motivate other classic utopian texts – such as an ambiguously [utopian]/dystopian setting and characters that look forward to a futuristic environment while glancing backward at the past. "[116]

4.2 Representation of XR

Although *Neuromancer* does not use elements of XR very often, the majority of the "special effects" created by XR devices are shown in cyberspace settings, where they appear out of thin air, figuratively speaking. Of course, there are some exceptions, such as using holographs (therefore AR) during one of the arena fights so that a wider range of audience can see what is going on.

> No light but the holograms that shifted and flickered above the ring, reproducing the movements of the two men below.[117]

Although the world in *Neuromancer* is technologically developed, it is important to note that the novel was written in 1984, which means that Gibson described technologies that were not yet as developed as he portrayed them, or sometimes did not exist at all and came from the writer's imagination. In an interview from 1988, Gibson admitted that he, in fact, has "no grasp of how computers *really* work." He managed to create a novel that is to the date considered one of the classics and is based on technology, computers, and cyberspace, with knowledge enhanced by overhearing people talking about it. When asked in 1988 about focusing more on the metaphorical aspect of computers and science, Gibson replied:

> I'm looking for images that supply a certain atmosphere. Right now science and technology seem to be very useful sources for these things. But I'm more interested in the *language* of, say, computers than I am in the technicalities of how they really operate. On the most basic level, computers in my books are simply a metaphor for human memory.[118]

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[115] Jonathan Alexander, "The Uses and Abuses of Pop Culture in *Ready Player One* and *Grandmother's Gold*," *The Journal of Popular Culture* 53, no.3 (2020): 525.
[116] Nordstrom, "'A Pleasant Place for the World to Hide:' Exploring Themes of Utopian Play in *Ready Player One*," 239.
[117] William Gibson, *Neuromancer*, 42.
[118] Larry McCaffery and William Gibson, "An Interview with William Gibson," *Mississippi Review* 16, no.2/3 (1988), 224.

While the lack of XR representation is not that much surprising, the complex descriptions of technology, machines, and software is. In the same interview from 1988, Gibson admitted to not knowing basic facts about computers, such as the fact that they have disc drives, at the time of writing *Neuromancer*. [119]

On the other hand, *Ready Player One* was written after the world had already undergone a greater degree of technological development. While Gibson describes technology he estimated could be a reality in the future, Cline already lived through much of the technology he described in his novel. Different types of XR became a common currency by 2011 and therefore it should not come as a surprise that Cline took the advantage of it and XR plays an important role in his novel.

Virtual reality plays the biggest role as the majority of the novel's plot happens in the virtual reality space called the OASIS. All characters have access to the virtual space, as the "lifetime OASIS account" costs only twenty-five cents, making it affordable for everyone. The access was permitted by using visors, haptic gloves, and some of the wealthier users made use of full-body haptic suits.

> The key to the success of the OASIS were the two new pieces of interface hardware that GSS had created, both of which were required to access the simulation: the OASIS visor and haptic gloves. [The visor] used harmless low-powered lasers to draw the stunningly real environment of the OASIS right onto its wearer's retinas, completely immersing their entire field of vision in the online world.[120]

4.3 Cyberpunk and Popular literature

Neuromancer was one of the key cultural artefacts behind the establishment of cyberpunk. Therefore, the novel itself bears some of the key features of the genre. Most and foremost, the novel is a hard science fiction – meaning that the focus of the work is mainly on the scientific features, creating a dystopian world, combining many features of technology as well as new potential developments, which, at the time when Gibson wrote it, were not yet in active use – such as *cyberspace*. Hard science fiction tends to be one step ahead of what is currently known in science, while still using the previously acquired knowledge.
Sponsler (1992) pictured Gibson's work as follows:

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[119] McCaffery and Gibson, "An Interview with William Gibson," 224.
[120] Ernest Cline, *Ready Player One* (London: Arrow Books, 2012), 58–59.

