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Περιεχόμενα

Pilalidou Kyriaki

Digital Cultural Identity: Using Artificial Intelligence for the Preservation and Promotion of Refugee and Migrant Cultural Heritage

Abstract

The paper focuses on the use of advanced Information and Communication (IC) and Artificial Intelligence (AI) technologies for the documentation, preservation, and promotion of the cultural identity of refugee and migrant communities. It examines how tools such as Machine Learning (ML), Speech Recognition (SR), Natural Language Processing (NLP), and Augmented Reality (AR) can be used to collect and document oral traditions, songs, myths, and linguistic idioms. These tools can help create digital cultural heritage libraries with the active contribution of the communities themselves. Modern technology and AI can also be integrated into educational platforms to enhance intercultural education and social inclusion, without erasing cultural identity. Moreover, they can support the cultural empowerment of second and third-generation migrants. At the same time, the study explores ethical concerns, privacy issues, and participatory design, emphasizing the need for systems that respect and strengthen people's cultural roots.

Key-Words: digital technology, tradition, culture, educational environment, innovation, artificial intelligence, refugees, immigration, morality.

Ψηφιακή Πολιτισμική Ταυτότητα: Χρήση Τεχνητής Νοημοσύνης για τη Διατήρηση και Ανάδειξη Πολιτιστικής Κληρονομιάς Προσφύγων και Μεταναστών

Περίληψη

Η εργασία επικεντρώνεται στη χρήση προηγμένων Τεχνολογιών Πληροφορίας και Επικοινωνίας και Τεχνητής Νοημοσύνης για την τεκμηρίωση, διατήρηση και προώθηση της πολιτιστικής ταυτότητας προσφυγικών και μεταναστευτικών κοινοτήτων. Εξετάζει πώς εργαλεία όπως η Μηχανική Μάθηση, η Αναγνώριση Ομιλίας, η Επεξεργασία Φυσικής Γλώσσας και η Επαυξημένη Πραγματικότητα μπορούν να αξιοποιηθούν για τη συλλογή και τεκμηρίωση προφορικών παραδόσεων, τραγουδιών, μύθων και γλωσσικών ιδιωμάτων. Τα εργαλεία αυτά μπορούν να συμβάλουν στη δημιουργία ψηφιακών βιβλιοθηκών πολιτιστικής κληρονομιάς με την ενεργή συμμετοχή των ίδιων των κοινοτήτων. Η σύγχρονη τεχνολογία και η Τεχνητή Νοημοσύνη μπορούν επίσης να ενσωματωθούν σε εκπαιδευτικές πλατφόρμες με σκοπό την ενίσχυση της διαπολιτισμικής εκπαίδευσης και της κοινωνικής ένταξης, χωρίς την αλλοίωση της πολιτιστικής ταυτότητας. Επιπλέον, μπορούν να υποστηρίξουν την πολιτιστική ενδυνάμωση των μεταναστών δεύτερης και τρίτης γενιάς. Παράλληλα, η μελέτη διερευνά ηθικά ζητήματα, θέματα ιδιωτικότητας και συμμετοχικού σχεδιασμού, τονίζοντας την ανάγκη για συστήματα που σέβονται και ενδυναμώνουν τις πολιτιστικές ρίζες των ανθρώπων.

Λέξεις-κλειδιά: ψηφιακή τεχνολογία, παράδοση, πολιτισμός, εκπαιδευτικό περιβάλλον, καινοτομία, τεχνητή νοημοσύνη, πρόσφυγες, μετανάστευση, ηθική.

1. Introduction

In today's world of globalization and technological advancement, culture no longer consists a static entity but a dynamically evolving organism shaped by population movements, social transformations, and digital innovations. Refugees and migrants carry with them not only personal experiences but also valuable cultural elements—language, traditions, arts, and ways of life—that define their identity and enrich global cultural heritage. However, under conditions of displacement and social marginalization, this cultural wealth is often at risk of being lost or remaining invisible. Within this context, Artificial Intelligence (AI) and digital technologies offer new means of documenting, preserving, and highlighting the

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cultural heritage of refugee and migrant communities. Through these AI tools, it becomes possible to create a "digital cultural footprint" that serves not only as an archive of the past but also as a living expression of identity in the present.

