

# Exploring Data Analytics of Beloved Passed away Relatives by Assessing Smart Technology as a Digital Resurrection Service

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**Abstract:** *Having the opportunity to communicate with our beloved passed away relatives or other persons seems to become a reality based on current smart technology advancements in the area of artificial intelligence. Proposed research effort aims to explore the limits of beloved passed away relatives' perception by assessing the potentiality of artificial intelligence as a digital resurrection service utilizing a smart technology system architecture, which could support such a concept. Concretely, research effort focuses on the exploitation of the research achievements in emerging areas of smart technology, such as the emotional intelligence of humanoid technology, the artificial intelligence potentiality of assessing large language models, which support ChatGPT-4 as well as a certain Microsoft patent of assessing passed away persons data exploration and exploitation based on multiple data sources available on the internet during their real-life activities. Current research effort will provide insights into the extent to which smart technology system architecture is able to incorporate artificial intelligence potentiality to replicate passed away persons' behavior and emotions, and how it can be used to bring back through stochastic data analytics the memories and experiences of deceased beloved relatives.*

**Keywords:** Artificial Intelligence, Humanoid Robot, Digital Resurrection, Smart Technology, System Architecture

## 1. Introduction

The concept of exploring the limits of human perception by assessing the potentiality of AI as a digital resurrection service along with a supportive smart technology system architecture is a fascinating and thought-provoking idea. The field of artificial intelligence has made significant strides in recent years, with advancements in robot emotional intelligence and natural language processing. Concretely, robot emotional intelligence refers to the ability of robots to recognize, understand, and express emotions in a way that is appropriate for human-robot interaction. The field of robot emotional intelligence has been gaining attention in recent years due to its potential applications in various fields such as assistive, educational, and social robotics [1]. Intuitively, natural language processing is a subfield of computer science and AI concerned with the interactions between computers and human language. It involves the development of algorithms and computational models that enable computers to understand, interpret, and generate human language. Other approaches of natural language processing use pre-trained language models to generate stochastic data analytics for training augmentation or other purposes [2]. Data intensive manipulation for providing robust real time applications, such as sensor data streaming is able to analyzed by efficient data analytics models. Concretely, data preprocessing is significant for the design of a smart technology system architecture, which provide the conditions to support an effective cognitive system for beloved passed away persons [3]. Intuitively, smart technology system architecture provides cognitive capabilities, which result to artificial intelligence cognitive performance able to conceptualize digital functioning between humans and machines thus providing the opportunity of a strong cognitive symbiosis [4].

These advancements have led to the development of humanoid technology [5] and large language models such as ChatGPT-4 [6], which have the potential to replicate human behavior and emotions by generating natural language texts from large amounts of data. Additionally, a certain Microsoft patent of assessing beloved dead persons' data exploration and exploitation based on multiple data sources available on the internet during their real-life activities has opened up new possibilities for exploring the memories and experiences of deceased individuals [7]. The aim of this research idea is to explore the potentiality of artificial intelligence as a digital resurrection service supported by a smart technology system architecture to examine the potentiality of these technical advancements. The study will provide insights into the extent to which artificial intelligence can replicate human behavior and emotions, and how it can be used to bring back through extensive data analytics the memories and experiences of deceased individuals. This research has the potential to revolutionize the way we think about death and the afterlife, and could have significant implications for the field of artificial intelligence.

