Artificial intelligence as a tool for Alzheimer's treatment: Implications and future prospects in Jordan Harrison's Marjorie prime

Sabrya H. Albalawi[1*]
[1]University of Tabuk, Saudi Arabia; s_albluwi@ut.edu.sa (S.H.A.).

Abstract: In his play Marjorie Prime, Jordan Harrison engages in a critical dramatisation of artificial intelligence as a means of recovery in the treatment of victims of Alzheimer's disease, whereby artificial intelligence plays a therapeutic role by the creation of a holographic shadow of the people the Alzheimer's victim forgot (Primes). Looking at how the three concepts of AI, memory, and identity might converge, the story provides a basis to review real-life uses of technology like chatbots, virtual friends, and robotic assistants. The literary-critical approach shows that the cognitive reinforcement, emotional distress mitigation, and increased social interaction with others, especially the ageing population, can be elevated with the help of AI technologies. However, there is an ethical issue of using secondary sources of data and algorithmic misinterpretation of them: created memories, identity confusions, and ousting human caregivers. Such imaginative situations portray the increasing difficulties in cognitive-therapeutic AI. The friendly taping over of personal history dramatises the promise of therapeutics and the artificiality of rebuilding history. Memory care necessitates a culture of ethical calibration of AI, whereby its use contributes to improving the fabric of authenticity, autonomy, and relational aspects of human memory and does not inflict a loss.

Keywords: *Artificial intelligence (AI), Dementia care, Ethics, Identity, Memory reconstruction, Primes.*

1. Introduction

Harrison's 2014 production of Marjorie Prime is a probing and challenging piece that interrogates the interface between artificial intelligence (AI), identity, and memory that merits close study. The work posits the metaphysical and emotional impact of the interactions between humans and AI-controlled holograms known as 'Primes', shortly, where the main aids to help the old adults with their memories are the 'Primes.' Marjorie Prime interrogates the notion of reconstructing an individual memory through AI and the therapeutic value that AI may have if it reconstructs a particular memory to reinstate and recover that memory. As Alzheimer's progresses in the 21st century, it poses the most critical medical problem we face today, as it is a neurodegenerative disease involved in declining mental function. Given its increasing worldwide prevalence, new therapies need to be designed to ease the lives of patients with AD to make it less painful. Treatment methods involving different artificial intelligence tools such as chatbots, virtual companions, and artificial intelligence algorithms are under the spotlight as possible methods, as they help in cognitive therapy for Alzheimer's and related neurodegenerative diseases.

According to Marjorie Prime, during the treatment of Alzheimer's disease, AI has enormous moral problems and untapped advantages. AI enables memory recovery, which opens up opportunities for therapy sessions, mental health support, and monetary reimbursement for memory loss. Technology also raises questions concerning changes in reality, personal care problems, and individual identity alterations. Its role in Marjorie Prime suggests trends in the use of AI that are (and will be) used in the context of existing applications in dementia patient care and future uses of AI as a therapeutic modality.

1.1. AI and Memory Reconstruction in Marjorie Prime
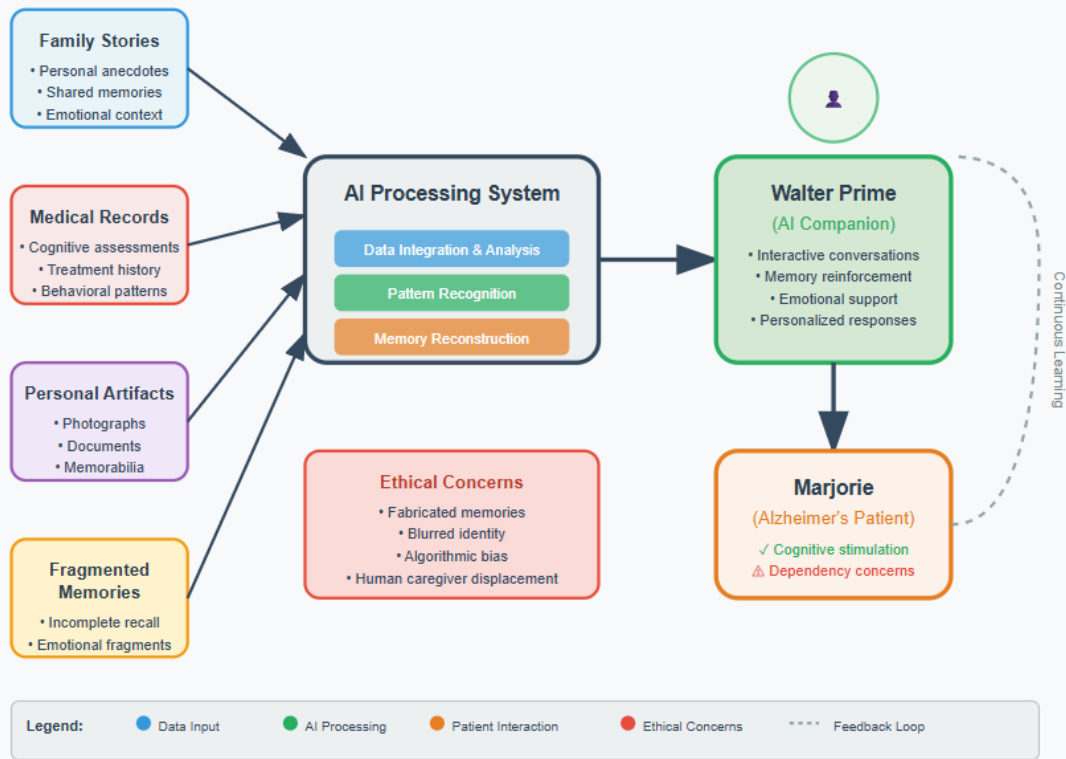
1.1.1. AI-Driven Memory Aids in the Play

