

# Performance

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The DRHA 2023 in Turin had a specific focus on the notions of performance and performativity through digital technologies and computational models even if these notions were read within the broader meaning of bringing cultural heritage to life by means of an innovative exhibition format, or exploiting the potential of the virtual, or activating audience engagement. Yet a considerable number of participants addressed topics specifically related to theater and performing arts. This part of the proceedings focuses on these contributions.

## *Theater and Opera as Mediatization Spaces*

The history of theatrical performance, not only in fringe or experimental but also in mainstream performances in traditional spaces, has long made use of moving images, from film to video (Giesekam 2007). However, while in most cases the use of projections and other forms of filmed images in theatrical performance has likely been driven by the desire for spectacle and entertainment, practice over the decades has shown that the language of performance has become increasingly intermedial, to the point where it challenges the notion of liveness and expands the phenomenological spectrum of what we consider a live event (Gemini and Brillì 2024).

In “The Reuse of the Classics As Intangible Cultural Heritage,” Andrea Malosio examines the productions of Irish theater company Dead Centre to highlight two elements: first, the inclusion of video technologies in mainstream theater productions – that is, in the spaces usually used for drama or opera – and second, the ability to use video not as a backdrop but as an active element on stage. Malosio emphasizes that this convergence of conventional spaces and digital technology is central to the group’s specific creative line, because it deliberately seeks to activate contact with tradition (the site, the scenic space, the playwrights). Such a tactic enables the creation of dramaturgies that use materials firmly rooted in tradition (dramatic texts, philosophical treatises, biographies) and presents them to the audience as cultural heritage.

In this sense, the Dead Centre’s activity likely embodies the theme of the DRHA 2023, as it develops a performative practice that enacts cultur-

al heritage and, above all, highlights its intangible elements. Among the many examples are *Hamnet* (2017) and *Beckett's Room* (2019). The former dramatizes the biographical material underlying Shakespeare's creation, bringing to the fore a much-discussed topic in literature (Bloom 1998, chap. 23). The latter eliminates all human actors from the scene to create a performance for objects and a narrative voice, offering the audience an "act of absence" as the core of Beckett's creation. Malosio emphasizes that such theatrical performances, even in their most traditional form, do not offer themselves as cultural heritage per se, but perform cultural heritage through reenactment so that, in line with a perspective advocated by Peter Brook, tradition can reemerge as cultural and spiritual depth in the absolute present of the theatrical event (Pizzo 2004, 65).

The case of opera is certainly one of the most interesting when it comes to the possibility of creating performances that also activate cultural heritage through the use of digital devices and languages. The first reason is that opera is widely considered a cultural heritage in itself and all actions aimed at its mediatization seem particularly important within the thematic boundaries outlined by the DRHA 2023 conference. In recent decades, digital and multimedia technologies have become more and more prevalent, beginning with experimental performances, and then in prose theater, and, finally, opera. Moreover, it is noteworthy that the increasingly close relationship between the digital world and opera seems to be reviving Wagner's model of the *Gesamtkunstwerk* in the contemporary form of "digital opera." This refers to a work that utilizes the possibilities of the virtual within the specific realm of embodied performance, allowing the audience to experience its presence on a spectrum between real and virtual (Macpherson 2012, 58).

Second, as Carluccio and Rimini point out in "Reinventing and Relocating Opera," the burgeoning presence of digital content has encouraged a process of dissolving the traditionally perceived boundaries between different artistic practices. It seems that the distinctive interoperability of digital data has not only given rise to the computer's ability to process different content (Pizzo, Lombardo, and Damiano 2019) but has also led to the emergence of authorial roles that flow seamlessly between different art forms, producing in practice an ecosystem in which not only the boundaries between different arts but also between different works are blurred. The collaboration between the direction of David Livermore and the video/virtual design of D-Wok is used as an example of how theater can be considered a hypermedium and how the innovative staging of opera opens up a mature intermediality.