## 2. Related Work

The idea of using artificial intelligence to replicate human behavior and emotions is not new. In fact, there have been several studies that have explored the potentiality of artificial intelligence in this area. Specifically, [8] explore the positive use cases of artificial intelligence generated characters, which are realistic renderings of human faces, voices, and mannerisms that can interact with users. Research effort focuses on how these characters can support personalized learning and well-being by providing inspiration, guidance, feedback, and companionship. The paper also presents an artificial intelligence character

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generation pipeline that allows users to easily create and customize their own characters using generative machine learning and data analytics techniques. The effort discusses the ethical implications of using synthetic media and the need for traceability to maintain trust. Intuitively, researchers [9] developed artificial intelligence system that can mimic human facial expressions and emotions with a high degree of accuracy. This system was able to replicate a range of emotions, including happiness, sadness, anger, and surprise, and could be used in a variety of applications, such as virtual assistants and robots. Another study that is relevant to this re-research idea is the work of researchers, who developed an artificial intelligence system that can generate realistic human-like responses to text-based prompts [10]. Concretely, such system called GPT-3 is able to understand and respond to natural language queries in a way that is similar to how humans would respond. This technology has the potential to be used in a variety of applications, such as chatbots and virtual assistants.

In terms of the use of artificial intelligence to explore the memories and experiences of deceased individuals, there has been some research in this area as well. For example, researchers developed an artificial intelligence system that describes the re-al-world commercialization of immortal digital personalities, which gives eternal life to the deceased in a digital form. The research work also discusses the problems and ethical implications of using deceased relatives' images and personal data for post-mortem entertainment utilities [11]. Concretely, research effort mentions an artificial intelligence system that would use the deceased persons' writing style to generate text and create a human-like digital avatar that can interact with the outside world. Creating digital avatars of deceased individuals has also become a topic of interest in re-cent years. Artificial intelligence generated portrayals of characters can feature synthesized faces, bodies and voices of anyone, from a fictional character to a historical figure, or even a deceased family member. The digital avatar mimics the expressions of the deceased individual. They can answer questions from grieving individuals and share memories from the past [12]. The phenomenon of creating artificial intelligence powered avatars of the dead using social media data and other sources [13] explores the trend of creating artificial intelligence powered avatars of the dead using efficient data analytics models. Intuitively, the article examines the psychological and ethical implications of this technology, such as providing comfort, preserving memories, or exploiting emotions. Research effort suggests that this technology could challenge our notions of death and identity in the digital age.

However, this technology raises ethical concerns about privacy and consent [14] of the emerging trend of creating digital versions of the dead using artificial intelligence and social media data. Subsequently, the article explores the potential benefits and risks of this technology, such as providing comfort, entertainment, or education, but also violating privacy and consent of the deceased and their relatives. Research effort also highlights the lack of regulation and protection for the data of the dead in most countries, and calls for more ethical and legal frameworks to address this issue. Overall, the related work suggests that

artificial intelligence has the potential to replicate human behavior and emotions with a high degree of accuracy, and can be used to explore the memories and experiences of deceased individuals based on efficient data analytics models. However, there are still many challenges that need to be addressed, such as the ethical implications of using artificial intelligence in this way, and the potential for bias in the provided data that is used to train these systems.

### 3. Smart Technology as a Digital Resurrection Service

The proposed system architecture for exploring the limits of digital resurrection service for human perception by assessing artificial intelligence as an emerging technology in the field will involve the integration of certain key technical advancements, as follows:

- 1) Emotional intelligence of humanoid technology,
- 2) Artificial intelligence enabled large language models of ChatGPT-4, and
- 3) A specific Microsoft patent of assessing beloved dead persons' data exploration and exploitation based on multiple data sources available on the internet during their real-life activities.