Within this context, this paper will examine the way which AI technologies can be employed for the safeguarding, documentation, and promotion of intangible cultural heritage. Armed conflicts and the refugee crisis continue to mark the contemporary world, causing mass forced displacement, loss of homes, and the fragmentation of cultural identities. The experience of displacement is closely linked to the danger of oblivion, as languages, narratives, and traditions that constitute cultural heritage are threatened with extinction. The choice of this research topic arises from the need to understand and strengthen the mechanisms through which refugee and migrant communities preserve their collective memory and cultural identity.

2. Theory

2.1 Paper purpose

The purpose of this study is to explore how Artificial Intelligence (AI) technologies can be utilized for the preservation, promotion, and advancement of the cultural heritage of refugees and migrants, thereby contributing to the strengthening of their cultural identity, social integration, and intercultural understanding. The study seeks to understand the significance of cultural identity for refugee and migrant communities, to document contemporary practices and AI applications related to cultural documentation, storytelling, and the digital representation of cultural elements, to analyze the opportunities and challenges associated with the use of AI in this field—including ethical, technological, and social issues—and to propose strategies or policy frameworks for the sustainable integration of these technologies into cultural preservation initiatives targeting displaced populations.

2.2 Term clarification

2.2.1 Cultural Identity

Cultural Identity refers to the set of cultural elements—such as language, traditions, customs, religious beliefs, arts, and narratives—that shape an individual's or a community's sense of belonging. In the case of refugees and migrants, cultural identity may be dynamically shaped through experiences of displacement, loss, and integration into new societies.

2.2.2 Digital Cultural Identity

Digital Cultural Identity refers to the representation of cultural identity through digital media and technologies. It encompasses the creation and presentation of cultural elements on digital platforms, the virtual documentation of intangible and tangible cultural heritage, and digital storytelling. This concept is closely linked to the need for the promotion and preservation of culture in digital environments, particularly for communities in motion or experiencing marginalization.

2.2.3 Artificial Intelligence – AI

Artificial Intelligence (AI) is defined as the branch of computer science concerned with the development of systems and algorithms capable of simulating human cognitive functions, such as learning, decision-making, pattern recognition, and natural language processing (NLP). In the context of this study, AI is examined as a tool for the documentation, analysis, and promotion of cultural data and narratives.

2.2.4 Cultural Heritage

Cultural heritage encompasses both its tangible aspects (buildings, objects, works of art) and its intangible dimensions (traditions, languages, rituals, music, oral narratives). For refugee and migrant communities, cultural heritage serves as a vehicle for memory, continuity, and collective identity.

2.3 Theoretical Framework

2.3.1 Cultural Heritage and Memory

The role of collective memory in the preservation of cultural heritage is of vital importance, as it maintains traditions, values, and identities within a community. Through shared participation and the transmission of memories of historical events, customs, languages, and practices, a link is created between past and future generations, ensuring that cultural heritage is preserved not only as a living entity but also with respect. Without this memory, there is a risk of losing significant historical knowledge and customs, leading to cultural erosion or assimilation. Considering collective memory and individuals' rights in relation to culture, it is essential to engage with oral history, written documentation, and cultural heritage, factors that are deeply intertwined with the preservation of memory, as each plays a unique role in understanding and safeguarding the past. From this perspective,

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the present study poses the following research question: How is cultural identity defined and constituted in the contemporary digital environment, particularly in the context of displacement and intercultural experience?

2.3.2 The Importance of Oral Tradition

Oral tradition holds invaluable significance, as it encompasses the personal stories, experiences, and wisdom of communities, with storytelling serving as the core means of transmitting history, values, and life lessons from generation to generation. For many historians and researchers, oral history is considered the oldest form of recorded history, as it includes interviews with individuals who were eyewitnesses to historical events, aiming to reconstruct the past[1].