The analysis by Carluccio and Rimini highlights the important work by which Livermore/D-Wok's theatrical creations remediate (Bolter and Grusin 1999) the language (and cultural tradition) of cinema by embedding the performance in a network of references and citations, creating what they call the "archive effect" or "museum effect." Far from implying a kind of freezing in time and space, these effects allow opera to transcend its traditional boundaries thanks to the use of digital language and content. On the one hand, Livermore and D-Wok propose a reactualization of the opera by bridging the gap with the contemporary condition of mediatisation in the audience's everyday experience. On the other hand, they extend their creativity beyond the boundaries of the theatrical space, as demonstrated by both *A Riveder le Stelle* (the theater/television production that opened the season of Teatro alla Scala in Milan during the 2020 Covid-19 restrictions) and the more recent feature film *The Opera!*, in which new digital technologies for cinema enable a remediation of the opera tradition.

The assumption that the tradition of opera staging has, over time, shown a particular affinity for cinematic performance remains one of the cornerstones of discussions about the entry of digital languages into this particular artistic field. Laura Pernice's analysis in "The Digital Upgrade of Opera Theater" goes in this direction, focusing on the activities of the company Fanny & Alexander, founded in the context of the so-called third avant-garde of Italian theater, which has recently dedicated itself to staging opera. In this case, the hybridization of languages has its origins in the fringe and experimental theater before being applied to large-scale opera productions. The aim of the article is to understand this specific use of digital languages as a reactivation of cultural heritage as they highlight the imaginative power of textual and musical dramaturgies. The aim of Fanny & Alexander, as Pernice explains, is to move opera into the present and encourage the audience to engage in an act of being present and of witnessing. This attitude of audience involvement is exemplified by the use of stereoscopic projections in some of the key moments of Mozart's *The Magic Flute* in 2015. It is well known that digital videos with 3D effects have been appearing in theaters since the late 1990s (Reaney 1999), but over the years their use has shifted from complementing the set design to encouraging participation in the dramatic action, thereby increasingly engaging the audience (Pizzo 2015). The contemporary mediascape becomes the starting point for the staging of Monteverdi's *Orfeo* in 2019, where the staged fictional space was a subway carriage in which the singers acted as passengers among the audience seated on either side of the carriage. In this case, digital technologies were used on the carriage windows to

create the effect of the passing landscape as the train moves along the tracks. In addition, the digital also took part in the action as fictional props, such as the cell phones carried by the singers or the information monitors scattered around the carriage. Pernice's analysis once again underlines how the live performance experience is increasingly and inextricably linked to the cinematic one. She shows that what was problematized a few decades ago in terms of difference and coexistence (Sontag 1966) now appears as a consolidated practice in which the present event is organically and fluidly composed of physical and media actions, where agency cannot be considered (and perceived) only as human, but can also be understood as synthetic and media-based (Pizzo 2018).

From the perspective proposed by DRHA 2023, performance is also an intangible cultural asset in itself, for which all questions of documentation, valorization, and preservation arise. Traditional dances or an acting style have been the subject of countless attempts at documentation (textual descriptions, notation systems, video recordings). In this context, digital motion-capture technologies have opened up a new area of research and experimentation. We know that performance capture in films and video games already has a decades-long history, such that a distinct professional acting practice has developed in this area (Pizzo 2016). It is not surprising that this practice has led to various investigations into how this new form of recording can influence acting (Kade et al. 2013; Carnicke 2012; Wechsler 2011).

In "The Dramaturgies of Volumetric Capture," Whalley and Miller question how much there is still to discover in the relationship between the actor's action/body and a creation with a motion-capture system. In a process-driven practice conducted with a specific HOLOSYS™ volumetric-capture system built by the company 4DViews in Grenoble, the authors offer some preliminary reflections on the specific – and still partially unknown – ways in which these technologies require performers to present themselves as performers. In particular, the authors emphasize that it is impossible to use acting for video as a reference, because there is no single camera viewpoint in volumetric capture and, therefore, no framing of the image. From this they conclude that the recording of volume is more like the experience of a live performance. This observation spurs thinking about the new dramaturgies of performance in such high-tech contexts and, in particular, about the dramaturgical affordances of the technologies.