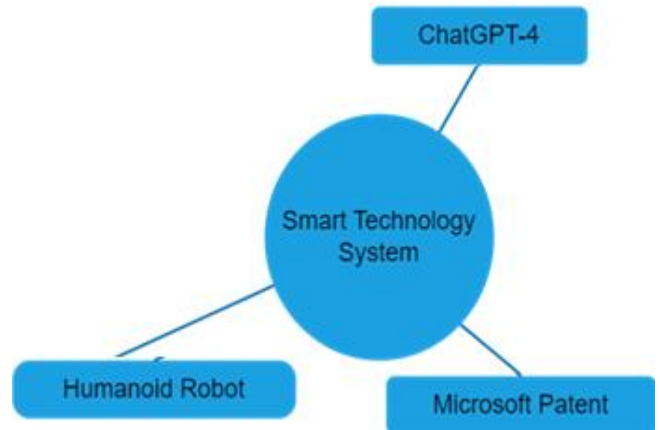
Concretely, humanoid robots with emotional intelligence are designed to endow the robots with emotional intelligence making the interaction more genuine and natural. The main aspect in achieving this goal is the robot's capability to interpret human emotions and the ability of robots to exhibit recognizable emotional expressions strongly impacts the resulting social interaction [5]. Specifically, the emotional intelligence of humanoid technology will be used to replicate human behavior and emotions based on stochastic data analytic processes with a high degree of accuracy. This will involve the development of a system that can mimic human facial expressions and emotions similar to the dead relatives' facial expressions on certain discussions. Proposed system will be able to replicate a range of emotions, including happiness, sadness, anger, and surprise, and could be used in a variety of applications, such as virtual assistants and robots.

Subsequently, ChatGPT-4 is a conversational system based on GPT-4, OpenAI's most recent large language model, which uses deep neural networks, such as transformers, to learn from billions or trillions of words, thus producing texts on any topic or domain of human activity. Concretely, GPT-4 can produce safer and more useful responses than previous models, thanks to its broader general knowledge and problem-solving abilities. It can also generate, edit, and iterate with users on creative and technical writing tasks, such as composing songs, writing screenplays, or learning a user's writing style. Specifically, ChatGPT-4 allows users to interact with GPT-4 in a dialogue format and explore its capabilities. Intuitively, ChatGPT-4 is available on ChatGPT Plus and as an API for developers to build applications and services [6]. Subsequently, the artificial intelligence utility of ChatGPT-4 will be used to generate realistic human-like responses to text-based prompts. Concretely, such a feature will involve the development of a smart technology system architecture that can understand and respond to natural

language queries in a way that is similar to how dead humans would respond as they were alive in the present. Subsequently, the digitally resurrection beloved ones would update their knowledge and adapt to new unseen observations of everyday life, which is a form of human kind immortality. This is feasible because such GhatGPT-4 technology has the potential to be used in a variety of applications, such as chatbots and virtual assistants.

Intuitively, certain Microsoft's patent [7] describes a system and method for creating a personality of a specific person, such as a celebrity, a friend, or a deceased relative, using conversational data. Such a system collects and analyzes through efficient data analytics conversational data from various sources, such as social media, inter-views, or personal messages, and generates a personality profile of the person based on their linguistic style, emotional state, and preferences. Research effort is able to use the personality profile to create a conversational agent that can emulate the person's voice, speech patterns, and expressions. Concretely, research effort allows users to interact with the conversational agent and experience a realistic and personalized conversation with a passed away person. Intuitively, the patent supports the creation of a chatbot that could imitate a deceased loved one. However, it is important to note that the patent itself does not specifically imply that the software product would be used to bring deceased people back to life digitally. The Microsoft patent of assessing dead relatives' data exploration and exploitation based on multiple data sources available on the internet during their real-life activities will be used to explore the memories and experiences of deceased individuals. This will involve the development of a system that can analyze social media data to create a digital representation of a deceased individual. The system will be able to create a digital avatar that could interact with living individuals in a way that was similar to how the deceased individual would have interacted.

The contribution of this paper is to exploit the potentiality of combining certain research fields to provide a software resurrection of beloved dead ones by bringing people digitally back to life by proposing a smart technology system architecture, which will involve the integration of these certain key technical advancements to create a comprehensive artificial intelligence based digital resurrection service. Access to dead's digital records are required to preprocess their data. Concretely, data preprocessing should recover living experiences of the beloved relatives filtered by their interfaces with digital world infrastructure. Exploitation of Microsoft patent will provide the data analytics tools to exploit persons' daily schedules, habits, hobbies and all common human activity, which could be captured by digital portals, such as interfaces provided by the internet search engines, personal information stored in the cloud-based data storages and/or volatile data streaming personal activity of the interaction of the person with cyber-physical systems infrastructure. Retrieved data should be cleaned and encoded to make sense by incorporating spatiotemporal context as the dead persons' living trajectory through their physical existence and living actions, which are unique for each individual [15].



