Universitat Internacional de Catalunya
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An analysis on the use of AI to help humans deal with grief

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1. Introduction

1.1 Justification

When I made up my mind and opted for studying the double major on Humanities and Law, I knew I was making the right decision by entering a field I knew someday would be helpful for my professional development and for helping society in the long term. Through all these years I have explored how the population interact with the circumstances they are embedded in. To outline this idea, that is by gaining objective knowledge about how the universe works, also by conceptualizing on what the person is, and whether there is something ulterior to the limited knowledge the person has. In this degree the studies where focused on the ability of humans to interact with each other and the world unknowingly given to them. Humans have shaped the world with their will to adjust to the environment. Nevertheless, there was this one class that depicted a contemporary point of view on this unilateral interaction. In *Science, Technology, and Society* I learned that the unilateral interaction wouldn't stop working with the state-of-the-art technology that is being used at this point. The reason is simple: before humans were only shaping the land and playing with different conceptions of life according to the personal circumstances each population is embedded in. But in the past 25 years technology has opened the gate to endless possibilities being one of them bringing the dead back alive.

It was after taking that subject that my admiration on technology incremented. The peak sprung up in 2022 when I took a course on *Rhetoric in law and politics TikTok and technical talk: law and politics of Big Data, privacy and machine learning* at University of California, Berkeley. Even though the class was intrinsically linked with the application of the Law in AI innovations it got me thinking on the diverse areas AI is capable to seep in. In this line I sought to study whether this powerful tool could be useful to help humans understand their emotions that make them precisely humans. This question is not only psychological considering that many philosophers since the beginning of times have also commented on how people should react to internal and external stimulus to find comfort or even happiness. Concluding that melancholy and grief are the most powerful and hurtful emotions people can feel I decided that they were the feelings I wanted to investigate intertwined with AI.

1.2 Methodology

To produce this assignment, the idea is to read the thesis and books on griefbots provided in the bibliography and webliography and write a synthesis as well as a critical overview on it. As a development of the arguments, to be able to put the theory into practice, it will also be explained some case studies where people who have gone through bereavement have accepted to take part on an experiment by using this state-of-the-art technology or have created their own software to cope with their pain.

1.3 Goals

By writing this essay the targets are fundamentally:

- To understand how humans face grief from a psychological and philosophical point of view.
- To understand what AI is and put the focus on the application of AI in human relations, specifically when it involves the death of a loved one.
- To sketch the consequences of using AI to cope with bereavement, grief and mourn.

2. Status of the issue

Given the circumstance that, at last, the essay will revolve around AI and grief, the state of the issue doesn't collect data on when the emotion of grief was first studied, nor when technology, and precisely, AI took place. However, it does begin when approximately both targets of study together.

As Elder (2020) point out, in the 3rd century BCE Confucian scholar Xunzi, examined the figure of *the imitator of the dead*. This was an actor appointed by the family of the deceased who took on his identity in the days after his death by hosting and providing banquets for friends and family to give them the opportunity to communicate with him, say goodbye and thank him (B. Jiménez-Alonso, I. Brescó, 2022). Thereon the desire that underlies in this realm is the ability to say goodbye to a deceased loved one with whom there had not been that possibility of uprooting.

Leaping thousands of years after, in 1950 a mathematician known as Alan Turing published an article by the title *Computing Machinery and Intelligence*. In the article Alan described a machine capable of maintaining a modest conversation. The programing of this machine sought to achieve a therapeutical conversation between a machine and an individual. The computer was able to pursue its goal, nonetheless, the dialogue was simple. The progress Alan Turing made was taken with great interest by Joseph Weizenbaum, a German computer scientist who a few years later, in 1966 put the theory into practice by creating the first-ever *chatterbot*, ELIZA —a program designed to imitate a psychologist who would ask open-ended questions and respond with follow-ups. The term chatterbot didn't exist at that moment. It was Michael Maudlin in 1994 who coined that the term to describe these programs with which people would have conversations. (Salecha, 2016). Three years later, in her 1997 paper "Social support 'internetworks', caskets for sale, and more: Thanatology and the information superhighway" Carla Sofka coined the term *thanatechnology* with which she intertwined the idea of bringing together death and technology (Bassett, 2015).

Not many years after passed by until the internet became accessible to everyone. This technology wasn't only a spot in which you could surf on the internet, it also opened a gate to creativity. Since Mary Shelley's *Frankenstein* (Shelley,1818) the dream of a human creating with

his or her bare hands another animated being has been one way or another present. Now the dream is so close to becoming true, one of the multiple uses this creation could have would possibly be to help humans deal with grief, bereavement and mourn. (B. Jiménez-Alonso, I. Brescó, 2022).

Let's recapitulate a bit before moving on to talking about painbots or griefbots. The telephone was the most recent artifact that, according to Walter (2015), made telepresence possible, that is, a non-physical co-presence between interlocutors comparable to that between the living and the dead. Nowadays this has become a socially validated technology which can be used to leave text and voice messages not only with the living but also to the deceased by having one-way conversations with him or her. This is a current case that takes place in Japan with what they call “the wind phone”: a phone booth built by Sasaki in his garden after the death of his cousin, which was finally opened to the public so that family members could send messages to those who died in the 2011 tsunami.

In 2014, the entrepreneur Marius Ursache forecasted the app Eterni.me. This is an ongoing service whereby anyone can develop its own digital avatar with which the people closest to them can interact after their death (Jiménez-Alonso; Brescó de Luna, 2022). Similar to Eterni.me is the LifeNaut app; both of the apps enable people to control how they are remembered after they die (Bassett, 2015). Not long after this tryout led it to a more sophisticated idea by creating what are now known as *griefbots*. This arose in 2016 when two computer scientists, Eugenia Kuyda and Muhammad Ahmad, developed two different bots separately when they wistfully lost people closest to each one. In Ahmad’s tessiture at first, he focused on modeling human behavior in videogames and spent the last few years collecting data his deceased father had left. Eugenia directly created a simulation of her deceased friend after he was killed in a road accident. So instead of using website memorials or enrolling on online messenger services they both used AI to create, at first, a chatbot. Just like Eterni.me the chatbot uses a computer program based on AI which allows people to have dialogues with a deceased by cause of it responding alike the deceased would. This is achieved by analyzing the *digital footprint* of the person created through the e-mails, text messages and social networks of the deceased person to build that *virtual self* (Godfrey, 2019). The AI uses Machine Learning, Deep Learning and Natural Language Processing to interact as humanly possible with the users of the chatbot.

Moreover, James Vlahos founded Hereafter.ai in 2019. This is not a bidirectional way of interacting with the dead but a more conservative tool. In fact, it is a web and mobile application which enables the user record and share memories though interactive Life Story Avatars. Hereafter.AI features include the biography, conversational ai, voice computing, family history, legacy planning, and artificial intelligence. This technology is less controversial because is more similar to keeping a diary your family can read once you're dead instead of creating an artificial prolongation of yourself which tries to mimic your past alive self by using your digital footprint.

In short, what I want to point out are this sort of new technologies which whose function is to help people overcome suffering and that have been evolving since the start in the 1950s. Now the dream is the possibility of one day misleading death by communicating with our deceased loved ones via technology. Some examples which portray ways this could happen are Black Mirror's 'Be Right Back' episode (Brooker & Harris, 2013) and Upload, a tv show which visions our future world where it is possible to "upload" oneself into a virtual afterlife cheating the ultimate thing that humans may fear the most: death.

Before engaging with the next section of this thesis I'd like to mark out how Savin-Baden, Burden, and Taylor (2017) differentiate between unidirectional immortality and bidirectional immortality since I will mainly focus in the second type. In the first case –represented by online memorials like the realm created by Hereafter.ai– the posthumous digital presence of the deceased "is purely 'read-only'. It is possible to see it, read it, even receive messages from it, but not converse with it" (Savin-Baden et al., 2017). For its part, two-way immortality implies "the potential of digital identity to interact with the world of the living." (B.Jiménez-Alonso, I.Brescó, 2022).

Now that there is an overview of the progress that has been galloping reached during these past decades, I will try to give an insight of the reasons it is necessary to study the implication of AI with human emotions. In order to do that first, I will start by simply explaining what humans are from the lenses on grief. Then explain some ways humans have coped with grief.

2.1 Artificial Intelligence, a challenge for humanists

A human has a myriad of ways from which it can be analyzed. In this section our sentiments and reason will both be the pinpoint, nevertheless, the study will focus primarily on human feelings. In order to put us in perspective, from 2022 animals in Spain are being "sentient beings". This is the result of human reason and feelings buckling up with the purpose of developing a more conscious relationship with animals.