> Gibson's pack-rat eclecticism – which appropriates a whole range of contemporary cultural material drawn from television, technical and military jargon, modern art and music, *film noir*, and the hard-boiled detective story – also marks his novels as postmodern. […] Gibson throws out a seemingly indiscriminate collage of borrowings, a world made from the fragments of other worlds, describing it all in a tech-noir language perfectly suited to the material.[121]

Man and machine becoming one is one of the typical elements of science fiction – as showcased by the well-known character of *Frankenstein* and the recurrent portrayal of cyborgs in novels, as well as movies, e.g. Terminator in the *Terminator* saga (1984-2019). Although *Neuromancer* does not include any specific "humanoid" or "cyborg" in the character list, Sponsler insists that "the human and the technological overlap nearly endlessly." Certain characters in the novel are in many ways "adapted, enhanced, and preserved by technologies that invade and take over the body." And while plastic surgery grows in importance and usage, it is the individual identity that is slowly disappearing, especially the one "based on appearance."[122]

> In an age of affordable beauty, there was something heraldic about his lack of it. The antique arm whined as he reached for another mug. It was a Russian military prosthesis, a seven-function force-feedback manipulator, cased in grubby pink plastic.
>
> ***
>
> The black clinics of Chiba were the cutting edge, whole bodies of technique supplanted monthly, and still they couldn't repair the damage he'd suffered in that Memphis hotel.[123]

A vast majority of the characters in the novel have gone through some form of enhancement – whether it is a new, prosthetic hand (like the case of the bartender Ratz), or eye replacements improving vision (Molly's case), the moment an enhancement is needed, it is always available. The moral side of this needs to be considered though as some of the surgeries and works were done at the so-called black clinics of Chiba, which were not only expensive but also illegal providers. Gibson's male protagonists, however, "are the characters that are the least invaded by technology. Without exception, they are all resolutely 'human,' not least of all in their vulnerability. Refusing implants or alterations that might call into question their humanness, they interact with machines only temporarily when they

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[121] Sponsler, "Cyberpunk and the Dilemmas of Postmodern Narrative: The Example of William Gibson," 629.
[122] Sponsler, "Cyberpunk and the Dilemmas of Postmodern Narrative: The Example of William Gibson," 631–632.
[123] Gibson, *Neuromancer*, 3–4.

jack into their decks and voluntarily enter cyberspace."[124] This fact might in theory make the readers feel secure because they can identify themselves with the protagonists much better than they hypothetically could in case of half-machines.

In some cases, the enhancement was not of a visible matter – meaning there is no apparent addition to the person's visuals. In the case of Julius Deane, a character that is a good friend of Case, he made a trip to Tokyo every year, just to have "genetic surgeons reset the code of his DNA, a procedure unavailable in Chiba."[125] The procedure allowed Deane to become 135 years old and still thriving. Such practice might be desired in the future in case scientists do not find a way to preserve minds outside physical bodies – using the technique Julius Deane showcased might be one of the first steps toward the sought result of preserving the body to keep one's mind alive forever.

Even though it can be considered a work of popular literature, *Ready Player One* requires more than just a surface reading. To understand every reference, the reader must go deep and acquire knowledge regarding video games and 1980s pop culture, cinematography, and literature. However, that does not mean that the novel cannot be read without having such knowledge – "it is possible to finish the novel, like a video game, with various levels of completion."[126] Cline took it upon himself to describe the postmodern inclination towards gaming and "gamifying" everything. Consequently, when using games in his favour by creating a dystopian world within a game, a specific group of readers became interested – "those who are a part of the digital gaming subculture."[127]

Ready Player One is overflowing with intertextuality. The novel is full of references to books, movies, and video games which were popular in the second half of the 20th century, specifically the 1980s. The majority of the references are "associated with gamer subculture, including everything from classic video games to cyberpunk fiction to film, television, and comic books." Cline created a whole new subculture, created rules and full history, all of which was organized into a neat form by James Halliday, the creator of the virtual space the OASIS.[128] It was through Halliday that Cline incorporated himself into the narrative. He was