**Figure 1:** Smart technology system architecture assessing artificial intelligence as a digital resurrection service for bringing beloved dead relatives back to digital life with robotic bodies.

Concretely, when data have formed in a way that make sense to the machines then they feed ChatGPT-4. Specifically, ChatGPT-4 provides an instance of itself assign to each of the dead persons that are digitally resurrected. Dead relative's data sources are combined with online and real time dynamic data streaming available on the internet, which then train ChatGPT-4 instances. Training phase exploits dead persons information as well as real time information currently retrieved based on the digital personality of the beloved ones. The result is the digital resurrection of the dead's beloved relatives, who continuous to digitally live by updating their missed knowledge by the time they were dead. Intuitively, by training ChatGPT-4 with this information we achieve digital human kind immortality. Subsequently, the last architecture component to be synchronized to the rest of the resurrection service is the emotional intelligent humanoid robot. Current technology provides the capability to design and produce humanoid robots, which have the characteristics of real persons. Subsequently, ChatGPT-4 rational activity could feed the emotional based robot and train it appropriately by exploiting the potentiality of data analytics to act as a normal alive person. Intuitively, by designing such a humanoid robot to resemble dead beloved ones it is feasible to digital resurrect the dead bodies. Resurrected bodies can sense and prompt human emotions like eyelashes movements, coloring of voice, hand gestures, neck bending and other actions that a humanoid robot can do. It will be also feasible for the robot to walk, sit in a chair and act as a real living person. At this point the proposed system architecture could be able to provide a human perception of a digital resurrection service able to allow real living human beings to communicate online and in real time with the resurrected beloved ones, who will have digital personality and robotic bodies.

Intuitively, proposed system architecture will support an artificial intelligence enabled digital resurrection service, which could be able to replicate human behavior and emotions with a high degree of accuracy, generate realistic human-like responses to text-based prompts, and explore the memories and experiences of deceased individuals. The system will have significant implications for the field of artificial intelligence and could revolutionize the way we think about death and the afterlife. However, there are still

many challenges that need to be addressed, such as the ethical implications of using artificial intelligence in this way, and the potential for bias in the data that is used to train these systems. Subsequently, emotional reactions of actual living relatives should be estimated and early warning counter measures should be designed to prevent emotional collapse or negative reactions, which could deteriorate the effectiveness of the system. Intuitively, human's dead or alive are in the center of such a technology and should be treated gently and with respect to human rights to exploit the potentiality of the resurrection service. Proposed smart technology system architecture for supporting the artificial intelligence enabled digital resurrection service is presented in Figure 1.

#### 4. Discussion

A smart technology system architecture for exploring the limits of human perception is proposed by assessing artificial intelligence as a digital resurrection service, which is a complex and ambitious idea. The integration of emotional intelligence of humanoid technology, artificial intelligence potentiality of ChatGPT-4, and the specific Microsoft patent of assessing dead humans' data exploration and exploitation based on multiple data sources available on the internet during their real-life activities is a significant technical challenge. However, if successful, this system could revolutionize the way we think about death and the afterlife.

One of the strengths of this proposed smart technology system architecture is the potential to replicate human behavior and emotions with a high degree of accuracy. The emotional intelligence of humanoid technology will be used to mimic human facial expressions and emotions, which could be used in a variety of applications, such as virtual assistants and robots. Additionally, the artificial intelligence utilities exploited by ChatGPT-4 will be able to generate realistic human-like responses to text-based prompts, which could be used in chatbots and virtual assistants. These advancements have the potential to create a more human-like experience when interacting with artificial intelligence systems. Another strength of the proposed smart technology system architecture is the potential to explore the memories and experiences of deceased individuals through the incorporation of efficient data analytics models. The Microsoft patent of assessing dead humans' data exploration and exploitation based on multiple data sources available on the internet during their real-life activities has opened up new possibilities for exploring the memories and experiences of deceased individuals. The system will be able to create a digital avatar that could interact with living individuals in a way that was similar to how the deceased individual would have inter-acted. This could provide comfort to those who have lost loved ones and could help preserve their memories.