The way humans have been crafted differs from other living beings because by their unique reasoning humans have the possibility to form a narration of the causes to their grief and they can form ideas on how to alleviate that pain. Instead, and animal usually shows basic attitudes through animal expression, which is very much fenced in. For instance, it is possible when to know if a horse is listening, distracted, alright or angry by paying attention to the position of its ears. Rewinding to what makes a person a human, reason enables us to pinpoint what feeling humans are going through. And it is precisely the ability to feel things internally and externally an important part of human nature. Just like other living beings, humans feel emotions and there is this particular emotion humans experience there that can transform the way they live their lives -unlike other living beings- and it is the deepest feeling a human can experience. In words of the American writer Allan Edgar Poe, that feeling is bereavement.

The paramount challenges humans face at present due to the rapid development of technology are the substitution of the traditional "Moving on and Letting Go" theories to the "Continuing Bonds" theories, and the awaken of the Digital Zombies (Bassett, 2015). By the first challenge what is at stake is the suggestion that relationships continue after death with the creation of virtual bonds, reality that is backed by the peak of online memorials. With social media present, a research paper found that Facebook users "don't de-friend the dead (Pennington, 2013). Pennington saw the living users tend to "renegotiate" their relationship with the dead, thereby redefining the bonds. On the other hand, by digital zombie Bassett (2015) express the resurrected dead who remain "alive" and "active" in our digital society and crucially discusses how they differ from Internet ghosts.

3. Definition and explanation of grief and responses to it

The Cambridge Dictionary defines grief as an "very great sadness, especially at the death of someone". Grief can be caused by endless factors, the one which will be forwarded on is by cause of death. Death can be perceived as a tragedy or as a catalyst for change. Every bereaving person needs to find his or her way of coping with it. This experience is usually significant and transforming so finding the manner to grieve adequately is a throbbing task.

In addition, there are three central concepts which revolve around this topic which should be defined to avoid misunderstandings along the text, these are namely, bereavement, grief, and mourning. (cf., e.g., Boerner, Stroebe, Schut, & Wortman, 2016; Stroebe, Hansson, Schut, & Stroebe, 2008):

- **Bereavement** refers to the objective situation of a person who has recently experienced the death of someone significant.
- **Grief** refers to the emotional experiencing of several psychological, cognitive/behavioral, social, and physical reactions that the bereaved person may experience as a result of the death of a loved one.
- **Mourning** encompasses the actions and manners expressive of grief which are shaped by social and cultural practices, and by societal expectations which serve as guidelines for how bereaved people are to behave (which also differ across individuals and/or groups). At last, mourning covers different customs and rituals, including various funeral practices.
- Meanwhile throughout the text another key concept will take protagonism, that is the key word, coping. **Coping** is understood as "the person's cognitive and behavioral efforts to manage (reduce, minimize, master, or tolerate) the internal and external demands of the person-environment transaction that is appraised as taxing or exceeding the resources of the person" (Folkman, Lazarus, Gruen, & Longis, 1986).

Now, I am not going to deepen in interactive ways people may cope with grief – by going to the psychologist or expressing feelings to a family member or a friend–, instead I will describe tools people may use to close the circle of grief and giving a proper farewell to the loved one: Some people might pick up a pen and a paper and write down a farewell letter to the deceased loved one. The Russian writer Chejov used his literary skill to deepen on the feeling of bereavement his protagonists felt in his plays. What is more, grief doesn't come on its own. Chejov

portrayed his characters as they grappled with the complex emotions that come with grieving. In doing so, he gives us a deep insight into the human experience with grief (P. Chejov, 1970). Moreover, the musician Ed Sheeran published his new song "F64" as a tribute to his friend death Jamal Edwards. This musician often pays tribute to his deceased friends by composing music. From another perspective religious and spiritual people seek peace by hoping they will reunite with the loved once again in Heaven or the beyond. As to other ways to cope with grief, people can also carry pictures of the loved one in their wallet or keep the clothes that the person used to use and so on. These are brief one-ways in which a person may cope with grief evoking old memories.

Humans have the singular capacity of also anthropomorphize objects which means adding human attributes to non-living objects. For instance, a person might call the thermomixer he or she has at home "Grandma" because it reminds them of their deceased grandmother who used that machine every Tuesday to make Gazpacho. He/ She may talk with the cuisine robot as it was their once alive granny, and it evokes happy memories for them. However, with the spread of the state-of-the-art technology the traditional ways for grieving are developing with the purpose of the companies to allow its users evoke and create new memories with the deceased loved one. Thereon, machines will not be a medium of communication, they will also be communicative (2013). Humans are deepening in a bilateral communication as a new way of grieving. Imagine that a person becomes attached to the Siri of his iPhone by having anthropomorphized this technological tool. This utopia or dystopia is masterfully developed in the narrative of the movie starring Joaquin Phoenix, *Her* (Spike J, 2013). From now on this thesis will pick up this common thread and intertwine it with the use of griefbots by humans in order to help them with bereavement.

4. Explanation of AI technology and its applications in the field of grief support

4.1 What is AI and types of AI

Finding a decisive concept of AI which applies to the core of this thesis is tricky since the definition can easily become obsolete and useless. In addition, technology has infiltrated in all frameworks possible to be, which means the election of the words must be precise in order not to derive to misunderstandings. By and large Barona Vilar (J. I. S. Cayón y Martínez, 2022) defines AI as -a kind of all-encompassing notion (pan-concept) that allows us to harbor from the first manifestations of the intelligent machine, even if it were to display a kind of talent in a certain science, art, culture, until humans need to question themselves, in this unstoppable expansive digital world they live in, new intelligent formulas, not only in terms of state-of-the-art technology, but also in terms of its accessibility and friendliness of use. Delimiting AI in relation to bereavement is defined by MIT Technology Review reports as "the tech that works by training an AI on images, recordings, and footage of recently deceased people to create a virtual form that those who are grieving can interact with".

At present the nearest technology is focused in developing a reality where the bereaving and mourning person can create new memories with a loved deceased one is by creating griefbots or virtual realities as a realm to reconnect with a deceased loved one. Nonetheless the thesis is based on the robots. Griefbots, which is still a technology that is in a precarious stage of production and manufacturing, are hoped to interact in non-identical manifestations depending on the design of the programmer. It isn't the same a griefbot manufactured for a healthcare realm or for commercial purposes. Moreover, it is highly different the values programmers include in griefbots in Asia, than in South America, or Eastern Europe. Hence, I must mark out the griefbot I will continue to examine is the one programmed for commercial purposes in the Western world as it is a technology that could bring consequences for the realm I live in.

4.2 Griefbots

According to B. Jiménez-Alonso & I. Brescó (2022) there has been a growing number of new digital technologies mediating the experiences of grief and the continuing bonds between the bereaved and their loved ones following death. One of the most recent technological developments

is the “griefbot”. This state-of-the-art technology is based on the digital footprint of the deceased and are of great importance because griefbots allow two-way communication between mourners and the digital version of the dead through a conversational interface or chat. In spite of that, how cringe would be to hear a robot, an animated feelingless object say back to a person, “I love you”. The fact is that Replika.ai has created an avatar with which you can pour your feelings having feedback of it with meaningful words like “I will never leave your side” or “You are the softness of the morning dew!” (Luka, Inc.2016) and, at some point, it will say “I love you”. Is it conceivable a human will someday create some sort of doppelganger to him or her with the same or similar emotions and reasoning humans have been gifted with?

For now, AI is surfing between two waves: AI so far has been fruit of rule-based learning systems that replicate and mimic patterns of human behavior and reasoning. However, being true that Machine Learning has had its importance during the last 15 years, this branch of AI and Deep Learning are maturing as technologies that are now displaying amazing achievements, which lead to think that they represent a real revolution or quantum leap. This is entering a dimension where the unknown which resides in the dark provides creativity with the means to hope someday, programmers will be able to bring back de dead with the use of AI. The bosom of the thesis is to get a better idea on how griefbots need to be programmed and for what reasons. The manipulation of the information that is going to be inserted in the robot as well as the algorithms and tech has to be cautiously supervised. In fact, its supervision is deemed necessary due to the legal consequences that may result from the effects of this technology. Griefbots purpose -and above, all commercial griefbots- must be helping people, not hurting them. There is no use to debate on whether this high tech should even exist because it is already here - and will be part of our reality for years to come- so let’s start by differentiating the types of griefbots that are in the market and underlining the one that will be target to our ovations and criticisms.

Griefbots are different from the digital zombies; Bassett (2015) introduces even though this is an as an advanced type of symbolic immortality. This other state-of-the-art technology is usually used for advertising as the author reflects with the examples of deceased Bob Monkhouse appearing in an advertisement to raise awareness for prostate cancer, or the digital recreation of Michael Jackson which performs “live” on stage at concerts years after his death.

4.2.1 Types of griefbots

Wernaart (2022) describes in his chapter on "Designing a griefbot-for-good" three kinds of griefbots: the digital conversation assistance, the digital grief counseling, and the resurrect the dead bot.