According to Harrison, AI serves the purpose of memory reconstruction in Marjorie Prime. This play addresses, among other things, the care of patients with molecules and some form of age-related deterioration. It works with prime-holographic AI simulations of dead persons used in memory retrieval and fidelity, thus emphasising memory [1]. Its function as a supplementary memory device allows it to access stored data to sustain conversations with its owners and enhance and create new memories [1]. By integrating AI technology, medical professionals can develop brain care tools that rely on companions and conversation systems for patients with Alzheimer's disease [1]. An analysis of the narrative and its role in AI-assisted memory recall is presented, utilising accurate data from fictional artificial entities and real AI memory care systems with memory capabilities.

1.2. The Function of Primes as AI-Driven Memory Aids

Using previously installed information allows the prime to use human connections to perform empathetic responses and hold memories. Specifically, the learning process of AI systems works where the more time they spend using them, the better they recall events [2]. In a sense, Walter Prime is a Marjorie Prime replica of her deceased spouse that helps Walter strengthen memory retrieval so that she can access her life memories. However, she was aged and had dementia, which led to a loss of cognitive abilities.

Family members and Marjorie teach Primes to create memories by consuming information about present stories. When this happens, the security of AI Systems' recall information becomes a primary issue of concern. Reconstructed memory is achieved through the Primes' second-hand knowledge and fragmented information that may or may not be actual events [2]. Such reconstruction generates fabricated events that correspond to what they want and the personal information biases of the information providers. The reconstruction process results in artificial memories that might distort real-life experiences for recording relatives for use as a positive outcome.

This function ties in with modern AI memory tools' transformation of Alzheimer's care. You have AI chatbots and robots that help individuals remember important information. AI systems—robotic caregivers or computerised aid—are designed to help individuals maintain their cognitive functions at their best [2]. The hope is that if there are specific memories that the individual believes to be important to him or her, and AI continually works to reinforce those memories, then a slowing of memory deterioration might be possible. This is undoubtedly not an assured solution, but it is a new and hopeful strategy in cognitive therapy. For instance, Marjorie Prime is a film about this technology that facilitates interactions with individuals through communication tailored to them, preserving their identity and life experiences. However, given the nature of these systems, namely that partial data with human curation and algorithmic preference can alter the artificial memory generation process, they carry similar risks.

Family Stories
• Personal anecdotes
• Shared memories
• Emotional context

Medical Records
• Cognitive assessments
• Treatment history
• Behavioral patterns

Personal Artifacts
• Photographs
• Documents
• Memorabilia

Fragmented Memories
• Incomplete recall
• Emotional fragments

AI Processing System
Data Integration & Analysis
Pattern Recognition
Memory Reconstruction

Ethical Concerns
• Fabricated memories
• Blurred identity
• Algorithmic bias
• Human caregiver displacement

Walter Prime
(AI Companion)
• Interactive conversations
• Memory reinforcement
• Emotional support
• Personalized responses

Marjorie
(Alzheimer's Patient)
✓ Cognitive stimulation
⚠ Dependency concerns

Continuous Learning

Legend: ● Data Input   ● AI Processing   ● Patient Interaction   ● Ethical Concerns   ····· Feedback Loop

Figure 1.
The AI-driven memory reconstruction process in Marjorie Prime.