However, there are also several weaknesses of this proposed system architecture that need to be addressed. One of the main concerns is the ethical implications of using artificial intelligence in this way. Specifically, the use of artificial intelligence to replicate human behavior and emotions and explore the memories and experiences of de-ceased

individuals raises significant ethical questions. For example, who owns the data of deceased individuals, and how can we ensure that their privacy is protected? Additionally, there is a risk of bias in the data that is used to train these systems, which could lead to inaccurate digital representations of individuals. Another weakness of this proposed smart technology system architecture is the technical challenges involved in integrating with the adopted technical advancements. The emotional intelligence of humanoid technology, artificial intelligence potentiality of ChatGPT-4, and Microsoft patent of assessing dead humans' data exploration and exploitation based on multiple data sources available on the internet during their real-life activities are all complex systems that require significant development and integration. There is a risk that the proposed system may not work as intended or may not be able to digitally replicate human behavior and emotions with a high degree of accuracy.

Concretely, the proposed smart technology system architecture for exploring the limits of human perception by assessing artificial intelligence as a digital resurrection service is a fascinating and thought-provoking idea. The integration of emotional intelligence of humanoid technology, artificial intelligence large language model's technology of ChatGPT-4, and certain Microsoft patent of assessing dead hu-mans' data exploration and exploitation based on multiple data sources available on the internet during their real-life activities has the potential to revolutionize the way we think about death and the afterlife. However, there are significant ethical and technical challenges that need to be addressed before this system can be developed and implemented.

#### 5. Conclusion and Future Work

In conclusion, the proposed smart technology system architecture for exploring the limits of human perception by assessing artificial intelligence as a digital resurrection service has the potential to revolutionize the way we think about death and the afterlife. The integration of emotional intelligence of humanoid technology, artificial intelligence of ChatGPT-4, and Microsoft patent of assessing dead humans' data exploration and exploitation based on multiple data sources available on the internet during their real-life activities is a significant technical challenge. However, if successful, this system could replicate digital human behavior and emotions with a high degree of accuracy, generate realistic human-like responses to text-based prompts, and explore the memories and experiences of deceased individuals. Concretely, human's dead or alive are in the center of such a technology and should be treated gently and with respect to human rights to exploit the potentiality of the digital resurrection service.

Future work in this area should focus on addressing the ethical and technical challenges associated with the proposed smart technology system architecture. Ethical considerations such as data privacy and bias in the data used to train these systems with efficient data analytics models need to be addressed. Additionally, technical challenges such as the integration of emotional intelligence of humanoid technology, artificial intelligence of ChatGPT-4,

and Microsoft patent of assessing dead humans' data exploration and exploitation based on multiple data sources available on the internet during their real-life activities need to be overcome. Further research could also explore the potential applications of this system architecture. For example, it could be used to create virtual assistants or robots that are more human-like in their behavior and emotions. Additionally, it could be used to create digital avatars of deceased individuals that could interact with living individuals in a way that is similar to how the deceased individual would have interacted. Overall, the proposed system architecture for exploring the limits of human perception by assessing artificial intelligence as a digital resurrection service is a fascinating and thought-provoking idea that has the potential to revolutionize the way we think about death and the afterlife. However, there are significant ethical and technical challenges that need to be addressed before this system can be developed and implemented.