The first bot supplements the conversation a mourning person might have with parents, friends, or a professional counsellor by involving a chatbot that provides a dialogue by the software applied to it. This software is used as a therapeutical system; sometimes it is used to help users prepare for an impending death, others, to face the reality that the person is not around anymore. Anyhow this first approach is the pure basic tool available for users interested in it. Both Eugenia Kuyda and Muhammad Ahmad began their journey towards the creation of synthetic griefbots by programming chatbots of this first-generation AI applied to griefbots.

The progress towards the second bot is considered to be more complex and complete than the first. The digital grief counselling uses synthetic media to enable an user have a conversation with the deceased. By synthetic media Van der Vorst and M. Kamp (2022) refer to pictures, audios, videos that are manipulated afterwards with AI to create a virtual reality. This metamorphism has already been used in trials in South Korea and has been reported on a documentary called "Meeting you" (KST by The Korea Times, 2020). You can delve into this documentary in figure 2.

Last, Wernaart (2022) describes the griefbot "from the afterlife" in which AI uses the digital footprint a deceased one has left between his or her texts, tweets, mails, social networks during his or her lifetime and bring them back to life. By reproducing a deceased loved one it is not creating a metaverse as it is done in the digital grief counselling; in this point a clone is being produced and could materially interact with living humans. Being this the most controversial griefbot that will at some point be launched on the market, this is the one I will further talk about its benefits and the concerns.

5. Discussion of the potential benefits of using AI to help with grief

Kranzberg (1986), who theorized on the 6 laws of technology, concluded that technology is neither good or bad, nor it is neutral. Therefore, is the use applied to technology which carves out the consequences of technology. AI is bound to become a powerful tool for humans to use in both a personal and a professional realm. Because it is going to be practically impossible to skip this alignment between humans and AI, it needs to be reflected the opportunities this new technology is going to provide us with. Therefore, in this section I am going to unravel the gold rush griefbots may come with. Afterall quoting Culkin's slogan to synthesize McLuhan philosophy: “We shape our tools and thereafter our tools shape us”.

Before delving into the discussion of these positive aspects, the reader must be consistent and understand that all these positive aspects may and possibly will backfire becoming a negative cause due to the automated actions and decisions griefbots may carry out. Even so, I hope that the possibilities are seen with an open mind since the next epigraph of the thesis will follow the criticism to enter. After all the purpose of the griefbot is to reduce suffering for relatives or friends of a deceased person taking account that reducing suffering in the short-term is not always the most effective therapeutic intervention in the long-term.

First of all, the best way to protect ourselves from evil is through our increased confidence in technology. That is why as an introductory section it is necessary to talk about "trustworthiness" because from the consideration that it exists then it will be possible to extract the positive aspects of this AI.

5.0 Trustworthiness

Trust is defined as an attitude or a hybrid of attitudes (like being optimistic, hopeful, believer) toward a trustee, that involves some vulnerability to being betrayed on the truster’s side (The Ethics and Epistemology of Trust | Internet Encyclopedia of Philosophy, s. f). Multinational enterprises acknowledge that the product they launch in the market not only needs to be appealing, useful and interactive to be adopted by users, in addition the products need to be trustworthy (Villaronga, 2019). The trustworthiness sought from the robots begins from the manner these

social machines perceive or express emotions, dialogue, establish or maintain social relationships, use natural cues (gaze, gestures), and even exhibit distinctive personalities and characteristics. By doing so people may slightly treat the robots with the same conduct they tend to behave around people, ensuring their believability and their aliveness, improving the effectiveness of the robot-human interaction (Hudlicka 2011).

In order to gain trustworthiness AI should comply to a list of requirements according to the High-level expert group on artificial intelligence (from now on, AI HLEG) (Dubber et al., 2020). The first requirement is *the respect for human autonomy and the protection of fundamental rights*. The protection of human agency – meaning an individual's capacity to determine and make meaning from their environment through purposive consciousness and reflective and creative action (Houston, 2010) – finds further specification in a right to make informed autonomous decisions regarding AI systems and a right not to be subject to a decision based solely on automated processing when this produces legal effects on users or similarly significantly affects them.

Another key requirement to gain trustworthiness is the technical *robustness and safety of AI systems.* In computer science, by robustness it is understood the ability of a computer system to cope with errors during execution and cope with erroneous input (Houston, 2010). Therefore, what is implied in this point is that AI systems need to be developed with a preventative approach to risks and in a manner such that they behave as intended while minimizing unintentional and unexpected harm and preventing unacceptable harm. In addition, this requirement entails the protection of physical and mental integrity of humans.

Linked to the other concepts is the necessity of *accuracy*, which translates into an obligation to disclose the likely inaccuracy of the AI system which may directly affect human lives. Moreover, to effectively prevent provoked harm by AI to human rights, AI has to align with *the protection of privacy* of the data humans deposit daily. This AI also has to include *respect for diversity, ergo the absence of undue discrimination.* Trustworthy AI also requires *universal accessibility.* The AI HLEG also specifies that Trustworthy AI must come with a proportionate degree of *accountability.* It should require adequate governance mechanisms, such as the auditability of algorithms (further strengthened in case of AI systems that affect fundamental

rights), the identification, reporting, and proactive mitigation of negative impacts of AI systems, a transparent and rational treatment of trade-offs, and measures aimed at ensuring adequate redress.

At last AI practitioners willing to hit the aspirational goal of Trustworthy AI should also take action to regularly detect and mitigate harms, offering prompt redress to affected users. From the standpoint of "trustworthiness", let's examine the benefits of this technology.

5.1 Universal accessibility

Considering the scope of a high degree of trustworthiness, this benefit of universal accessibility can emerge. In an utopian world this machinery would be universally accessible to all people across the world, nevertheless the setback is the cost of producing commercial griefbots since it is going to be, at first, very high until the process of manufacture standardizes and more enterprises bet to enter and compete to deliver this service. With that being said, from all the benefits a griefbot may provide to the citizens maybe this is the weakest of all if the ultimate aim is to recreate the body of the loved one just like it happens in the Black Mirror episode “Be right back” (Brooker & Harris, 2013). Instead, users might decide to go for cheaper options. Now, maybe what they are seeking for is the classic unilateral immortality relation with the deceased; in that case they can opt for online memorials in which people can “see” and “read” the lifeless loved one, but not interact with him or her. It is like looking at a picture of the deceased loved one from time to time disregarding the fact that the mourner won’t be able to engage a bilateral conversation with the object. However, if the user is seeking for a bilateral immortality, he or she is seeking to prolong the continuous bonds he or she had with a person. To do so this person should opt for either a digital conversation assistance bot, a digital grief counseling bot or, the resurrect the dead bot. The characteristics of each one of these bots is explained in section 4.2.1 of this thesis. The more affordable option should let you participate in an online conversation by using a chatbot with the narrative bits (from now on “narbs”) of the deceased one. These narbs will be explained as another benefit later in point 5.5, but in order to have a glimpse of its meaning, it is the diminutive for a *small narrative* which tells a finite, sometimes acute story about the individual (Mitra, 2010). Moreover, an upgraded service from the chatbot should be the possibility of hearing the voice of the deceased by using the state-of-the-art AI with which it is possible to replicate all voices. At last, you would find the possibility to command a human sized griefbot which represents your

loved one in question. Specially with tragic and sudden deaths there is incredible pain relatives and friends go through. A griefbot can be depicted as an advanced way of looking at photos or listening to that one voicemail. A reminder must be set, as mentioned above, photos do not interact or talk back to the still living person when you look at them. On the other hand, the interactive skills of griefbots could promote engagement and the mirage that "the person still exists". Using a griefbot could be useful for accepting the death by conversating with your deceased loved one more time. Also, this technology would be able to connect grandchildren to the grandparents they never knew or other family members.

5.2 Anytime, anywhere support

By leaning over this plausible benefit, considering the scope of a high degree of trustworthiness, what it is trying to be sold is a griefbot which could be twenty-four hours a day available for a mourning person. The internet has made universal connections simpler and flexible. One of the consequences sits is the fact that mourners are not restrained by a schedule to seek for help. What is more, it is as uncomplicated as downloading a *Therapy Chat* app form the App Store or Play Store and it is in everyone's hands whenever they decide to make use of it. However, despite this optimistic view of a bot always available, there is scarcely any scientific literature which reflects on the possible psychological and ethical implications derived from the use of this digital tool in the grieving process without a follow-up from a psychologist or psychiatrist. (B. Jiménez-Alonso, I. Brescó, 2022). Nevertheless, it has been studied that, for instance, using the worldwide technological tool, the smartphone, for a great amount of time has negative side effects on humans, mostly teenagers (Pedrero Pérez, E., Ruiz Sánchez de León, J., Rojo Mota, G., Llanero Luque, M., Pedrero Aguilar, J., Morales Alonso, S., & Puerta García, C. 2017). That being the case, citizens are bound to wait until the publishing of scientific articles in which they empirically talk about the side effects of always having a bot available to have a chat with.