Moreover, oral narratives are not limited to merely describing events. Instead, they capture the emotions, voices, and essence of the people who experienced them, creating a connection with their past while simultaneously shaping their identity and fostering a sense of shared roots and belonging. Through these narratives, one can discern how communities organized their daily lives, honored their past, and transmitted family traditions, thereby preserving the knowledge that shaped their way of life, which in turn continues to influence contemporary social organization.

Oral tradition is also crucial for preserving the histories and cultural voice of minority or marginalized groups[2]. These groups may not record their stories in written form, relying instead on oral storytelling to preserve and share their experiences, challenges, and traditions. Although oral testimonies can serve as direct accounts of events, they are often questioned, as some historians consider them unreliable due to the limitations of human memory. However, other historians argue that «oral history can reveal previously unknown events or previously unexplored aspects of known events[3]».

Oral storytelling can also provide details about architecture, changes in the landscape, and the ways in which spaces were used and modified. This is particularly important for the preservation of historical sites, as it offers insight into the collective memories of community members, according to the Association for Preservation Technology (APT)[4].

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1 Paul Thompson, *The Voice of the Past: Oral History* (New York: Oxford University Press, 1988) σ. 18
2 Paul Thompson and Joanna Bornat, *The Voice of the Past: Oral History*, 4th ed. (Oxford: Oxford University Press, 2017) σ.71, 322
3 Alessandro Portelli, *The Death of Luigi Trastulli, and Other Stories: Form and Meaning in Oral History* (Albany: State University of New York Press, 1991) σ. 36
4 Paul S. Reed, "Documentation of Historic Structures," Bulletin of the Association for Preservation Technology 14, no. 4 (1982) σ. 14-22

2.3.3 Written Documentation

One of the challenges associated with oral storytelling and tradition is that these narratives are transmitted through memory, which allows them to evolve and change, making them both rich and, at times, subject to personal interpretation. Written documentation plays a crucial role in the preservation of culture, as it provides a durable and accessible record of a community's history, traditions, and values, helping to anchor memory within a more stable framework. While oral traditions may evolve with each retelling, written records offer a means to permanently capture and store cultural knowledge. They can also be used to create connections between archives and metadata sources related to the archiving process.

According to philosophical approaches[5], the act of archiving constitutes a fundamental framework that determines what can be expressed, functioning as a system that governs the presentation of statements as discrete events. Simultaneously, recorded archiving ensures that these statements do not merely accumulate indistinctly into an amorphous mass[6]. This notion of the archive is profound and revealing in terms of how it shapes our understanding of knowledge and history. It can be argued that when we refer to the archive as the principle of what can be said, it essentially implies that the archive is not merely a collection of documents, but a system that controls what is permitted to be known and discussed. The archive determines which knowledge is considered valid or significant, which ideas are allowed to develop, and which must be forgotten. This is significant because it demonstrates that knowledge does not evolve solely around events but is strongly influenced by the people and institutions that have the power to decide which parts of knowledge are preserved or excluded. Therefore, the archive cannot be neutral in any case. It reflects the dominant values, ideologies, and power structures of its time.

The second point, regarding the archive's role in ensuring that statements do not accumulate limitlessly into an amorphous mass, refers to its organizational function. Knowledge is not simply archived; it is classified into categories, allowing us to understand and use it, thereby avoiding potential chaos. This process of classification becomes a tool that not only aids in the preservation of history but also influences the way it is interpreted. Furthermore, written documentation allows communities to make their stories known beyond their borders, enabling those outside the community to gain insight into their way of life and promote mutual understanding, while simultaneously serving as a tool for reflection and education. Written records of historical events, cultural practices,

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5 Michel Foucault, "What Is an Author?" in *Language, Counter-Memory, Practice*, ed. Donald F. Bouchard (Illinois: Cornell University Press, 1977), σ.146

6 *ό.π.*

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and achievements provide individuals and communities with the opportunity to look back and learn from their past.

