International Conference Digital Culture & AudioVisual Challenges Interdisciplinary Creativity in Arts and Technology

1& 2 JUNE Ionian Academy 1, Kapodistriou str., Corfu



## BOOK OF ABSTRACTS



12th Audiovisual Arts Festival

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## International Conference Digital Culture & AudioVisual Challenges Interdisciplinary Creativity in Arts and Technology

The International Conference on Digital Culture & AudioVisual Challenges will be held in Corfu (Greece) and is hosted by the Department of Audio & Visual Arts (Ionian University).

The aim of the conference is to bring together technology, art and culture in the Digital Era, as well as to provide a forum on current research and applications incorporating technology, art and culture in the Digital Era.

Researchers, artists and scholars are encouraged to participate in the discussion about the interaction between interdisciplinary creativity, technology, arts and culture. Authors are invited to present original papers for oral or poster presentation in the fields of New Media Arts and Digital Culture.

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## KEYNOTE SPEAKER

## MAURICE BENAYOUN 莫奔 New Media Artist, Theorist and Curator



Maurice Benayoun (aka MoBen) (born 29 March 1957 in Mascara, Algeria) is a French pioneer new-media artist and theorist based in Paris and Hong Kong. His work employs various media, including (and often combining) video, immersive virtual reality, the Web, wireless technology, performance, large-scale urban art installations and interactive exhibitions.

He moved to France in 1958. Graduating in Fine Arts (Pantheon-Sorbonne University) in the early 1980s, Benayoun directed video installations and short videos about contemporary artists, including Daniel Buren, Jean Tinguely, Sol LeWitt and Martial Raysse. In 1987 he co-founded Z-A, a computer graphics and Virtual Reality private lab. Between 1990 and 1993, Benayoun collaborated with Belgian graphic novelist François Schuiten on Quarxs, a computer graphics world that explores variant worlds with alternate physical laws. In 1993, he received the Villa Medicis Hors Les Murs for his Art After Museum project, a virtual reality contemporary art collection.

After 1994 Benayoun was involved with more virtual-reality and interactive-art installations. One of these was described by Jean-Paul Fargier in Le Monde (1994) as "the first Metaphysical Video Game". One important work from this period includes The Tunnel under the Atlantic, finished in 1995. This was a tele-virtual project linking the Pompidou Center in Paris and the Museum of Contemporary Art in Montreal. More than a technical performance, as the first intercontinental virtual reality artwork (called "televirtuality", Philippe Quéau, 1994), this installation was one-of-a-kind example of what Maurice Benayoun calls architecture of communication, as another way to explore limits of communication, after Hole in Space by Kit Galloway and Sherrie Rabinovitz. The Tunnel under the Atlantic introduces the concept of dynamic semantic shared space.

In 1997 he creates with Jean-Baptiste Barrière World Skin, a Photo Safari in the Land of War, an immersive installation, often mentioned as a reference in virtual art, which was awarded with the Golden Nica, Ars Electronica 1998. World Skin (1997), Maurice Benayoun's Virtual Reality Interactive Installation The Navigation Room (1997) and The Membrane (2001) were created for the Cité des Sciences de la Villette.

Website: benayoun.com

Full Bio: benayoun.com/moben/bio

## GUEST SPEAKER

Elif Ayiter Sabanci University, Turkey



#### Smooth/Striated, Place/Non-Place: Spaces for Metaverse Avatars

This presentation will ask questions that connect the conceptions of 'space' and 'place/non-place' to the avatar of real time, perpetual, online, three dimensional virtual builder's worlds, also know as the metaverse.

This dichotomy will first be examined under Gilles Deleuze and Felix Guattari's definitions regarding the smooth and striated characteristics of space – the transformation that occurs towards striation upon the entry of the nomad to previously smooth locations; i.e., pre-agricultural spaces that are devoid of clearly defined entry and exit points, navigational direction, that are vectorial rather than metrical, and are characterized through shifting intensities and events rather than static relational markers. These distinctions reside between the attributes of the nomadic and the sedentary, the latter manifesting inclinations that eventually culminate towards creating spaces that befit the needs of the State appparatus once striation has been completed. Deleuze and Guattari state that completely smooth space can only exist in natural environments that have not yet been infiltrated by humans, whose "primary determination [of nomads] is to occupy and hold a smooth space ... [] ... creating an extended confrontation between the smooth and the striated in which the striated progressively takes hold."

It is at this transitional point that the second concept regarding metaverse spaces and their residents is brought in: This revolves around Marc Augé's deliberations on 'place' and 'non-place,' since it appears that the transition from smooth to striated intrinsically brings about the phenomenon of 'place' as an anthropological space that can be defined as relational, historical and concerned with identity. However, alongside 'place,' Augé contends that supermodernity has also brought about spaces that have no relational or historical contexts and manifest no concern whatsoever for identity. These are 'non-places' which can easily be promoted to the status of transitional 'places of memory' that are assigned to a circumscribed and specific position. In other words, 'non-places' are spaces that we do not live in but that we only pass through, that we have memories of without having actually dwelled in them. Thus "Place and non-place are opposed polarities: The first is never completely erased, the second never totally completed; they are like palimpsests on which the scrambled game of identity and relations is ceaselessly rewritten."

As a longtime resident and builder of metaverse worlds, personal experience and observations have led the author to ask whether a type of smooth space, or perhaps hybrids between smooth and striated space, have nevertheless been brought into being in the metaverse by human builders working through the agency of their avatars, although according to Deleuze and Guattari the manifestation of smooth space is restricted solely to uninhabited locations. This query becomes particularly relevant when we examine the so-called art ecologies that are a big part of metaverse building since many of these locations appear to demonstrate characteristics that we would associate with smooth space rather than striated space: Absence of entry and exit points, absence of directional axes, walls, separators, absence of hierarchical elements and points. Furthermore, to be taken into serious account are the flying and teleporting abilities which allow for distinctly non-linear means of navigation that metaverse builders have to provide for in their architectures and geographies.

The second question, predictably enough, comes out of this initial query: Is the metaverse a 'place' or a 'non-place'? Do we actually live in the metaverse or do we just traverse these locations very much in the sense that Augé defines them as transitional 'places of memory' that are assigned to circumscribed and specific positions? And if so, to what extent do the attributes of smoothness, or an inclination for smoothness in metaverse space construction, influence this distinction? Examples from the author's own building activity will be discussed in order to further deliberate on these questions.

#### References

Augé, M. (1995). Non-Places: Introduction to an Anthropology of Supermodernity. John Howe (transl), Verso Publishers, UK. Deleuze, G., Guattari, F., (1987) A Thousand Plateaus, Massumi, B., (transl), University of Minnesota Press, Minneapolis, MN. pp: 474-500.

Elif Ayiter's creative and research interests are based in three dimensional online virtual worlds and their avatars, as well as in developing and implementing hybrid educational methodologies between art & design and computer science. She teaches full time at Sabanci University in Istanbul.

Her texts have been published at academic journals such as the Leonardo Electronic Almanac, the Journal of Consciousness Studies, the Journal of Gaming & Virtual Worlds, International Journal of Art, Culture and Design Technologies, and Technoetic Arts, and she has authored many book chapters in edited academic books. She has presented creative as well as research output at conferences such as ISEA, Consciousness Reframed, Siggraph, Creativity and Cognition, SPIE, Computational Aesthetics and Cyberworlds. Her website can be viewed here: https://www.elifayiter.com/

## GUEST SPEAKER

Adnan Hadzi University of Malta



#### Referentiality: after.video Book Case Study

After video culture rose during the 1960s and 70s with portable devices like the Sony Portapak and other consumer grade video recorders it has subsequently undergone the digital shift. With this evolution the moving image inserted itself into broader, everyday use, but also extended it s patterns of effect and its aesthetical language. Movie and television alike have transformed into what is now understood as media culture. Video has become pervasive, importing the principles of "tele-" and "cine-" into the human and social realm, thereby also propelling "image culture" to new heights and intensities.<sup>1</sup>YouTube, emblematic of network-and online-video, marks a second transformational step in this medium's short evolutionary history. The question remains: what comes after YouTube? How might we understand a time when global bandwidth and multiplication of – often mobile – devices as well as moving image formats "re-assemble" both "the social"<sup>2</sup>, as well as the medium formerly-known-as video itself? What is one supposed to call these continuously re-forming assemblages? Or: how should one name the ubiquitous moving images in times when they are not identifiable any more as discrete video "clips"? Are we witnessing the rise of Post-Video? Extended video? To what extent has the old video frame been broken?

This paper discusses the use of video as theory in the after.video project, reflecting the structural and qualitative re-evaluation it aims at discussing design and organisational level. In accordance with the qualitatively new situation video is set in, the paper discusses a multi-dimensional matrix which constitutes the virtual logical grid of the after.video project: a matrix of nine conceptual atoms is rendered into a multi-referential video-book that breaks with the idea of linear text. read from left to right, top to bottom, diagonal and in 'steps'.

Unlike previous experiments with hypertext and interactive databases, after.video attempts to translate online modes into physical matter (micro computer), thereby reflecting logics of new formats otherwise unnoticed. These nine conceptual atoms are then re-combined differently throughout the video-book – by rendering a dynamic, open structure, allowing for access to the after.video book over an 'after\_video' WiFi SSID.

<sup>&</sup>lt;sup>1</sup> On this see: Sean Cubitt (2004): The Cinema Effect. Cambridge; Jonathan Beller (2006) : The cinematic mode of production: attention economy and the society of the spectacle. Hanover, N.H., Tom Sherman (2008): "Vernacular Video". In: Lovink, Geert/Niederer, Sabine. Video Vortex reader : responses to Youtube. Amsterdam. (S. 161-168); u.a. 2 Bruno Latour (2005): Reassembling the Social: An Introduction to Actor-Network Theory. Oxford.

Adnan Hadzi is currently working as resident researcher at the University of Malta. Adnan has been a regular at Deckspace Media Lab, for the last decade, a period over which he has developed his research at Goldsmiths, University of London, based on his work with Deptford.TV / Deckspace.TV (DTV). DTV is a collaborative video editing service hosted in Deckspace's racks, based on free and open source software, compiled into a unique suite of blog, cvs, film database and compositing tools. Deptford was formerly a wealthy area, but economic activity declined with the closure of the nearby dockyards, though a process of redevelopment and gentrification is underway, which has led to local debates about the identity and future of the area. DTV is less TV more film production but has tracked the evolution of media toolkits and editing systems such as those included on the excellent PureDyne linux project.

It is through Free and Open Source Software and technologies this research has a social impact. Currently Adnan is a participant researcher in the MAZI/CreekNet research collaboration with the boattr project. The CreekNet pilot engages a diverse population within a limited geographical area, Deptford, in South East London, UK. Deptford is an inner-city area with a mixed socio-economic profile, including low income neighbourhoods, artist communities, student populations attending a range of institutions including Goldsmith's College, Ravensbourne College and the University of Greenwich; and urban professionals.

Adnan is co-editing and producing the after.video video book, exploring video as theory, reflecting upon networked video, as it profoundly re-shapes medial patterns (Youtube, citizen journalism, video surveillance etc.). The first volume more particularly revolves around a society whose re-assembled image sphere evokes new patterns and politics of visibility, in which networked and digital video produces novel forms of perception, publicity – and even (co-)presence. A thorough multi-faceted critique of media images that takes up perspectives from practitioners, theoreticians, sociologists, programmers, artists and political activists seems essential, presenting a unique publication which reflects upon video theoretically, but attempts to fuse form and content.

Adnan's documentary film work, in collaboration with his partner Lennaart van Oldenborgh, tracks artist pranksters The Yes Men and net provocatours Bitnik Collective. Together they released the Bitter Lemons documentary mapping lemon grovers on both sides of the no mans land of Cyprus. Bitter Lemons is the moving story of a friendship between enemies that survived against the odds over 30 years of separation. It provides a unique local perspective on the largely forgotten conflict in Cyprus, which became part of the European Union in 2004, from people who have lived with the consequences of this conflict, the memories, the minefields and the barricades, since 1974. Adnan's current documentary project focuses on his involvement in the media arts collective !Mediengruppe Bitnik. A collective of contemporary artists working on and with the Internet. Bitnik's practice expands from the digital to affect physical spaces, often intentionally applying loss of control to challenge established structures and mechanisms. Bitnik's works formulate fundamental questions concerning contemporary issues.

## GUEST SPEAKER

Antonios Liapis Artist researcher, Ljubljana, Slovenia



Computational Game Designers: How Artificial Intelligence can automate and support the creation of game content

Antonios Liapis [ http://antoniosliapis.com/ ] is a Lecturer at the Institute of Digital Games [ http://www. game.edu.mt/ ], University of Malta, where he bridges the gap between game technology and game design in courses focusing on human-computer creativity, digital prototyping and game development. His research focuses on Artificial Intelligence as an autonomous creator or as a facilitator of human creativity. His work includes computationally intelligent tools for game design, as well as computational creators that blend semantics, visuals, sound, plot and level structure to create horror games, adventure games and more. He is the general chair of the EvoMusArt conference (2018-2019), a Guest Editor of the IEEE Transactions on Games special issue on AI-assisted and AI-based Game Design. He has received several awards for his research contributions and reviewing effort.

## GUEST SPEAKER

Robertina Šebjanič Artist researcher, Ljubljana, Slovenia



#### Sound of Troubled Worlds = Songs for Serenity

There are still songs to sing beyond mankind" by Paul Celan

Robertina Šebjanič will talk about her research-based artworks that deals with cultural, (bio)political and ecological realities of human imprint on aquatic environments and its consequences / challenges. The project Aquatocene investigates the phenomenon of underwater noise pollution created by humankind in the seas and oceans. It encourages rethinking the human impact on the (under)water habitats. The Aurelia 1+Hz project is divided in two parts; the performance Aurelia 1+Hz / proto viva sonification looks into a new critical redefinition of social values and new attitude towards cohabitation of interspecies while the installation Aurelia 1+Hz / proto viva generator deals with the biopolicy of prolonging life.

Robertina Šebjanič (SI) based in Ljubljana/ is working in the cross field of art – technology – science. Her work deals with cultural, (bio)political and biological realities of aquatic environments. Her ideas and concepts are often realized in collaboration with others, through interdisciplinary and informal integration in her work. Her previous projects range between rethinking of future speculations of new trans-species (Humalga); animal-machine-human relationships, inter-species communication (series of works Aurelia 1+Hz); sonification of the chemical process (Time Displacement) and pointing out underwater noise pollution and its potential ecological consequences / challenges (Aquatocene).

Robertina's work encompasses audiovisual installations and noise/sound performances that tackle philosophical questions of our modern society unfolding her passion for understanding living systems and how they interact with the environment.

She is a member of Hackteria Network and Theremidi Orchestra. She got an Honorary Mention @Prix Ars Electronica 2016, STARTS2016 nomination and nomination for the White Aphroid award. Robertina was selected artist of SHAPE platform 2017.

She performed / exhibited at solo and group exhibitions as well as in galleries and festivals: Ars electronica Linz, Kosmica festival\_Laboratorio Arte Alameda\_Mexico City, Le Cube\_Paris, Art Laboratory Berlin, ZKM\_Karlsruhe, re:publica\_Berlin, Mladi Levi\_Ljubljana, Strictly Analog\_Ljudmila, Piksel\_Bergen, Device art 5.015 at Klovičevi dvori\_Zagreb & Eastern Bloc\_Montreal, Eyebeam\_NewYork, PORTIZMIR#3\_Izmir, Kiblix festival\_Maribor, Gallery Kapelica\_Ljubljana and more...

Website: Robertina.net

#### Marios Papaloukas University of Peloponnese, Greece

Ioanna Alexopoulou University of Peloponnese, Greece

## Games of Chance via the Internet; online gambling as a commercial pursuit in need of appropriate regulation

The main object of this study is to analyze the practice of online gambling, which has been facilitated through the use of the Internet, and identify any legal provision that regulates its use in Europe and Greece, by using the method of exploring contemporary online gambling regulatory practices over Europe.

Following the technological breakthrough, Internet truly transformed gamblingfrom an in-home, social activity into a highly publicized, commercial pursuit. Theabovementioned potential for technology to change how people gamblenecessitated responsive legislation. Therefore, online gambling is nowadaysconsidered as one of the areas in which the laws have lagged behind thetechnology, and are still in need of an overdue update, along with an official chosen course of action toward bans or regulation.