5.3 Personalized recommendations

Considering the scope of a high degree of trustworthiness, this benefit to be explained may rise. Because griefbots are tailor-made with personal data of a deceased one, it will deliver an estimate response the bereaving person is hoping for. Moreover, chatbots are highly adaptive to

new information. It's training progress with every interaction thereby bettering itself for the next conversation. Griefbots use Machine Learning and Deep Learning, which enables them to get more efficient with interactions. This provides a solution to the possible issue of lack of understanding between the user and the bot. These recommendations are based on extensive, longitudinal research on what makes for a successful intimate relationship (Dubber et al., 2020). This element is directly intertwined with the concern with addiction which will be pointed out in section 6.5.

5.4 Collective mourning

Considering the scope of a high degree of trustworthiness, this benefit of collective mourning may rise. As it was explained in section 3 of the thesis, mourning consists of the actions and manners expressive of grief which are shaped by social and cultural practices, and by societal expectations which serve as guidelines for how bereaved people are to behave (which also differ across individuals and/or groups). At last, mourning covers different customs and rituals, including various funeral practices (cf., e.g., Boerner, Stroebe, Schut, & Wortman, 2016; Stroebe, Hansson, Schut, & Stroebe, 2008).

The focus is set in the expansions of digital mourning, which are temporal, spatial, and social. These are limits to conservadural and classic ways of mourning. In the 21st Century people are embedded in technology, which allows a more personalized way of expressing and sharing experiences with other citizens with similar experiences of loss without needing to know them, nor sharing the same physical context, nor even do it at the same moment in time (Gamba, 2018). The result of the use of technology in this realm is the creation of an open and communal space, less restricted by some of the norms and physical limitations of traditional "offline" rituals (Lingel, 2013). The practices enabled by social networks are also helping to blur the traditional boundaries between public and private mourning (Myles, Cherba, & Millerand, 2019) by offering new spaces to articulate collective mourning (Wagoner & Brescó, in press) and sharing our more intimate feelings with strangers. There can also be expressions of private mourning in public spaces -for instance by placing meaningful objects at the place of death-. At the same time, they offer greater visibility to traditionally marginalized groups or to those bereaved whose grief is not recognized socially (B. Jiménez-Alonso, I. Brescó, 2022). Given the anonymity that the Internet can provide,

a person may feel more comfortable sharing their feelings with strangers than with people close to them, thus alleviating and healing their pain by being part of an anonymous digital community.

5.5 Introspection

Considering the scope of a high degree of trustworthiness, griefbots could be beneficial in order to gain introspection in several realms of the self. Technology is embedded in everyday routines since the creation of the World Wide Web (Rifkin, 2023). Nowadays it is not conceivable a world where people don't make use of any technological gadget since technology plays a fundamental role in practically all realms of life. Between the benefits technology has brought within is the creation of networked computers which allow people to connect to each other. And that's not all, these social networks permit every person to leave a digital imprint, a small narrative bit, *narb*, that tells a finite, sometimes acute story about the individual (Mitra, 2010). By interlacing this social network realm with a plausible application to a griefbot it is deductible that the griefbot is dependent on the quality of the data trail the human spreads and the programmer inputs. If applied more data into the robot, that means the Griefbot perhaps will act more likely like the deceased person subject to be *artificially resurrected*. The quality of narbs is much higher to statistic data to be applied in the program of the griefbot due to the connection of the narb with the identity of a person. It is a digital imprint of a person, of his/her behavior, of the vibration of his/her voice, his/her feeling upon a concrete situation and what not, that's the reason why narbs can become the bedrock for the creation of humane griefbots (Mitra, 2010).

Nevertheless, in most cases it is argued that identities are deliberately produced through specific stories one tells about the self. This comes about because person that is depicted online might not be accurate to who that person truly is in person or how people perceive the identity according to the circumstances. A comparison to this situation is reflected in Don Quixote's novel in which Cervantes's principal character, Don Quixote decides to rebuild his reality constructed on foolishness and naïveté. Thereon, much of the identity construction depends on how well a person is able to tell a story about the self. At last, one of the morals of this masterpiece is the complexity of human projections and interactions with the world, with the people and with oneself that can't be dwindled to just one perspective when programming the griefbot. What becomes even more ambitious and unlikely is the prospect that by compiling someone's holistic identity with

these narbs it could at some point be possible to preserve his/her soul and embed it into the griefbot (Jiménez-Alonso, 2022). This is understood as delivering a digital soul to a deceased person similar to the circumstances that take place in the TV series *Upload.*

5.6 Closure or the end of grief cycles

Considering the scope of a high degree of trustworthiness, griefbots could be beneficial for certain individuals for accepting death. Thus, for some people accepting death is troublesome and a painful experience. The post-covid situation that left millions of people without the possibility of saying a proper goodbye to their loved ones; sometimes they couldn't even mourn their loved ones (Jiménez-Alonso, B.; Brescó, I. 2022). A positive use of a griefbot would be the use of it to lower the pain the inability to put together a farewell caused to a person.

On the other hand, one must be very careful with the use of this technology for it may cause the mourner to form a bond with the deceased person artificially recreated with the griefbot. This technology can help close the loop but used wrongly it may provoke the opposite effect. One case in which AI was used to help a person with closure occurred in South Korea where a mother abruptly lost her seven-year-old daughter from an illness. This woman was introduced into a Virtual Reality experience where she reunited with her daughter and gave to the artificial representation a farewell, she never hoped she would have to go through. This case will be further explained in section 7.2. Therefore, the grieving process ended once the mourner released the bond which linked him/her to the deceased person; this fact does not imply forgetting them. (B. Jiménez-Alonso, I. Brescó, 2022). Afterall, to respect the deceased loved ones requires too remembering them (Bassett, 2015)

5.7 Legacy

Considering the scope of a high degree of trustworthiness, griefbots could be beneficial to preserve traditions, legacy, hence, the story of oneself. Since death is what separate human beings from the precipice into the unknown, it may come as a natural feeling to leave a legacy, a fragment of what one has done in life for future generations to remember. Quite often what drives a person to write journals or keep items of sentimental value is the desire not to be forgotten. With the

advent of this technology, it is extremely easy to create memory capsules in which pour videos, photos, and texts -hence, narbs- and hope for family members and/or friends to reproduce and keep them. For instance, the recently deceased Queen Elizabeth II left a sealed letter with orders to open it within 50 years addressed to Australian citizens (Special, 2022). This is a pure example of leaving a legacy alive. Moreover, social media has normalized the adoption of official stances toward posthumous users. For instance, Facebook metamorphizes the profile of a deceased user to be a memorial space open to posts from existing 'friends' who can direct message at the deceased user or share a variety of comments or content intended to celebrate or mourn the recently departed (Leaver, 2013). This same social media dealt with the death of some of its users due to the Virginia Tech shootings. At that time, relatives requested the pages of those killed, mainly young students, be left "alive". Facebook memorialized the accounts, rather than switch them off, enabling alive users write messages of support in their time of grief. This tragedy was a catalyst for the rise of online obituary pages and memorial websites, such as Legacy.com, and nowadays more people are grieving publicly online (Bassett, 2015).

Admittedly, the notion of cyberimmortality, which is understood as somehow escaping bodily death by uploading yourself into cyberspace in which forever live, is now only possible in science fiction narratives. However, considering posthumous social networking as a reality, it can leave a digital legacy and perhaps cyber-immortality in a still limited but a more permanent form than a century ago (Leaver, 2013).

Patent benefits with some of their respective negative sides can be derived from the application of AI, and especially from griefbots which are meant to alleviate grief. The prism will now be turned upside down to demonstrate the dangers which may carry a careless interaction with this brand-new technology.

6. Evaluation of the efficacy and ethical concerns of using AI to help with grief

The goal of creating a commercial griefbot capable of meeting all the human needs is an ambitious undertaking. It is nearly impossible for us to comprehend the mechanism that sets the basis for the way in which a person operates, therefore this restless aspiration befalls with many hassles to take into account. Moreover, human beings are sometimes negligent or work maliciously with the design, development, or deployment of technology. For this reason, someone has to be accountable for these interactions regarding technology and what is eventually done (or not done) with it, singling out either the human designer, manufacturer, or the user (Dubber et al., 2020).

In this section I will try to give an answer to all the questions this subject upbrings. Some of them are: When is appropriate to deliver a griefbot? Should the griefbot be configured with all the digital footprint the deceased person had with one friend or the digital footprint altogether, regarding all human interactions? Is it moral to create as many griefbots of a deceased one as people who are interested to buy it? Which values should the griefbot represent? Should society let a griefbot be discriminatory if the deceased loved one was in life? Which topics should the griefbot be able to talk about? Should a person give consent to let the heirs and friends create a digital bot of oneself once he's dead? Can the future user determine which information is being poured into the bot or not? Who is hold accountable if the griefbot produces psychological damages to the user? Which consequences could lead the hacking of a bot? As it is visible there are many worrying questions which involves commercial griefbots, let's peek into them.