2.3.4. Cultural Heritage

Cultural heritage, encompassing both tangible and intangible elements of culture—from art and music to monuments, festivals, and customs—contributes to the preservation of memory through experience, not merely through reading or listening. It serves as a compass guiding contemporary societies back to their past. Cultural heritage can be defined as that aspect of the past which we choose to utilize in the present to serve current economic, cultural, political, or social purposes.[7]. UNESCO defines cultural heritage as the preservation of tangible objects and intangible attributes from previous generations, which are transmitted to the present for the benefit of future generations[8]. In 1972, UNESCO introduced the concept of World Heritage[9], referring to sites of cultural or natural significance considered part of the shared heritage of humanity. The World Heritage Convention further establishes a clear framework for the process of preserving memory. Cultural heritage is regarded as the heart—the pulsing core—of the stories, values, and traditions that make a group or community distinctive.

It encompasses everything from tangible elements, such as art, buildings, and objects, to intangible aspects, including language, music, and customs. Through cultural heritage, future generations are educated about their past and continue practices that define who they are and who they wish to become. Without cultural heritage, the multifaceted identity of a community could gradually diminish, leading subsequent generations to become disconnected from their past and cultural traditions. In today's globalized reality, such a possibility would interrupt the link between past and future, causing the unique characteristics of each community to fade. Cultural heritage and traditions transcend borders and stereotypes, fostering mutual respect and highlighting the commonalities among people. Oral traditions, written documentation, and cultural heritage are therefore essential for keeping a community's identity alive and thriving.

2.3.5 Memory, Remembrance and Survival

The phenomenon of uprooting among migrants and refugees represents a complex and multifaceted reality, encompassing not only the harsh and traumatic

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7 Sanaz Khakzad, Maarten Pieters, and Koen Van Balen, "Coastal Cultural Heritage: A Resource to Be Included in Integrated Coastal Zone Management," Ocean & Coastal Management 118 (2015): 110–128.σ.110-128
8 UNESCO Institute for Statistics, *"Cultural Heritage,"* https://uis.unesco.org/en/glossary-term/cultural-heritage (προσπελάστηκε 22/06/2025)
9 UNESCO World Heritage Centre, "The World Heritage Committee," *UNESCO*, https://whc.unesco.org/en/committee/ (προσπελάστηκε 22/06/2025)

experiences of survivors and their descendants but also the multiple political, social, and cultural obstacles that require acknowledgment of lived suffering to achieve reconciliation. The preservation of memory and cultural heritage is vital for restoring the rights of communities and protecting minorities, yet it is often hindered by historical traumas, forced displacement, and the loss of cultural elements. Refugees compelled to abandon their ancestral homes and disperse face disruptions in collective memory and challenges in safeguarding their oral histories[10]. The loss of cultural customs accompanies cultural assimilation into new societies, with younger generations becoming alienated from the language and traditions of their forebears. Moreover, the psychological trauma experienced by survivors, who often remained silent about the atrocities they endured, can further impede the processes of collective memory. As noted by the World Health Organization (WHO)[11], silence—reinforced by shame, fear, and the desire for social integration—can act as a barrier to the preservation of historical memory and the psychosocial recovery of communities. Consequently, managing the past remains a complex yet absolutely necessary challenge for many refugee and migrant groups in maintaining identity, memory, and cultural continuity.

The central issue, therefore, lies in the absence of institutionally organized practices for the digital documentation of these populations' cultural memory, which exacerbates their social invisibility and contributes to the erasure of significant aspects of their historical continuity. Within this context, Artificial Intelligence (AI) is not approached merely as a technological tool but as a dynamic factor capable of activating processes of collective storytelling, participatory documentation, and the re-signification of cultural belonging. The term "digital cultural identity" is understood here as the outcome of the interactive composition of cultural elements through digital media and intelligent technologies. These tools enable the representation, preservation, and reframing of the cultural experiences of mobile populations in the contemporary globalized environment.