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[124] Sponsler, "Cyberpunk and the Dilemmas of Postmodern Narrative: The Example of William Gibson," 637–638.
[125] Gibson, *Neuromancer*, 14.
[126] Megan Amber Condis, "Playing the Game of Literature: *Ready Player One*, the Ludic Novel, and the Geeky 'Canon' of White Masculinity," *Journal of Modern Literature* 39, no.2 (Winter 2016): 4.
[127] Condis, "Playing the Game of Literature: *Ready Player One*, the Ludic Novel, and the Geeky 'Canon' of White Masculinity," 2–3.
[128] Condis, "Playing the Game of Literature: *Ready Player One*, the Ludic Novel, and the Geeky 'Canon' of White Masculinity," 3.

a "stereotypical nerd"[129] interested in video games and *Dungeons & Dragons*, the same way Halliday was. Cline's interest in *Star Wars* and *Space Invaders*, as well as finding a few friends back in high school he could play *Dungeons & Dragons* with are just a few of the similarities between the author and the character of Halliday.

The novel explores escapism, whether it is in the form of reminiscing of the 80s or in the form of literally escaping the day-to-day reality by logging into the OASIS. As argued by Jonathan Alexander (2020), the novel "offers a prime example of a mass cultural narrative that replicates, *in its narrative*, the maintenance of a commercial and economic status quo while also playing to the fantasies of liberation that Wade and his friends clearly entertain as they jack into the OASIS and seek a better life."[130]

4.4 Cyberspace and the OASIS

Gibson not only came up with the term *cyberspace*, but he was also the one who made it popular through the success of this novel. In *Neuromancer*, cyberspace plays a crucial role in being the key tool to solving most of the characters' problems. *Neuromancer* explores the possibility of sharing one's experience through a so-called "simstim link" or "simulation-stimulation link," which means that not only can the main character see what a side character, into which he is "jacked," is doing, but he also feels the pain she's going through. The possibility of such experience means that "one's own experiences are no longer just one's own and offer no mechanism for self-determination or self-definition." Such a concept not only challenges the matter of identity but also questions reality and how people can perceive what is real and what is not.

> Case hit the simstim switch and flipped into the agony of broken bone. (…) Case was back in the matrix instantly, a white-hot line of pain fading in his left thigh. Molly took a single step, trying to support her weight on the corridor wall. In the loft, Case groaned.[131]

The concept of death is also challenged, supporting Susan Schneider's psychological approach to brain relocation as described on page 28 of this thesis, as in the case of this novel one's consciousness can be preserved in the form of computer constructs – which was the case of one of the characters – Dixie Flatline. Dixie's life ended because he flatlined – his

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[129] "Interview: Ernest Cline," Lightspeed, Accessed April 20, 2022, http://www.lightspeedmagazine.com/nonfiction/interview-ernest-cline/
[130] Alexander, "The Uses and Abuses of Pop Culture in *Ready Player One* and *Grandmother's Gold*," 533.
[131] Gibson, *Neuromancer*, 73.

heart stopped, and he died. But thanks to the possibility of preserving the mind in the digital form his genius mind was saved. Gibson took a step forward and tried to put into reality what remains speculation – transferring a person's mind and keeping it "alive" even after their physical bodies are no longer alive.[132] That, however, does not mean characters like Dixie agreed or agree with being preserved this way or that they realise they are but a line of ones and zeroes. On several occasions, Dixie mentions the desire to be "erased" and therefore, finally, leave this world behind and "die" the way was supposed to.

> 'How you doing, Dixie?'
> 'I'm dead, Case. Got me enough time in on this Hosaka to figure that one.'
> 'How's it feel?'
> 'It doesn't.'
> ***
> 'Do me a favour, boy.'
> 'What's that, Dix?'
> 'This scam of yours, when it's over, you erase this goddam thing.'[133]

Gibson went as far as to describe what cyberspace is within the course of the novel, creating an exposition. From a very young age, children in *Neuromancer* are being taught about cyberspace and how to operate it. It is incorporated into the way they live, work and study. In the excerpt, a TV program designed for children explains what cyberspace is and how it works in rather difficult terms for a child to comprehend.