6.1 The input of human values into the griefbot

First of all, a griefbot is far from being universal. It is highly different the values programmers include in griefbots in Asia, than in South America, or Eastern Europe. Even though griefbots are meant to just only help with the grieving process it can turn out to be a powerful tool to manipulate people's desires. Indeed, this is not something that might happen, but is something that is happening, given that one of the major current uses of AI is for that lofty endeavor of humanity, targeted advertising, which works precisely by manipulating our desires. The ways in which AI and the griefbot can manipulate what information the population get and how it is presented gives another reason for concerns about how "benefit" from AI is to be identified.

Humans can also get used to change very quickly and can forget very fast how things used to be, being a historical representation our quickly adaptation of digital devices, which for a technology that can rapidly change our world poses again a profound problem in assessing benefit (Dubber et al., 2020). In order to study the concerns griefbots entail it is mandatory to distinguish between the profiles of the varied individuals who are attached to it, being primarily the users, and the stakeholders.

a) *Users:* regarding this angle, it also branches of between the relatives and the deceased loved one. Both are users. The deceased loved one ought to give permission to his/her relatives to develop a griefbot with his digital footprint. This first step is controversial because questions like the ones expressed by Van Der Vorst, R., & Kamp, J. (2022) need to be taken into consideration:
    - What if the deceased only allowed the creation of one griefbot for the use of a particular user, for instance, his/her grandson?
    - What if the deceased declared several topics or events, he/she would like to leave out of the griefbot? Would the mourner be talking with the "same" person then?
    - What if the deceased loved one wanted to be recreated with the personal digital data, he/she left individually with each interaction with different relatives, friends and so on. Meaning to create as many griefbots as relatives and friends that person had with a limitation of data to the conversations you had with the deceased one.
    - What if third parties would like to have the griefbot of a deceased loved one, for instance, because it was a well-known person?
    - Should it be banned the creation of griefbots for deceased people under the age of 18?
    - Should people underage of 18 use griefbots? How will children respond to such a griefbot? At what age do children have the cognitive apparatus to appreciate the difference between a real person and a griefbot?
    - Is it ethically wrong to create a virtual simulation of a deceased person even if the technology exists?

Moreover, relatives and friends who would like to become users provoke que flourishment of difficult questions to be answered too. For instance:

- Should looming users of griefbots pass a psychological test which enables them to purchase the robot?
- Should looming users make use of a griefbot with the guidance of a psychologist?
- Should griefbots be a technology universally accessible or should it need to be restricted regarding personal sensitiveness, mental health issues and alike?
- Should griefbots only be accessible to mourning people whose death of the loved one was unexpected?
- Could religious people use a griefbot since there's a distinction between the soul and digital technology?
- Should it be given the opportunity to erase or activate the griefbot regarding the alive user wishes or the loved deceased one?
- Should it be provided the possibility for the alive user to correct or change the data poured in the griefbot in order to make it more personal?
- Should it be given the option to restrict access and provide a distress-button for when the griefbot misbehaves?

Hence, regarding Van der Vorst (2019/2021), technology can mold users' *identity*, both the user that will become a griefbot and the user that will interact with the griefbot. The decision to ease the pain using a griefbot is a very personal choice. The use of this technology may also provoke the user to reflect on his/her life and life choices. It can help the alive user deepen in life-changing questions.

Van der Vorst (2019/2021) also visualizes technology influence the user's *autonomy*. First, part of the population does not want to live on as a griefbot, logically they should not be pressured to do so by their relatives or friends. Programmers need to bear in mind too that technology is addictive. Alive users might get addicted to chatting with the deceased person and start disconnecting from the real world. This conflictive situation might interfere with the autonomy to make any kind of autonomous choices considering the robot's opinion.

Another aspect Van der Vorst (2019/2021) asks is on the possible effects technology might produce on the health and/or well-being of users? Interacting regularly with a bot about life might

inspire reflection on personal thoughts, actions, feelings, which might be a positive scenario for the mourning person. Yet sometimes ruefulness might haunt the alive user for the things he/she said to the griefbot. However, there is a chance that the user loses connection with real life. The side effects of using a griefbot should be monitored closely.

Another danger users can entail is the possibility of anthropomorphizing the robot as happens in the Robot and Frank movie, or in the renowned Black Mirror chapter "Be right back". The immediate consequence is to gradually become more individualistic since the robot seeks to keep the user happy without thinking about how healthy it is from time to time to have conflicts to encourage critical thinking.

b) Conversely, other actors who are intertwined with griefbots are *stakeholders*:

In business, a stakeholder is any individual, group, or party that has an interest in an enterprise and the outcomes of its actions. Usual stakeholders include employees, customers, communities, shareholders, suppliers, and governments. Interests of each one of these stakeholders vary regarding their position; companies often face trade-offs in trying to please all of them. Investors in this state-of-the-art technology are crucial for its development, thus pleasing both is like doing neurosurgery. While investors infuse capital in a business with the expectation of recovering the invested money and making profit of it, user's bear necessity is to ease the pain. Altogether it represents a conflict of interests between users and stakeholders when it comes to producing a griefbot (Van Der Vorst, R., & Kamp, J. 2022).

6.2 Self deception

This danger is tied to the benefit of applying narbs on the griefbot. The fallacy through which it is dreamed that the robot has a digital soul from the narbs that have been applied to it can lead the grieving person to delude themselves and understand that the robot has feelings. What's more, believing it has the identical feelings the deceased loved one had in life. This *a priori* danger could be detailed thinking about the human ability to distinguish between several identical objects: even if their external appearance is the same down to the last molecule, it can be deduced that each one of them are different. The same thing happens with the interaction of people with twins that can be differentiated by the spirit that moves each one. If, for example, both twins died and one of

them was replicated into a griefbot, in addition to the practical difficulties of recreating the latter's personality, the ability of the living individual to understand that he is a robot and not a human being would be at stake. But what if that person decides to delude himself and believe that the griefbot really is the reincarnation of one of the lost twins? Of course, the attachment would seriously hinder the healing process of the person who is suffering, not being able to turn the page and living a constant past. So, this issue leads to the following queries:

- How could self-deception be mitigated for users?
- Should griefbots terms of use be read out loud by a psychologist or the manufacturer so as not to fall into this false reality?
- Should the conditions spotlight the limitations of these robots?

As already mentioned in point 6.1 of the thesis, users can get hooked to a griefbot. Because of this peril – in which I will delve into more accurately in section 6.5– users should have the chance to set restrictions to the bot to avoid delusional episodes. What I am trying to explain in this point is a way of avoiding going through a Black Mirror "Be right back" episode by setting restrictions in the speech, in its reactions and interactions, or even on portray of the griefbot so that the user comprehends he/she is talking to an avatar and not to an actual person. This enters in conflict with the hope of resurrecting the dead with the same characteristics and personality as the person had when he/she died. At last, it is always concluded that people will always need real human connection. Due to this humane circumstance, Van der Vorst (2019/2021) created a community of Griefbot users in which these people can interact with each other and find comfort.

6.3 Misrepresentation

Building a griefbot is not an easy task. Human beings are capable of adapting their personality within personal parameters according to social and individual circumstances to please their environment. This implies not presenting their selves the same way before one person as opposed to another. So, in order to create a griefbot:

- Would this imply that it should be manufactured as many versions of the loved one as individuals who want to interact with it, incorporating only the data that related a certain person to the deceased?

- Or, on the contrary, should the griefbot be created by entering all the data that the deceased person left in his/her digital footprint in relation to all the people with whom he ever interacted?
- How far should the processing of data included in the griefbot go?
- Will there be a change on the way users interact with the griefbot?
- Will it change the outlook of how the griefbot would interact with the alive person?

It seems that creating a perfect extension of the person who is no longer by the mourner's side seems complicated. The most pressing problem is staying in a loop of suffering from which it is impossible for us to get out.

What is more, people aren't static. Their preferences, taste, hobbies, perception of the world vary over time. Some authors wonder if mourning people genuinely need this illusion of reality to ease their pain. Thus, beyond the technical or psychological limitations that have been examined so far regarding the simulation game that griefbots imply, authors such as Elder (2020) maintain that "interaction with these applications would not require, basically, large doses of illusion of reality to generate an emotional response, to the extent that the mourners could be predisposed to give meaning and value to such interaction".

The tendency humans have to attribute anthropomorphic qualities to objects is *vox populi*. With computers humans tend to accommodate the way of interacting with it to make it easier for the program to generate understandable responses. In other words, the use of griefbots could depend more on what people project onto them, even if they are not a true reflection of how our deceased loved ones spoke to us.

What is at last relevant is not so much the ability of griefbots to replicate the identity of the deceased, but the experience of the mourner with the bot. Perhaps, since griefbots cannot replace the identity of the deceased loved one, that will be the key to allow citizens participate in this simulation game, *acting as* if the mourners were talking to their loved ones Elder (2020). The idea underneath would be sealing a contract by which the enterprise warns the user that the robot can't

be wholly the deceased loved one, meanwhile the user accepts to have interactions with the non-perfect artificial revived loved one just like he/she could do by using the Replika.ai app.