In Europe, online gambling constitutes a contemporary fast developing activity, both in terms of supply and demand, and it is characterised by diverseregulatory frameworks. In Greece, the applicable Gambling Law 4002/2011introduced a legal framework for the conduct of games of chance via theInternet. The Law sets as a general principle that the online conduct of games of chance is determined by the exclusive jurisdiction of the Greek state and isexclusively assigned to specially licenced providers awarded with licenses of upto five years. The governing body E.E.E.P. (Gaming Commission) has beenassigned the duty to determine the required operating conditions andspecifications of the servers and software for the gaming license holders toconduct gambling on the Internet and to ensure compliance with all provisionsconcerning the protection of consumers and the public interest. However, at thispoint of time, the licensing process for such online operations has not yet been initiated, since there are many practical issues to be arranged for its application. Apart from that, the relevant secondary legislation, which may indicativelyconcern the determination of the technical specifications of the servers and software to be used by online gambling operators and the specific games of chance conducted online, has not yet been issued.

In light of the above, generally, an ever-increasing number of EU countries havebeen in need of a review of their gambling legislation, however, here is to behighlighted that, the prevailing regulatory, societal and technical challengesrelated to gambling in the EU cannot be adequately met by countries actingindividually. Such a protection endeavour cannot meet its purpose due to thenature of the online environment and the often cross-border dimension of online gambling.

In return for this, the European Commission has adopted a staff working papertowards a comprehensive european framework on online gambling, which setsout an action plan to enhance clarity on gambling issues throughout the EU fornational authorities, operators, related industries such as media serviceproviders, and consumers. This may be an influencing starting point for theformation of gambling regulatory practices in European Union and in eachparticular EU member state, including Greece.

## Athina Angelopoulou National Technical University of Athens, Greece

#### TANGIBLE PROGRAMS

#### Summary:

This essay investigates the creation of an esoteric spatial 'language' for educational purposes, specially targeted to students of architecture and young children. The language takes the form of an augmented architectural manipulative, existing both in physical and digital space, while the programs of the language are expressed as spatial compositions ("tangible programs").

#### **Objective:**

In recent years computing and coding have become two of the most central and rising approaches in architecture and design. Such developments in the field suggest that the integration of programming in the architectural curriculum is an educational issue of great importance. However, programming languages, due to their linguistic basis, might not be the most suitable medium for the production of space, especially for first and second year students who are still unfamiliar with the discipline. Writing code to produce buildings may alienate them from the design of the actual object of architectural production; space. To address this challenge, this essay investigates the creation of an esoteric spatial language that takes the form of an augmented architectural manipulative, composed of a board and multiple small scale architectural elements, while the programs of the language are expressed as spatial compositions.

#### Method:

Starting from the work of Mark Johnson who relates rules of propositional logic (which structure programming languages) to embodied spatial experiences, spatial analogues for basic programming structures (loops, conditions, statements, etc) are being created. Based on these first analogues, and using as references manuals of architectural education, this "spatial coding grammar" is enriched to become more functional in terms of programming. In this stage, particular attention is given in developing a "spatial grammar" that is meaningful both from the point of view of architecture, and from the point of view of programming.

Subsequently, in order to find a playful way to construct code in real space, I analyze two manipulatives created by the architects John Hejduk and Tasos Biris (for purposes of architectural education), as well a mathematics manipulative of Montessori education. This analysis provides useful tools and principles to be used in the construction of an augmented manipulative which serves the purpose of creating computer programs that take the form of spatial physical structures. The manipulatives of architectural education, proved essential for the design of the augmented model, while the mathematics manipulative gave a solution to the problem of introducing numbers and characters in such a spatial construction.

Finally, the aforementioned steps of analysis are brought together under the creation of a prototype of the augmented manipulative (existing in physical and digital space). The prototype incorporates those elements from Hejduk's, Biris', and Montessori models, which best served the logic of the produced "spatial coding grammar". Further, a color codification is used to multiply the number of commands made

available to the user. The spatial structure (tangible program) is eventually read by the computer, through the combination of input provided by a camera, and by the interactive board upon which the architectural elements are placed.



Figure 1: Manipulatives created by Tasos Biris, and John Hejduk to serve the purposes of architectural education

#### **Conclusion:**

The attempt to create a programming language whose programs take the form of physical objects, opens up an interesting discussion concerning the potential of esoteric languages in creative practices, as well as the aesthetic aspects of such "tangible programs". Further, it seems that the created manipulative may well serve educational purposes beyond the realm of architecture.

## ABSTRACT

### Caterina Antonopoulou University of the Aegean, Greece

#### Co-authoring and user interaction in digital storytelling. A case study

**Abstract.** This paper investigates two levels of user engagement in digital storytelling through a new media art project. The project consists of a web platform and a ubiquitous interactive installation that support co-authoring during the production of narrative content and user interaction during its dynamic visualization.

**Objective.** The objective of the paper is to present a complete framework that supports the engagement of multiple authors and viewers in digital storytelling and to discuss its added value in enhancing the narrative experience. It aims at sharing the knowledge gained through the design, development, and presentation

of the Babel project. The project consists of a web platform and an interactive installation. The web platform allows users to become co-authors of a narrative by producing and contributing multimedia narrative fragments. The contributed user-generated content is tagged with metadata and stored in a shared database. The interactive installation accesses the database and retrieves the contributed content in real time. Thus, the users of the installation dynamically explore and recompose the available content while they articulate custom narratives. The user-computer interaction is achieved through a computer vision interface built with opensource technologies. The interface detects the light of a torch which is manipulated by the users. The paper also aims at exploring the value of the engagement of multiple agents (authors and viewers) in the creation and visualization of narratives and the role of open technologies and practices in facilitating broader access in the artistic production.

**Method.** The paper describes the design and development of Babel's infrastructure, the characteristics of the narratives supported by the framework and the story selected as a case study. It discusses how this infrastructure was used by multiple authors and viewers for the articulation of multi-perspectival narrative experiences. It presents the new opportunities created by the framework and its limitations according to the user feedback, observations on user interaction and remarks made during the various presentations of the project. It also comments on the role of open technologies and practices in facilitating the development of similar infrastructures.

Moreover, the paper presents practices of viewer interaction and co-authoring of multi-perspective narratives in 'old' media art (literature, cinema, theatre) and discusses how these practices contribute to the democratization and decentralization of storytelling. Finally, by comparing 'old' and 'new' media practices, the paper aims at investigating the added value of new media in supporting the active involvement of users in the creative process.

Conclusion. The paper argues that new media create new opportunities for co-authoring and interaction in the field of digital storytelling, while they support decentralized models of production and dynamic visualization of narratives. The presented case study of Babel explores two levels of user engagement. The web platform implements the first level that encourages users to become co-authors of the narrative, to produce and share multimedia content. The interactive installation supports the second level of user engagement. It enables viewers to interact with the multimedia content and influence the projected narrative. During both levels of engagement, users are prompted to abandon the role of passive consumer and to become either video prosumers (producers/consumers) or active viewers (interactors). The creation of the infrastructure was facilitated by technologies and practices such as the social web tools, commons-oriented licenses, creative opensource tools and intuitive, interactive, ubicomp interfaces. It is also argued that user involvement in interactive storytelling transforms the narrative experience. The practice of presenting the audience with multiple perspectives of a single event reveals the parameters that deliberately, or not, grant new meanings to the narration and the underlying intentions of the narrator towards the audience. This way, multi-perspective narrations allow viewers to compose the available versions of the narrated events and to articulate a more panoramic and democratized viewpoint of the narration. Finally, the contribution of multiple authors to the production of the audiovisual material questions the conventional role of the director (as in the cinema d'auteur) and proposes a more decentralized model of collective direction. In this model, the dynamic unfolding of the narrative is a result of a dialogue between the authors and the viewer, where every agent contributes to the semantics and aesthetics of the work, but no one can dominate and predetermine them.

## Martin Carlé PEARL, Greece

#### LITERALLY UN-LOCK AND SPEED-UP YOUR CONTAINERISED DEVELOPMENT ON EMBEDDED DEVICES by example of a standalone gadget with orientation sensors sending Open Sound Control

#### Summary

The subtitle mentioned application in the Internet of Things will demonstrate acase study of how literate programming strategies based on Emacs' org-mode canbe generally employed to break free from limiting, often vendor imposed patternsin modern, 'eazy' and container-oriented, software development. It shall be arguedthat by adopting the proposed method, the typical cycle of building, installing andupdating software on embedded devices will not only gain in speed, transparencyand freedom but will also reach out to new frontiers of rapid prototyping and addextra value to the domain of education and creative experimentation.

#### Objective

Within less than a decade the still accelerating popularisation of Linux ContainerTechnology (LCT) has induced a paradigm shift in building, deploying and updatingsoftware. Until recently containerisation mostly affected the management of hugecloud infrastructures and data centres where the need for automated distribution, effective scaling and performance monitoring capabilities of heterogeneous andpotentially internationally-spread systems brought about an aggregation of services, now commonly called 'orchestration'.

Yet, as unlikely as it may first appear, the top-end needs of cloud computing meetthe bottom-end requirements of embedded computing — at least when developingfor an ever changing variety of new Linux-enabled 'gadgets' or when teaching 'CreativeTechnologies' (CT) as an application to the 'Internet of Things' (IoT). During thelast view years a number of diverse tiny single-board computers hit the market, allrunning a different flavour of Linux. Given a price range from rather cheap (<50€) tovery cheap (<10€), low-budget projects either prototyping on local cluster arrangements(e.g. for an effective workload balancing), or experiments with a fleet of widespreadnetworked sensors and effectors (e.g. on musical instruments, performersor the physical environment) became feasible. Turning these potentials into reality, however, means to solve the problem of software distribution, scaling and monitoringon heterogeneous and potentially internationally-spread systems. Hence, seen from the above technological point of view, all this diversity has one thing in common: theneed for orchestration. Acknowledging for this match, similar improvements concerningthe 'Eaze of Use' and analogous profits in efficiency as seen in containerised cloud computing can be expected when dealing with IoT projects - and indeed, there already is a considerable interest in bringing LCT to embedded devices, albeitconcentrated on one technical solution only, namely 'containerd', which is provided by one vendor only: 'docker.com'. Recently, docker. com even announced official support for the Raspbian OS.

While this move is to be embraced for its pioneering spirit per se and although allthis happens entirely in the realm of FLOSS (Free/Libre and Open Source Software)indispensable for creative cultures, the rise of docker as the sole 'production-ready'solution in LCT which, as a consequence, made docker.

com the fastest growing companyever is not without drawbacks. Despite the political fact that docker. com reactedto criticism from the cloud community, its quasi monopolist position nonethelessshows tendencies to lock-in the user into a primarily economically driven ecosystemas this is well known from old Microsoft's and nowadays Apple's behaviour that eventuallyhinders innovation and transforms free users to bare consumers. The presentsituation can most evidently be exposed by the technological facts of how cumbersomecontainers have to be build the 'docker way' and, what's more but perhaps lessrecognisable, how containers need to be started such that their runtime will not onlybe controlled, but becomes depended on the docker daemon itself.Obviously though, technical shortcomings and security risks leave room for competitors.Most notably for a solution of launching and controlling containers the'Linux way', that is by an init system, like 'systemd', or for liberating the containerbuilding process towards a multitude of more efficient ways which could be free andsecure from the outset when guaranteed by an open standard, as both of these alternativesto docker are currently pursued by 'rkt' of CoreOS.

Given the outlined technological and cultural situation, from the perspective of DCAC two main objectives derive: Firstly, to adopt, explore and possibly enhance the promising advantages of LCT for an agile development and an educative management of arts and technology projects formerly out of reach while, secondly but of equalimportance, to break free from unnecessary limitations imposed by monetary vendorinterests or from still immature technical solutions.

#### Method

The chosen strategy to achieve these goals is to draw lessens from and extend on aset of well established methods known as the means of 'literate programming', like'tangling' and 'no-webbing' arbitrary and parametrisable code-blocks together suchthat they 'literally' transform into a dynamically created chain of executables. Themost powerful, transparent and popular implementation of this paradigm is 'orgbabel'accessible through Emacs's org-mode. As a methodological motto, we may say,if literate programming applied to code-writing means: "Don't comment — write abook!", then, in the days of software container shipment, this translates to: "Don'ttrust the container ferryman — tangle your own orchestration!".Though, as the nature of software-centred contributions has it, they need to bedemonstrated live or described with more space than available here. Therefore, itmust suffice to only briefly indicate the proposed solutions and achieved enhancementsgenerally speaking by a concert addressing both sides, breaking up the dockerworkflow and extending org-mode to a quasi IDE for building and running containers.

As a concrete example serves the pioneering, docker-based environment 'gadgetOS' with the accompanied CLI 'gadget' employed by the Next Thing Corporation (NTC) for their 'C.H.I.P. Pro' product:

- dynamically 'tangle' the central yaml config file, rather than building it monolithicallyby the gadget CLI
- 'no-web' the necessary UUIDs directly from a parametrised docker go-langexecutable
- safely incorporate private git-repositories during container build-time ratherthan exposing your private ssh-key to a potentially public Dockerfile
- modularise and rearrange the container building process in such a way that the resulting image can still be shrinked to fit on the C.H.I.P.

## Konstantinos Chorianopoulos Ionian University, Greece

#### Immortality and resurrection of the digital self

We can safely predict that sometime in the future there will be more socialmedia profiles belonging to dead than living people. In this work, we begin bycharacterizing the cultural meaning of the technological affordances that socialmedia institutions have already associated with profiles that belong to deadpeople. We analyze current practices and we present future trends under thescope of the remediation theory, which suggests that at least initially, new mediapractices are just a mimesis of existing practices. In particular, we examineFacebook, which has already introduced several options for user profiles that belong to dead users. Finally, we raise awareness about novel technological andcultural issues that have been neglected or are not in the interests of socialmedia institutions.

By late 2017, Facebook had reported 2.2 billion active users (logged-in at leastonce monthly). Assuming an average age of 30 years old and a mean life expectancy of 80 years, then we can predict that by 2070 the majority of them willbe dead. Although Facebook itself might not exist by that time, there might beother social networks that will attract the online activities of those users, whohave become accustomed and enjoy to express themselves publicly on digitalmedia. In contrast to our body and the rest of our material possessions, oursocial media profile consists of digital information and it is potentially eternal.Some people already present an idealized self on their timeline, and we can assume that the majority of them might be more natural in their chat sessions, voice commands, and browsing habits.

Even if we decide to delete our personal copies of online interactions, some ofthem might be impossible to delete, such as chat and voice history, email, andphoto, which have been stored in personal storage, in the cloud, or at otheruser terminals. Therefore, there is an emerging technological opportunity thatdigital data might be leveraged to extend our digital self eternally, either inarchival format or even as a dynamic and evolving digital entity.Our embodied consciousness might remain uncertain about the happenings inafterlife, but there is some hope about its disembodied digital reflection. In the future, it is very likely that there will be social media profiles of deadpeople curated by relatives, other interested parties, or even automatically bymining our digital remains that are distributed all over the internet. We suggestthat technological determinism should not be the only guiding force in suchmatters and that cultural aspects might be more important in shaping therespective technologies and the new mediated practices. Therefore, we expect that religious institutions might become more active in shaping digital mediapractices and rituals for our digital selves.

Besides social media profiles (friends, videos, photos, status updates), there isalso a growing number of text messages and interactions with media content produced by others. Although text messages might be considered as a rathercasual medium about not so important matters, they are an important representation of the self to others. There are already technological systems that couldbe trained with the text chat and voice archives left by an individual as an input, in order to produce a bot that behaves similarly to the individual, at leastwith regard to casual interactions. The more data available for the training, themore believable the bot might seem (or even sound like). Moreover, new mediatechnologies, such as virtual reality, augmented reality, and holography, mightenable additional traces of online actions, which could be enacted in a futuredigital self. In summary, we suggest that the current practices of death online are only ashallow mimesis of the richness and breadth of the cultural practices associated with death off-line. One possible explanation is that digital information is veryspecial and contrary to human nature it is disembodied and potentially eternal, which makes it difficult to comprehend and to control, at least in the contextof death. Thus, we call for a more careful examination of both the cultural practices and the humane wishes in the design of technological systems that concern the digital remains of individuals after death. It is currently unforeseenif and when the last judgement might happen, but it is quite certain that ourdigital selves will be forever judged, as soon as we depart.

## ABSTRACT

## Constantinos Dimoulas Psychobioanalytical Research Working Group "ἐκ τῶν ὑστέρων" Greece

## Theodora Papadimitriou

Psychobioanalytical Research Working Group "ἐκ τῶν ὑστέρων" Greece

## **Evripidis Dimoulas**

Psychobioanalytical Research Working Group "ἐκ τῶν ὑστέρων" Greece

## Elli VelliOU Psychobioanalytical Research Working Group "ἐκ τῶν ὑστέρων" Greece

Areti Galli Psychobioanalytical Research Working Group "ἐκ τῶν ὑστέρων" Greece

#### INFORMATION FATIGUE Distortion of Information, caused by Brain Confusion due to Overload (Conclusion, from Research by the Psychobioanalytical Research Working Group "ἐκ τῶν ὑστέρων")

Our purpose, explanation of inability to accurately respond directly to an optical question. In immediate recognition of 165 (61 men and 104 women) 65 people of facial expressions, it was found that computer bombardment of brain is confusing. As a result, the inappropriate consolidation of the person, being engaged split.