> 'Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts… A graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the non-space of the mind, clusters and constellations of data.'[134]

"It is in the realm of cyberspace that the heroes of Gibson's novels enter into a disembodied and egoless state."[135] By connecting himself to the computer and therefore to cyberspace, Case can spend hours upon hours, sometimes even days, connected to the cyberspace. This is, however, deceiving. As proclaimed by the AI Wintermute – "an hour

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[132] Sponsler, "Cyberpunk and the Dilemmas of Postmodern Narrative: The Example of William Gibson," 633.
[133] Gibson, *Neuromancer*, 118.
[134] Gibson, *Neuromancer*, 59.
[135] Sponsler, "Cyberpunk and the Dilemmas of Postmodern Narrative: The Example of William Gibson," 634.

here'll only take you a couple of seconds."[136] By "here" it is of course meant in cyberspace, as the conversation consisting of this line happened when Case and Wintermute met while Case was connected to the matrix. And while the flow of time changes when Case connects to cyberspace, time remains the same, i.e., linear, in the OASIS of *Ready Player One*.

The "Ontologically Anthropocentric Sensory Immersive Simulation"[137] is a virtual space created by James Halliday, a video games designer, that allows for various utilizations – it is used for school, work, and entertainment all in one. At first, the main purpose of the simulation was to escape from the harsh reality of the dystopian world dealing with the "Global Energy Crisis,"[138] along with food, housing and other shortages. Eventually, as is the case today with smart phones and home computing, the OASIS evolved from an entertainment-focused space to a virtual school facility, workplace, and playground, and effectively changed people's lives.

> I was introduced to the OASIS at an early age, because my mother used it as a virtual babysitter. As soon as I was old enough to wear a visor and a pair of haptic gloves, my mom helped me create my first OASIS avatar.
> […] I was more or less raised by the OASIS's interactive educational programs, which any kid could access for free. I spent big chunk of my childhood hanging out in a virtual-reality simulation of Sesame Street, singing songs with friendly Muppets and playing interactive games that taught me how to walk, talk, add, subtract, read, write, and share.[139]

In terms of utilization, the OASIS seems to work in a similar manner as Metaverse, providing the users with space where they can work, study, and have fun while being able to communicate with other people all over the world.

The OASIS is not only the name of the virtual world, but it is also a software that "creates a gigantic online universe that has reshaped society and is essentially humanity's electronic refuge from the environmental and social deterioration of the twenty-first-century world."[140]

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[136] Gibson, *Neuromancer*, 187.
[137] Cline, *Ready Player One*, 48.
[138] Cline, *Ready Player One*, 17.
[139] Cline, *Ready Player One*, 15.
[140] Nordstrom, "'A Pleasant Place for the World to Hide:' Exploring Themes of Utopian Play in *Ready Player One*," 242.

> My generation had never known a world without the OASIS. To us, it was much more than a game or an entertainment platform. It had been an integral part of our lives for as far back as we could remember. We'd been born into an ugly world, and the OASIS was our one happy refuge.[141]

However, all that glitters is not gold, and neither is the OASIS as idyllic as originally presented. As utopian as it might seem with its unlimited possibilities, Cline does not forget to highlight the bad sides of it – "a perspective of the OASIS not as a haven but as a corrupting influence, nurturing isolation and global indifference."[142] In the novel, Halliday's former best friend and business partner Ogden Morrow has an argument with Halliday regarding the status of the OASIS. Morrow realized the devastating consequences of the OASIS, but his words were to no avail as most of the world's population was already obsessed with the OASIS and would not listen.

> [He] felt that the OASIS has evolved into something horrible. "It had become a self-imposed prison for humanity," he wrote. "A pleasant place for the world to hide from its problems while human civilization slowly collapses, primarily due to neglect."[143]

4.5 Artificial intelligence

Gibson continuously blurs the border between the human and the machine. Where human beings acquire machine-like descriptions and characteristics, robots and gadgets are described with human or animal qualities. By blurring the lines this way, Gibson makes yet another statement pointing at the fact that AIs can potentially acquire qualities that are originally assigned only to human beings. Neuromancer and Wintermute, the AIs of *Neuromancer*, combine "the organic and inorganic, calling into question along the way such qualities as agency, motive, intentionality, and autonomy that are supposedly exclusive to humans."[144]

> 'Wintermute is the recognition code for an AI. I've got the Turing Registry numbers. Artificial intelligence.' […] 'And you think it's this AI? Those things aren't allowed any autonomy.'[145]
>
> ***
>
> 'How smart's an AI, Case?'