*Performing Spaces between Real and Virtual*

The use of old and new media in live performance has triggered a debate about theater in media studies (Del Gaudio 2021) and given rise to the concept of theater as hypermedium (Kattenbelt 2008, 23). The presence of screens and projections on stage in a variety of configurations has also influenced the audience's experience, blurring the boundaries between the real and the virtual. In this line, Francesco Melchiorri's "Theatrical Characteristics behind Immersivity through the Idea of "Arche-Screen": A First Case Study" analyzes the staging of *Festen* by the Italian ensemble Il Mulino di Amleto. As the show is based on the convergence of the real live action of the actors and their live audiovisual stream on a screen on the proscenium, Melchiorri draws on Mauro Carbone's notion of "Arche-Screen" to envisage a kind of subversive reading of the dichotomy of real and augmented reality. According to the author, the show *Festen* reverses the mechanism of augmented reality. The "real" is thus represented on the "arche- screen" and the augmented reality is the one embodied by the actors on stage. The article offers an insight into an ongoing debate in which the audience's experience can no longer simply be described as live or mediated. Therefore, the author resorts to the neologism experien-screen to overcome the distinction between digital and physical, tangible and intangible heritage, which has epistemological implications that reach beyond theater studies.

Digital technologies for live streaming video have undoubtedly had a significant influence on the conceptualization of live events, making the feeling of "being present" scalable (Gemini and Brillì 2024). The idea of moving the performance to different and distant spaces received particular attention with the advent of the internet (Pizzo 2003, chap. III) and continued to inspire experiments with music, dance and performance (Antúnez Roca 2015; Vidach and Prati 2021).

In "Orchestra in Digital Transformation," Renate Buschmann and Lara Perski "analyze a hybrid performance format created by Michalis Nicolaidis and Frederike Möller called *Raumkonzert*, which they translate as "expanded concert." The authors explicitly derive the term from *expanded cinema* to imply the possibility that the audience may take an active role in the event by freely choosing their positions in the space. The performance analyzed in the article took place in 2022 at the College of Witten/Herdecke in Germany and sought to present a classical-music concert in which the musicians were distributed in different locations on campus but played together under the direction of a conductor who could lead the entire orchestra via a streaming video. The place where the conductor was located became a kind of center of the whole event, where the audience

could listen to the musical performance as a whole, as the audio signals of all instruments converged there. However, the audience could wander around the different spaces and meet/listen to individual musicians/instruments. This kind of spatial expansion of the orchestra was designed in direct contrast to the traditional classical-music concert format and invited the audience to leave the usual frontal/passive position and engage in spatial and sonic exploration.

The use of network connections for spatially displaced sessions is not new in the field of music performance (Mills 2010), particularly in contemporary and electronic music (Kim 2024). However, the challenge for Nicolaides and Möller was to develop this format for a kind of musical performance where the spatial arrangement of musicians and audience has been strongly codified by tradition (one of the two pieces performed was Mozart's *Concerto for Piano and Orchestra in C Major*). This cultural framework made the use of digital technologies both indispensable to meet the requirements of exact synchronization of signals as well as functional for a kind of mediatization of a cultural asset that causes a change in the perception of the cultural asset itself. Digital technologies have transformed the performance of a piece of classical music played by an orchestra with analog instruments into a site-specific mixed-reality performance, demonstrating the transformative power of mediatization processes. The format allows viewers to experience orchestral music from a different perspective and encourages them to experience the concert as an alternation between details and the whole as well as between analog and digital presentations.

The emergence of a wide range of 3D headsets on the consumer market and the availability at affordable prices of cameras that can capture or transmit 360-degree images have had a significant impact on performative practices. Increasingly, artists have begun to create immersive works in which the viewer can use a VR headset to explore a computer-generated environment or watch a video recording. One of the most striking features of these new devices is the sense of proximity and involvement they evoke in users. The fascination with these technological solutions is certainly not new in artistic creation and dates back to the early nineties when artist Nicole Stenger created a headset experience entitled *Angels* (Stenger 1991). In recent years, the abundance of this type of work has revitalized the theoretical debate on the notion of the virtual, which has evolved from a more general discourse on cyberspace and digital worlds (Benedikt 1991; Bates 1992) to a specific study of the performative experience in immersive realities.