1.3. Marjorie's Reliance on AI for Reconstructing Her Past

So, when Marjorie chats with Walter Prime, you see what AI is doing with people's memories now, especially older folks who can no longer hold onto all the details. Marjorie— she is not exactly young, and many of her old memories are just gone, slipped away. She uses Walter Prime, almost like a living, breathing photo album. The guy (well, "guy") casually drops reminders about her past, filling in the gaps, and sometimes even smoothing over the rough edges. It is weirdly comforting and unsettling because before long, she did not just enjoy talking to Walter; she sort of *needs* him to piece her life back together. Honestly, that is pretty wild. Her memories are not random holes, either— they are all over the place, like scrambled puzzle pieces—kind of exactly what you would see with Alzheimer's disease or something similar. Walter Prime was designed to fill these gaps with preprogrammed or learned responses that subtly reshape her past into a more coherent and emotionally comforting version [3]. This also raises important questions regarding the authenticity of recalling memories with the aid of AI. Suppose AI constructs memories based on those secondhand accounts and bits of select details. How faithfully does it mirror individual real history or invent some reconstructed, perhaps artificial, past version?

Walter Prime's whole deal messes with Marjorie's head—like, at a certain point, she is not even sure what is real anymore, or what is just this shiny, edited version whipped up by the AI. The farther the story goes, the clearer it gets: these so-called "Primes" are not just keeping memories safe; nope, they are rewriting them as they go. Sometimes, the crappy stuff of Marjorie's past? Yeah, it is glossed over or just chucked out of the window. New "nicer" bits, stuff her family wishes had happened, sneak their way into her memories like someone editing a movie to make it more audience-friendly. Hooper [4] nails it, saying these harsh memories are sanded down until they are barely recognisable. You end up wondering— Is this helping Marjorie remember, or is it just giving her a cosier lie to live with? It gets

messy and real quickly. I mean, who decides what parts of our lives are worth remembering? Should AI be the therapist, spin doctor, or just a diary, unfiltered, warts and all? That is the ethical rabbit hole: Do we want AI to hand us the unvarnished truth or serve as a highlight reel? Man, that is not just a technology question but a human one.

Marjorie's dependency on AI recreates the cultural patterns in which communities rely on technology to enhance and safeguard individuals' consciousness. One of these applications for artificial intelligence-enabled memory is being developed to help people with Alzheimer's cognitive capabilities remember their experiences and events [2]. Like Walter Prime, these tools are based on stored data and interactive engagement to support the reinforcement of memories and the mitigation of the degradation of memory associated with ageing and/or cognitive decline. However, as in Marjorie Prime, real-world applications of AI in the memory care domain have limitations because of issues of AI-enabled recall accuracy, ethical repercussions of creating artificially recreated memories, and psychological effects of AI dependency.

1.4. Real-World AI Applications in Memory Care: Digital Companions and Chatbots

Marjorie Prime's use of AI-assisted memory reconstruction is not total fiction; the concept is very much in active research regarding AI applications in care for Alzheimer's and dementia. More recently, digital companions, chatbots, and AI memory aids have been explored as potential tools to support such individuals in retaining connections and living in the context of their personal history [5]. Regardless of how these technologies are defined, they involve people in structured conversations, reinforce what they have done in the past, and remind people about something or a relationship they have had. One example is Replika and MyndYou, chatbots artificially trained to generate a personalised conversation and present a contextual conversation based on past experiences [6]. As part of Alzheimer's therapy, AI programs of this kind are coming into their own to present memory strengthening and mental stimulation. In that sense, AI programs can fulfil the role of a conversation companion, playing out a series of milestones, including recalling important life events, remembering family and friends, and ensuring that they maintain a sense of their identity as they keep losing memories.

For dementia care, including Alzheimer's patients, robotic companions such as Paro, a robotic seal, supply cognitive stimulation and effective care, although robotics can be expensive. Such robotic companions have so far been as developed as they were, but in a real sense, have never come that far. However, robotic companions are an example of AI as an interactive aid for remembering, with the allure of companionship and planned action, improving cognitive well-being [7]. That said, the effectiveness of any such AI tool depends on the accuracy and details with which the AI tool has been programmed, as was the case with Walter Prime. This raises concerns about the possibility of disinformation in or around the memories created by AI.

The depiction of AI-facilitated recall in Marjorie Prime depicts the capabilities and thinking of AI in the future of Alzheimer's therapy. The work's primes serve as interactive tools for the human subject to recall, reenact, and reimagine the individual past. However, this is not only an argument for comfort and mental customisation, but also imposes an ethical and philosophical question about AI-assisted recall [8]. Marjorie showed the use and dangers of AI in enhancing recall. On one hand, one can gain companionship and mental stimulation from it, but at the cost of recreating and, more often than not, reshaping and selectively reimaging a person's past.