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[141] Cline, *Ready Player One,* 34.
[142] Nordstrom, "'A Pleasant Place for the World to Hide:' Exploring Themes of Utopian Play in *Ready Player One*," 245.
[143] Cline, *Ready Player One,* 120.
[144] Sponsler, "Cyberpunk and the Dilemmas of Postmodern Narrative: The Example of William Gibson," 635.
[145] Gibson, *Neuromancer*, 82.

> 'Depends. Some aren't much smarter than dogs. Pets. Cost a fortune anyway. The real smart ones are as smart as the Turing heat is willing to let 'em get.'[146]

One of the key points here is that in terms of the world of the novel AIs are generally considered dependent on humans – they serve them, are not of much intelligence, and only get what their owners or creators give them. However, this might contrast with the original intention of creating AIs – why create something smarter than a robot running on a few codes, when it is not assigned autonomy and therefore cannot think for itself? The AIs in *Neuromancer* are at first considered just simple programs, but as the story progresses, the AIs turn out to be much smarter than they originally seemed to be. Wintermute, which is one of the AIs, spent 20 years creating a plan to merge with its sibling entity Neuromancer.

> Wintermute was hive mind, decision maker, effecting change in the world outside. Neuromancer was personality. Neuromancer was immortality. Marie-France must have built something into Wintermute, the compulsion that had driven the thing to free itself, to unite with Neuromancer.[147]

Cline's novel does not operate in depth with any kind of artificial intelligence. The only time the novel gets within earshot of an AI is when Wade, right after winning the contest and inheriting the OASIS, talks to the digital representation of Halliday. The programmed Halliday reacts as if a real person was operating it, creating an illusion of an AI possessing Halliday's knowledge and memory. That, however, is only mere speculation as the genius mind that Halliday was could have simply created a program that would speak with any winner the same way he did with Wade, becoming yet another basic program instead of a thinking entity that is an AI.

However, it is important to note that even though the programmed version of Halliday that Wade talked to might have been nothing but an avatar programmed to conduct the ceremony of passing the OASIS to the winner, it "consciously" cut the communication and video streaming so that Halliday could talk to Wade privately.

> "Did you guys see everything Halliday said to me before he vanished?" I asked.
> "No," Art3mis said. "We saw everything up until he told you to 'try and use your powers only for good.' Then your vidfeed cut out. What happened after that?"
> "Nothing much," I said. "I'll tell you about it later."[148]

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[146] Gibson, *Neuromancer*, 105–106.
[147] Gibson, *Neuromancer*, 295.
[148] Gibson, *Neuromancer*, 365.

One of the reasons for this could be the fact that the holographic Halliday disclosed some important details to Wade that he did not want anybody else to know – such as the existence of the "off" button that can erase the OASIS to the very last one and zero. As much as this could be yet another part of the winning process, it seems unlikely that Halliday would go as far as to program a complete halt of the video services just to have a private talk with the winner. Instead, he could have simply sent a short message or a letter that would not be visible to anyone but the winner or would be shredded once it's read. In the conversation, it also seems as though Halliday is having a sincere conversation with Wade, explaining also the reason behind the creation of the OASIS – "I created the OASIS because I never felt at home in the real world."[149] A statement like that feels personal and intimate, bringing up the question whether Halliday went as far as to preserve a piece of his mind in the digital environment, just like Gibson did in *Neuromancer* with Dixie, to remain a thinking entity. There is also a possibility that Halliday remained as an AI to oversee the contest and make sure the winner, and therefore the heir of the OASIS, is worthy of the award. For Halliday, the OASIS was his safe place, his home, and with the genius mind of his, it would not be surprising if he made himself part of the game. James Halliday died in the real world, but his legacy continued in the form of the OASIS and perhaps a form of AI as well.