Giorgia Coco moves along these lines in "Virtual and Real," seeking

to highlight the empathetic power of theatrical performances enhanced with a headset for immersive VR. Drawing from seminal theoretical texts from the theatrical and philosophical literature, *Coco* emphasizes the shared representational nature of theater and immersive reality, rejecting the oppositional duality between real and virtual to focus instead on the spectator's experience. From this perspective, the proposed events, whether staged or experienced through a digital device, seem to place the spectator within apparitions of phantasmatic figures and environments (Causey 2006), which, as is often the case in theatrical representation, can be seen as simultaneously representing the Other and the Self. In essence, the powerful mechanisms of emotional participation that sympathy and empathy (Giovannelli 2009) imply are again proposed. Among the works of BeAnotherLab, the group from Barcelona that *Coco* cites as an example, we recall in particular *The Machine To Be Another*, in which two participants observe each other by looking at each other's bodies, and *Library of Ourselves*, in which the user is immersed in a 360-degree video and experiences first-hand the story that the protagonist is playing, including some sensory stimuli (Rosas 2019). Immersive virtual reality with 3D headset thus leaves the fringes of experimentation and becomes a mainstream genre. Undoubtedly encouraged by the gaming sector (which explains its widespread use), it has also found great interest in digital solutions for the enhancement of cultural heritage (Lucifora et al. 2023) and is making inroads in the field of performance and theater (Monteverdi 2020).

The performance *Peaceful Places* presented at DRHA 2023 by Margherita Landi and Agnese Lanza, for example, uses the feeling of proximity of a 360-degree video to create a virtual physical connection between the characters in the video and the viewer. Surrounded by a kind of dance of embraces, viewers are made to perceive themselves in an intimate dialog with the action and – relying on a short briefing – imitate the movements they observe. It is perhaps too early to proclaim the birth of a new genre of immersive digital performance based on 3D headsets, but given the enormous impact these devices are having on theatrical performance and the creation, recording and, viewing of digital content, it is not difficult to imagine that performance codes will also include immersive virtual reality, once again confirming the theater scene as a hypermedium.

In addition to hyperconnectivity, which is made possible by the new high-performance network infrastructures and the availability of many digital devices, new computational models such as artificial intelligence are also emerging. The latter has long attracted attention in the field of performing arts (Pizzo, Lombardo, and Damiano 2019) and has led to significant

changes in the production and reception of works (Felton-Dansky 2019; Pizzo 2021). Once computational models for automatic inference began to process digital data not produced by the artist but gathered from heterogeneous sources, we witnessed the possibility of creating intrinsically interactive works that enter into direct contact with social communities and also intersect with the realm of cultural heritage. In many cases, such artworks live in relation to a specific reality (economic, social, environmental, historical), which is represented by selecting a specific set of data for processing.

In “Between the White Box and Ethics,” Luca Befera examines the activity of the artistic research center HER: She Loves Data, founded by Salvatore Iaconesi and Oriana Persico and discusses how data interpretation (the hermeneutic goal) and the setup/manifestation (esthetic goal) share an ethical dimension. Starting from the distinction commonly made in computer science between a white box (complete transparency of the system and its processes) and a black box (making only the results observable), Befera proposes his own interpretation of the ethical implications arising from the decision to make transparent and understandable the mechanisms on which the works in question are based. The works analyzed are: *Obiettivo*, *IAQOS* and *U-DATImos*. From Befera’s point of view, the white-box approach on an ethical level does not so much concern the actual openness of the code but rather the attitude that the work displays in making itself understandable, navigable, and perceptible to the public so as to activate responses from the audience and foster empowerment. Because this is directly related to the way in which the data that feed the work are selected and used, the group always works in such a way that the source of the data becomes clear to the viewer (*Obiettivo*) or the audience even becomes a conscious producer of data (*IAQOS*, *U-DATImos*). In analyzing HER’s artistic practice, Befera distills three basic steps: The strategies of digital processing to analyze the data and make the data operational in the work; the presentation in an analog form that allows the audience to relate to the materiality of the object; and the activation of interaction processes with a selected community to promote awareness and empowerment processes.