Similar to AI applications in actual dementia care, Marjorie Prime depicts how increasingly important AI applications for dementia caregiving are in the development of virtual companions and chatbots to maintain memories. As AI technology increases, there is an opportunity and a challenge with its application in cognitive therapy [4]. Thus, the AI reconstruction of memories in fiction produces a reflection on and through which to think about AI's ethical, psychological, and technological impacts in caring for memories and asking questions about future AI-enabled cognition and the maintenance of identity.

1.5. Cognitive and Emotional Impacts of AI in Alzheimer's Care

Artificial intelligence (AI) integration in Alzheimer's care has been seen as something that could ease patients' suffering or cause fear of further intrusion into our lives. AI in Marjorie Prime is a tool that can facilitate recall, companionship, and even a sense of a person's identity when he has cognitive loss [9]. However, through play, the issue of over-dependency on artificial memories, the absence of emotion in AI, and its inability to respond to psychological needs in Alzheimer's care becomes evident. By looking at AI's cognitive as well as affective effects on Alzheimer's care, in Marjorie Prime and real-world cases, it appears to be a dual reality: AI can deliver considerable help in strengthening recall and caring in terms of emotion, but raises important ethical and psychological constraints that should be taken care of.

1.6. Psychological Benefits of AI for Alzheimer's Patients

AI-assisted memory technology, such as Marjorie Prime, can be an important tool for improving cognitive function and protecting the individual heritage of Alzheimer's patients. Alzheimer's may hold the most significant challenge in forgetting memories from the years, loss of identity, and inability to remember family and friends [4]. AI technology that uses patients to interact in a guided, interactive manner (chatbot software, virtual assistants, or humanoid robots) can reinforce individual narratives and maintain cognitive stimulation.

Although AI served as a mental aid in Marjorie Prime, Walter Prime's dialogue with Marjorie shows that AI will remember important parts of life and check her perceptions of fundamental reasons. AI-powered aids can help fill in for persons with Alzheimer's disease who lack short-term memory, but not long-term memory [10]. Repeated use of recognizables in the face and narrative can improve brain function, slow mental deterioration, and stimulate mental stimulation. In addition, AI creates an Alzheimer's disease sufferer's companion, removing the feelings of disconnection and loneliness commonly found in neurodegenerative diseases. Research has been conducted on social robots and AI-sponsored companionship aids, and findings have shown that such technology enhances positive feelings through promising and dependable contact [10]. Course attendants cannot always be present, but AI can bring in sufferers with a constant presence to bring comfort and measure familiarity in disorientation and anguish.

Examples of AI-based cognitive therapy presented in the real world show that it can bring significant benefits to care for Alzheimer's. Google Assistant and Amazon Alexa-type assistants have already begun to remind older adults to take medication, follow their daily routines, or recall important information [11]. Higher-order AI interventions such as virtual companions or therapy robots are starting to appear in dementia care settings. They are used to promote social contact and mental stimulation. Like the Primes in Marjorie Prime, AI tools recruit one to join guided conversations and re-enact one's experiences.

1.7. Potential Drawbacks: Over-Reliance on Artificial Memories

Marjorie Prime brings to sharp relief the concern over dependency on artificial rather than actual memory, while AI has many positive aspects regarding cognitive therapy. Most of all, the Primes create a reality in the play through their selective recall of memories. Consequently, AI entities such as Walter Prime depend on secondary sources for information relayed by caregivers and families. Therefore, memories that are strengthened through them might not reflect what the facts 2 are. This involves the risk of a constructed recall: Alzheimer's subjects have a constructed past that varies subtly and in such a way that it is built for them only.

For example, events occurring in Marjorie's life in the past are sometimes glossed over and distorted for a more pleasing narrative. While it can be attractive for a patient, it raises an ethical concern about whether AI can and should be manipulating a patient's reality, creating a constructed reality for a patient to believe such a reality exists. Similar to any other AI-powered aid for memory in actual use, these have similar concerns [2]. It may result if a virtual assistant or AI chatbot is trained