Today, we can understand more easily what impact the overload of information can have on the brain, and on health in general, which, with their 'internalization', appears to be seriously harmed at some point. For people working in an office, the sight of a desk full of stacks of papers and envelopes is a common phenomenon, even when there is a computer and access to Internet pages. This pile of cards is usually full of information (numbers, charts, other items, texts, references, etc.). More often than not, the amount of information is disproportionate to the time that someone can make available to them in their work. Anyway, there will always be a problem of choice among them. Sometimes, of all this information,only a few is (really) useful, for the time and the use, that we need them. It is a matter of priority for the use of this information and this should be solved, most of the times, soon, if not immediately. Intensity on this act, as the person is unable to remember all this information, and since much less is the one that could, in

such a short time and under such pressure, assimilate, often has , negative impact on the psychology of the individual. Of course, knowledge is power, but that does not apply to such use of information, since taking such a large amount of information every day involves the same risks as being unaware.

In fact, most business executives (doctors, lawyers, teachers and other professionals) are suffering today from "over-sourcing of information and data". Psychologists are already talking about the emergence of a new "illness" of our times, with symptoms of nervousness and the feeling of loneliness and insecurity, indicating that the person is in a state of anxiety. Very soon, the term "informational fatigue" will be introduced in the medical dialect. The information clearly has as their main objective the acceleration of the flow of our work but, like all the things that are granted without limits, they have started to cause negative consequences for the mental health of executives and workers, (almost) of all ranks. The daily reception and use of such a large amount of information has destroyed personal relationships, by increasing conflicts with colleagues, and eroded whatever satisfaction they could have from their work in the two-thirds sample of 1,300 workers, all levels, UK, US, Australia, Singapore and Hong Kong, with one-third of them claiming to suffer from health problems directly related to the overflow of information , while more than 40% agree that the situation in which they've got themselves into was the reason for the delay in making important and correct decisions because of the amount of information that was often responsible for their erroneous assessment.

"Information anxiety" affects, in particular, those who who deal with a large amount of data and must take important decisions within a short time. In law and elsewhere, this is often the case when one party asks for information, the other provides them with a lot of non-essential information or even unnecessary data, thus covering the lack of accurate information it asks for. In the imperative need to recognize information, the human body (primarily the brain) begins to react, indicating points of emergency (self-maintenance instinct). Performance of the individual, in any of his activities, decreases. Erroneous conclusions lead to wrong decisions. By brainstorming information, especially in multifaceted expressions, the brain is in a state of confusion. With the brain in such a situation, the person gets into a difficult position. In emergencies, such as those faced by pilots or surgeons, but even when the person's work is not directly related to human lives, the susceptibility to error is increasing. Analysts, who receive a huge amount of information on a daily basis and face constant volatility in the overall picture that they shape, on a particular subject, are suffering from increasing uncertainty for the correction of the prediction and the decision-making.

(Georgios Zampetoglou, Dimitrios Dimakas, Maria Giannoula, Chryssovalandis Giannoulas, Agoritsa Oikonomou, Konstantinos Zampakas, Nektaria - Filitsa Agrafioti, Christos Pourikas, Stiliani Thivaiou, Euthimios Georgousis, Eirini - Chrisovalanti Drosinou, Vasiliki Zissopoulou, Manthos Papamanthos, Maria Vouvousi, Irini Seidou, Sofia Papaparisi, Constantina Teliou, Dimitrios Liovas, Christos Polyzos, Nikolaos Zarkadoulas)

## Yorgos Drosos Ionian University, Greece

#### DIY Filmmaking in Greece in the Digital Era

The advent of new technologies in the last two decades has facilitated filmmakers to anextraordinary degree. Digital technology offers artists the ability to shoot, edit, distributeand advertise their films in an unprecedented manner. All this is done by the filmmakersthemselves, in the spirit of DIY – Do It Yourself. This paper aims to present how thesedevelopments have helped filmmakers in Greece, especially in the genres of horror, sci-fi, and fantasy. The methodology of the paper will be based on the relevant literatureconcerning filmmaking, digital technologies and the film industry. Moreover, it will draw onexamples of films such as Evil (2005), Evil II (2009), Kamme Koumando (2012) and others.

Keywords: Digital Filmmaking, DIY, Internet, Horror

## ABSTRACT

#### Emmanuel Fokides University of the Aegean, Greece

Polyxeni Kaimara Ionian University, Greece

Ioannis Deliyannis Ionian University, Greece

Pinelopi Atsikpasi University of the Aegean, Greece

Development of a scale for measuring the learning experience in serious games. Preliminary results

#### Summary (50 words)

The study presents the initial stage of the development of a scale for measuring the factors that affect and shape the learning experience when playing serious games. A comprehensive literature review revealed a number of studies on educational games. A draft questionnaire was developed on the basis of their results.

#### Objective

Game-based learning (GBL) helps students not only to acquire knowledge on a subject but also to develop

critical thinking and problem-solving skills. According to the relevant literature, games are quite effective because, they are entertaining, motivating, and excite students' interest. The younger generations are surrounded by a multitude of cutting-edge technologies and their main source of entertainment are games. By not integrating both into the learning process, results in boring and unattractive lessons. Although many studies demonstrated that students perform better when they are engaged in playing serious games, far fewer examined the users' learning experience, as a whole, when playing them.

The first steps for understanding the factors that affect and ultimately shape the learning experience when playing serious games, one has to (a) determine which factors to include and (b) develop a scale for measuring them. The study at hand presents the initial results of these steps.

#### Method

A comprehensive literature review was conducted, revealing a substantial number of studies regarding games, while fewer examined educational games and even less examined serious games. Moreover, these studies had little in common. Besides having different factors as key determinants of the learning experience, they examined different types of applications (e.g., 2D, 3D, web-based, and stand-alone), and the learning subjects were also diverse. Also, much of the research did not deal with the learning experience per se but with factors that, beyond any doubt, can shape it. Out of these studies, a total of sixteen factors were extracted and an initial draft of a questionnaire was developed for measuring them. The questionnaire's seventy-six items (5-point Likert-type questions) were drawn from already validated and well-used questionnaires.

The study's target group was university students studying at the Department of Audio and Visual Arts (Avarts), Ionian University in Corfu, Greece and at the Department of Primary Education (PrimEdu), University of the Aegean in Rhodes, Greece. Students coming from the Avarts department are specialized in ICT, while students from the PrimEdu are specialized in education. A total of 110 students participated in the study. They were asked to play Triseum's Variant: Limits and ARTé: Mecenas. Triseum is a company that grew out of the LIVE Lab at Texas A&M University. Variant: Limits deals with calculus at high school and college level. ARTé: Mecenas deals with Art history and Art Appreciation. Students played both games for at least an hour (after finishing the tutorial). Immediately after playing each game, they completed the questionnaire (twice if they played both applications).

One-way ANOVA tests were conducted in order to compare the factor scores of both applications and to determine if they had any statistically significant differences. All in all, it was found that both applications scored low in immersion, perceived realism, motivation, and perceived relevance to personal interests. On the other hand, both applications received high scores in perceived audiovisual adequacy, perceived feedback's adequacy, and perceived usability. These results provided a basic understanding of which factors are the most influential ones when individuals play serious games. They also provided some ideas of how these factors interplay with each other.

#### Conclusion

The most commonly used factors in studies which examined the users' learning experience when playing serious games were used for the development of a draft questionnaire. Though the sample was rather small and, consequently, it is not safe to draw definite conclusions, nevertheless, the data analysis provided some useful insights regarding the factors that come into play. The next step is to develop a more robust and, at the same time, a shorter version of the scale and test its validity and reliability by administering it to a larger sample size.

#### Dimitris Ginosatis Ionian University, Greece

## Complexities of form: On the implications of Spencer-Brownian logicomathematical universe to a constructivist processual aesthetics of nested space-forms and reflexive structures

The paper at hand aims at unravelling, in a simple and comprehensive way, the problem of formgeneration process as well as the non-dualistic dismantling and resolution it received ("non-dualistic" insofar as the Brownian form is constructed in sucha way so that it comprises what is excluded from it) in the context of George Spencer-Brown's logical calculus of indications and distinctions -as exposed in his influentialmathematical treatise titled Laws of Form (1969)-with view to making prominent itsimplications to a general processual aesthetics of radical recursiveness. Firstly, a briefoverview of the emergence and consolidation of the centrality of complexity in thedevelopment of 20th century information theory, (1st & 2nd order) cybernetics, generalsystems theory and dynamic systems mathematical theory is presented. Secondly, theformal logical background (from classical Aristotelian Logic to Boolean Algebra andPiercian "Existential Graphs" theory) of Spencer-Brown's endeavor is roughly outlined. Thirdly, the central scope, ideas and notions of the Laws of Form -indication, distinction, mark, cross, call, re-entry into the form (i.e. distinctions re-entering their ownspace of distinctions or, alternatively put, forms reentering their own indicational space)et cetera- are explained. Fourthly, a constructivist definition of space (as a result of distinction-drawing) and time (as a result of oscillation) is brought out. Fifthly, theultimate epistemological consequences of Spencer-Brownian calculus are extracted. Finally, its implicit processual aesthetics is unearthed (an aesthetics based not on fixedidentities and closed substances, but on an increasingly complexified architecture offolded differences and infinite oscillations) and its fruitful applicability to any potentiallyself-reflective system is highlighted. In the context of our discussion, "selfreflection" isconceded to any potentially reflective biological or artificial, individual or collective(social) cognitive system that is in some way able to distinguish/indicate itself (from andin itself) giving rise to high-level complexities of self-reference. Inquiring into suchsystems requires resorting a non-standard approaches in which the traditional principles of identity, consistency and form are replaced with paradoxy, ambivalence and transform.

## ABSTRACT

May Kokkidou University of Western Macedonia

Zoe Dionyssiou Ionian University, Greece

Digital artificial composers: issues of ontology, musical-aesthetic values, and cultural meanings

#### Abstract

This article critically discusses the new field of musical composition regarding the digital artificial composers, taking two creations as case studies. It reveals the new conditions of algorithm-basedmusic creation, and brings to the fore a wider ontological discussion regarding what is and is notmusic, and how it can be valued.

#### Extended abstract

Historically, music is defined as a uniquely human phenomenon. This anthropological perspective of music has been proposed by Alan Merriam back to 1964, who defined music as "a product ofhuman behavior in time and space" (p. 7). Moreover, every music form corresponds with structures of society. In Merriam's thinking, music "exists only in terms of social interaction" (p. 27). According to John Shepherd (1991), when "people create music, they reproduce in the basic qualities of their music the basic qualities of their own thought processes" (p. 12).Yet, during the last couple of decades the new digital affordances has transformed the aboveconceptions and the traditional status of musical creation. Recently, computers offer newpossibilities for music creation through advanced softwares. These softwares are presented asartificial composers, who are able to take on complex musical tasks, such as composing, arranging, orchestrating, transforming a musical piece into various styles, inventing new sounds, and so on.Artificial composers were not created to replace physical persons, but are new technological toolsthat change or extend the processes of musical creation. However, many questions arise especially with respect to music education, music sociology, and music aesthetics. Can artificial music bevalued with the same criteria and within the same system that measures the value of human music? Who is the author of such works? Is that kind of music a social product and manifestation ofculture? What about the 'fair use' of musical data that inform the computer database? What kinds ofskills are needed in order to produce such music?

Though the products of artificial composers and algorithm-based music has certain musicalqualities, it is rather hard to determine if they can be considered as music in human terms. Ourpaper covers a range of concerns regarding music creation. Those concerns are ideological, ethical, and philosophical-ontological, because they derive from outside the music itself –the value and complexity of its content– and create meanings with symbolic connotations. At first, it is widelyaccepted that virtual composing simulates human performance. For Baudrillard (1994), "simulationthreatens the difference between the 'true' and the 'false', the 'real' and the 'imaginary''' (p. 3). While the issue is not about the truth of simulation, it is fair to say that the concept of artificial composers raises issues of authenticity and musical authorship. It seems that artificial composersexpose interpretations of authenticity as inadequate.

Our second point is about the idea of creativity. Creativity emerges when we see the worldfrom a new point of view and it is related to open-mindedness, imagination, and intention to reach adesirable end. On the other hand, computers do not create anything by themselves. Without humanskills to set them in motion, computers accomplish nothing by way of innovative outputs, at least interms of human creativity.

Confusion increases with the fact that human music and machine/artificial music cannot beplaced within the same value system and aesthetic continuum because they come from, and thusrepresent, different systems of thinking. In the case of human creation the music work is theproduct. On the contrary, talking about artificially composed music, the software is the product.Greg Hainge (2016) discusses the possibility of non-human agents' capacity to produce music andposes an interesting question: What happens if we turn to the question of how sounds produced by non-human agents might be perceived by a listener not aware of how the sounds were generated?(p. 214). He also observes that "the use of generative algorithms to produce sound raises differentissues since the human agent is involved only in the design of a soundproducing assemblage" (p.211).

The aim of the paper is to critically present and discuss the new scene in the field of musicalcomposition regarding the digital artificial composers, taking as case studies David Cope's creationEmily Howell, and Mellomics created by a team-work from the University of Malaga. All in all, the discussion on the nature of digital-artificial music composition is new in musical research. Obviously, it will take considerable time before the symbolic, cultural and musical possibilities and perspectives occupied by these new technologies become fully understood. Our suggestion is that cannot conceptualize this new way of music creation without thinking of the aesthetic andethical context of production, issues of intellectual property, and their complex and contingent conjunctions.

## ABSTRACT

## Konstantinos Koskinas Panteion University of Social and Political Sciences, Greece

#### Maria Koletsi Panteion University of Social and Political Sciences, Greece

#### Virtuation

Cybertechnology has produced new artificial ecosystems of social relations based on communicative tools and skills provided by the rapid development of artificial intelligent, visualization and virtualization technics, networking systems and big databases access. Reality and imagination, art and science, body and mind, morality and law, liberty and authoritarianism, both as communicative expression and life artificially reconstruction, have emerged with new forms and content, as well as inter-relations, in the digital worlds. The contradictions of this new human dimension and the need for practical solutions, that advance the experience of life as a whole, have led to new disciplines, informed by social computing and computational technologies, which, however, lack of any comprehensive theoretical understanding that will transcend metaphysical futurology, depicted mainly in science fiction analysis and presentations, into a system of theory and praxis that will emerge solely from the analysis and understanding of these new artificial ecologies.

The concept of virtuation is defined as a capacity and ability to create and reproduce forms and content of human relations, in artificial environments, that allow and enhance telepresence, according to the aesthetics, the morality and the skills of the user, in ways that support self-realization and expression, free, transparent/anonymous communication and information access.

Virtuation, in this paper, is studied on how virtual reality, augmented reality, net reality and artificial intelligence, are inter-related and connected in the human tele-experience, which is not limited by the boundaries of time and place and is constituted within cyberspace.

Conventional social institutions and concepts, such as society, history, politics, culture are undermined and, at the same time, empowered by virtuation practices, which allow humans a quantum leap and human existence.

## Nikos Kourniatis National Technical University of Athens, Greece

## Digital Holography and Parametric Design in the Redefinition of the Architectural Object

#### Summary

This work attempts to identify the designed object through parameters that characterize its existence, often detached from its own form and more relevant to the relation of the object to its environment and to other objects to which it is related. Digital holography acts as a tool in the process of investigating the properties of the designed object, which arise as a reaction from its relation to light and its natural environment.

#### Objective

This research paper examines the synthesis of a process of constructing a new architectural object, the digital hologram. New visions and strategies for space and its representation are open to dealing with the designed object, not as a mere recording of its form, but as procedures for investigating the relation of the object to the environment and the neighboring objects with which it is related.

The object, designed on a computer, is displayed on a screen, which, in the holographic experiment, takes the place of the physical object. The produced object is a hybrid of information and matter, whose starting point is not the material world but the digital one. The object of holography (physical and immaterial) casts doubt on the boundaries of reality as we know it, denoting the known linear relationship between material and digital in a system of continuous feedback and recycling between matter and information. The architectural object (digital hologram) ceases to be merely information or matter, and is both simultaneously through a process to be described in the context of this research.

Inside this logic, in digital holography, the designed object is a hybrid of the natural and digital world. The placement of the holographic medium is a cut in the light travel of the object, a specific section at a given moment with given parameters. As the process is recycled, the object is activated giving each time a different effect of its existence within the physical space.

#### Method

The transition from analog to digital holography requires - in theory - a simple change of the holographic subject. The physical object is replaced by the digital one, whose only way of physical presence in our reality is as output given through a computer screen.