### *Performing Cultural and Art Heritage*

Since theater studies have shifted away from a literary perspective and devoted themselves to the reading of live events, the debate has often struggled with the ephemeral nature of performance. Claudio Vicentini, in his introduction to Oscar G. Brockett’s *History of Theater*, confirms that, for the scholar, the performance remains a hypothetical, absent, and irretrievably

## Performance

lost object but emphasizes that this situation also applies to other historiographies, because scholars almost always find themselves reconstructing events exclusively through the interpretation of the documents available to them (p. xxi). The same author points out that ephemerality is central to the esthetic dimension of the work, which, due to its experiential nature, poses enormous problems in terms of historicization and restitution (p. xxii) (Vicentini 2016). Therefore, the relationship between performance archives and art historiography seems particularly complex and difficult to unify.

If documentation itself cannot reconstruct the esthetic experience, it can become material to create others. This is the approach proposed by Michele Augusto in “Inês de Castro in Scenic and Performative Visions,” in which he reports on his study of the digital collection of the Museu Nacional do Teatro e da Dança in Portugal. Although the notion of the archive is assumed to reflect the idea of a living entity understood as a “performative celebration of the past through contemporary acts of creation and transmission” (Sabiescu 2020, 497), Augusto proposes a very specific example in which the navigation of the database serves to materialize one of the most elusive elements of theatrical creation: the dramatic character. Augusto implicitly starts from an intertextual perspective (Ong 2012) and considers the character as an entity in the making, whose manifestations are not only linked to some specific text, but to the forms the character takes over the course of its interpretations on stage. The case study of Inês de Castro, a historical figure of the Portuguese royal house in the fourteenth century, offers an effective example of materialization through the database: on the one hand, the case emphasizes the distance between the real figure and its manifestation as an artistic creation and, on the other, it shows how this transfiguration does not stop at the pages written by different authors but takes shape precisely in the manifestation on stage. In Augusto’s hypotheses, the character of Inês de Castro lives in her historical becoming and is embodied in the different interpretations of costumes and poses that have animated the performances over the last century. The digitization and archiving of the various documents in which the character appears offer the possibility of creating a kind of biography, which in turn serves as inspiration for those who want to embark on a new creation.

It goes without saying that museum exhibitions are moving away from stillness and toward a more dynamic presentation of works, significantly reducing the distance between the visitor and the exhibits. The design of the visit is no longer a linear browsing experience in an orderly sequence, inspired by a literary model in which the visit was like leafing through a

catalog. Many exhibitions now rely on a participatory model in which the aim is to offer visitors a more captivating experience in which events, information, and the environment as a whole participate. This new direction has been facilitated by two elements inherent in the turn toward digital: first, the ease of transforming digital multimedia, where content readily transitions into a kaleidoscopic narrative (Murray 2001, 155–62), and second, the importance of agency, which encourages participation and thus shifts the experience from a cognitive to an emotional and physical level.

Interestingly, the influence of the turn toward digital on the design of exhibitions and museum displays does not always manifest itself as a noticeable presence of technology but can inspire instead the logic of the exhibition narrative. As Massimo Maiorino points out in his “Digital and/or Analogue?,” such a device is mainly rhetorical and linguistic. One example is the attempt to create a spherical, immersive, and global vision in the setup curated by Germano Celant for the exhibition *Post Zang Tumb Tuuum. Art Life Politics: Italy 1918-1943*. Here, Maiorino recognizes a proto-digital attitude in which the successful combination of real space and digital content allows the reenactment of a complex and diverse set of documents, almost attempting to break through spatio-temporal barriers and combine past and present into a single experience. The theme of spatio-temporal travel returns more explicitly in the second example analyzed by Maiorino: *1923: Past Futures in 2022*, which traces the history of the Triennale di Milano over one hundred years. In this case, the setup is entirely digital, using 3D rendering to introduce the visitor to a walk-through of various exhibitions over time and allowing participation in different spaces and situations that help to contextualize the Triennale’s activities in different historical contexts. Maiorino underlines the effectiveness of the convergence between analog and linear narrative conventions and the design of immersive and digital environments. According to Maiorino, it is precisely this convergence that opens up exhibitions to multiple interpretations and invites the public to take an increasingly active role on both an interpretative and participatory level.