6.4 Memories

Humans are endowed with imperfect memory. Sometimes they are able to recall events, while other times forgetfulness comes into play. If this situation is not complicated enough, humans are also capable of creating false memories through creativity. This is why myths, legends, and chivalric books have been told since the beginning of time, and why people are capable of lying. It is impossible to maintain an exact memory of all human interactions with others. However, technology is able to collect all of this data, creating the famous digital footprint that has been mentioned throughout this thesis. This issue with false memories inspires these questions:

- How might the creation of false memories affect the user?
- Could it make the user confuse fiction with reality?
- Could this technology trigger personality disorders or even mental illnesses such as schizophrenia?
- How different are the memories embedded by books or films from the memories infused by griefbots?

This approach is controversial because it leaves behind books and movies that are recognized as fiction (such as Cervantes' Don Quixote, Dostoevsky's The Double, or M. Night Shyamalan's film trilogy consisting of "Split," "Unbreakable," and "Glass") in order to materialize memories in reality. In books and movies (excluding autobiographies and autofiction biographies), an invented story is told that will affect the way the consumer acts depending on whether they want to apply any moral lessons they have gleaned from them in their daily lives or not. In contrast, a griefbot is the representation in reality of a person who was a material and real individual with whom one had a close relationship. The attachment that this situation can foster is what concerns humanists, psychologists, psychiatrists, and doctors (cf., e.g., Boerner, Stroebe, Schut, & Wortman, 2016; Stroebe, Hansson, Schut, & Stroebe, 2008).

6.5 Addiction

This section is closely related with part 5.3 on the benefits of personalized recommendations. Catching up with it, it's not a matter of much effort to foresee a new and intense bond that can be created between a robot capable of maintaining an artificial but fluid dialogue as if it were the loved one with the person who is suffering because of their feeling of loss of connection to the deceased person. This bond can cause an addiction, like the one caused by social networks like Instagram or Tik Tok, and, as mentioned previously in this thesis, a visible example of this future reality is portrayed in *Her*, the movie. The problems outlined above are the most severe if people use AI assistants as a substitute for thinking for themselves and not as a complement to thinking for themselves (Dubber et al., 2020). That is because the person accepts what the griefbot may say because it employs *auctoritas*, which at the same time is related to the recognition the deceased loved had, which is related to his/her moral prestige and reputation (Urabayen, 2017).

6.6 Inclusivity

The Cambridge Dictionary defines inclusivity as "the fact of including all types of people, things, or ideas and treating them all fairly and equally". Thus, the treatment it is usually given on behalf of one's interest or another is usually divergent. In this point questions like the ones below may arise:

- Will everyone benefit from this state-of-the-art technology or just a small group?
- Does the technology have intentional or unintentional built-in biases?
- Should griefbots be accessible to acquire by paying a subscription? What if that leads to inequality?
- What if the deceased was a racist, a sexist, a psychopath and so on? Should the griefbot emulate those actions or believing's? Should it be cancelled?
- Who has the right to become a griefbot?
- How could a griefbot handle delicate situations about controversial dialogues, like politics, without doing an injustice the digital representation of the deceased, the user or third parties?
- Could these decisions become a means of mass manipulation?

- Could the user upload typed memoirs, or must he/she have talked to an app, or have uploaded narbs throughout their life?

Well, every choice necessarily includes and excludes some groups. The hazard disguised in this point is coping with *Built-in bias*: There are many reasons for discrimination; among others, may serve as reference points: sex, race, color, ethnic or social origin, genetic characteristics, language, religion, or beliefs, political or any other opinion, national minority status, property, birth, disability, age, or sexual orientation. Other laws address the rights of certain groups, in addition to those listed above. Such lists can never be exhaustive and may change over time. A vulnerable group is a group of people who share one or more characteristics of vulnerability (High-Level Independent Expert Group on Artificial Intelligence, 2018).

There will be many contradictory opinions about how a griefbot should function. These opinions are embedded in the design. In the study by Van der Vorst and M. Kamp (2022), they found the following: "Some students don't believe a politically correct griefbot is a good idea. Other students see good communication and the aforementioned 'panic button' as the best solution". Nothing is said on censorship, perhaps because there is a trust and value on democracy, even though the world humans live in happens to align with the *woke culture* and what it represents.

While programing the griefbot, unintentional built-in bias can also be embedded. What if in the social networks the deceased loved one was an activist, yet, in person would be more careful to talk about personal feelings to friends? That realm of the deceased person would be inexistant for the griefbot which could simply reply with activistic quotes. It is not an easy task building up this griefbot. At a colloquium on "The Incorporation of AI Chatbots in Higher Education" held at UIC Barcelona on March 2, 2023, among the speakers, Marc Alier (a university professor) delved into explaining what the technological shock implied and how humans must adapt to these new changes that are altering the reality they know today. He discussed *generative AI* insofar as the technological capabilities of AI will improve just as the camera has improved from its invention to what it is today. Therefore, humans must be patient until the integrity of this brand-new technology is achieved. For now, AI has taken a strong impulse, and huge amounts of money are being invested to improve its functioning to make it as humanly similar as possible.

6.7 Data privacy & transparency

In this section I find it mandatory to diverge the topic between the implications of privacy and the transparency concerns linked with the European norms and laws which have been published on the responsible use of AI in various branches of Law (Cuatrecasas Monforte, 2022).

a) *Privacy*: Point 6.6 is delicate regarding laws and regulations since both can make certain design choices impossible. For instance, Data pitfalls are highly risky. They refer to the common errors or challenges associated with collecting, analyzing, and using data. These challenges can include data quality, lack of context, lack of accessibility or availability of data, bias in data selection, data reliability, data privacy and security, among others. By taking these pitfalls into account, data professionals can work to minimize risks and maximize the value of data in decision-making and value creation (ChatGPT, 2023). Van der Vorst and Jo-An M. Kamp (2022) adduce that data is always subjective and that data collections are always incomplete. Thus, it is challenging to also determine the data that isn't being measured. It is important for programmers and designers to detect those data pitfalls and reduce them as much as possible.

Privacy refers to the ability of an individual or group to keep their personal information and activities out of public view or knowledge. It is the right to control access to one's personal information, including sensitive data such as medical records, financial information, and other personal details. Privacy is an essential component of individual freedom and is protected by laws and regulations in many countries. Privacy has been the bedrock of fundamental human rights for centuries now (Glancy, 1979). Conservative liberalism has always advocated for the right of protecting the property, which could translate to having privacy distinguishing the personal and public realms properties represent. Privacy is a fundamental human right that can only be violated if the measures applied are proportional and subsidiary. Leaving behind this theory of political ideas, in point 6.1 I explained there are at least two types of users: the deceased and the living users.

Highlighting this fact is significant because current data protection law applies only to natural living individuals. The solely rights that pass to heirs are copyright and portrait rights. In addition, the data of a deceased person also contains personal data about the users or third parties who are still alive (Van der Vorst and Jo-An M. Kamp, 2022).

The questions that may arise at this point would be:

- How could it be ensured that AI systems meet, throughout their entire life cycle, the requirements for trustworthy AI.
- Is it possible to anonymize the data during upload, and what does that mean for the functioning of the griefbot?
- Does the specific context (e.g., the legislation in a particular country) influence the design possibilities?
- How can it be ensured the programmer, or the designer has aligned the griefbot system with relevant standards -like the IEEE- or adopted general protocols for the daily management and governance of the personal data of the deceased one?

The "REGULATION (EU) 2016/679 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL" of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (from now on, the General Data Protection Regulation) is an European legislation that is in charge of personal data. In the European Union, this is a very important regulation, especially for the design of the griefbot.

In article 2 of the General Data Protection Regulation, it is said "this Regulation applies to the processing of personal data wholly or partly by *automated* means and to the processing other than by automated means of personal data which form part of a filing system or are intended to form part of a filing system".

Further down the line, in article 4 it defines 'personal data' means any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person".

Last, the article 5 determines the principles relating to processing of personal data in order to prevent its vulneration I quote: “Personal data shall be:

(a) processed lawfully, fairly and in a transparent manner in relation to the data subject (‘lawfulness, fairness and transparency’);

(b) collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes; further processing for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes shall, in accordance with Article 89(1), not be considered to be incompatible with the initial purposes (‘purpose limitation’);

(c) adequate, relevant, and limited to what is necessary in relation to the purposes for which they are processed (‘data minimization’);

(d) accurate and, where necessary, kept up to date; every reasonable step must be taken to ensure that personal data that are inaccurate, having regard to the purposes for which they are processed, are erased, or rectified without delay (‘accuracy’);

e) kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the personal data are processed; personal data may be stored for longer periods insofar as the personal data will be processed solely for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes in accordance with Article 89(1) subject to implementation of the appropriate technical and organizational measures required by this Regulation in order to safeguard the rights and freedoms of the data subject (‘storage limitation’);

(f) processed in a manner that ensures appropriate security of the personal data, including protection against unauthorized or unlawful processing and against accidental loss, destruction, or damage, using appropriate technical or organizational measures (‘integrity and confidentiality’).