The aim of the present study is to investigate how AI can be utilized as a tool for recording, preserving, and promoting elements of the cultural identity of refugees and migrants, contributing not only to the safeguarding of their cultural memory but also to their meaningful social integration. In an era in which digital documentation increasingly shapes cultural narratives, it becomes necessary to explore how AI can enhance the visibility of cultural expressions that often remain unseen, raising the question of which AI applications can support the preservation of the cultural memory of refugee and migrant communities, and under what

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10 Aristidis Klapsis, "Violent Uprooting and Forced Migration: A Demographic Analysis of the Greek Populations of Asia Minor, Pontus and Eastern Thrace," Middle Eastern Studies 50, no. 4 (2014): 622–639, https://doi.org/10.1080/00263206.2014.901218. pp. 622-39
11 Helen Herman and Leslie Swartz, "Promotion of Mental Health in Poorly Resourced Countries," The Lancet 370, no. 9594 (2007) σ.1195

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conditions these applications can function as mechanisms of empowerment and participation for the subjects themselves.

3. Artificial Intelligence and a New Era

As previously mentioned, collective memory and the ways in which groups of people remember and interpret their history through shared experiences and narratives are considered decisive factors in preserving the past, acknowledging the present, and shaping the future.

Collective memory is essential for maintaining the heritage of those who have suffered and for ensuring that future generations understand the atrocities that were committed. Survivors and their descendants bear the weight of this memory, which is often transmitted through oral traditions, family narratives, and customs. The preservation of memory is particularly threatened when political powers attempt to silence or distort historical narratives. Oral history, written documentation, and cultural heritage have long served as fundamental tools for safeguarding the memory of refugees and their culture. However, these methods of memory preservation can fulfill their purpose only as long as there are witnesses and records to enrich them. Furthermore, trauma is not merely an event or a rational reaction but encompasses deep, often unconscious, emotional and psychological responses that can influence the ways in which individuals and societies process and remember traumatic events[12]. The sector that can offer a solution is technology, and more specifically, Artificial Intelligence.

Today, our world has entered a bold and complex new era, often referred to as the Fourth Industrial Revolution.[13] This era is characterized by rapid advancements in automation, machine learning, other cutting-edge technologies, and, of course, Artificial Intelligence. AI in particular offers an unprecedented opportunity to extend human capabilities, optimize human activities, and solve complex problems. One of the descriptors assigned to the contemporary era is that of the "second age of machines[14]", Humanity now stands at a pivotal crossroads, where these technological advancements are expected to transform the world through automation and the creation of "unprecedented achievements." However, this field must approach developments with caution, considering the ethical dilemmas, social changes, and challenges that continue to emerge as a result of AI. In this new era, we are not merely witnesses to technological progress but are called to reassess what is possible in every aspect of our lives.

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12 Dominick LaCapra, "Trauma, History, Memory, Identity: What Remains?" History and Theory 55, no. 3 (2016): 375–400, http://www.jstor.org/stable/24809608. σ.376
13 Klaus Schwab, *The Fourth Industrial Revolution* (New York: Crown Publishing Group, 2017), σ.11-12
14 Erik Brynjolfsson and Andrew McAfee, *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies* (New York: W.W. Norton & Company, 2021).

This developmental leap is not entirely new. In fact, we are currently experiencing the "third summer of Artificial Intelligence[15]", as presented at the 34th Annual Conference of the Association for the Advancement of Artificial Intelligence (AAAI-2020) in New York. This phase of the "third summer" is characterized by rapid scientific discoveries, widespread commercial deployment, and—perhaps—overly optimistic confidence in our ability to unlock the mysteries of general intelligence.

Artificial Intelligence is now deeply embedded in our society, driving technological innovations that until recently were considered the stuff of science fiction. Today, AI lies at the core of many applications we use daily, from smart vacuum cleaners to autonomous vehicles, from smartphones to precision-guided missiles, and from virtual assistants to immersive virtual reality experiences. The list of AI-based technologies seems endless, yet one stands out as particularly intriguing and perhaps more enigmatic: the Social Robot[16]. These robots, designed to assist and support humanity through various activities, extend their purpose beyond simple functional tasks—they are created to operate as companions, aides, and collaborators in social environments. This can encompass fields such as healthcare and eldercare, education, customer service, as well as providing companionship for individuals with disabilities or those experiencing social isolation.