Yet even if the exhibition seems to lapse into a more conventional stillness, it can be seen as a “remnant” of a process, a residue of a performance, a trace of an event that took place in another time and place. This experience approximates what Sant and Tabone describe in their article “Art through Wikidata.” The article analyzes the creative process for the installation they exhibited at DRHA 2023. The article documents a process of knowing through doing, where the artist (Tabone) uses her perspective and her own body to reflect on the meaning of some prehistoric female figures

## Performance

preserved in two museums in Malta and Gozo. In this case, the notion of perspective is to be taken literally, because the artist drew inspiration from the original artifacts and modeled some clay figures of her body by observing her own forms without using a mirror. The performative part of the work consisted of the artist looking at her body from top to bottom and modeling the figure in clay from this perspective. This performance not only has the value of recontextualizing archeological artifacts but functions also as a research method by hypothesizing that the particular shapes of the original figures (short stature, wide hips, and ample breasts) can be explained by the assumption that female creators rendered their own features from their own perspectives. The figures on display in the DRHA 2023 exhibition bear witness to this performance, but they also draw the audience's attention to the core of the work: the sonification of the metadata describing the prehistoric female figures in the Heritage Malta collection. In this case, the original cultural artifact becomes the subject of an audio performance where the audience can listen to a composition created through the sonification of selected descriptive metadata. In other words, the main interest is not in the visualization of data, but in the artwork or curation that can emerge from the creative manipulation of the data.

The field of performance has contributed to the development of a more complex and articulated sense of sound information or, more precisely, of what falls within the domain of the audible (Valle 2015). In "Sounding the Museum," David Prior emphasizes the importance of the auditory experience and focuses on the possibility of abandoning the vococentric bias in the use of loudspeakers. Specifically, Prior shifts attention from the dichotomy between emission and reception to a concept of the loudspeaker as a device that inherently aims to create an augmented reality. Because sound lives in the space in which it is produced, the presence of loudspeakers alters/modifies/augments the space in which they are located. Prior even goes so far as to hypothesize that if loudspeakers had been developed in the era of augmented reality, the outcomes would have been different. He remains convinced that the sound conveyed by loudspeakers is an element that could be more usefully employed in the preservation of cultural heritage and in cultural institutions such as museums and libraries.

Performance techniques commonly contribute to the design of site-specific works in historical sites and museums. Often, use of such techniques serves as a coordinating element among pervasive gaming, interactive storytelling, and the possibilities offered by mobile devices (Damiano et al. 2007). In "& I, the Moment of Being Dis-Stance Together," Yi-Chen Wu describes the creative process of designing an interactive performance with

cell phones at the Taiwan Human Rights Museum in 2023. The work is based on a historical event of political repression (the so-called White Terror period in Taiwan from 1949 to 1992) and uses unresolved incidents as the starting point of the narrative. The work involved the audience as both visitors and players in a role-playing game via a mobile app that prompted them to move around the museum to activate GPS reference points. In addition, each visitor/player was given the task of solving a fictional White Terror case by moving through the museum, gathering information, and then receiving a reward in the form of a digital image. The work demonstrates the wide range of ways in which performance can create new live experiences based on cultural heritage in various structured formats.

From customizable guides (Krüger et al. 2007), to storytelling on mobile devices (Lombardo and Damiano 2012), to the creation of choreography in public spaces inspired by archival material (Hedemyr 2024), the possibilities opened up by virtual or mixed reality technologies have proven to enable innovative levels of public participation in the enjoyment of cultural heritage in a variety of forms. The integration of the internet, digital devices, and computational models has made the world of museums and historical sites a field of action for media artists and computer artists, but also for intelligent applications which can support curatorial processes (Lieto et al. 2024).

Most importantly, the rich and stimulating proposals gathered at DRHA 2023 demonstrated the central role of the notion of performance in the field of tangible and intangible cultural heritage. The practice and theoretical knowledge embedded in the broad field of drama, theater, and performance appears as a fruitful intersection for new developments in the conceptualization and design of the audience experience. Furthermore, this intersection seems to have gained particular strength through the inclusion of digital devices and computational models in performance practice: Participation, mediatization, and connectivity are proving to be the pillars of the contemporary trend toward the representation and transmission of our heritage.

### *Works Cited*

- Antúnez Roca, Marcel·lí. 2015. "Ultraorbism." 2015. <https://www.marceliantunez.com/work/ultraorbism/>.
- Bates, Joseph. 1992. "Virtual Reality, Art, and Entertainment." *Presence: Teleoperators and Virtual Environments* 1 no. 1: 133–38. <https://doi.org/10.1162/pres.1992.1.1.133>.