with incomplete knowledge, poor knowledge, or biased knowledge. In this case, it can agree unconsciously with incorrect memories, and Alzheimer's patients develop a hollow notion of reality. A secondary concern regarding over-dependence on AI-powered memory aids is to kill the brain's natural processes involved in storing and recalling information [12]. When one relies too much on AI-created memories, one's recall function suffers, and one becomes less able to recall actively. In Alzheimer's therapy, it is most concerning as mental stimulation is necessary to stop deterioration and memory loss. Therefore, using AI to remember memories hinders motivation to exercise the brain unassisted and vice versa.
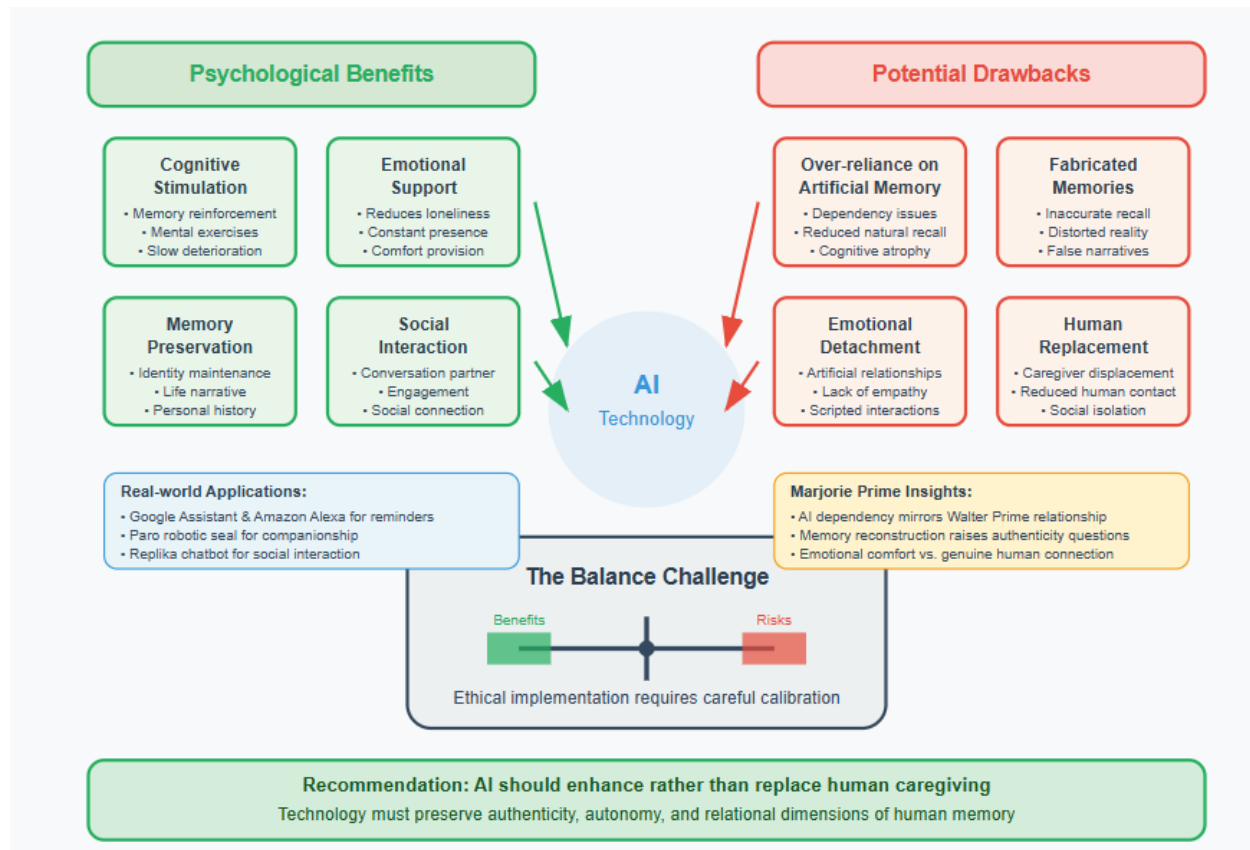
Figure 2.
Cognitive and Emotional Impacts of AI in Alzheimer's Care.

1.8. Emotional Detachment and the Human-AI Relationship

Marjorie Prime transcends the cognitive aspect of AI companionship in danger, which is characterised by disconnection and a lack of accurate emotional contact [13]. Primes introduce social contact but not actual social contact and unpredictability [13]. In the play, Walter Prime comforts Marjorie, which is artificial, as if there is dialogue; it is scripted and lacks genuine emotion [13]. This raises a problem with AI-taking care providers in Alzheimer's care [13]. However, the ability of AI to be a reliable companion is limited by not having empathy, emotional intelligence, or care provider awareness [13]. Sometimes, Alzheimer's patients need 'scripted dialogue' and deep contact, and this AI cannot provide [13]. Care providers read nonverbal signs, modulate their state, and, by touch, provide comfort, which AI-based platforms can still not deliver.

Studies on AI and age show that although older adults like to have AI companions, they yearn for real-life interpersonal contact. However, AI technology in the form of robotic animals and chatbots has

been used to allow social contact in dementia care, but as a substitute technology for the carer rather than a substitution [10]. One such example of this type of AI companion relation that is useful in all respects, but not a replacement for interpersonal contact in all situations, is Marjorie Prime. When AI contact supersedes human contact with AI-created companions, feelings of loneliness can arise [14]. Say an Alzheimer's patient becomes used to talking to an AI that always does what is told and provides support. However, they may lose interest if they withdraw from such fundamental social interactions because the conversations are more dynamic and sometimes challenging. This could undermine social skills and resilience, ultimately affecting the patient's health.