The experiment has already begun and is being conducted at the Holography Laboratory of the School of Architecture of the National Technical University of Athens, which is part of the Laboratory of Projective and Computational Geometry. In the case of analog holography, the contribution of the two luminous beams occurs when the light beam falls on the physical object and reflects in a way that carries information about it. Reflected light contributes with the light of the beam reaching directly to the film, producing the hologram. In digital holography the object beam passes through an LCD display and contributes to

the second beam, providing information about the two-dimensional representation of the object on the screen, seen from a particular angle.

In order to move from the two-dimensional representation of the object to the three-dimensional holographic object, it is required to record successive snapshots of a very small width (1 mm in our experiment) on the film, from observation angles adjacent each with its next. For this purpose, we manufacture a metal mask that covers the film, leaving only one strip of width of one millimeter uncovered at each position. The experiment is carried out with the help of the Arduino microprocessor, using the open Arduino and Processing software. In addition to the optical instruments and mirrors of the holography workshop, the other mechanical and electronic tools we use in the experiment are designed, manufactured or modified by us.

#### Conclusion

The photorealistic aspects of the digital space (that are captured in successive film locations) will be constructed in such a way that, after the hologram creation, they can be combined with some physical space on a certain scale. That is, the produced hologram will be placed in the physical space in a suitable position, creating the hybrid space described befor. The observation of the site, either with a microcamera in the case of a maquette or from the natural in the case of a built-up area on a natural scale, will change, depending on the observation point. Movement within this space will reveal to the observer different versions of its existence. A fourth dimension will be introduced into the architectural design.

## ABSTRACT

## Eirini Krasaki National Technical University of Athens, Greece

#### Design mechanism: A design methodology for the "construction" of urban reality.

The proposed design methodology combines data analysis, algorithmic design, linguistics and physics to analyze methodologically the complex system of urban fabric. The implementation of this design mechanism uses the urban fabric of Elefsis as a paradigm. The urban body of Elefsina is defined as a palimpsest of descriptions and images, synthesized spatially in multiple layers and is therefore considered to be a suitable sample for the preliminary application of the proposed methodology.

Urban reality can be described as a complex system as it consists of both tangible and intangible elements, the characteristics of which are quantified by the context and the logical descriptions in which they are incorporated. However, descriptive logic changes constantly, following the development of multiplicity and the extension of concepts. Therefore, the body of urban reality is redefined continuously following the change in both logical descriptions and contexts.

Considering that each framework draws up an ideology and chooses to analyze its core meaning, a written word resolution tool develops, combining data visualization analysis techniques, linguistic and design methodologies to parameterize logic descriptions. Written speech is transformed into networking, visualizing the networks ontological relationships. This creates a nebula of data (cluster) that assembles the mental reality of the urban fabric which is then transformed into local parameters by the appropriate

methodological process giving the balance of the nebula of descriptions in relation to the locality and networking of the written body of descriptions.

Each word of this network is the center of a constellation which is determined by its relations to the body of words, the relation of this whole to the context in which it forms part, as well as the affiliate relationships that each subject constructs when reading each symbol - word of this cluster.

The design process takes place in the context of the network era, so the forms are deployed in the network. The constant change of logical descriptions and the form that comes as a consequence, leads to the denial of the acceptance of the form as an entity related to the concept of time. Form is treated as an instantaneous equilibrium in a force field, in a "nebula of potential states" that varies in relation to time and logic description. The result forms a grid of tension constraints, a dynamic state that is resolved with the actual existence in a different way every time. For the study of form as a tool, the grid is used, since it is a systemic organization of the diagram, a form in the design that remains dominant throughout history, the expression of which changes over time and according to the change of logical description.

With the synthesis of ontological and morphological descriptions, a multiple system of relations is formed, consisting of multiple interacting parts, which constitute a complex structure and are characterized by constant dependence and diversity. To describe and synthesize the multiple descriptions corresponding to a locality, Eleusis is used as an example, as it is a palimpsest archive of descriptions, composing multiple chronological snapshots, results in a view of the immeasurable body of reality. Each feature - property of the description complex is assigned to the corresponding spatial coordinates. Each point corresponds to a description of logic and a context.

Linking, organizing, quantifying and visualizing the variables of the entities that make up the complex system of the urban body introduces a process of design in which the multiplicity of digital tools that we are accessing are not only tools of synthesis, but also tools of thought and methodological approach.



(exemplary application of the proposed design mechanism in Elefsina)

## Iro Laskari Hellenic Open University, Greece

## Creating algorithmic audiovisual narratives through the use of Augmented Reality prints

#### Summary

The paper investigates the possibility of creating non linear audiovisualnarratives, through an unanticipated use of traditional print based games, enriched with videos, via augmented reality possibilities. A ludic system will be created and presented. Based on a traditional card game, a non linear cinematic narrative willoccur.

#### Abstract

In which way can we bring together different forms of visual communication, such as graphic design and video? Can the above forms create a complex narrative whole and what kind of rules will be needed for that? How can we enrich traditional forms of gaming with the potentials of augmented reality (AR)? Gaming itself demands a set of rules. Can these rules play the role of algorithms in the combined universe that we tend to design and create? In which way will the designer in one hand, and the user on the other hand influence the overall output of the system? How will multiple users interact with the system but also between each other? What will the user experience be like?

Digital interactive art projects are characterized by the potential of multiplechoices during navigation, where the user is faced with hypertextual structures, called to act according to the interface and the system's rules, which have been designed and defined by its author. The actions of the spectator-user, based onintuition and having a ludic character, influence the formal and narrative evolution of the piece through the function of feedback. Feedback becomes richer when we havemultiple users.

We aim to create and present a system whose hardware will be based ontraditional printed games as well as a smartphone or a tablet. The physical gamingwill be connected to digital audiovisual narratives. Thus a dialogue between "hardcopy" game and video will be established. The system will contain both an analogue collection and a digital database. The analogue database will comprise paper prints and the digital will comprisevideos. Using AR technology, we will create a unilateral relationship between a printand a video. The emerging experience of interacting with this system will be morecomplicated and richer than the sum of its analogue and digital parts. Video will overlap with graphic design. The device (smart phone/tablet) functions as a window to a personalized narrative, as a secret keeper. At the sametime, the notion of voyeurism is provoked, since the one viewer sees what nobodyelse does. Thus the screen of the phone becomes a «key-hole» to a secret narrative, where audiovisual data overlaps with the target object. The succession of videofragments caused by the successive scanning of target objects, leads to a kind of hypermontage. Interpretation from the part of the user is a key element to the described narrative system.

Interface=analogue traditional game + smart devise. A hypermontage arisesthrough the use of the interface. Thus the hypertextual structure is designed by theuser himself, who follows the gameplay proposed by the author. A direct connectionis being established between still images/ objets and cinematic

narratives. When this relationship is enriched by the rules that conduct analogue games such as cardgames, algorithmic audiovusal narratives emerge, connecting physical and digital content.

System's output=organized collection, whose parts are put in sequence bythe user-player, in a ludic way. Printed entities trigger cinematic narratives and thesuccession of the prints define the final montage, therefore the user experience. Montage is directed by the user, who targets the still images with a mobile device. The presented system creates narratives starting by the juxtaposition of videofragments. Based on the phenomenon of semantic montage, the viewer attributescausality relationships to the succession of these fragmented micro-narrations whichare seamlessly integrated in the sequence.

Keywords: non - linear narrative, print, traditional analog gaming, augmented reality, database cinema.

## ABSTRACT

### Theodoros Lotis Ionian University, Greece

## The Soundscape of a Terrorist Attack as Materiology for Live Performance and its Performative, Social and Ethical Implications

#### Abstract

"Winter Landscape 1: Brussels" is a live performance piece that involves a narrator, live electronicsand tape. Its sonic material derives from the soundscapes of the deadly attacks at Brussels airport and underground train network in March 22, 2016. When violent events strike, the global communityresponds in various ways. The social media and the World Wide Web are quickly flooded with worksfrom artists, illustrators, designers, photographers, typographers and others expressing their supportand anguish. Artists tend to respond expressing their solidarity by either creating art or commentingon the event. From Penderechki's «Threnody to the Victims of Hiroshima» to Stockhausen'scontroversial statement on the attacks on the World Trade Centre in New York, artists ensure thatsuch events will never fall into oblivion. However, what mainly interpret the social reaction are theinstantaneous and intuitive posts, responses and comments of the general public. The piece creates a neutral space in which excerpts from the live radio broadcasting of the attacks inBrussels and selected posts of the general public on the social media can be heard. At the same time, the narrator reads the first online announcements uploaded by the international media withoututtering their meaning. The sounds in the piece are allowed to exist without emotional or conceptual content, and with no intentions of drawing a definite conclusion or inculpation. The paper focuses on specific issues that arise from the use of such sonic material and itsperformative, social and ethical implications. It examines ways of transforming a disastrous eventinto an artistic statement which will be communicated in the listening context of a concert space. Among these issues are: how such unfortunate and devastating events can gestate powerfulexpressions of sonic art? Moreover, in which ways the electroacoustic medium can communicate acatastrophic event with impact on the social psyche - such as the defacement and destruction of sitesand human lives - in a meaningful and intelligible way? Do sounds exist independently of anyconnotations we attach to them? Shall the soundscape of a terrorist attack, as the one in Brussels, bedisconnected from the terrorist act and its memory? Which ethical considerations shall guide these decisions?

These questions lie beyond any strictly composition proceedures. The acousmatic nature of the radiobroadcasting and its schizophonic (Schafer, 1969) reproduction re-contextualise both the events ofthe attacks and their meaning. According to M. Schafer (1969), this perceptional split of soundsresults into a de-familiarisation, which consequently, leads to a perceptual alienation. The later istaking place on both social/political and cultural level. The electroacoustic medium engages the composer to shifthe focus away from the media aided representation of the terrorist attacks to the aesthetic sides of artistic creationand communication. The level of surrogacy (Smalley, 1986) bonded with perceptual alienation is an important critical tool for the preservation of meaning, semantics and memory. During the compositional process, theillocutionary decision of leaving (or not) the utterance of the radio broadcasting and its semantics unprocessed, determine the communicative effect to the audience of the performance. However, this is an ethicaldecision and not a compositional one. The relation between the mass and social media with thesociety becomes an affair between the composer and the audience.

#### Conclusion

In today's societies, people depend on the mass and social media for their understanding of anincreasingly complex social, financial and political world. According to DeFleur and Ball-Rokeach's(1975) Media Systems Dependency theory, people's level of dependency is related to "the numberand importance of the specific information delivery functions served by a medium" (Inhttp://www.encyclopedia.com/). When the electroacoustic medium serves as an intermediate betweenthe information (terrorist act) and its delivery to the audience, both the importance and the deliveryfunctions of the information are mutually affected providing a bread-and-butter environment forartistic expression.

## ABSTRACT

Nina Lyons Institute of Technology, Blanchardstown, Ireland

## Matt Smith Institute of Technology Blanchardstown, Ireland

#### Seeing

#### Summary

Augmented Reality (AR) has the potential to be an interface to access and display information for guidedtours in museums and galleries, allowing visitors to access information previously only available in booksand art history lectures. This would enhance the experience for visitors giving them a greater appreciation forthe artwork on display.

A person looks at a painting in a museum or a book they can either like it or not. They can read theaccompanying paragraph or not to gain some descriptive insight, but real critical evaluation and analysiscomes from having some knowledge about the artist or the movement or even the time in which it wascreated. People visiting a gallery or museum without the prior knowledge or skills gained through studying arthistory and art appreciation do not experience the artworks in the same way. As acclaimed

architect andvisual artist, George Nelson said, "What we see is what we bring to the seeing".

Art appreciation, as part of art history, teaches students how to read a painting. Showing them how to seeand understand rather than just look. Knowledge is gained by discussing different aspects of the paintingfrom the structure and form of the painting to the colours, theme and application of the paint. Furtherinformation can be deduced by looking at the context of when the artwork was created, from the sociopoliticalsituation of the time, the artist herself, her influences, who commissioned it and the work of theircontemporaries which may be reflected in the work.

The majority of art appreciation classes take place in a lecture room or theatre where the lecturer showsslides, goes through notes and facilitates a discussion. These classes create an appreciation in the studentsfor the different styles and art movements as they gain a greater understanding about the works of art, whythey were created and the backdrop that they were created against. These classes are taken by those whohave a real interest in art or the classes may be part of a wider program of study.Galleries and museums understand this and so provide description plaques on the walls beside thepaintings. They also facilitate other information points such as brochures, guided tours, lunchtime and evening lectures.

One of their more popular tools is the guided tour in the form of an audio headset, where a visitor cannavigate through an exhibition while the story of the artist and explanations about their work are verballynarrated. This type of tour has been in use for at least two decades, but is still popular and effective. However, with some recent developments in technology, it is possible that this form of tour, though wellestablished, is just a stepping stone.

Augmented Reality (AR) is an experience that supplements the real world with a virtual layer of information (Lowry, 2015). While it has been around in various forms for the last ten years and discussed for 20 years before that, recent improvements in the technology have created a renewed interest in the technology among reviewers (IoT Institute, 2016; CNET, 2017; Rolling Stone, 2017; TechRadar, 2018; TheVerge, 2018; PC Magazine 2018).

Recent developments in the hardware have opened opportunities to create a never-before-seen level of interaction between the artwork and the person viewing it. The technology has the potential to become an interface to artworks on display, unlocking their story which previously would only have been available inbooks, discussions and art history classes.

Utilising this technology, replaces the headphones with a headset which would allow for the audio tour to beadded to by creating accompanying digital content which would enhance the experience. Analysis toolscould be utilised by AR to map out areas of interest on the painting to show elements such as structure, composition and form, and the artists' use of medium to create areas of light and shadow to set tone andtheme. Optional displays of contextual information giving insight into the time of creation provide a greatersense of the thought processes underlying and the influences on the artwork. Suddenly, the audio tour hasexpanded to another dimension where more information is made available users in a manner that does notoverload them..

This paper looks at new advancements in the area of AR and how it can be used to enhance guided tours ingalleries and museums, giving visitors greater levels of interaction and a deeper level of understandingallowing visitors to bring more to their seeing.

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## ABSTRACT

## Marina Markellou NCSR Demokritos, Greece

#### Blockchain Technology and Digital Arts

The European Commission's Digital Single Market Strategy recognized the significant roleof creative data flow for the development of the digital culture in Europe. Yet, there are some crucial questions that remain unanswered:

- What are the implications of artistic data reuse in a digital world? How to encourage and support new forms of digital creativity? How to foster innovation at the confluence of knowledge and creativity?

- How crossovers with the Digital Arts can make Cultural and Creative Industries (CCI's)more competitive? In what way CCI's that operate at the intersection of technology and artswill try to get the best of both?

BuiLDARTS is situated in the prospective of exploring artistically where appropriation by the Digital Arts has altered use, deployment or perception of Blockchain Technology. It is about a social experiment of Collaborative Digital Art in a blockchain technology environment that will take place during the Athens Digital Art Festival in 2020, the mostrenowned festival for digital arts in Greece, organized and produced by Project 210. The objective is to create a decentralized mobile application that will run on an openblockchain technology platform like the Etherium blockchain platform. The public visiting festival will freely use this application by choosing any digital art piece exposed during the festival, reusing its digital art items in a creative way and recreating a derivate work ofart. Each derivative artwork will be uploaded to a platform powered by Ethereum smartcontracts and blockhain technology. With the help of a QR code scanned with the user'smobile phone, all the transaction chain of the preexisting digital artworks that were used for the creation of the final work will be presented. The Festival Digital Art CuratorsCommittee will choose the best derivative artwork that will be awarded by one of thefestival's sponsor. All the artworks chosen and reused will be also awarded.

BuiLDARTS has three main objectives:

• to create an innovative product (decentralised mobile application) powered byblockchain technology that will be used to digital arts. In this way, a collaboration oftechnology with the Arts will be engaged that will open new pathways for innovation.

• to establish effective seamless data flow systems (including message synchronization) and changing any of storage, content delivery or message services by others re-using the digital artifact.

• to form a paradigm for further theoretical analysis from a social anthropologic point of view, by examining how real time visitors of the exhibition interact and engage with theartworks on display. Significant conclusions will be drawn from the collected data regarding(a) the creative reuse of contemporary artworks, (b) the participation of the public in the interpretation of cultural objects and their possible semantic expansion, (c) the interactionbetween physical exhibition and virtual database, and (d) the new form of exhibition visiting experience.

• to raise the legal challenges that collaborative artistic projects present to participants(artists and users), to examine the disjuncture between current European intellectualproperty law and to suggest on the ways in which the legislation might be improved.

This project is the first Digital Art Experiment on blockchain that promotes the connectionbetween blockchain technology, digital arts and the public.