4. Artificial Intelligence and Technological Methods

The digital age presents challenges for cultural heritage, which encompasses the traditions, practices, languages, monuments, and objects transmitted across generations—elements essential for understanding collective identity and history. However, many of these elements are at risk due to factors such as the passage of time, environmental changes, political agendas, and more. The rise of Artificial Intelligence offers a fundamental solution to these obstacles, paving the way for the preservation, reconstruction, and restoration of cultural heritage in ways previously considered impossible. The application of these methods in historical research provides a wealth of technologies and tools that ensure historical memory is recorded, analyzed, and shared.

4.1 Machine Learning

Machine Learning (ML)[17] is a branch of AI that focuses on the development of

15 Henry Kautz, "The Third AI Summer: AAAI Robert S. Engelmore Memorial Lecture," AI Magazine 43, no. 1 (2022): 105–125, https://doi.org/10.1002/aaai.12036.σ. 105-125

16 R. Grimaldi and S. Palmieri, "I Social Robot, Cosa Sono, Come Utilizzarli nel Settore dell'Educazione," Agendadigitale.eu (Milano, 2020) σ.1-6

17 Organisation for Economic Co-operation and Development (OECD), Artificial Intelligence, Machine Learning and Big Data in Finance: Opportunities, Challenges and Implications for Policy Makers (Paris: OECD Publishing, 2021), https://doi.org/10.1787/98e761e7-en.

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algorithms capable of operating autonomously, combining the experience they acquire with source data. The use of these algorithms improves accuracy and efficiency as they process larger volumes of data. Machine Learning transforms traditional computing frameworks, enabling systems to develop their own methods for performing tasks without relying on strictly programmed rules. Instead of following predefined instructions, ML models recognize patterns within large sets of examples and execute logical processes to optimize their performance. The ability to learn, adapt, and improve over time makes Machine Learning a powerful and pervasive technology. As ML continues to evolve, its applications will expand, enhancing industries and transforming the ways humans interact with technology. Consequently, ML remains a fundamental component of innovation in Artificial Intelligence, with the capacity to process vast amounts of data and adapt to new demands.

4.2 Natural Language Processing

One of the most important tools of Artificial Intelligence in historical research is Natural Language Processing (NLP)[18], a field that enables computers to understand, interpret, and manipulate human language. NLP is particularly effective in analyzing large volumes of text, which has proven essential for historical research aimed at identifying and utilizing key themes, sentiments, and historical trends, while simultaneously extracting information from extensive collections of scholarly documents. Natural Language Processing technologies operate within the domain of semantic metadata, supporting the development of advanced information retrieval systems[19]. This enhances access to research, while adhering to principles of fair data management and aiding in long-term preservation.

Moreover, NLP can digitize and translate historical texts, making them more accessible to a global audience. Additionally, it improves sentiment analysis, allowing researchers to determine the emotional tone of historical documents and understand how individuals or societies responded to specific events. This technology has proven particularly useful in studying the emotional imprint left by traumatic events, such as genocides, as it can shed light on human emotions— such as fear, grief, or resistance—that have shaped collective historical memory.

4.3 Computer Vision (CV)

The branch of Artificial Intelligence that interprets and makes decisions based on visual data, used to train computers to understand and interpret the world

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18 Francesco Murdaca et al., "Knowledge-Based Information Extraction from Datasheets of Space Parts," (2018)
19   Miriam Rico et al., "Collaboration Spheres: A Visual Metaphor to Share and Reuse Research Objects," *arXiv.org* (October 16, 2017), http://arxiv.org/abs/1710.05604.

around them in a manner similar to the human brain[20] is known as Computer Vision (CV). As technology has evolved, so has the complexity of tasks that computers can undertake, including areas such as photographs, paintings, maps, and other visual materials, which are vital for historical research[21]. Today, thanks to advancements in Machine Learning and AI, Computer Vision helps machines recognize everything from facial recognition and medical imaging to autonomous driving and augmented reality. It is a key technology that is transforming the way we interact with the digital world. In the context of cultural heritage, computer vision can also be applied to damaged or deteriorated sites of interest, ensuring their digital reconstruction and revitalization so that history is not lost to oblivion. AI can assist in creating virtual museums by applying computer vision to historical artifacts. It can support the development of virtual museums where visitors can study digital replicas of objects and learn about historical events through interactive experiences[22].