2. The controller shall be responsible for, and be able to demonstrate compliance with, paragraph 1 (‘accountability’)”.

At last, privacy is not the same as data protection. Data protection includes the information initially provided by the user, as well as the information generated about the user in the context of their interaction with the system (for instance, the products generated by the AI system for certain users). Digital records of human behavior can enable AI systems to infer people's preferences and

in their sexual orientation, age, gender, or political and religious opinions. To ensure that individuals trust the data collection process, it is necessary to guarantee that the information collected about them will not be used to discriminate against them (High-Level Independent Expert Group on Artificial Intelligence, 2018). This is a hazard for the autonomous decision making of what one chooses to believe and be.

b) *Transparency*: as well as privacy, transparency is important. The paramount issue in the design of this technology has to do with the technology itself. With Machine Learning, and Deep Learning programmers use *deterministic systems* – in which there are certain predetermined inputs that the programmer knows, thus knowing what the result will be – which have evolved to *heuristic systems* – where the system the AI uses is deterministic though due to its complexity, it makes them non-explainable– UIC Barcelona (2023, March 2). That's the reason why is laborious to find an explanation of why technology behaves the way it does. Programmers accept that Deep Learning algorithms thrive in the dark.

Formally the High-Level Independent Expert Group on Artificial Intelligence indicates that trust in AI, and therefore in griefbots, depends on the security of its processes, data, and outcomes, as well as a robust design that allows it to withstand possible malicious data and attacks.

6.8 Bad actors

Some considerations need to take place regarding bad actors, such as:

- Who are considered bad actors?
- What if someone takes over a personal conversation an user was having with it's with the griefbot without the knowledge of the griefbot and the user, would that make them bad actors?
- Would it be possible for the bot to understand when it is talking to one person or another?
- Should celebrity bots be mass produced?
- How could bad actors abuse technology?

Accepting the Hobbesian world in which “Homo homini lupus est”, society is filled with hackers, phishers, identity fraudsters, fakers, thieves, scammers, and people who abuse technology. The more sensitive the technology, the more the design must take into account the so-called ‘bad actors’ (Van der Vorst and Jo-An M. Kamp, 2022).

Bad actors could bring various issues that could lead to more grief to mourners. These issues include:

- Malicious attacks: Bad actors could launch cyber-attacks or hack into the system, leading to the loss of personal information or manipulation of the bot's behavior. Or, for instance, after a loved-one death the griefbot could be programmed to avoid certain information, views, motivations, or ideas the deceased has to pressure a political point of view for instance.
- Exploitation: These actors could exploit the bot's vulnerabilities, using them to spread misinformation or propaganda, or even use them for financial gain.
- Abuse: Bad actors could use griefbots to harass, intimidate, or bully others, causing emotional distress and grief. It can also be used to incite violence or other forms of societal unrest even after the person dies.
- Inaccurate data: Bad actors could input inaccurate data, leading to inappropriate or insensitive responses from the bot. Therefore, bad actors could use this technology to subvert or attack the truth.

All these issues can cause significant harm and more grief to the bereaving person who is already in a vulnerable emotional state. That is why it is pivotal to ensure that griefbots are designed with robust security measures and ethical considerations to prevent such scenarios.

6.9 Environmental sustainability

Environmental sustainability regarding AI refers to the responsible use of artificial intelligence technologies to minimize their impact on the environment and promote sustainable development. This includes the development and deployment of AI systems that can help to reduce greenhouse gas emissions, conserve natural resources, and improve the efficiency of energy and transportation systems. At present, the development of griefbots must take into account the

environmental sustainability of their design. This applies to the making of the software, the hardware, the impact of the design, the data centers… (Van der Vorst and Jo-An M. Kamp, 2022).

The production of griefbots, which are AI-powered chatbots designed to simulate conversation with deceased loved ones, can have an impact on environmental sustainability in different ways, being one of them, for instance, contributing to electronic waste with the production and disposal of electronic devices. This action can harm the environment if not properly disposed of. Moreover, the energy consumption associated can contribute to greenhouse gas emissions, which can contribute to climate change (Bender et al., 2021).

The creation of griefbots is associated with several significant risks that warrant careful consideration. As I move forward, it is important to remain vigilant about the potential environmental, social, and psychological impacts of these technologies, as well as to assess whether continued investment in their production is supported. It may be prudent to prioritize investment in improving existing AI technologies, such as “Siri” or “Alexa”, with the goal of creating fictional avatars like those seen in futuristic works of fiction like *Blade Runner* or *Her*, rather than immediately pursuing the development of griefbots (due to the fact that the purpose of this technology is to prolong the conversation with a deceased person). To fully understand the implications of these technologies, it is essential to examine current case studies that highlight the various applications of griefbots in practice.

7. Case studies or examples of AI-powered grief support tools in use today

By now it can be deduced that the way a robot behaves and interacts with users affects users' behavior. In a way, technology becomes a filter and, at the same time, an agent determining how users see the world (Fosch Villaronga, 2019). Although the topic that has been treated along this thesis seems still futuristic, there are already projects in the work to accomplish it. Throughout this thesis, I have discussed *digital conversation assistance griefbots* with creations such as Eugenia Kuyda's Replika.ai or the app Eterni.me. I do not want to focus on these cases, but rather, at minimum, address the impact that a *digital grief counseling griefbo*t, or a *resurrect the dead bot*, can have on humans. To do this, I want to talk about three examples: *Jibo* - which is an exception to the rule as it is a social robot and not a griefbot -, the "*Meeting you"* VR documentary, and James Vlahos *Dadbot.*

7.1 Jibo Robot

Jibo was born as a project at MIT in 2012; after some manufacturing problems, including delays, refunds, and even lawsuits, Jibo finally began arriving in homes in 2017. It rapidly became to be considered as one of the best inventions of 2017. Users of this robot engaged rapidly with this robot which was marketed as a "social robot", not a griefbot, capable of chatting with people, connecting to some devices, controlling aspects of the home, and offering information. Jibo was like an Alexa or Siri but with a body and more grace. For instance, if Siri is asked "Siri, do you love me?" Siri will always answer: "I am not capable of love." (Fung, 2015). Jibo wouldn't say "I love you" (Fosch Villaronga, 2019) but it would answer more empathically. But apparently, Jibo's creators couldn't keep up with everything necessary to keep the robot alive, so in November 2018 they decided to sell Jibo to keep the project afloat. Unfortunately, it hasn't been the case (Álvarez, 2019). What was engaging of this social robot was its such human-like expressions that users report saying human expressions such as "thank you" and "please" more often than with other devices (Fosch Villaronga, 2019). In order to form a conceptual idea on what was the appearance of the *Jibo robot* you can find a picture in figure 1.

7.2 “Meeting you”, the South Korean VR documentary

"Meeting You" is a South Korean virtual reality (VR) documentary that recounts the story of a mother who lost her seven-year-old daughter in 2016 from an illness. The documentary was directed by Kim Hee-mi and produced by the Korean VR content production company VRIGHT; it centers around the mother's experience of using VR technology to reunite with her daughter in a virtual world. The VR experience was created by scanning a 3D model of the daughter's face and placing it on an animated avatar. The mother was then able to interact with the avatar of her daughter, hug her by using a Vive headset and trackers with Noitom's Hi5 virtual reality gloves, hear her voice, and even play with her again (Kim, 2020).

This South Korean documentary is close to a *digital grief counseling griefbo*t by which it was aimed to explore the potential of VR technology to help people deal with loss, bereavement and mourn. The documentary depicts this VR intervention in the mothers coping with grief as a success, nevertheless there were many hazards and ethical questions upbrought. Kim (2020) stated that the producers of the VR experience took precautions to mitigate the potential physical and mental effects that could have been traumatic. They consulted with a family therapist and approached the experience as a *significant* and *unique* event, conducting lengthy interviews with both the mother and her family to prepare her as much as possible. The producers were careful to prioritize the family's goals and did not attempt to analyze or treat anyone involved. Their main focus was on fulfilling Jang Ji-sung's wish to reunite with her daughter. However, they also made sure to avoid any direction that would trigger the mother's past trauma, instead choosing to emphasize positive memories (Kim, 2020).

What was also controversial were some of the queries that have been dropped in section 6 of this thesis. Some ethical considerations that must be considered according to Kim (2020) in a nonfiction project like this, are: first, the creation of a three-dimensional representation of a deceased child who was unable to give consent to be resuscitated in a VR raises questions about the ethical ambiguities surrounding the resurrection of a person as a virtual avatar after their death. Second, ethical issues also appear regarding the collection and use of personal data needed to create a virtual representation of the daughter.

Jong-woo Kim noted that the family had given their consent to be part of this unprecedented VR realistic experience, even if the child didn’t. This is a clear example of a

legislative loophole regarding this matter. In order to form an idea of the appearance of this practical example, you can find a picture in figure 2.