It is carried out at the Integrated Systems Laboratory in the premises of the Institute ofInformatics and Telecommunications of NCSR Demokritos and of Project 210.

It is an ambitious interdisciplinary project that suits researchers with a background inengineering, human sciences, cultural management sciences under the project supervision ofme as a legal expert.

In overall, the proposed project has the ambition of facilitating the use of digitised culturalmaterial by providing legal transparency and, thus, by offering a useful tool for data -orientated services. The main aim of this project's results is to ensure that both digital artistsand end-users benefit from easier and more effective access to and greater transparency on the legitimate use of digitized art items via innovative blockchain technology.

## ABSTRACT

## Yannis Mygdanis European University Cyprus, Greece

Teaching electronic music principles to kindergarten-age in the digital era with Synth4kids web-application

#### Abstract

Nowadays, children are grown up in a digital-cultural environment. However, the traditional music-

educational methods, as designed decades ago, don't involve new technologies in their content. Synth4kids is an original music making web-application developed for music lessons to kindergarten age, incorporating elements from traditional educational methods, enabling sound experimentation, improvisation and kinaesthetic experiences, in a digital context.

Keywords: Music education, Web Application, Analog Synthesizer

#### Introduction

The rapid development of music technology, has changed the way people interact with music (Webster, 2012), offering extended ways of music teaching-learning (Tobias et al., 2015). However, music education has not paid the appropriate attention to digital media (Williams, 2014).

The aim of this paper is the presentation of an original music making web-application, oriented music lessons at kindergarten age, offering new experiences in the field of improvisation, sound experimentation, as well as giving children the chance to get in touch with electronic music.

#### **Digital Instruments & Music Education**

In a society where communication is widely digital, teachers should consider students' desire for technological and musical actions (Tobias et al., 2015). The implementation of digital media in music-pedagogical activities can broaden music teaching-learning practices in a new music-pedagogical environment (Webster, 2012). Especially, the use of digital instruments and tablets in music lessons provides unlimited possibilities (Williams, 2014; Aaron et al., 2016), as well as a positive impact in developing music making, musical skills, creativity, teaching music style, instrumentation and harmonic sequence, to a deeper music understanding (Aaron et al., 2016; Riley, 2013; Ho, 2007).

Despite the above, the traditional music educational methods (Dalcroze Eurhythmics, Kodály Method, Orff Schulwerk), while designed many decades ago, do not involve digital instruments in their content and tend to emphasize to instruments and music styles, absent in the new digital-cultural environment (Williams, 2014). Also, music teachers do not seem willing to incorporate new technologies in their teachinglearning process due to hesitation and lack of experience (Bauer, 2012). As a result, music education keeps a distance from today's digital era (Williams, 2014). In that way, few music teachers are using digital instruments, especially in ear-training and music theory lessons (Ruismäki et al, 2013).

#### **Orientation of Music Applications**

The orientation of music applications plays a prominent role on their development. Although digital instruments are something new, design elements remain philosophically traditional (Ruismäki et al, 2013). As a result, the majority consist of a reproduction of acoustic instruments depending on preexisting users' behavior (Wigdor & Wixon, 2010) and only few have been developed oriented to music education.

#### Synth4kids: Design Principles & Overview

Synth4kids is an original virtual monophonic synthesizer web-application instrument, entirely created with HTML 5 and JavaScript, giving a cross-platform and mobile browsing compatibility (Juntunen et al., 2013).



Figure 1: Synth4kids main window

Whilst created for music lessons, it incorporates elements from traditional music educational methods, and it can be easily integrated in music-pedagogical activities (Mygdanis, 2018). It uses Newton's chromesthesia chart, matching notes with color spectrum row, from red to violet starting from note C (Peacock, 1988). Furthermore, likewise Orff instruments, it offers the option to deactivate the fourth and seventh note, providing the pentatonic scale. It also, allows transporting the pitch without changing keys' color, as per the principles of movable-do technique. Referring to kinesthetic experiences, Synth4kids, benefits from the tablets' tilt sensor and alternates the sound pitch by changing the direction of device. Also, each key has "aftertouch" function, changing its pitch at a ±20Hz range.

As a synthesizer, it is equipped with digital instruments' features. Two oscillators are generating sound signal in four discrete types of waveforms represented by paintings (see Figure 3), designed as per the opinion of a sample of ten children. In combination with ADSR envelope, for controlling time parameters and the use of delay, reverb, distortion sound effects, children can get in touch with sound design principles. Also, there is an arpeggiator, which automatically repeats chord notes, in ascending or randomized order, to an appropriate tempo.



Figure 2: Waveform types and representation

#### Future Work

Undoubtedly, there is room for improvements. The recording element is one of the intended plans, providing the possibility of listening the sound result in later time, as well as the element of the production of graphical representation, based on chromesthesia.

#### Conclusion

Although music education has not paid the appropriate attention to digital media, music technology and digital instruments like Synth4kids can enrich ways of music teaching-learning. However, it becomes clear

that their implementation in music lessons cannot replace the use of acoustic instruments. Instead they can be used in conjunction and in a wider context as Tobias (2016:116) described, in a hybrid approach.

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## ABSTRACT

Vassiliki Nanou University of Western Macedonia, Greece

Polyxeni Kaimara Ionian University, Greece

## Agnes Papadopoulou

Ionian University, Greece

#### Transmedia Storytelling, Media Convergence and Creative Writing

#### Summary (50 words)

The study traces the history of transmedia storytelling and its evolutionary steps through multidisciplinary fields of media, art, culture and technology and the way it is currently being used and exploited. It also explores the convergence between transmedia storytelling and creative writing, its advantages and
possible pitfalls, its cultural, literary and media prospectives as well as a possible rough critical framework of assessment on current trends.

### Objective

Transmedia storytelling as a particular narrative structure that expands through both different languages (verbal, iconic, etc.) and media (cinema, comics, television, video games, etc.) has been engaged by professional and non- professional media as an example of media convergence. The current unprecedented access to content, products and media allows– at least in what is deemed the developed and developing world – unlimited control over a person's experience as he or she can customise, personalise and respond towards a narrative in multiple ways and across multiple platforms. Emerging technologies, new and ever-changing forms of communication, audiovisual designing have all contributed into creating various transformed modes of representation, enhanced with visual, narrative and verbal characteristics, that people interact and connect with: e-books, hypertexts, virtual gaming worlds etc.

This unique combination of textual, visual and verbal elements presents an expansive and rather challenging field of representation and interpretation for creators as well as a new way of experiencing and "living through" a story (or multiple stories) for the "readers". Trying to map this whole narrative universe presents a rather unique experience, especially for a creative writer and potential producer and consumer of this synergy of modes, media, technologies and content. Moreover, it is argued that creative writing can really benefit by introducing its modes and practices into each medium separately and across media at the same time leading into innovative narrative practices.

### Method

A comprehensive, expansive and detailed literature review is conducted in order to trace the history and evolutionary path of transmedia storytelling as well as creative writing as practice and scientific field. Several examples are explored so as to see the diversification of media, the synergetic relationship between them and their ongoing convergence aiming at presenting a new mode of storytelling, one which is based on an encyclopedic expanse of information which gets put together differently by each individual consumer as well as processed collectively by social networks and online knowledge communities.

Current stories – popular ones like Star Wars, Lord of the Rings, Heroes, Lost or Gray's Anatomy re presented, as narratives that might spread from books into television into comics, the web, computer or alternate reality games, toys and other commodities, whereas their consumers may create further wikipedia entries, fan fiction, vids, fan films, cosplay, game mods, and a range of other participatory practices that further extend the story world in new directions.

Through this exploration and presentation cultural and social trends are traced as there seems to be an expansion of narrative universes both from a commercial and a grassroots point of view. By taking into account of those trends, a rough framework of ways of creating new narratives is created.

### Conclusion

Transmedia storytelling presents a challenging field for creating new modes of narrating stories that range from the personal to the commercial field. By finding the underlying currents of its evolution, cultural and social trends can be traced highlighting its importance and possible exploitation into the narrative fields of media, literature, computer gaming and so on.

# ABSTRACT

### Spiros Papadopoulos University of Thessaly, Greece

Maria Loukou University of Thessaly, Greece

Avrokomi Zavitsanou University of Thessaly, Greece

# Technologically mediated participatory and performative artistic expressions as social educational tools

### Summary

This paper presents the role of contemporary forms of art, that incorporate new media technologies, in educational manifestations with the aim to examine their contribution to the edification of the individual. Using paradigms from participatory and performative procedures of art, the research underlines the importance of technological tools in diminishing the passive role of the viewers and focuses in alternative forms of educational experiences and the transmission of social memory.

Key words: participatory art, performative art, technology, education, social memory.

From primitive cultures to the avant-gardes movements of the 20th century the notion of participation has been a strong element of motivation and change for different audiences and community members. In contemporary visual and performing arts the term "participatory" refers to the active involvement of the viewer or spectator to the production process of the artwork.

Technological advancements in the postproduction era stimulated new ways and forms of participation of the audiences in the arts and the wider cultural scenery. Nicolas Bourriaud places this participatory feature in a new term which he defines as "relational". According to Bourriaud relational art is an art taking as its theoretical horizon the realm of human interactions and its social context" (Bourriaud, 1998, p.14). In the last decades, digital media have been increasingly incorporated to art practices enhancing their participatory performative character.

Placing his art in the intersection of Performance and Architecture, a contemporary artist, R. L. Hemmer, uses multimedia technologies in his large-scale installations to provoke participation in an immersive way. The spectators are bodily involved to the creation of the artworks, which outcomes are depended on their interactions. Hemmer incorporates technology to his installations to transform the main narratives of a building or public space and modify the existing behaviors including the audience relationship with the urban environment. This practice defined by Hemmer as "Relational Architecture" is routed to previous methods of ancient civilizations to preserve social memory: Simonides mnemonics, a method of memorization through visualization, or the art of memory in Chinese traditions were architecture was used as a depository of memories.

According to Social Anthropologist Paul Connerton, bodily practices "provide a particularly effective

system of mnemonics" (Connerton, 1989, p.102). He argues that memory can be transmitted, not only through textual and cognitive ways, but also through performance and incorporating practices. With this holistic approach Connerton presents performance as an act of ritual remembering and subjects the human body to social forces, shaped by the cultural norms. In this point of view, performative and participatory events that represent artistic expressions can be regarded as ritual acts that interpret the knowledge of the past and the present "enacting social memory through habitual practices" (Connerton, 1989, p.102)

The aim of this paper is to analyze technologically mediated participatory and performative forms of art and their cultural and educational implications underlining some of their features e.g. immersion, that can be used as social educational tools. Even though Arts' main purpose is not to instruct the spectator, we assume that these artistic expressions engraved into different cultures and civilizations have clear educational implications as they propose to the audiences an aesthetic and critical response to their surroundings and the construction of individualized and social narratives.

This argument is enforced by theories, like critical pedagogy were the educational procedure is conceived as a permanent process of formation through which individuals are encouraged to affect change in their world. Also, drawing up paradigms from primitive cultures, avant-gardes movements and contemporary art participatory and performative practices with a focus to the work of R. L. Hemmer, the paper will conclude that multimedia technologies incorporated in the arts, provoking and enhancing the participation of spectators, can be used as a tool to generate educational practices.

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# ABSTRACT

### Agnes Papadopoulou Ionian University, Greece

Polyxeni Kaimara Ionian University, Greece

Sofia Maria Poulimenou Ionian University, Greece

Ioannis Deliyannis Ionian University, Greece

# Art Didactics and Creative Technologies: Digital culture and new forms of students' activation

### Summary

This paper deals with the contribution of Art Didactics and Creative Technologies in the adoption of an active attitude to decision making processes on the part of students and their participation in issues both at the level of culture and at the level of knowledge and means.

### Objective

In this particular study the usage and the study of specific artworks is carried out in a frame of correspondence with the requirements of the multisensory experience of contemporary cultural reality, in a context of synthesis and application, encouraging students in creative processes. Students create virtual societies (through digital games and drawings), where their thinking is presented as a natural action, reaching suggestions.

The proposed teaching scenario focuses on the concept of citizenship as a social obligation, a right and a prerequisite for the quality of student's life. It employs the students' critical ability, they are being recorded and understand interpretations of things and relationships, sparking debates about the already formed views and attitudes.

Learning from school's creative joined activities with the city, with communities, as through the culture they are developing, they are learning organisms for the collectivities themselves as well as for their members: learning from adventure and leisure time in the city involves teaching techniques and strategies that are consistent with a more synthetic and less analytical interpretation of Art (Panosfky, 1972/1991, Kleinauer & Slavens, 1982). This approach opens new educational paths. On the one hand, the basic pursuit of the educational process is the formation of a democratic and conscious citizen, a citizen of the world and the knowledge society, and on the other hand, the teaching of Art must support a dynamic education, which is in a bidirectional way with the social reality.

A reality in which the young generation of students is invited to participate through the digital universal community of the Internet and electronic media. Therefore, the case of a holistic approach to the use

of digital tools (wikis technologies, digital games, design programs and applications) using visual and semantic criteria, interconnection of tools, resources, ideas and knowledge, operates catalytically. An extended field of collective practice is created, where the synergy of Art and Technology offers important opportunities for learning.

### Method

The described framework requires the usage of knowledge that allows students to function democratically, the definition of student-city relationships and social principles that act as guides in action for the search for good planning (Potter, 2003). The constructivist research model is chosen as a belief system (sometimes referred to as an interpretivism research example (Guba & Lincoln, 1994) where investigation should be extended without restrictions and canons (Psoinos, 2010).

Art is important in human society, morally and politically (Woods, 1995). The pluralist nature of works of art functions in a catalytic way in order to organize information and explain how one sees reality, knows something and explores it (Arnheim, 2005). Starting from visual communication as a social activity (Kenney, 2009), the teaching scenario assigns components and directions to help students identify their relationships with the city and the importance of these relationships. Students should consider the existence of variables and parameters such as temporal and local constraints, culture, mixing in various groups, the addition or removal of cultural elements, and study of the dimension of the Other, the inhabitant of the city, who is the recipient of design suggestions from the students. Their research is descriptive-diagnostic, reflective, complex and qualitative (Vamboukas, 2000). Qualitative research is being done progressively, with successive reductions, testing claims, through revisions. On the one hand, the method of obtaining bibliographic information on the negotiated concepts and, on the other hand, formulating questions, conclusions and design proposals.

### Conclusion

The aim of education is to initiate structural changes on cultural perceptions, political and economic transitions, incorporating wider changes and initiatives. This study has been organized around the concept of learning and teaching of the nature of Audiovisual Arts in harmony with the basic educational aim of educating children for adulthood and the concept of citizen. Education should be concerned with the content and the method at the same time and with the establishment of a progressive critical consciousness that transcends the pseudo-dilemmas and divisions such as technophobics, technophiles and techno-confused educators. Art Didactics and Creative technologies contribute to the maximum in creating an alternative model of Education that is not trapped in goals and reproduction of mentalities, but puts up resistances and creates places of autonomy.

The concept of design is understood as a conflict between form and content (Kroeger, 2008). The narrative (students' design suggestions in relation to the city) is already removed from any linear structure due to digital games and Web 2.0 applications, the possibility is added to reconstruct stories designed by others and do not satisfy them in relation to what is experienced within the city or theirr own vision.

# ABSTRACT

### Maria Papadopoulou Ionian University, Greece

Ioannis Deliyannis Ionian University, Greece

### Augmented reality and arts

In the context of this research, an attempt is being made to explore the use of augmented reality technologies (AR) in the arts and in particular in the visual arts. Specifically, this research deals with the way the visual artwork interacts with the visitor through augmented reality technologies. The bibliographic research focuses on exploring the definitions of augmented reality and interaction. The historical overview defines the two above-mentioned fields and the field of art. The study of the conection of the two fields is carried out by exploring the characteristics of their visual art works. Finally, this research studies the implementation of the enhancement technologies and the process of interaction of the visual work with the observer

The present research extends beyond the presentation and citation of augmented and interactive visual works as it sets two main objectives a) to explore the way the artistic work which use augmented reality technologies interacts with the visitor, as well as b) exploring how human senses are stimulated through visual art work which these technologies applied. Taking under consideration the above-mentioned objectives, the following research questions were asked to be examined: 1) How is the interaction between visual art and augmented reality and visitor implemented? 2) Which of the five senses are stimulated through the art work? 3) How do these sensations stimulated?

In order to for this research to work flawlessly was divided in six parts.

- The first section concerns the definitions of AR and deals with a brief historical reference to the development of its technologies.
- Next, the second section quoting the definition of interaction and a brief historical reference to the evolution of the visual arts.
- The third section is a bibliographic research who study the interaction and and the way researchers engage in the interaction in the visual art. It also appears how augmented reality is related to interaction and examine the effects on humans.
- The fourth section presents a series of visual works and analyzes how AR technologies are applied and how the visual artwork interacts with the visitor.
- In the fifth section, the conclusions of the project analysis are given and the research questions are answered.
- Finally, the unity of the summary, which refers to the objects dealt with in the present research, presents the conclusions that arise and the way the present research will be exploited in the future.