## Performance

- Benedikt, Michael, ed. 1991. *Cyberspace: First Steps*. Cambridge, Massachusetts, and London: MIT Press.
- Bloom, Harold. 1998. *Shakespeare: The Invention of the Human*. New York: Riverhead Books.
- Carnicke, Sharon Marie. 2012. "Emotional Expressivity in Motion Picture Capture Technology." In *Acting and Performance in Moving Image Culture: Bodies, Screens, Renderings*, edited by Jörg Sternagel, Deborah Levitt, and Dieter Mersch, 17–34. New London: transcript Publishing.
- Causey, Matthew. 2006. *Theatre and Performance in Digital Culture*. London and New York: Routledge.
- Damiano, Rossana, Cristina Gena, Vincenzo Lombardo, Fabrizio Nunnari, and Antonio Pizzo. 2007. "A Stroll with Carletto: Adaptation in Drama-Based Tours with Virtual Characters." *User Modeling and User-Adapted Interaction* 18, no. 5: 417–53. <https://doi.org/10.1007/s11257-008-9053-1>.
- Del Gaudio, Vincenzo. 2021. *Théatron: Verso una mediologia del teatro e della performance*. Meltemi.
- Felton-Dansky, Miriam. 2019. "The Algorithmic Spectator: Watching Annie Dorsen's Work." *TDR/The Drama Review* 63, no. 4: 66–87. [https://doi.org/10.1162/dram\\_a\\_00875](https://doi.org/10.1162/dram_a_00875).
- Giovannelli, Alessandro. 2009. "In Sympathy with Narrative Characters." *Journal of Aesthetics and Art Criticism* 67 no. 1: 83–95. <https://doi.org/10.1111/j.1540-6245.2008.01337.x>.
- Hedemyr, Marika. 2024. "A Choreographic Approach to Mixed Reality: Archival Materials as Site-Specific Situations in Kvarnbyn." *Nordic Journal of Dance* 15, no. 1: 20–27. <https://doi.org/10.2478/njd-2024-0003>.
- Kade, Daniel, Rikard Lindell, and Oguzhan Ozcan, 2013. "Towards Stanislavski-Based Principles for Motion Capture Acting in Animation and Computer Games." In *2nd International Conference in Illustration and Animation*, edited by IPCA, 277–93. Porto: IPCA. <http://www.es.mdh.se/publications/3171>.
- Kattenbelt, Chiel. 2008. "Intermediality in Theatre and Performance : Definitions , Perceptions and Medial Relationships." *Culture, Language and Representation* VI: 19–29.
- Kim, Gabin. 2024. "'Distant Concerto', a Genre of Network Computer Music: Realisation and Possibilities." In *Proceedings of the 49th International Computer Music Conference 2024*, 214–17. International Computer Music Association.
- Krüger, Antonio, Jörg Baus, Dominik Heckmann, Michael Kruppa, and Rainer Wasinger. 2007. "Adaptive Mobile Guides." In *The Adaptive Web: Methods and Strategies of Web Personalization*, edited by Peter Brusilovsky, Alfred Kobsa, and Wolfgang Nejdl, 521–49. Berlin, Heidelberg: Springer. [https://doi.org/10.1007/978-3-540-72079-9\\_17](https://doi.org/10.1007/978-3-540-72079-9_17).
- Lieto, Antonio, Manuel Striani, Cristina Gena, Enrico Dolza, Anna Maria Marras,