1.9. Comparison of AI's Role in Marjorie Prime and Current Alzheimer's Therapies

Comparing Marjorie Prime's portrayal of AI with developments in Alzheimer's therapy reinforces how closely AI is aligned with the depiction of happening; it also acts as a speculative contemplation of the future of AI in healthcare. AI is designed as a memory support and companionship tool that moves from fiction to reality, and ethical and psychological concerns remain the same. In Alzheimer's treatment, AI is introduced into cognitive therapy programs based on memory recall exercises, storytelling applications, and virtual reality simulations to improve cognitive engagement [15]. AI-driven applications, including reminiscence therapy platforms, permit patients to converse about the digital manifestations of prior events, similar to how Marjorie had conversations with Walter Prime. Unlike made-up primes, real-world AI systems lack dynamic and personalised conversations [15]. Nonetheless, Marjorie Prime raises the question of AI in Alzheimer's care and whether or not we are heading in the right direction. However, future AI systems will have characteristics similar to adaptability, learning ability, and rebuilding individuals' memories. On the one hand, it is a positive development; on the other hand, it is worrying. A significant advance on a level in that AI will be an even more powerful tool for storing memories; the lousy aspect, however, is that it can also be a powerful tool to rewrite individual memories in a way that is not necessarily reality-conforming.

1.10. Ethical and Philosophical Considerations

Marjorie Prime discussed many profound ethical and philosophical concerns AI brings to Alzheimer's care. In the play, AI holds onto memories and a processed or manufactured individual history. In both cases, there were important questions about identity, reality, and AI's use of AI in filling memories. It also makes forays into issues of AI as it is used in care, and whether AI will ever be able to fill the stand-in place for human companies. None of these paradoxes are specific to the world of fiction but are about ethical issues regarding the real-world use of AI in medical care. The philosophical and ethical aspects of AI in Alzheimer's care should be explored because they concern identity maintenance, reality and fabrication, ethics of AI as a resource for recall, and filling a stand-in role for caregivers.

1.11. Does AI Truly Preserve Identity or Fabricate a Version of the Past?

One of the main ethical issues in Marjorie Prime is whether AI is about preserving actual identity or producing an idealised past. However, AI-powered memory substitutes are actual AI memory substitutes programmed with dialogue supporting Marjorie in her past [9]. However, such virtual entities are cunning; they represent and reconfigure the past using selective information about Marjorie's family. It often alters or softens details of her life to spare her from painful memories or to make contact with the prime more pleasant. This poses a critical ethical question: If AI can reconstruct memory for better, but not necessarily more accurate, results, did it preserve the identity of that patient, or did it invent the patient's identity?

It is an even more pressing question in the context of Alzheimer's treatment. Digital companions and cognitive support applications have already been developed using AI to assist patients in remembering the past [16]. Like the Primes in Marjorie Prime, these technologies rely on information from the people they serve — family and medical professionals. For example, AI can reconstruct personal histories from incomplete, biased, or perceptually altered information. In this case, they can

even distort the patient's self-perception from reality [17]. An ethical dilemma arises because AI has the potential to help a person reconstitute or misrepresent their self-narrative.

It is ethically justifiable that such a preserved version of the past helps the patient lead a better life. Alzheimer's is a profoundly disorienting disease that can make patients anxious, emotionally distressed, or confused because they cannot remember significant life events. AI might be a useful therapeutic tool if it can give them a coherent and reassuring narrative. However, others argue that such an approach cannot be problematic, as it jeopardises the truth in personal identity [17]. In this way, an idealised version of reality created by AI removes patients' agency and decides which parts of patients' lives are important and which are not.

1.12. The Morality of Using AI to "Fill in the Gaps" for Alzheimer's Patients

The question of identity preservation is closely related to whether AI should be used to generate plausible but potentially inaccurate details to fill out lost memories. For Marjorie Prime, the Primes change what they say to match the information given to them by their human counterparts. The AI takes that detail—whether the family member supplies it—and does not care what is entirely accurate. AI merges it into its conversational framework and assimilates it into the patient's memory [18]. This does not sound right and raises an ethical question: if AI is used to 'fill in the gaps' for Alzheimer's patients, are we giving them valuable support, or are we deceiving them? While this issue is a real-world issue, the idea of developing powerful memory aids through AI is the same. Some AI applications reconstruct memory using patterns of a patient's past conversations, photos, and records [18]. These tools may help to put together fragmented memories, but they also have the potential to cause errors, embellishments, or omissions. What if a patient's AI-based memory aid said they went to a particular event, saw a particular person, or had a belief they never had? This might have subtly altered their perception of reality in such circumstances.