4.4 Sentiment Analysis

Sentiment Analysis[23], as a subfield of Natural Language Processing (NLP), enables AI systems to analyze texts and detect the emotional dimensions they convey. Sentiment analysis can be applied to newspaper articles, public speeches, or memoirs to illustrate how people felt during significant historical events. Ultimately, sentiment analysis can be used to assess and determine how communities perceived atrocities occurring around them. For example, evaluating media coverage and analyzing personal testimonies can reveal emotional tones and individual perspectives on events ranging from wars and human rights violations to genocides. By examining diverse sources such as articles, testimonies, and social media posts, AI can categorize human emotions as positive, negative, or neutral, detecting sentiments such as anger, sadness, empathy, or support[24]. Such analysis provides insights into the evolution of long-term social attitudes, highlights emotional responses, informs historical reflection, and fosters deeper understanding. This approach is also applicable for discourse monitoring, educational purposes, and detecting how different communities respond when

20 Rafael C. Gonzalez and Richard E. Woods, *Digital Image Processing, Global Edition* (London: Pearson Higher Education, 2017) σ.48-62

21 Shai Boudana, Akiba A. Cohen, and Paul Frosh, "How Iconic News Images Travel: Republishing and Reframing Historic Photographs in Israeli Newspapers," Journal of Communication 73, no. 1 (2022): 49–59, https://doi.org/10.1093/joc/jqac036.

22 Wonjun Lee and Doheon Lee, "Cultural Heritage and the Intelligent Internet of Things," Journal on Computing and Cultural Heritage 12, no. 3 (2019): 1–14, https://doi.org/10.1145/3316414. p.1-14

23 Nidal Altrabsheh, Maria Cocea, and Sharareh Fallahkhair, "Sentiment Analysis: Towards a Tool for Analysing Real-Time Students Feedback," Proceedings of the IEEE International Conference on Tools with Artificial Intelligence (2014): 419–423, https://doi.org/10.1109/ictai.2014.70.

24 *Ibid.*

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confronted with the memory of a tragic event. Similarly, sentiment analysis sheds light on the psychological trauma experienced by survivors, influencing the understanding of the long-term consequences of genocidal events.

AI technologies such as NLP, Deep Learning, Computer Vision, and Sentiment Analysis can become powerful tools for studying and preserving historical memory. NLP allows us to extract and analyze significant patterns from texts, promoting comprehension of historical narratives and events. Computer Vision can be used to analyze historical images and videos, contributing to the reconstruction and interpretation of visual aspects of history. Data Mining explores vast datasets, revealing previously unknown trends, correlations, and insights. Finally, Sentiment Analysis provides the ability to understand emotional responses to historical events, offering a deeper connection to how individuals or groups relate to the past. Overall, these technologies not only preserve historical memory but also provide a comprehensive approach to its interpretation, contributing to meaningful understanding of historical events and their ongoing impact.

5. Artificial intelligence

AI-supported virtual museums provide a prime example of how Artificial Intelligence contributes to memory preservation in the context of the Holocaust. Visitors to the Visual History Archive of the Shoah Foundation[25] are offered an impressive interactive experience. Founded by Steven Spielberg, the Shoah Foundation aims to collect testimonies from survivors, eyewitnesses of the Holocaust, and refugees. Advanced technologies such as Machine Learning and Natural Language Processing are employed to catalog these testimonies, allowing users to locate specific stories through keywords, concepts, or events. According to the museum's preservation protocols, digital archives are regularly stored, monitored, and examined for potential deterioration. If any issue is detected, the compromised medium is discarded. No medium is retained for more than three years, and the entire archive is inspected every six months. This ongoing process of monitoring and data transfer significantly contributes to the long-term preservation of these materials.