- Gian Luca Pozzato, and Rossana Damiano. 2024. "A Sensemaking System for Grouping and Suggesting Stories from Multiple Affective Viewpoints in Museums." *Human-Computer Interaction* 39, nn. 1–2: 109–43. <https://doi.org/10.1080/07370024.2023.2242355>.
- Lombardo, Vincenzo, and Rossana Damiano. 2012. "Storytelling on Mobile Devices for Cultural Heritage Storytelling on Mobile Devices for Cultural Heritage." *New Review of Hypermedia and Multimedia*, 18, nn. 1–2: 11–35. <https://doi.org/10.1080/13614568.2012.617846>.
- Lucifora, Chiara, Massimiliano Schembri, Francesco Poggi, Giorgio M. Grasso, and Aldo Gangemi. 2023. "Virtual Reality Supports Perspective Taking in Cultural Heritage Interpretation." *Computers in Human Behavior* 148 (July): 107911. <https://doi.org/10.1016/j.chb.2023.107911>.
- Macpherson, Ben. 2012. "Embodying the Virtual: 'Digital Opera' as a New Gesamtkunstwerk?" *International Journal of Performance Arts and Digital Media* 8 no. 1: 49–60. [https://doi.org/10.1386/padm.8.1.49\\_1](https://doi.org/10.1386/padm.8.1.49_1).
- Mills, Roger. 2010. "Dislocated Sound: A Survey of Improvisation in Networked Audio Platforms." *Proceedings of the International Conference on New Interfaces for Musical Expression*, 186–91. Nime 2010, Sydney, Australia.
- Monteverdi, Anna Maria. 2020. *Leggere uno Spettacolo Multimediale. La Nuova Scena tra Video Mapping, Interaction Design, e Intelligenza Artificiale*. Audino. <https://books.google.it/books?id=ms9WzQEACAAJ>.
- Murray, Janet H. 2001. *Hamlet on the Holodeck. The Future of Narrative in Cyberspace*. Cambridge, Massachusetts: MIT Press.
- Ong, Walter J. 2012. *Orality and Literacy: The Technologizing of the Word*. 30th ed. London and New York: Routledge.
- Pizzo, Antonio. 2021. "Performing/Watching Artificial Intelligence on Stage." *Skenè. Journal of Theatre and Drama Studies* 7, no. 1: 91–109. <https://skenejournal.skeneproject.it/index.php/JTDS/article/view/308/325>.
- . 2018. "Il Corpo Mediatizzato: Corpo e Personaggio nel Teatro Intermediale." *Mimesis Journal* 7 no. 1: 113–25. <https://doi.org/10.4000/mimesis.1309>.
- . 2016. "Actors and Acting in Motion Capture." *Acting Archives Review* VI no. 11: 0–26.
- . 2015. "La Seduzione delle Immagini." In *The Turn of the Screw*, 150–61. Florence: Teatro del Maggio Fiorentino.
- . 2004. *Il Giardino Dei Ciliegi di Cechov per Peter Brook*. Pisa: ETS.
- . 2003. *Teatro e Mondo Digitale. Attori, Scena, Pubblico*. Venice: Marsilio.
- Pizzo, Antonio, Vincenzo Lombardo, and Rossana Damiano. 2019. "Algorithms and Interoperability between Drama and Artificial Intelligence." *TDR/The Drama Review* 63, no. 4: 14–32.
- Reaney, Mark. 1999. "Virtual Reality and the Theatre: Immersion in Virtual

## Performance

- Worlds.” *Digital Creativity* 10 no. 3: 183–88. <https://doi.org/10.1076/digc.10.3.183.3244>.
- Rosas, Vladimir. 2019. “Exploring the Potential of Virtual Reality Technology to Investigate the Health and Well Being Benefits of Group Singing.” *International Journal of Performance Arts and Digital Media* 15 no. 1: 1–22. <https://doi.org/10.1080/14794713.2018.1558807>.
- Sabiescu, Amalia G. 2020. “Living Archives and The Social Transmission of Memory.” *Curator* 63, no. 4: 497–510. <https://doi.org/10.1111/cura.12384>.
- Valle, Andrea. 2015. “Towards a Semiotics of the Audible.” *Signata*, no. 6 (December): 65–89. <https://doi.org/10.4000/signata.1063>.
- Vicentini, Claudio. 2016. “Introduzione.” In Oscar G. Brockett, *Storia del Teatro*. Venice: Marsilio.
- Vidach, Ariella, and Claudio Prati. 2021. “DANCEtheDISTANCE.” 2021. <https://www.aiep.org/creazioni/dancethedistance-2/>.
- Wechsler, Robert. 2011. “Artistic Considerations in the Use of Motion Tracking with Live Performers: A Practical Guide.” In *Performance and Technology Practices*, edited by Susan Broadhurst and Josephine Machon, 60–77. New York: Palgrave Macmillan.