Through this brief report it is realized that the visitor ceases to be just a simple observer but acquires an active participation role in the project, by formulating through his choices the form of the project he is visiting. It is also observed that artists are trying to activate as much as possible the senses of each visitor and not just his vision.

Most of the art projects note the need for an observer to use his/her mobile phone devices so that he/ she can read the augmentation of reality in each project. It is also observed that through an interactive projection the observer takes an active part in shaping the project by acting with the projection through the motion of his body. A similar configuration of the artwork, referred to similar sound projects was taking a new form, analogous to the crowd and movement of each observer. Apart from the visual, tactile and sonic stimuli that were reported as offered examples to the visitors, ther was one project that offered olfactory.

It is noticed that as technology evolves, art evolves as well. Technology offers solutions and art exploits them. As a natural continuation of this research a larger-scale research should follow that will deal with the collection of visual artworks making use of AR technologies and promote as much as possible the interaction between the visual work and the observer. Through this new research, safer conclusions can be drawn about the use of these technologies in interactive art environment.

# ABSTRACT

### Penny Papageorgopoulou National and Kapodistrian University of Athens, Greece

# Dimitris Charitos

National and Kapodistrian University of Athens, Greece

### UNIVERSAL MONSTERS - The Early Posthuman Cultural Icons

### SUMMARY

In this paper, we explore the Universal Monsters, the main characters of the horror films produced by Universal Pictures between 1920 and 1960 as the early cinematic depictions of the posthuman; "hybrid figures that blur the boundaries among humans, animals and machines", creatures of "partial identities and contradictory standpoints".

### INTRODUCTION

### monster, n., adv., and adj.

A mythical creature which is part animal and part human, or combines elements of two or more animal forms, and is frequently of great size and ferocious appearance. Later, more generally: any imaginary creature that is large, ugly, and frightening (Oxford English Dictionary).

The word "monster", according to Haraway (1991), "shares more than its root with the word, to demonstrate. Monsters signify". Monsters are boundary creatures; symians, cyborgs and women, acting as a destabilizing force to the great Western narratives (Haraway, 1991). Monsters are not to be considered as harbingers of cultural decadence, rather as "the unfolding of virtual possibilities that point to positive alternativities for us all" (Braidotti, 2000).

Therefore, monsters represent the opportunities of the posthuman future, shifting the anthropocentric, humanist perception of the classical ideal man, perfectly depicted at Da Vinci's Vitruvian Man, towards the forge of non-unitary identities and multiple allegiances between human and the "others": anthropomorphic, zoo-morphic, organic and earth others (Braidotti, 2013b).

In horror, thriller and sci-fi films, the portrayal of monsters has got them "stuck in an ambivalent spectacle of fascination and horror, norm and deviance" (Volkart, 1997). Braidotti argues that since "the genre of science fiction horror movies is based on the disturbance of cultural norms, it is then ideally placed to represent states of crisis and change and to express the widespread anxiety of our times. As such this genre is as unstoppable as the transformations it mirrors" (Braidotti, 2013a).

### **OBJECTIVE & METHOD**

In this paper we explore the Universal Monsters, as the cultural depiction of the transcendental fusion of species, the "hopeful monsters"; the things born "before their time", unbeknownst to the world if it is ready for them" (Mosley, 1990). Universal Monsters, crossing the boundaries of monstrosity, illustrated what Freud called the culture's "unease" towards the embodiment of projected difference. They were the early posthuman icons, embodying the human "historical, identitarian and technological anxieties" (Herbrechter, 2013).

Since the mid-twenties, until the late fifties, Universal's creative minds, based often on popular novels, had given life to a number of monsters: hybrids of humans and animals (The Wolf Man, Creature from the Blue Lagoon, Captive Wild Woman), hybrids of humans and machines (Frankenstein, Bride of Frankenstein), disembodied entities (The Invisible Man), as well as a number of mythical creatures (Count Dracula, The Mummy, Phantom of the Opera, The Hunchback of Notre Damme).

The Universal Monsters gave the early cinematic glimpses of the post-anthropocentric model, aligning to the three-phase process described by Braidotti, in order to keep zoe, the "dynamic, self-organizing structure of life itself" at the centre, by eliminating the core role of anthropos (Braidotti, 2013b) in the cultural and societal and ecological structures. More specifically, we explore in which way, each of the Monsters acts as an iconic figure of the "becoming-animal, becoming-earth and becoming-machine" processes (Braidotti, 2013b) and define the cultural impact of these "organic monsters" being neither total strangers nor a completely familiars (Braidotti, 1999), "awful and aweful" at the same time, on comprehending the paradox of difference, synthesizing both "taboo and desire" of the posthuman future (Graham, 2002).

### CONCLUSIONS

Since the release of one of the greatest films of the silent era, Fritz Lang's Metropolis, the horror and science fiction genres have introduced the posthuman subjectivities that surpass human rationale and species, building on a body of relationships between the human, the non-human and the hybrid, confronting the "ontological hygiene" of Western modernity (Graham, 2002).

The monster, as a single living organism that does not comply with the rules of any certain species, albeit

having its roots at least at one, distinguishes itself from the other living beings by demonstrating "an excess of monstrosity rather than an infra-monstrosity". Human beings are "redundant monsters"; biological monsters that aspire to become cultural monsters, aiming to cultural mutations and "meta-monsters"; monsters that create monsters and monsters who quest for human traits outside human species (Lestel, 2012).

Since the boundaries between science fiction and social reality is an "optical illusion", the cinematically illustrated "transgressed boundaries, potent fusions and dangerous possibilities" abide to the Haraway's "cyborg myth", exploring the cyborg as the cinematic monster; in "social and bodily realities" where humans harmoniously coexist with animals and machines, and where humans are "not afraid of permanently partial identities and contradictory standpoints" (Haraway, 1991).

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# ABSTRACT

# George Pavlidis

Athena - Research and Innovation Centre in Information, Communication and Knowledge Technologies

### The Role of Recommender Systems in Cultural Heritage

### Summary

Recommender systems technology met a significant advancement during thelast decade of the 20th century and has proven valuable in tackling information overload and personalisation. The application of recommender systems in Cultural Heritage also appeared in the past two decades and alarge amount of works appeared in the scientific literature on this subject. This work focuses on investigating the role of the recommender systems inCultural Heritage applications and on identifying approaches, benefits and prospects on the way ahead.

### Introduction

Recommender systems technology originally appeared as a remedy to the information overload in the modern world of big-data. Recommender systemsexploit some knowledge about the preferences of users over a range of items, in order to suggest a selection of items that might be of interest to the users. The goal of any recommenders is to create meaningful recommendations toits users regarding items that might be of their interest. Personalisation of the content that is thus produced is defined according to various contexts, which can take any form or combination of a user's profile, state of mindand information consumption context (i.e. educational, recreational). Recommender systems draw on machine learning approaches and on particularadvancements and adaptations to tackle the fuzzyness and sparsity of dataavailable in typical application cases. Since their impressive developmentover the past decades they have been widely adopted by major industries, like eCommerce, the Movies and the Music industry. Any system able toprovide recommendations is considered as a typical manifestation of narrowartificial intelligence.

The most obvious (and rather successful) approach is to create recommendations based on popularity, which consists of ranking the available items in a decreasing order of popularity and suggest the most popular items. Advanced recommender technology ourished as an independent field with theintroduction of Tapestry in 1992 and GroupLens, a couple of years later. It was in those pioneering works that key technical terms like collaborativefiltering were defined. In the vast bibliography in the field of recommendersystems, three general categories are identified, including the content-basedsystems, the collaborative systems, and the hybrid systems. Technically, inmost of the approaches the problem has been tackled as some kind of an optimisation, seen either as a minimisation of the cost of an inaccurate ratingprediction, or as a maximisation of a user's satisfaction or utility or evenserendipity.

Equally impressive is the volume of published works regarding the applications of recommender systems in cultural heritage and tourism, and particularly in applications for museum guides, which are of interest in this case. Chronologically considered, one may look into systems like the Hippie system(project HIPS), the Sotto Voce, the PEACH project mobile guide, contextaware and semantic technology-based museum guides, guides based on sensing technologies and localisation, the ARCHIE mobile guide system thatfocused on social interaction, text-based similarity recommenders, contentbased recommenders like the guide created in the CHAT project, special usermodel-based recommenders, the CHIP interactive tour guide, personalisedguide recommenders that target user satisfaction factors, semantic networkbased recommenders, content-based and collaborative filtering combinationapproaches for personalised museum tours, the recommender system in theAMMICO project, purely user satisfaction-based approaches like the one in the eHERITAGE project, or in the meSch project, association rule-based approaches like in project M5SAR, and probabilisticapproaches.

### **Discussion and concluding remarks**

In most of the works in the bibliography, the conceptualisation of the museum remains connected with a gallery and linear, `uninteresting'<sup>1</sup>, narratives. Although social engagement and participation have been partiallytaken into account by the many works in the bibliography, the role of thestakeholders has not been integrated, as they were considered as simple academic repositories. The stories and tales that museums tell have been largelyoverlooked, losing thus the societal framework, the aesthetics and the intellectual depth of the exhibitions' content. Apparently, new approaches are tobe sought in the following years to address the transforming cultural heritagedomain, which shifts from the gallery paradigm towards a more educativesocietal institution. This should be expressed as a significant advancement in a true cross-disciplinary collaboration and understanding, which in a technical aspect should cover content and context-awareness, temporal and behavioural dynamics, semantics-based and ontology-based content

modellingand delivery, Internet of Everything integration and ubiquitous computing.

<sup>1</sup>This word has actually appeared in the relevant works.

#### Acknowledgments

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### ABSTRACT

### George Petras National and Kapodistrian University of Athens, Greece

### Panagiotis Tsagkarakis National and Kapodistrian University of Athens, Greece

Comparative interpretations and approaches to the development of interactive tools in an Ancient Drama performance.

#### Abstract

The development of interactive tools for Ancient Drama is presented. These tools are based on the conversion of programmatic principles from the ancient Greek theory of speech and music into interactive conditions. Based on these principles there is some kind of correlation between aesthetic effect and theory (programmatic principles). The operation of the system is tested by two different performers (an actor experienced in ancient drama and a musician/ prosodist who is an expert in the interpretation of ancient Greek prosody recitation) so that we have a comparative assessment of the system.

#### Presentation of the system

This article will present the interactive tools developed for the performance of Ancient Drama.

More specifically, two multi-purpose tools and applications have been developed, based on different principles and philosophies.

One is based on the dynamic and tonal detection of the performer's prosody<sup>1</sup>, and the other on detecting her movement and gestures. One is the Aristoxenus Tool, which freezes the ending syllables of the phrases and lengthens them until the beginning of the next syllables.

<sup>1</sup> In prosody syllables have the following characteristics: pitch, duration, stress and pronunciation.



Figure 1. The main patch of the Aristoxenus Tool.

This tool can also lead these frozen syllables tonally on ancient Greek modes and tunings. The syllable durations and their accents are elements that are dynamically detected, so the detection that is performed is directly related to the dynamic, temporal and expressive elements of prosody. The detection of the tonal movement of the performer's voice creates a parallel tonal motion which relies on the freezing of the syllables, thus again on the dynamic detection.



Figure 2. The general design of the Aristoxenus Tool

This tool was inspired by the logodes melos curve by Aristoxenus, who argues that the motion of the spoken voice is constant and seamless compared to that of the singing voice.



Figure 3. The logodes melos curve

The second tool we built is the Ancient Dialogs Drama Tool, which is based on the correlation of movement and speech in ancient drama. The concept behind its design is that the performer on stage can direct the whole course and evolution of the drama by herself, through the interactive process we have set. She activates the dialogues and can play with the text, with fragments of it or even with audio elements that result from it. She can create through the basic features of her prosody, rhythmic sequences and musical phrases that will support the interpretation and evolution of the work. This is accomplished by her tracked movement on stage where, with a choreography that is always formed in close relation to previous programming, she creates these dialogues and sound environments. Thus, motion and speech are correlated to the same rhythm and, despite the limitations of text and movement, a very precise timing is ultimately created. The need here was to take into account the expressive field of gestures and movement in relation to the prosody. The fragmentary use of syllables and their durations, for example, shaped a musical environment based on the performer's individual prosody.



Figure 4. The main patch of the Ancient Dialogs Drama Tool



Figure 5. General design plan/Overview of the Ancient Dialogs Drama Tool

In these two tools the following research process was carried out: The texts of the project we selected were interpreted by two different performers: an actress and a prosodist/musician. So we created a comparing environment of the different approaches of the same text through the same system but with different interpretations and priorities. In the present study, we highlighted these variations and set them as its basic components, taking into account all the possible uses of the system whether verbal, gestural or musical.

The parameters set here are related to the visual and acoustic fields. Thus, in the field of vision (through camera use), we have detection of mimics and facial control, as well as skeleton tracking. This is combined with the acoustic field in which we have speech and the audio configurations, i.e. the audio section (the entire audio part). In this combination it is important how the speech is spoken, the technique of breathing (in singing and reciting), the posture of the body, which lead us to gestural control, how the performer manages her members/limbs and how speech (i.e. audio soundscape/audio section) is coordinated with these movements. The use of these tools highlights the close relationship of prosody with the performer's motion. These parameters form the bases upon which the comparison between the interpretative approaches of the different categories of performers and interpretations is made.

The actor combines the kinesiological element with speech more effectively without, however, relying on the absolute strict principles of speech, but on freer interpretations and approaches that lead her to greater expression and expressiveness. The prosodist, with the exact precision of her speech interpretation, succeeds at extracting the better response of the system in terms of recognition of the basic elements of the prosody. Her main disadvantage is that her command of the element of gesture is below that of prosodic speech. Thus there is more accuracy in verbal expression and less in kinesiology. The ideal for the best functionality of the system is the combination of these two elements, the deep knowledge of the expression of the prosody and the hypocritical ability that can combine the free expression of speech and movement. In any case, however, it will be necessary to work with the system so that she becomes familiar with the system's interactive practice and logic.

# ABSTRACT

### Gerasimos Polymeris Regional Directorate of P&S Education of Ionian Islands, Greece

Andreas Giannakoulopoulos Ionian University, Greece

Konstantinos Tiligadis Ionian University, Greece

### Dramatization and Digital Technology in Intergenerational Learning

Keywords: Digital literacy, Intergenerational learning, Educational technology.

### Abstrasct

Researchers' interest in finding out the benefits of Information andCommunication Technologies (ICT) in elderly people is now growing. Theway we live, work, communicate and think has changed in the digitalage and is directly influenced by the rapid development of technology.Nowadays, we have seen the spread of portable digital devices such as"smart" phones and tablets that are being used with a view to socialnetworking, entertainment and access to information on the Internet. Theportability of these digital devices offers opportunities for their use ininnovative learning environments that support both personalized andcollaborative learning. In order to cope with all these changes, it isnecessary to develop the skills that will help us adapt to the InformationSociety.

Digital literacy of the elderly is an indispensable skill of the 21st centuryand refers to the understanding and exploitation of a hyperlinked worldthrough new digital tools and web services that make life easier. Information Technology and mobile devices help this group to increasecommunication, avoid isolation and loneliness. Lifelong learning providesadults with the skills they need to stay active in society and strengthenstheir contribution to younger generations. Intergenerational learning is aform of lifelong learning that involves the two-way transfer of knowledge- from one generation to the other. This kind of learning is informal, selfdirectedand usually without planning and it promotes interaction,mutual exchange of knowledge and respect between generations. What is the contribution of digital technology and audiovisual expressionto the cultivation of young people's cultural consciousness, especiallywhen they interact with elderly people?

This work is part of the research field of Educational Technology and audiovisual expression and its aim is to study the utilization of dramatization and the contribution of digital technology to experiential intergenerational communication activities. Our goal is to find ways of using digital media and audiovisual expression in intergenerational learning.

Through this research we attempted to answer the following researchquestions:

• What is the contribution of digital narration and audiovisualexpression to the interaction of children with elderly people?

• What are the benefits of using digital technology in collaborativelearning activities?

To answer our research questions we have used qualitative researchtools (Individual semi-structured interviews, thematic Data Analysis and Observation).