4.6 Real vs digital

As dystopian and dark as the world in *Neuromancer* is, the main character Case does not seek an escape to cyberspace because his life in the real world is that bad or because he has no other option. Cyberspace was once his occupational workplace as a cyberspace jockey who connected to cyberspace to search for information for his employer. However, as previously stated, Case started stealing from his employer and was punished for his greed – his nervous system was damaged to the point where his brain was no longer capable of being connected to cyberspace. As expressed a few times throughout the first few chapters of the novel, being cut off from cyberspace brings him nearly withdrawal symptoms, as he is missing the feeling of being "jacked in."

> A year here and he still dreamed of cyberspace, hope fading nightly.
>
> ***

[149] Gibson, *Neuromancer*, 364.

> They damaged his nervous system with a wartime Russian mycotoxin. Strapped to a bed in a Memphis hotel, his talent burning out micron by micron, he hallucinated for thirty hours.
> […] For Case, who'd lived for the bodiless exultation of cyberspace, it was the Fall. […] Case fell into the prison of his own flesh.[150]

Case undergoes surgery to have his nervous system repaired, which allows him to connect to cyberspace yet again. Connecting back to cyberspace seems like a homecoming as Case even sheds tears, happy to be back.

> Disk beginning to rotate, faster, becoming a sphere of paler grey. Expanding –
> And flowed, flowered for him, fluid neon origami trick, the unfolding of his distanceless home, his country, transparent 3-D chessboard extending to infinity.
> ***
> And somewhere he was laughing, in a white-painted loft, distant fingers caressing the deck, tears of release streaking his face.[151]

At first glance, it might seem that Case is seeking cyberspace in a similar way Wade seeks the OASIS, however, this could not be further from the truth. Wade connects to the OASIS with one goal – to escape the harsh reality of a dystopian world, the harsh reality where he is nothing but a teenage boy with acne. And although Case welcomes cyberspace with arms wide open and spends nearly an unhealthy amount of time "jacked in," it is mainly because he is working there, slowly finding his way through the security systems of banks, institutions, etc., to gain information and undermine the system and the government.

While Gibson blurs the line between physical reality and cyberspace, Cline created a world where the digital, virtual world is much more desirable than the real, physical one. This shows the differing views of technology of the two authors, with Gibson's earlier work taking a much more nuanced and philosophical approach. And while science fiction is known for the sense of escapism, escaping into worlds slightly different from the one known to the characters, it seems as if Cline made it his mission to justify his characters' decision for spending more time in the OASIS than in the real world. During the first chapter, Cline uses the main character Wade to explain what happened to the world and why people of the novel turned to the OASIS to live their lives in the digital world rather than the physical one. When talking about the "global civilization," Wade makes a point about burning fossil fuels

[150] Gibson, *Neuromancer*, 5–6.
[151] Gibson, *Neuromancer*, 60.

and how there seems to be a "Global Energy Crisis, and it's been going on for a while now." Wade's monologue also touches on global warming and the effects of burning fossil fuels that are now long gone. He speaks of shortages, people being homeless, poor, and hungry, drawing a picture of the 2040s in a light that does not compliment it at all.

> Things used to be awesome, but now they're kinda terrifying. To be honest, the future doesn't look too bright. […] And it looks like things are only gonna get worse from here on out. Human civilization is in 'decline.' Some people even say it's 'collapsing.'

Cline portrays the world of the 2040s in dark colours, describing slums, gunshots and crises in a matter-of-fact manner, making it the "new normal," and for that very reason, his description of the OASIS seems that more attractive and more hopeful. He compares the harsh reality to the dreamy digital world, effectively creating a striking contrast that draws more attention and sympathies towards the digital environment which seems to serve as an escape, a digital sanctuary even.

> Luckily, I had access to the OASIS, which was like having an escape hatch into a better reality. The OASIS kept me sane. It was my playground and my preschool, a magical place where anything was possible.
>
> ***
>
> [My mom] used to have to force me to log out every night, because I never wanted to return to the real world. Because the real world sucked.