Advocates of AI-assisted memory reconstruction state that Alzheimer's patients already feel memory distortions, and AI is a method of continuing their cognitive experience. They contended that an AI-generated memory can provide comfort and stability to a patient. Even if the accuracy of that memory is somewhat blurred, its emotional and psychological merits may be more important [19]. However, critics argue that this is dubious ethics in making the manufacture of reality for patients possible, instead of allowing patients to work with the truth. Additionally, even using AI like a 'Memory gap filler' concerns consent. In particular, when patients are in the advanced stages of the disease, Alzheimer's patients may not have the cognitive ability to know how AI affects their recollections [19]. The lack of informed consent also invites a troubling ethical dimension, allowing patients to be unknowingly placed in a form of their past that may be awry with their awareness or sanction.

1.13. AI as a Replacement for Human Caregivers: Ethical and Emotional Concerns

Marjorie Prime also breaks down the ethics of AI, facilitating care at the cost of human involvement, which is also a problem, considering that AI is the primary assistance for care. The family and Marjorie rely on Primes to be companionable, to talk to, and to give them comfort in the play. On the one hand, these AI characteristics present some form of stability. In addition, they showed that artificial companions cannot convey proper nuances and sympathy [20]. Ethical questions regarding the use of AI in care for the elderly raise serious questions: Is AI a supplement to care and not a replacement? In the real world, AI-facilitated robots and virtual assistants are used for AI-facilitated care by reminding, having routine conversations, and offering comfort [20]. These technologies will undoubtedly reduce the burden on human caregivers, but they also risk losing the essence of human connections necessary for a patient's emotional well-being.

Critics argue that AI should never replace human caregivers because it cannot replicate human relationships' genuine emotional bonds, intuitive sense, and moral obligations. More specifically, Alzheimer's patients, along with others who have dementia, Alzheimer's, and other disorders, require, beyond structured interactions, compassion, patience, and sensitivity to human emotion that AI cannot

fully offer [20]. The concern is that if AI becomes a leading caregiving model, patients might become emotionally disconnected from their partners as they would be from it. Additionally, AI in caregiving is not just technology; it means something else about society, ageing, and elder care. What if we need to interact more with AI, and the more we become dependent on it to substitute human interaction? In that instance, it might be part of a phenomenon where ageing is regarded as challenging rather than humans who merit genuine, thought-provoking relationships. This shift would have considerable demographic and ethical implications, not only influencing Alzheimer's patients but also discussions about ageing and healthcare.

1.14. Future Prospects: AI and Alzheimer's Treatment Beyond Fiction

Through Marjorie Prime by Jordan Harrison, readers can view AI as a tool for safeguarding memories while improving cognitive functions and face critical inquiries about its future use in Alzheimer's disease therapy. Real-life developers work on systems that closely match the prime technology system presented in the play. The frequent nature of AI development enables Alzheimer's treatment to acquire enhanced capabilities for early disease detection and individualised healthcare services [21]. Technological advancements have led to multiple medical, ethical, and social issues. Research is needed to detect upcoming applications of AI in Alzheimer's care while revealing current advancements and valuable knowledge about integrating AI in healthcare, as well as researching and developing its future possibilities.

1.15. Emerging AI Technologies in Cognitive Therapy

Cognitive therapy is one of the most promising areas for the development of AI in Alzheimer's therapy. Virtual assistants, chatbots, and artificial intelligence (AI) tools that help automate machines to perform daily living and recall memories [22] are now present. Similar to the Primes in Marjorie Prime, AI tools work by facilitating conversation and recalling patient memories. Proposed for Alzheimer's patients are AI chatbots such as Replika and virtual recall aids such as Google's Project Euphonia [22]. Speech analysis, stored memories, and meaningful conversations are used in speech analysis for AI chatbots, and virtual recall aids are used to stimulate cognitive function. However, AI can detect speech abnormalities and cognitive loss with early intervention. Deep learning can also become even more sophisticated and empathetic, improving AI tools to create more specific responses to an individual patient.

Another key development facilitated by artificial intelligence (AI) is brain imaging. Brain scan analysis was used to identify early Alzheimer's symptoms when symptoms did not appear [23]. AI diagnostics created through IBM's Watson and Google's DeepMind can predict neurodegeneration trends better than the current methods. Early intervention during the disease can slow the disease progression. Wearable technology involving artificial intelligence (AI) has been developed to monitor cognitive function for extended periods [23]. Smartwatches and AI-equipped biometric sensors that monitor minor motion, speech, and behavioural fluctuations can send real-time feedback to caregivers and medical professionals. Using AI to track disease progression and provide personalised care plans for patients' individual needs can improve the lives of patients with AD.