The design of the research proposal, in response to the objectives of thestudy, included the following steps. In order to collect information, a classof students from  $\alpha$  Primary School of Corfu interviewed a group of oldpeople and selected information about their past. Then the studentscreated their own scenarios from the narratives of the elderly and theycollected old objects and related photographic material. At a laterstage, they attempted to visualize the scenarios in a short film, throughexperiential actions of audiovisual expression by applying body theatricaltechniques. We chose Educational Drama as a structured pedagogicalprocess that adopts techniques and tools of dramatic art as a means of approaching and exploring new knowledge. The produced audiovisualmaterial was digitized and uploaded to a collaborative website (Wiki) inorder to carry out cooperative digital literacy activities. In this way, theelderly were able to create QR Codes after being mentored by thestudents (Reverse Mentoring).

In the light of our findings, we may conclude that audiovisual expressiontechniques and digital technology can be effectively used as analternative didactic method to elderly digital literacy in the InformationSociety.

## ABSTRACT

### Bill Psarras Ionian University, Greece

# Locating poetic objects: Experiencing poetry into site through walking, sound and interaction

Spatial thinking has constituted an area of growing interest – mostly known as 'spatial turn' – among contemporary art, academia and society, yet such a fascination does not constitute an ephemeral trend. Humans tend to think spatially; something apparent through the use of metaphors, conceptual diagrams and most importantly our own body and in-situ experience. The concepts of place and space have been central not only at the core of geographical thought but also at the fruitful intersections of arts and humanities revealing geopoetic elements in various expressive modes (i.e. literature, poetry, installation, performance, film and 21st century GPS locative media practices). Such a mingling of space/place, body, senses, art practice, technology and poetic imagination can be encountered in the emerging field of creative geohumanities. The interest in body-site relationship initiates from the cultural traditions of flanerie (early 20th century) and Situationists psychogeography (1957) and later of land art and conceptual performances; something that set the foundations for the convergence of walking performance, installation among others; mediated through various technologies.

Having as starting platform the postdoctoral research<sup>1</sup> and art practice of the author on intermedia and transdisciplinary combinations of walking performance, site, objects and digital technologies; the current paper reflects on a developing artwork/concept of the author, which explores potential ways poetry can be spatialized in the physical space in the form of installation art / interactive sculpture of door frames. Having

as case studies selected visual poems of the author from his first poetry publication entitled 'Tundra' (2017); the paper explores the performative semiotics of transmediating words into sonic door frames bounded in place as well as how the process of reading can be altered to a performative ritual of 'walking through'. Analysis will be accompanied by selected contemporary works and practices that indicate common methodologies and perspectives. [309 words]

<sup>1</sup> Postdoctoral research funded by IKY State Scholarships Foundation [2017-2019]

ABSTRACT

Emmanouel Rovithis Ionian University, Greece

Andreas Floros Ionian University, Greece

### AstroSonic: an educational audio gamification approach

### Summary (50 words)

This paper presents the audio game "AstroSonic", a first approach on designingan educational audiointeractive environment on the subject of Astronomy, byestablishing the work's theoretical background on two axes, namely audiogames' benefits and their adequacy to sonify scientific curriculum, describing itsresearch goals and finally analyzing its mechanics.

#### Theoretical Background

Since their early implementation in education, electronic games have beenexhibiting remarkable results in terms of efficacy.<sup>1</sup> The latest generations ofeducational electronic games have evolved into systems that place students andteachers alike in the center of the learning process.<sup>2</sup> Research has shown thateducational electronic games guide students to accomplish their goals andabstain from prejudistic behavior<sup>3</sup> by promoting their self-esteem, creativity,memory, concentration and analytical thought,<sup>4</sup> as well as their communicationand co-operation skills.<sup>5</sup>

On the other hand, Audio Games (AG), which rely mainly or even exclusively onaudio interaction to realize the game space and mechanics, have beentraditionally targeted at the visually impaired community, and quite recentlyexpanded to a broader audience mostly due to mobile phone technology. Audioeye-free interaction, which lies at the core of their design, has been proven tostimulate players' fantasy,<sup>6</sup> emotion,<sup>7</sup> concentration<sup>8</sup> and memory,<sup>9</sup> and promote the comprehension of complex information,<sup>10</sup> thus introducing them to musical concepts in theory and practice without any prerequisite knowledge.<sup>11</sup>

#### **Research Goals & Methodology**

Despite the fact that both playing electronic games and interacting with soundhave a positive impact

on the user, their combination in terms of audio interactionwithin a gaming environment hasn't been adequately investigated norsystematically implemented for educational purposes. Most approaches consistof music exercises enriched with some gaming elements. In that context amethodology for the design of educational AG, as well as an overview of thefield's current state, have been suggested by the authors in previous research.<sup>12</sup>In this paper "AstroSonic" is presented as a prototype for delivering scientific,non-musical curriculum related to the subject of Astronomy through an audiointeractivegaming environment. In particular, the game aims at informing andraising players' awareness about the potential dangers of space junk.

The main research question to be investigated is:

• Can AG serve as efficient educational tools regarding non-musicalscientific data?

Testing will involve three subject groups: primary and secondary educationstudents, and adults. Subjects will play the game and then answer to quantitative and qualitative questions. Apart from the main research question, various othertopics will be addressed as well, including immersion, visual stimuli and interfaceutilization considering age differentiation.

### Game Design

AstroSonic consists of two game levels. In the first one players have to guidetheir space rocket into Low Earth Orbit (LEO). To do so, they need to crossthrough the layers of Earth's atmosphere until they reach outer space. In thesecond level they have to clear up the space in their range from space debris. Todo so, they need to locate and collect it within the given time.All in-game elements, such as the atmosphere's layers and the damagedsatellites, have been assigned a respective sound via sonification techniques. The authors have demonstrated in previous research that the sonification ofscientific data can vary along the axis between the points of direct conversion into sound and arbitrary interpretation into sonic symbols.13 In designingAstroSonic the latter technique was followed.Regarding the game's mechanics, in the first level the players are exposed tothe sound of each atmosphere layer and need to scan the screen to find the spot, in which the next layer's sound appears. In the second one they need to locate and grab moving sound objects by keeping them in the center of the stereo field.Essentially they must identify the objects' quality and trajectory by interpretingsound properties, such as timbre and rhythm, and then aim at them bycoordinating their hands with their ears. These basic functions that the playersare required to repeat and combine are: "Search", "Identify", "Aim" and "Shoot".Thus, AstroSonic can be defined as a hybrid Escape-Action AG that employs"Puzzle" and "3D Positional Audio" audio gameplay mechanics.

### Conclusion

The theoretical basis for the design of educational AG dealing with curriculaoutside the music field has been set and the prototype AstroSonic, a gamingenvironment on the subject of Astronomy, has been presented. The authors willinvestigate in subsequent testing sessions, whether this thesis will find empirical support.<sup>13</sup>

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## ABSTRACT

### Nikitas Sgouros University of Piraeus, Greece

### Dynamic Generation and Exploration of Symmetrical Textures from Real-time Camera Input on Mobile Devices

#### Abstract

We explore animated texture design based on the application of plane symmetry groups on realtime camera input and projected on various type of surfaces. We describe Symmetricon, our art/design app for creative exploration of such textures and provide a video that showcases motifs created by our system.

#### The Symmetricon app

Symmetrical patterns have been a constant source of inspiration for various visual art forms by evoking feelings of order, harmony or balance [1]. Furthermore, the existence of detailed mathematical descriptions for generating all possible symmetry patterns in the plane has opened up the possibility of efficient, algorithmic generation of such patterns. However, the kinds of iconography that can be generated from symmetry is vast and can be made even bigger by combining symmetrical forms with color or motion animation or by introducing noise in such patterns in a principled way. The important question that concerns us in this case is how can we efficiently help and motivate digital artists to create symmetrical designs that are visually interesting and aesthetically pleasing. Our efforts in dealing with this question focus on the creation of digital environments for creative visual exploration of symmetrical patterns and their interplay with geometry and animation. We want to create tools that can be easily deployed by artists/designers, therefore we target mobile devices as our main development platform.

To this end we have created and deployed Symmetricon [2], an Android app for generating, animating and displaying, in real-time, symmetrical patterns based on the 17 wallpaper groups [3] on various surfaces. The images used for the creation of such patterns are the frames captured from the camera stream of a mobile phone. Overall, Symmetricon supports 30 different plane symmetry groups that consist of variations on the set of the 17 initial wallpaper groups having to do mainly with the center of rotation used in each pattern. Each one of them is denoted by its mathematical name (e.g. PGH). The user can select the types of symmetry groups he wants to use, the size of the tessellation along with the specific texturing surface (square, sphere or rugged plane) he wants to create and the type of animation he wants to employ on the pattern (none, horizontal, vertical, cyclical, vanishing, tunnel or pulsating effects). Based on these user specifications, the system creates a tessellation of the desired symmetrical pattern and embeds the resulting texture in a 3D scene. The user can then view the generated texture from any distance or viewing angle in this 3D space. He can also store the textures he finds interesting as images in his phone. As a result, Symmetricon provides the artist/designer with the opportunity to generate and test various motifs under an unlimited set of continuous and constantly changing imaging conditions. This enables the app to be used as a visual exploration environment that allows its users to create infinite color and geometrical variations of symmetrical textures using as raw material real-world scenes captured by the camera of a mobile device. In this case, the artist/designer can control the camera position and motion of the mobile device during the capturing of the raw material while also applying on it various animation patterns and projecting it on various surfaces. A video showing a selection of patterns created by an extended version of Symmetricon while randomly scanning a typical office space with the camera of the mobile device can be found in [4]. The particular app version used in the video is able to project the textures simultaneously on an unlimited set of texturing surfaces where each of these surfaces is specified by the user using 3D mathematical functions. Our future research efforts will focus on pursuing collaborations with visual artists for the use of this technology in common projects along with the development of novel methods for the integration of such camera-based symmetrical texturing in virtual and/or mixed reality environments.

### Acknowledgements

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## ABSTRACT

# Anastasia Terzidou

six impossible wishes, creative agency for new media art, Greece

### Rafaela Karagianni

six impossible wishes, creative agency for new media art, Greece

Cyborg art and the rise of a specific vocabulary: which are the challenges for curators in the expression of a new post-human identity?

#### Summary

"In Cyborg Art, the artwork, the audience and the museum is all in the same body ". Which are the implications of this statement for curating? Through a literature review with a multidisciplinary approach, this paper focuses on the curating of cyborg art exploring language, philosophy, representative work on the field.

### Abstract

"In Cyborg Art, the artwork, the audience and the museum is all in the same body ". Which are the implications of that statement, cited in the official page of Cyborg Foundation, for curating? Through an extended literature review including multidisciplinary discourses, cyborg artists' interviews in various media, representative artworks and project examples, this paper focuses on the curating of cyborg art under the prism of language, philosophy, identity and research in the field. What does cyborgology mean for the post-human identity and how curators can express those ideas and represent the cyborg artists? Cyborgology is now a reality and as a unique field of anthropological studies develops its own language with sociological and political extensions. As Haraway (1991) states, "c yborg ontology ce ntres on what it is and what it means to be human in an increasingly 'technologised' world ". The human body is experiencing a vast transformation from pure biological to far more "computational and technological" (Barfield & Williams, 2017). As Becker (2000) states, "n ew concepts of body and identity are explored, revealing fluid and open forms ". Beings like cyborgs and robots, multiple virtual bodies, avatars and agents, transhumanists and extropians are all over literature and it is almost impossible to perceive their differences as they claim their social, political and artistic position. Can cyborgs find their own -even sort of ironic-place in Darwin's theory of biological evolution? It is crucial to stand in a few keywords t hat are part of a future language that does not concern only people with extended senses and bodies but future society in general. Among repeated words in almost any relative to cyborgology text are cybernetics, extension, hy brid, machine, artificial, d evice. How can curators of cyborg art explore the language at the service of art? This paper examines a series of discourses and literature works about cyborgology in order to get a wide insight of the arised issues, and approach cyborg art from different, equally important aspects. From past interviews, artworks and projects to academic papers, it sets the context and examines the challenges for curators interested in the field. There are three main ways the cyborg concept is used within technoscience, cultural theory, literature, film and art.

Firstly, as a literal cyborg, referring to a human being having a prosthesis such as an artificial limb or organ; secondly, as a figural cyborg, which represents imaginative ways human bodies may actually be interfaced with technology; and thirdly, the metaphorical cyborg, which uses the concept of the cyborg – as a conjoining of separate ideas or entities – to allude to ethical, political and cultural aspects associated with organic and inorganic melding (Borst, 2009). Curators should take under consideration the extents that the above concepts could have in art and artistic exhibitions. Cyborg art occurs simultaneously entities and metaphors as well as living beings and narrative constructions (Hayles, 1999). Curating challenges involve different aspects o f technoscience and cybernetics, identity constructions and definitely the constant evolution of humans and their practices.

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https://www.cyborgfoundation.com/

# ABSTRACT

### Triantafyllos Tranos Aristotle University of Thessaloniki, Greece

# Can we step into the same river again? Thinking together the memory and the future of dialectical images.

Abstract: Recently, Essen's Museum Folkwang was assembled the first museum exhibition of the work of German filmmaker, writer, philosopher and artist Alexander Kluge to mark the occasion of the 85th birthday of this artistic polymath. Kluge is virtually unknown in our country, primarily known out of Germany to limited, specialized American and European audiences as a filmmaker and writer. Kluge has never been satisfied with confining himself to a single art form, and he has not confined himself to a conventional model of single authorship either. Collaboration has long been a central principle in Kluge's work, conceived as a process of "thinking together" with artists and writers such as Thomas Demand, Georg Baselitz and Ben Lerner.

Siegfried Kracauer (b. 1889–d. 1960) was one of the preeminent film theorists and cultural critics of the 20th century. He completed his two best-known books: From Caligari to Hitler—which pioneered methods of studying film as both an aesthetic and a sociological object, and became a foundational text for the study of national cinemas—and Theory of Film, a good example of what has come to be known as classical realist film theory. Underlying Siegfrid Kracauer's statement and his thorough cultural analysis was his tenet that the inconspicuous, quotidian expressions of a culture reveal more about it than its own self-pronouncements. Everyday phenomena such as photos or the nature of popular literature and film are unmediated representations of a culture.

Regarding the photograph, he observes that if we enlarge its resolution we can make out the dots in it, which are matrixed together into recognizable shapes. However, Kracauer observes that the photo attempts to be more than just a reference to the dot matrix shape. It tries to represent the subject matter of an event, which it cannot. Without a supporting history or a memory that is associated with the subject matter, the shapes on a photo are not adequate to recreate an understanding of the event. Can a photograph become timeless?

Kracauer quotes E.A. DuPont, "the essence of film is the essence of time." Because photography is a function of time, then its implications may change depending on the timeframe applied to it. In a new time period, the understanding of the scene in an old photograph is difficult to reconstruct, or as Menander put it "You can never step into the same river twice." The subjects have moved on or the associations have changed so the image no longer recreates the desired effect. An old photo is then a diminution of its previous essence.

Using Walter Benjamin's theory of the dialectical image as a remote critical tool, the paper is trying to provide the necessary tools in order to understand the shocking amount of a wide range of media spectacles and their socio-political value today. Like fireworks, those macro and micro spectacles are becoming virtually unrecognizable after a while, although their multiple functions are more transparent and enlightened today as never before. The paper is also trying to show how the mode of recognition of the so called "red arrows " the faded dreams of what culture meant in the time of Ernst Bloch, enabled by the thorough elaboration of these mostly optical, fragmented experiences. What we, artists and theorists, call today using a rather positive reassuring terminology visual culture or even more boldly visual civilization, is also a shock experience that can help us open our eyes to the underside of the "mask of anarchy", the "danse macabre" the "death's-head beneath", or "the mortal face of the suppression"- we can call names infinitely, but we don't need to spend our lives trying not to see it. Absorbed in itself, the art's ability to produce adequate visualities for the time being, exposes at the same time the fragile relationship between the act of recognition as the acknowledgement of the existence, the validity, or the legality of the image and the recognizability in the images-cultures of contemporary media.

There is a variance and a critical difference between art, photos, digital images, visual artefacts, etc. and memory itself. Mnemosyne, until now functioned as a continuum of melting elements. Their reaction for time immemorial, added valuable enzymes acting as catalysts to bring about specific biosocial reactions, thus helping the creation of aura of the traditional work of art. This almost forgotten function constituted today mainly by difficult to find, blurred, incomplete fragments. This non-place of quasi dialectical images, easy to find in vast numbers in the emerging and re-emerging new visual culture/s, often is finalized for good after a short living, without in the most of the cases leaving even a single, spatial trace or representation. Those, still-green epiphanies, masquerading and appearing usually as dull ephemeral white noise are the most valuable fragments of our common experience. Although they are almost automatically self-finalized, they sometimes denoting each other a green light as a signal to proceed. When the flag drops, they gently compete each other, without witnesses, trying to enter and inhabited the beholder's consciousness. Thus, although they finally often becoming the forgotten Mnemosyne's memoires, some of them surviving by chance, only because the mechanical and digital processes of the photography, video and the digital or computer art, does not understand meaning and so cannot neither incorporate or finalize them. However, in the rare, moments when the memory fragments are associated with a common meaning, there lies for them momentarily the possibility to become a relational whole.