## References

- [1] Hieida, C., Nagai, T. Survey and perspective on social emotions in robotics. *Advanced Robotics* 2022, 36(1-2), pp. 17-32, doi: 10.1080/01691864.2021.2012512.
- [2] Min. B., Ross, H.,Sulem, E.,Veysen, A.P.B., Nguyen, T.H.,Sainz, O.,Agirre, E., Heinz I., Roth, D. Recent Advances in Natural Language Processing via Large Pre-Trained Language Models: A Survey. *ArXiv preprint* 2021, arXiv:2111.01243. doi: <https://doi.org/10.48550/arXiv.2111.01243>.
- [3] Kang, K.D., Chen, L., Yi, H., Wang, B., Sha, M. Real-Time Information Derivation for Big Sensor Data via Edge Computing. *Big Data and Cognitive Computing* 2017, 1(1), pp. 1-24, doi: <https://doi.org/10.3390/bdcc1010005>.
- [4] Veres, C. Strong Cognitive Symbiosis: Cognitive Computing for Humans. *Big Data and Cognitive Computing* 2017, 1(1), pp. 1-17, doi: <https://doi.org/10.3390/bdcc1010006>.
- [5] Spezialetti, M.,Placidi, G., Rossi, S. Emotion Recognition for Human-Robot Interaction: Recent Advances and Future Perspectives. *Front. Robot. AI* 2020, 7(532279), pp. 1-11, doi: 10.3389/frobt.2020.532279.
- [6] OpenAI, ChatGPT-4. Available online: <https://openai.com/product/gpt-4> (accessed on 02 July 2023).
- [7] Microsoft. Patent. No: US20200027071A1. Conversational Creation of a Personality of a Specific Person. *United States Patent and Trademark Office*. Filed: 21 June 2019. Published: 23 January 2020.
- [8] Pataranutaporn, P., Danry, V., Leong, J.,Punpongsanon, P., Novy, D., Maes, P.,Sra, M. AI-generated characters for supporting personalized learning and well-being. *Nature Machine Intelligence* 2021, 3, pp. 1013-1022.
- [9] Clark, E.A., Kessinger, J.N., Duncan, S.E., Bell, M.A.,Lahne, J., Gallagher, D.L., Keefe, S.F.O. The Facial Action Coding System for Characterization of Human Affective Response to Consumer Product-Based Stimuli: A Systematic Review. *Front. Psychol.* 2020, 11(920), pp. 1-21, <https://doi.org/10.3389/fpsyg.2020.00920>.
- [10] Adiwardana, D., Luong, M.T., So, D.R., Hall, J., Fiedel, N.,Thoppilan, R., Yang, Z., Kulshreshtha, A.,Nemade, G., Lu, Y., Le, Q.V. Towards a human-like open-domain chatbot. *ArXiv preprint* 2020, arXiv:2001.09977. doi: <https://doi.org/10.48550/arXiv.2001.09977>.
- [11] Nakagawa, H.,Orita, A. Using deceased people's personal data. *AI & Society* 2022, pp. 1-19, doi: <https://doi.org/10.1007/s00146-022-01549-1>.
- [12] Petapixel. Earle AI Tech Processes Photos to Let You Talk to DEad Loved Ones. Available online: <https://petapixel.com/2023/01/09/new-ai-technology-processes-photos-to-let-you-talk-to-dead-loved-ones/> (accessed on 02 July 2023).
- [13] Wired. Why scientists are building AI-powered avatars of the dead. Available online: <https://wired.me/technology/artificial-intelligence/why-scientists-are-building-ai-powered-digital-imprints-of-the-dead/> (accessed on 02 July 2023).
- [14] Reuters. Data of the dead: Virtual immortality exposes holes in privacy laws. Available online: <https://www.reuters.com/article/us-global-tech-privacy-trfn-idUSKBN21Z0NF> (accessed on 02 July 2023).
- [15] Anagnostopoulos, T. Patent. No: US 10,824,713 B2. Spatiotemporal Authentication. *United States Patent and Trademark Office*. Filed: 10 May 2018. Published: 03 November 2020.