At the very beginning, Cline portrays the OASIS as necessary and better for humankind, especially in the conditions happening in the USA in the 2040s. However, Wade is surprisingly considerate when it comes to blaming the previous generation for the state of the world.

> I never blamed my mom for the way things were. She was a victim of fate and cruel circumstance, like everyone else. Her generation had it the hardest. She'd been born into a world of plenty, then had to watch it all slowly vanish. More than anything, I remember feeling sorry for her. [152]

At the end of the novel, Wade inherits the OASIS, as well as a considerable amount of wealth, and the fate of the VR platform lies in his hands. Influenced by Halliday's projection as the hologram delivers a speech about true happiness that can only be found in the

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[152] Cline, *Ready Player One,* 18.

terrifying reality, the Spielberg movie version of Wade decides to limit the time people spend in the simulation – Wade's aim is to make people live in the real world again, not just in the virtual one. Cline's version of Wade sets his goal to feed all the people on the planet and ultimately "make the world a better place."[153] It takes both Halliday and Wade their whole lives to realize that the real world is worth living for and hiding in the OASIS is not an option to go by forever.

> "I need to tell you one last thing before I go. Something I didn't figure out for myself until it was already too late."
>
> ***
>
> "I created the OASIS because I never felt at home in the real world. I didn't know how to connect with the people there. I was afraid, for all of my life. Right up until I knew it was ending. That was when I realized, as terrifying and painful as reality can be, it's also the only place where you can find true happiness. Because reality is *real*. Do you understand?"
>
> ***
>
> "Don't make the same mistake I did. Don't hide in here forever."[154]

[153] Cline, *Ready Player One,* 371.
[154] Cline, *Ready Player One,* 364.

CONCLUSION

Will Lavender, university writing teacher and author of the crime thriller *Obedience* (2008) greatly praised *Ready Player One*: "Here, finally, is this generation's *Neuromancer*."[155] In one way, Lavender might be right. As far as the attention and enthusiasm go, *Ready Player One* caught the attention of as many people as *Neuromancer* did, if not more. Both had their own audience and spurred a wave of interest towards the science fiction genre. In terms of impact, then, there is undoubtedly a similarity between the two.

One of the striking differences when comparing these two novels should be the depth of the ideas and stories portrayed in each. Where *Neuromancer* is hard science fiction, focusing on the technical and digital side, *Ready Player One* does not go that far into the technological description, focusing more on the adventure and thrill of going after the supreme Easter egg. Gibson wrote *Neuromancer* when the technology was nowhere near the level of development he portrayed in the novel. On the other hand, Cline grew up influenced by Gibson's novels, as well as other prominent authors of cyberpunk. By 2011, various types of XR have already become a common occurrence and even though *Ready Player One* makes great use of VR and its properties, Cline did not go as far as he could have when it comes to the technical and controversial aspects of the XR available today. This might also be yet another reason why *Ready Player One* became so popular – the novel is not hard science fiction, but it tells a straight-forward story full of adventure and friendship and, unlike *Neuromancer*, the story is a straight-forward "good" versus "evil" one. In contrast, it is often difficult to tell who is a hero and who is a villain in *Neuromancer*, as the characters are psychologically much deeper and the situations express more profound ideas and issues in terms of time, space, and reality. In this way, *Ready Player One* avoids some of the ethical ambiguities that make Gibson's novel so interesting. Cline's novel never questions whether a society so dominated by the OASIS is necessarily a good place; the novel simply accepts without examination a future of escape from dystopian reality through gaming. On the other hand, *Neuromancer* thoroughly explores philosophical issues such as preserving consciousness in cyberspace after physical death, and what form could that consciousness take to express itself. This kind of profound speculation itself is a considerable achievement in 1984, when the novel was published, and this is a reason why *Neuromancer* has taken on legendary status for hard science fiction fans.

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[155] Cline, *Ready Player One*, back cover.