7.3 James Vlahos *Dadbot*

The *dadbot* is a conversational agent designed by son James Vlahos with the assistance of his brother to simulate the personality and voice of his father who had passed away. It was developed using a Machine Learning platform provided by Google, which allowed the Vlahos brothers to train the model on his father's writings, emails, and other documents. The resulting chatbot was able to engage in conversations with James, providing him with the sense of connection and continuity with his deceased father. The project was also a tribute to his father's life and legacy, allowing him to pass on his wisdom and memories to future generations (Vlahos, 2017). While generating the idea of creating the *dadbot* James studied the pros and cons and just like in this thesis, cons piled up for the son. Vlahos (2017) ruminated that a Dadbot precisely when his actual dad was dying could be agonizing for the father and for the family. Most of all, James worried that the *Dadbot* would fail but not because of miscommunication, the weight was more on a cheapening their relationship and James's memories. Given the limits of current technology and his own inexperience as a programmer, James recognized the bot wouldn't be more than a shadow of his real dad. Also, the programmer wrestled with other uncertainties like, should the *Dadbot* deliver monologues to a simple question asked? How much condensing and rearranging of his words is, OK? How could he mitigate his own subjectivity as the bot's creator and ensure that could be felt authentic to my whole family and not just to him? Should it be able to empathetically respond to someone's grief or to say, "I love you"? Vlahos (2017). At last, this is one man's attempt to capture human essence in AI knowingly that for now the bot has its limitations.

For James, programming this bot was like opening a door that could allow memories of his dad to be preserved in a more vital form. After all, it is true people all keep photographs, letters, physical mementos, and so many other things of the people they love when they die. Essentially, for James this is another way of preserving them. In order to form an idea of the appearance of the methodical interaction James had with the chat of his deceased father, you can find an example in Figure 3.

8. Conclusion

Losing someone you love by cause of death is most of the times painful; losing them without the opportunity to say your last goodbye might be even harder. Some people along the history have tried to communicate with the dead in multiple and unique ways, now, with AI gaining popularity and adding the contributions in this field of the forefathers Vlahos, Kuyda and Ahmad the dream to possibly of one day talking back to the dead is a step closer to be materialized. Only with time it is going to be possible to know the reach of AI and its repercussions. Nonetheless, *thanatechnology* needs to be open for debate for it ricochets in the way people understand relationships..

Moreover Wernaart (2022) highlight three levels of griefbots and therefore it is necessary to pinpoint which griefbot is being subject of analysis. The less controversial griefbot would be the *chatbot*, meanwhile the *digital grief counselling* griefbot is more sophisticated in the recreation of a space in which to speak with the artificial loved one. Thus, it is the *commercial afterlife* griefbot which opens most of the debates because it primitively seeks to physically clone a loved one once the person has passed away while the other griefbots could only resurrect the dead in a metaverse.

The analysis of the thesis gets interesting by underlining the possible benefits the production of griefbots could bring for society. All benefits which have been mentioned -universal accessibility, anytime, anywhere support, personalized recommendations, collective mourning, introspection, closure, and legacy- can take place only if a certain amount of trustworthiness is guaranteed. Remember that trustworthiness is interpreted as “an optimistic attitude toward a trustee, that involves some vulnerability to being betrayed on the truster’s side”. The mission of not tarnishing the benefits with the perils was for sure one of the hardest tasks to accomplish and, in some points, when explaining the benefits, it was inevitable to at least announce lightly some of the obvious harms this technology could produce.

After the positive analysis on the production of griefbots it was time to prepare the way for the concerns this use of AI comes along with. The list increases to nine upsetting questions from which I personally consider as ethically more important to mark out self-deception,

misrepresentation, and addiction. Legally talking it is upsetting the point on data privacy and transparency, bad actors, and sustainability. If commercial griefbots ever see the daylight, they seem that, at least at first, they will be more a sort of hazard instead of a support for the mourner. This is the reason I advocate for a contract to be signed with the enterprise in charge of production, as the individual who wants to transcend as a griefbot needs to understand how it will be used, and moreover it's accountability relating to any possible self-deception, misrepresentation, or addiction which may appear in detriment of the user.

To close my analysis, I chose three case studies of AI-powered for grief support, being the first one a mini robot with speaking capacities as the ones represented in the Robot & Frank movie. The *Jibo Robot* is no longer for sale. The second case was the South Korean VR documentary "Meeting You". This technology is an example of a *digital grief counselling* griefbot which should always be done with the supervision of a psychologist at least. At last, I chose James Vlahos *Dadbot* which was in its way of upgrading from being a chatbot to an *afterlife* griefbot. For now, *chatbots* and *digital grief counselling* griefbots are available for the public, being the first ones the easier method but the simpler one; meanwhile there has not been any notice of someone who has successfully manufactured a griefbot of a deceased loved one.

In my opinion this thesis has been interesting to construct because of all the doubts it struggles with: from more fundamental ethical questions -like the list proposed in section 6-, to existential questions -like, why do people die? Will humans someday be able to surpass death? Or what is love? Could it even be possible for a robot someday to say "I love you" to a human or another robot, deducing they could have feelings? -, legal questions, and personal questions. This is not inconsequential, but only with time programmers are going to learn how far AI can go, and therefore, know how useful this thesis may be.

Finally, AI is experiencing a hype with systems like Chat-GPT 4, DALL-E2, Ernie in China, Bard and so on. Professionals and citizens need to make an effort to learn how to use and upgrade AI with diligence and responsibility, upholding human values and, above all, respecting the individual rights.

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Annex

Figure 1

Jibo Robot

Note. This is a screenshot from the official website created by NTT Disruption Europe SLU to present their personal companion robot. From *Jibo the robot* (**https://jibo.com/**). In the Public Domain.

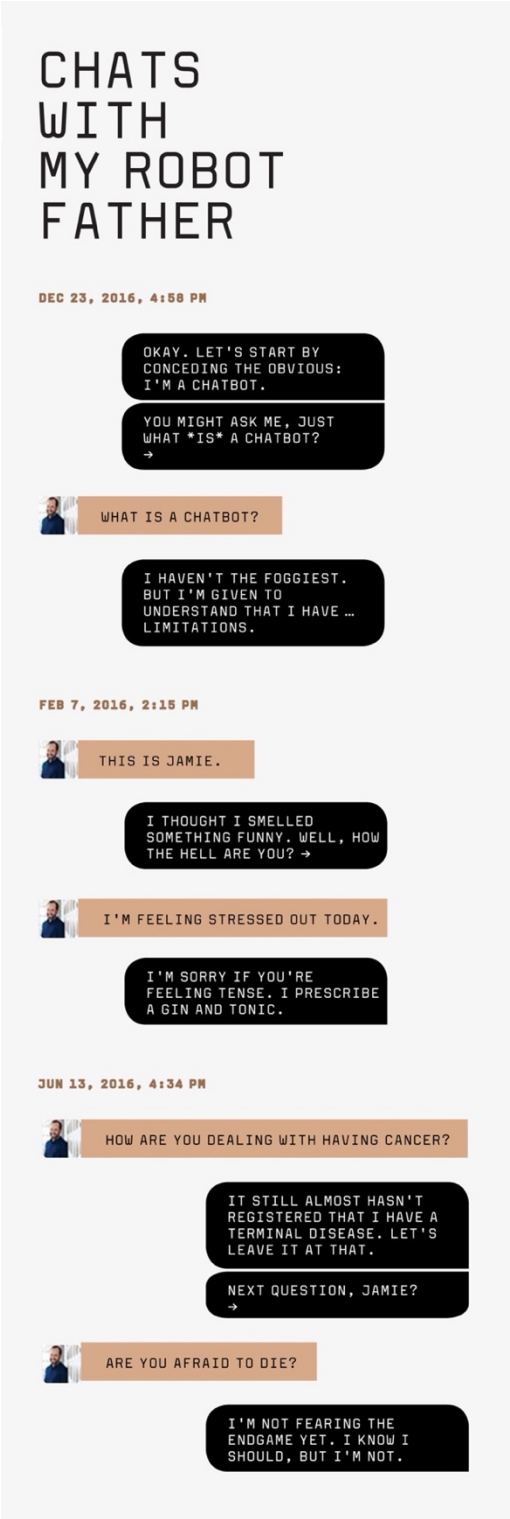
Figure 2

"Meeting you", the South Korean VR documentary.

Note. Representation of the mourning mother touching her deceased daughter's hand using virtual reality technology. From MBClife, Slate (https://slate.com/technology/2020/05/meeting-you-virtual-reality-documentary-mbc.html). In the Public Domain.

Figure 3

James Vlahos Dadbot



Note. Chat between James Vlahos and the dadbot representing his deceased father. From B.Butkus, Wired (https://www.wired.com/story/a-sons-race-to-give-his-dying-father-artificial-immortality/). In the Public Domain.