Organizations such as the Armenian Genocide Museum-Institute[26] (AGMI) in Yerevan have adopted AI technologies to support the digitization and preservation of historical material. AGMI is at the forefront of efforts to preserve and disseminate the history of the Armenian Genocide through digital media. While AGMI has not developed AI technologies itself, it

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25 USC Shoah Foundation, **"USC Shoah Foundation,"** https://sfi.usc.edu/. (Προσπελάστηκε 22/06/2025)
26 Armenian Genocide Museum-Institute, "Genocide Museum," http://www.genocide-museum.am/eng/index.php (προσπελάστηκε 22/06/2025)

collaborates with the USC Shoah Foundation. Additionally, AGMI has partnered with the Zoryan Institute, a non-profit organization dedicated to raising awareness on human rights issues worldwide, the crime of genocide, and the relationship between diaspora communities and their metropolitan homelands.

6. Conclusion and Future Research

The findings of this study demonstrate that Artificial Intelligence has the potential to play a pivotal role in reshaping how we approach the preservation and promotion of the cultural heritage of refugees and migrants. Its integration into digitization processes and the creation of digital narratives can provide new tools for reassessing and disseminating the cultural expressions of these populations, expanding their participation in public cultural life. The data generated through the application of these technologies can contribute to restoring the cultural "invisibility" often faced by refugees and migrants, offering them a "digital voice" in the modern world.

However, the implementation of these technologies requires coordinated efforts from various stakeholders. Cultural institutions, museums, and non-governmental organizations are called upon to integrate AI capabilities into their educational policies and develop digital strategies for preserving and showcasing cultural heritage. Artificial Intelligence can support the development and dissemination of interdisciplinary programs that enhance the participation of refugees and migrants in social and cultural life, leveraging the potential of emerging technologies. Additionally, AI can facilitate storytelling through innovative digital platforms, reinforcing the preservation of oral traditions, which often constitute the primary form of cultural transmission among refugee populations. Digitizing historical materials and storing them in open-access platforms can strengthen the protection of cultural heritage while creating new avenues for participation, enabling refugees and migrants to become creators and custodians of their own cultural legacy. Notably, these technologies open the door to collaborative models where local communities and migrants actively participate in the digitization and documentation of their history, creating a pluralistic narrative that prevents the marginalization of their cultural practices.

Therefore, employing Artificial Intelligence for the preservation and promotion of refugee and migrant cultural heritage can yield multiple positive outcomes, not only safeguarding cultural identity but also enhancing social inclusion and cultural diversity. Developing corresponding programs and tools, in partnership with local and international organizations, should be a strategic priority to ensure the sustainability and wider dissemination of these initiatives, in line with contemporary needs and the human right to well-being and dignity. AI can offer a robust framework for studying, preserving, and understanding historical memory;

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however, ethical considerations remain crucial. The ethical dimension of AI use in historical memory preservation is complex and multidimensional. First, there must be respect for the individuals and events depicted, especially when dealing with survivor testimonies of traumatic experiences such as genocides. AI usage must ensure that these experiences are represented responsibly, avoiding commodification, distortion, or dehumanization of narratives. There is also an ethical obligation for transparency regarding data processing and storage, particularly concerning privacy, consent, and algorithmic bias. AI can enhance collective memory only when applied responsibly, with a human-centered approach, and in collaboration with the very bearers of memory—survivors, communities, and researchers—especially in cases of genocides and traumatic events.

The contributions of institutions such as the USC Shoah Foundation and the AGMI, combined with advanced AI tools, demonstrate the importance of preserving and ensuring access to historical memory. Future research can focus on improving intercultural understanding through multilingual NLP applications, enhancing the accuracy of sentiment analysis with cultural adaptation, and leveraging virtual reality to create interactive experiences that strengthen collective memory and emotional engagement with the past.

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