Where Cline does not present any deeper philosophical thoughts, at least not the apparent ones for an ordinary reader, Gibson deals with the issue of artificial intelligence as well as the transformation of the human mind into digital form. Considering the years *Neuromancer* and *Ready Player One* were published, 1984 and 2011 respectively, even if not striking there is a difference in handling the technological development. Gibson's novel belongs to the cyberpunk sub-genre which dwells on rebellion, standing up to authorities, and questioning the system – which is exactly what the characters in the novel do. Cline's novel on the other hand does not care about the system, the authorities, or the rules. The only goal of the characters in *Ready Player One* is to win the contest and not let the "evil" company, IOI, inherit the OASIS and make it commercial. Up until the introduction of Art3mis, one of the main characters of the novel, not a single character in the novel cares about the fact that people are living in poverty, can barely afford to eat, that the criminality is spiking, or about the fact that there is literally no possible option for a person to make living unless they work in the OASIS. The characters simply accepted that the world has changed for the worse, and there is not much they are willing to do to offset the course of the events.

The OASIS of *Ready Player One* serves as a safe haven. When Cline wrote the novel, he set the course of the story to incline towards escapism, leaving the real and ugly world behind while connecting to the utopian virtual world where anything is possible. The characters do not question the absurd fact that they can no longer take care of their own world, but instead, they tend excessively to the OASIS. As for Gibson, cyberspace is much more than just a way to escape the every-day life. Cyberspace serves the people who know how to operate it – it is not made for everyone and while the novel makes great use of it, the majority of the time it is only Case, Dixie, and the AIs that access it. While the idea of cyberspace, and metaverse as well, is to provide virtual space for everybody, it is the educated minority that can make the biggest use of it as they know exactly how to utilize it to its best potential.

Ready Player One made people interested in science fiction and pop culture again. The bestseller novel from 2011 was, with the help of Cline who co-wrote the script, adapted into an eponymous movie directed by Stephen Spielberg in 2018. The fact that Cline's novel was made into a movie while *Neuromancer*, after nearly 40 years since publishing, still has not got a single adaptation also says something about the difference between the two works. *Neuromancer*, even though much older and describing technology that is nowhere near as complicated as the technologies of current days, is still rather difficult to grasp, and – which

might be the main reason why the novel still has no movie adaptation – does not have such a wide fan base anymore. While Cline's novel received a lot of attention from the readers of science fiction, Spielberg's movie significantly aided the popularity of the novel as well by attracting non-science fiction fans, and mainly, non-readers. Gibson created a work that addressed quite a narrow audience and even though the novel is to the present day significant for science fiction and cyberpunk, its reach is not as wide as the one of *Ready Player One*.

While *Neuromancer* is not exactly relatable as Gibson describes a dystopian world full of technology and advancements that surpassed its time, Cline set his story in dystopian America, twenty years in the future, while simultaneously bringing back all the nostalgia of the 1980s – from music to fashion and games. Even though many of the readers were not even born during the 1980s, Cline managed to transfer the nostalgic feeling onto the 2000s, as well as the 2010s, and by using a variety of references to movies, books, games, and music, the novel undoubtedly found its way to everyone who picked it up. Whether a gamer or not, readers could find bits and pieces of what influenced their childhood and adulthood within the pages of this novel – which is something that could never happen with *Neuromancer*.

By Lavender's statement, which is printed on the back of the novel, it seems as if he automatically expects readers of *Ready Player One* to have read *Neuromancer*.[156] Thus it is assumed that Gibson's novel is a work that fans of science fiction know, which makes it a very significant novel. Furthermore, Lavender not only puts the two novels on the same shelf, but he also mentions one crucial fact – that these two are of different generations, and while *Neuromancer* greatly influenced the generation of the 1980s and onwards, *Ready Player One* is taking the spotlight now, being as significant to the new generation as *Neuromancer* is to the previous one.

[156] Condis, "Playing the Game of Literature: *Ready Player One*, the Ludic Novel, and the Geeky 'Canon' of White Masculinity," 5.

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LIST OF ABBREVIATIONS

A AI – Artificial Intelligence

AR – Augmented Reality

H HMD – Head-mounted display

I IOI – Innovative Online Industries

M MR – Mixed Reality

O OASIS – Ontologically Anthropocentric Sensory Immersive Simulation

S Sci-Fi – Science Fiction

V VR – Virtual Reality

X XR – Extended Reality