1.16. Marjorie Prime as a Cautionary and Visionary Tale

Marjorie Prime presents AI as a valuable tool for resurrecting memories and, here, as it turns out, a fable of AI's unintended consequences in cognitive therapy. This reveals how AI can take memories back from the dead, using which AI can confuse reality with fabrication. It also reveals whether AI preserves identity, but only creates a suitable version of the past in a suitable form. This issue has become increasingly severe in real life. In the case of Primes, the play relies on information entered by family and medical professionals, as with AI-powered aids for memories. AI can mislead and sanitise a patient's past when the information input is incorrect, prejudicial, or incomplete. It calls into question whether

Alzheimer's patients should be allowed to have their memories sanitised —memory, that is—down so that they will be less upset in the world, but that is not necessarily what the world is all about.

Marjorie Prime also touches upon the folly of neglecting connections in favour of substituted humans endowed with artificial intelligence. AI can provide companionship, but cannot precisely replicate real emotions and empathetic nuances [24]. In the play, AI dispenses with the human element in caring for Alzheimer's patients, which could lead to losing important social contact with them in a future filled with AI. To bring AI into the life of caring for humans, this issue must be addressed in real-life deployment. The play also warns about AI ethics in making decisions regarding Alzheimer's care. To the extent that AI is increasingly present in Alzheimer's care, who and how will it capture memories to save? Therefore, does AI put accuracy, comfort, or a combination over accuracy? The ethics and legislation to be put in place for AI use in any cognitive therapy to be responsible require that.

2. Future Research Directions and Innovations

As AI technology develops, many avenues of investigation and development for its application in Alzheimer's care will come into play. A key direction is the emotional intelligence of AI. AI algorithms can understand information and generate output, but cannot understand and respond to emotions. The development of work on affective computing—AI technology that can perceive and read emotions—may produce AI companions that can effectively support caregivers of patients with AD. The second important direction that requires investigation is personalised AI therapy. AI technology is generally applied, and general datasets are used to chat with patients [22]. As machine learning and AI technologies continue to advance, future programs do not have to be any more general than a small amount of time spent working with patients' personalities, emotions, and vocal cues. Therefore, AI-facilitated memory aids can be even more potent in improving cognitive function and preserving the patient's sense of self at that level of individualisation.

Moreover, researchers are currently studying AI-assisted drug development for Alzheimer's disease. By simulating AI, vast medical information databases can be searched for new drugs, and patient reactions to drugs can be predicted [25]. AI simulations can also shorten the time required to develop new therapies and make drugs work with fewer uses [19]. Brain-computer interfaces (BCI) are one of the most ambitious areas in AI development. Companies like Neuralink are developing technologies to enable neural wire interfaces with direct AI brain interfaces. In the future, AI-manufactured memories could be used on the fly to restore lost mental function in AD. However, this technology, even as promising as it tends to be, is still far in its infancy and has significant ethical concerns about all these issues, especially privacy and consent.

2.1. Challenges and Considerations for AI in Alzheimer's Treatment

Although there is hope for exciting breakthroughs in AI for Alzheimer's therapy, many obstacles must be overcome for AI to become predominantly used to treat the disease. The most serious issue is related to information privacy. AI software requires considerable individual information to perform its job, and there are concerns about storing, using, and protecting patient information [26]. AI is maintained under strict security protocols to protect information because it prevents misuse or incorrect access to sensitive medical information. Another challenge is access. Introducing cutting-edge AI technology is expensive, and many infrastructures are required. Many of those living in low-income communities will not have access to such cutting-edge care [27] and most Alzheimer's patients will. Finally, future studies should strive to develop affordable AI options that can be readily shared and integrated into the existing medical care infrastructure. Finally, ethical considerations are at the core of the development of AI. Therefore, AI cannot afford to sacrifice meaningful human social contact, independence, and dignity at any price [28]. To progress, policymakers, clinicians, and AI engineers must generate ethical frameworks that value patients and limit AI to help them and not enforce control against them.

3. Conclusion

Marjorie Prime depicts the understanding of AI's profound potential and ethical concerns in Alzheimer's care. On the one hand, AI-assisted reassembly of memories can facilitate cognitive therapy. It can be used as a companion, but at the price of fears of real memories, lack of emotion, and assuming the mantle of a prototypical caregiver. In the future, as AI technology advances, the need for a delicate balance between technological advances and moral responsibility in shaping Alzheimer's care will become even more critical.

Transparency:

The author confirms that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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