## ABSTRACT

Dimitrios Traperas Ionian University, Greece

Nikolaos Kanellopoulos Ionian University, Greece

An interactive Art Application of a Proposed Fourth Spatial Dimension Cosmological Model

#### Summary

The perception of the fourth spatial dimension can be given with the help of geometric hypersolids. We analyze a related Johan Van Manen's schema and we examine its connection with the hypercube and the hypersphere. With reference to the Quantum Geometry of String Theory we propose a cosmological model visualized in an interactive art application.

### Objective

Van Manen describes accurately a schema that results from his attempt to visualize the shape of the hypersphere based on its projection in the three-dimensional space (Ouspensky, 2005: 133-34). It consists of a "full" sphere that is in contact with an "empty" sphere and the system of the two spheres is enclosed by a third "outer" sphere (Fig.1).



Figure 1: Van Manen's Schema (Ouspensky, 2005: 133)

Quantum Geometry of String Theory, in order to avoid the incompatibility that exists at a microscopic level between the General Theory of Relativity and Quantum Mechanics, argues that nothing can be compressed in a size smaller than Planck's length. Thus, if for some reason the universe starts to contract due to gravitational force, then the constant contraction does not lead to a total cosmic crush but to a cosmic bounce. The theory suggests that there are two spherical universes: one with radius R and the other with radius 1/R (where 1 is Planck's length) which when one contracts the other expands (Green, 2003: 231-62).

We propose that Van Manen's schema, combined with Quantum Geometry, can describe our universe as two four-dimensional spheres, as the one contracts and the other expands and at the same time drifts the four dimensional "empty" sphere. The final result, consistent with the science of Cosmology (Guth, 2013\_a, b), is a closed infinite three-dimensional universe on the hypersurface of an empty four-dimensional sphere.

### Methodology

First, we correlate Van Manen's schema with the projection of the hypercube and the hypersphere in the three-dimensional space. Then, we propose an interactive application that shows a development of the shape of Van Manen's schema by changing the radius of the inner spheres and rotating it in space to

make the process more comprehensible to the user. Finally, we propose an interactive art application for the shape of our universe, where two spherical universes inversely proportional in their radius, shrink and expand, as Quantum Geometry of String Theory suggests.

### Conclusions

Johan Van Manen's "hypersphere", described by him as an attempt to visualize the four-dimensional space, is an intuitive schema that is not based on any scientific basis, but is an inspiration for an artistic view, a proposal for new aesthetics and perception of the space we live in.

We notice that it has significant similarities with a projection phase of the hypercube in the threedimensional space. Although it is called the "hypersphere", it is a three-dimensional shape that is not essentially connected with a projection or intersection of the geometric hypersphere with the threedimensional space which, according to Topology, is a three-dimensional sphere. We propose that Johan Van Manen's "hypersphere" corresponds to the projection of an hypersolid whose hypersurface has some folds. We develop an interactive application that depicts the three-dimensional projections of this hypersolid. In addition, we connect Johan Van Manen's "hypersphere" to the Quantum Geometry of String Theory and develop an additional art application that forms a sequence of images that logically result in a form that describes our familiar universe.

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### ABSTRACT

Panagiotis Triantafyllidis plastik (artistic group), Greece

Fotios Stergiou plastik (artistic group), Greece

Examining the use of Augmented Reality and computer vision technologies in digital artworks, the case of: "PoNR/ANOMIE"

Keywords: Augmented Reality, Computer Vision, Digital Art, Black Holes

### Summary

This is an extensive technical and creative review on the interactive, audiovisual art installation "PoNR/ Anomie - Point of No Return/Lawlessness" which was implemented with Augmented Reality[1][2] techniques, integrated with Computer Vision to create an experiential piece that will be presented in Athens Digital Arts Festival in May, 2018.

### Objective

Our installation was created responding to an open call from the organizers of ADAF (Athens Digital Arts Festival), for digital artworks inspired by Singularities. We chose Black Holes, as Space Singularities and attempted to create a metaphorical piece with parallelisms to the theoretical experience of being captured by a Black Hole. The term "Black Hole" [3] describes a region of spacetime exhibiting such strong gravitational effects that nothing, would be able to escape from inside it. The "Event Horizon" within which both Particles and Energy are inevitably dragged to collapse into an unpredictable Singularity, ignoring any established physical Law and capturing inside it any form of Information, was the inspiration for our work. The viewer, once found within the Event Horizon, gets trapped in a personal experience of unremitting consecutive sentimental stages: Attraction and Inability to Escape, Catalysis / Abolishment of Information and Identity, and finally Compression / Annihilation in the Singularity.

To build this emotional experience, we had to recreate a large scale interactive spectacle of a threedimensional Black Hole and enrich it with personalised characteristics of experience for each viewer. Supporting our metaphor, we also had to find a way to lure the viewer to bring himself in the Event Horizon of our virtual Black Hole. Once found there, the unsuspecting viewer is presented with a tablet running our AR application, where he, watches a symbolic entity as himself, to participate in an already commenced, predefined sequence of allegorical events, where the inevitable end is to collapse inside the Singularity.

### Method

Firstly we used a 3D package (i.e. Softimage and Blender3D) to create an animated 3D Black Hole and its surrounding space environment, based on theoretical scientific evidence, also considering as reference a variety of established relative artistic stereotypes [4]. Then we used these 3D objects to assemble a scene in Unity3D[5] engine, and created an AR Interactive 3D Camera with the Vuforia[6] API. This scene was compiled to an Augmented Reality Application for mobile devices (iOS Tablet for the ADAF), with the projection being activated by an image marker on a vertical stand installation [fig.1]. This stand base also serves as an infrastructure host for the sub-systems supporting the experience.



Figure 1. Exhibition Space Augmentation through mobile device

To allegorically attract the viewer to enter the Accretion Disk[7] of the virtual Black Hole, we integrated to the base, an extremely focused sound beam speaker based on ultrasound transducers array[8], playing NASA recorded[9] sounds from Black Holes. Lastly, we had to implement a separate system to capture the viewer's face as image and serve it to our AR Application. For this we developed a setup based on a Raspberry Pi, running a Computer Vision OpenCV program for Face Tracking [10][11][12]. Once a face is recognised and registered by the script, it is then served to the AR Application running on the mobile device, over a private wifi network. Within Unity3D, a default facial mesh is texture mapped with the acquired image, taking the users' personal characteristics, soon to be dissolved and disintegrated with a particle system and then merged to the Black Hole vortex. This face capturing setup is also integrated to the marker stand base, and the viewer is not aware about when his or her face is captured [fig.2].



Figure 2. Setup Schematic

### **Conclusion/Results**

The use of Augmented Reality in an installation digital artwork like the one described, can be justified after taking into consideration several aspects of the project, both technical, and also artistic/symbolic.

Firstly, using AR in comparison to normal Video projection or VR, allowed us to produce a large scale virtual spectacle without serious actual space occupation in an exhibition hall. The projection is also 3D interactive, in a way that the viewer can watch the action from varying perspectives using the provided mobile device as a virtual periscope, staying true to the fact that Black Holes are still theoretical phenomenons unseen by the human eye. AR also presents the 3D scene floating in the actual space of the viewer producing an interesting visual experience and imitating the actual Black Holes. Finally integrating AR with Computer Vision, allowed us to achieve a personalised experience and to amplify our desired emotions for this artwork.

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## ABSTRACT

### George Trichopoulos University of the Aegean, Greece

John Aliprantis University of the Aegean, Greece

Markos Konstantakis University of the Aegean, Greece

George Caridakis University of the Aegean, Greece

# ARTISTS: A virtual Reality culTural experience perSonalized arTworks System: The "Children Concert" painting case study

### Summary

In this paper we design a VR personalized cultural environment that takes into account the diverse needs of visitors while also uses Leap Motion controller to allow interaction with the virtual world and we evaluate our system on the famous painting "Children Concert" created by Georgios lakovidis.

Keywords: Cultural Heritage; Cultural applications; Virtual Reality; Cultural User Experience; User interaction; User personas; Personalization

#### Objective

Current work aims in designing and implementing the "ARTISTS" Virtual Reality (VR) system that immerses visitors of galleries in the virtual world through the representation of paintings. The paper focuses on

providing personalized Cultural User eXperience (CUX) using User Personas methodology and enhance user's perspective of an artwork by creating virtual environments that bring to life the displaying content. The proposed framework will allow users to interact with the virtual objects in real time using gesture recognition techniques that are handled by the Leap Motion controller, and takes into consideration user's preferences and profiles based on user's input data in order to adjust its displayed content. Finally, through the use of UX evaluation methodologies, user feedback has been collected in order to improve the system characteristics based on the famous painting "Children Concert" created by Georgios Iakovidis, which currently belongs to Athens National Gallery, while also it can be seen in digital form at the "Georgios Iakovidis" digital museum, in Lesvos island.



Image 1 : "Children Concert" by Georgios Iakovidis, 1900.

### Methodology

Nowadays, many cultural applications incorporate personalization techniques to enhance user cultural experience. Taking into consideration the unique background, knowledge and expectations for each visitor, the applications change the way they display their information, the topics of the chosen data or the services provided to users in order to satisfy their personal interests. However, the amount of available digital data that cultural institutes preserve for their heritage is quite extensive and diverse, thus visitors are unlikely to explore in a visit. Our approach includes a user categorization method is proposed based on User Personas (UP) methodology, enriched with factors such as age and context awareness.

In the ARTISTS system, we use 19 user personas, which are based on the Morris proposed personas: Followers, Browsers, Researchers and Searchers. Mapping visitor to an interaction scenario is a dynamic process. Behavioral monitoring processes are constantly active and give feedback to the system with data that potentially change the flow of a personalized experience. Each of the scenarios is differentiated in terms of functionality, freedom of interaction, imaging quality and sounds. Finally, no preparation before visit is needed as user profile is built from scratch, when user enters in the museum.

Afterwards, visitors use the Leap Motion controller to interact with the virtual world of the painting. Using 3D modelling techniques, we reconstruct the environment that is depicted in the artwork assuming the animations and sounds that are derived from the painting perspective, thus bringing it to life. Therefore, users can browse into the virtual environment, interact with the objects or characters and explore hidden aspects of the scenery. ARTISTS framework supports gesture recognition through the embedded

controller, that helps user interact with the 3D interface.

The final stage of our research focuses on the ARTISTS evaluation and pilot usage. The proposed framework is tested on the "Children Concert" painting created by Georgios lakovidis and currently presented at the Athens National Gallery. This evaluation procedure aims in improving aspects of the system based on user feedback, while also evaluating the usability of the gesture based interaction.



Image 2 : 3D representation of the painting.

### Conclusion

This study presents the ARTISTS framework, a system that brings life to paintings by immersing users into the virtual world that they represent and giving them the ability to interact with the virtual aspects of the artwork. In this research we utilize personalization features that filter or alter the displayed content of a cultural application based on user's profile and preferences, while also evaluating the prospect of virtual environments and <sub>3</sub>D interaction methods as an alternative interface for artworks. ARTISTS transforms paintings into personalized and animated worlds that immerse users into the virtual concept of the world represented.

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## ABSTRACT

### Kweiming Tseng National Chiao Tung University, Taiwan

### Pei-Hsien Hsu National Chiao Tung University, Taiwan

### AudioVisual Performance with Augmented Reality Mobile Device

### Introduction

Audiovisual art is the exploration of kinetic abstract art and music or sound set in relation to each other. [1] Audiovisual performance emphasizes the integration of both audio and visual, not one dominates the other. It mainly has two types: one is to interact with the audience in the exhibition without performer(artist) and the other is to perform live on the stage by the artist. In addition to the combination of narrative content, the relationship between the audio and visual need to be more systematically analyzed and paired.

With the advent of AR/VR products, bringing an immersive and 1:1 experience. Such devices have precise positioning technology. we can easily map the coordinate system of people and environment in the real world to the events in the virtual space. The AR/VR product allows artists and designers to create various novel forms of interaction and can use it as a tool for creating narratives. However, Apple released the AR development tool ARKit[2] in 2017, which provide the position of the device in physical environment. It achieves world tracking with only a single camera. The core function of ARKit is Visual-Inertial Odometry (VIO) tracking [9], providing an accurate view of the location and the orientation of the device. What's more important is that there is no need for additional equipment, no need to know the environment in advance, and no additional sensors are needed. Just use your iPhone. ARKit allows developers to do world tracking, 6DOF and detection of planes through mobile devices. This breakthrough has greatly reduced the developer's equipment cost and is closer to the user when everyone has a smartphone. Thus, I developed an Augmented Reality App for audiovisual performance.

### Methodology

I combined ARKit with audiovisual performances to create a new audiovisual performance architecture. I designed an app that can switch between AR and VR viewing modes. Using the powerful sensors of smartphone, the scenes and audio in virtual environment are all interacting with the physical space in real time. Compared with previous audiovisual performance mode, I designed two scenarios: The first scenario is that the audience wearing the AR head-mounted display (an iPhone with my ARKit app) becomes a participant in the performance. The audience can instantly change the audio and visual through their own voice, movement, position, and operation on the screen; and the smartphones sensors receive correspondent data through microphones, gyroscopes, VIO tracking and panel touch sensors. While the sound is output from the speaker as the same as the general performance, and the visual is presented in AR on

screen. The AR content and the sound are all shared. Therefore, there is no longer giving and receiving or on stage/off stage relationship in such performance. People are both participants and performers during the process.

The second scenario is the combination of the current audiovisual performance mode, which is the on stage/off stage relationship between performer and audience. While the artist on stage vjing and djing, AR content is triggered to produce additional audio and visual effects. The triggering mechanism is to use ARKit's image recognition to visually interact with the stage projection wall and produce different visual feedback on the smartphone in different audiovisual process.

### Results

The development of ARKit combined with audiovisual performances on the iPhone is unprecedented. Audiences can freely walk between AR/VR environments and shuttle between virtual and real-world. However, the interaction still has great potential of development. In this study, we can conclude that ARKit combines audiovisual performances to enhance the audience's experience and add more extra stimuli, which is the audiovisual experience that the original audiovisual performance cannot provide.

For now, screen touch operation is limited by the AR head-mounted display, so that the manipulation is not easy to complete and is going to be overcome in the future.

### Discussion

The advantage of using a mobile device as a performance development tool for ARVR is that, first, it does not require other devices, the smartphone is the most commonly used technology product today, and the second is not restricted location (indoor or outdoor). It provides a low-cost, high-efficiency, comprehensive means, while satisfying all the current standards combined with VR/AR and performance in the future.

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# ABSTRACT

Vassileios Tsetsos Mobics S.A., Music Library of Greece

Vera Kriezi Mobics S.A., Music Library of Greece

Odysseas Sekkas Mobics S.A., Music Library of Greece

Periklis Ntanasis Mobics S.A., Music Library of Greece

# ORCHESTRA: An integrated ICT platform for creating rich interactive cultural experiences

### Summary

GLAMs are, traditionally, facing problems of financial sustainability that can be attributed, to a certain degree, to the lack of or difficulty to implement impressive and experiential educational activities for their visitors. Orchestra is a collaborative R&D project that addresses this through the provision of an ICT toolkit and methodologies for rich interactive storytelling deployed in smart spaces.

Key words: interactive experiences, interactive multimodal storytelling, smart cultural spaces

### Objectives

The Orchestra platform proposes a new type of interactive productions for cultural experiences as well as a new dissemination model for the respective experiences. It adopts an open and horizontal approach to integrating input and output devices in order to better support storytelling. The project designs and develops an orchestration engine that can manage and coordinate all the connected devices in welldefined stories, edited through a visual editor. We intend to support "conventional" sensors and peripherals (e.g., projection systems, audio systems, gesture-interacting systems such as Leap Motion) as well as custom ones, developed by our team. One of latter is an interactive wall system, that can turn a wall, or similar surface, of any size to a multi-touch display.

### Method

Orchestra consists of four main components: a) Orchestra Storyteller: a free storytelling editor that enables GLAM staff to create engaging scenarios without special technical knowledge, b) audiovisual and interaction devices that can transform a room to a smart space (e.g., interactive wall, gesture interacting systems, proximity/presence sensors, projector, sound system, smart lights), c) Orchestra Appliance: a box coordinating all peripherals and executing the scenarios loaded and d) Orchestra Gallery: an online marketplace where Orchestra scenarios can be published, shared and sold.

The Storyteller allows visual editing of a scenario along a storyline, by setting actions related to user

interaction. It also manages multimedia content and associates content items with specific scenario actions. The scenario editors can also easily find, during edit-time, relevant and useful content from integrated sources. The appliance is actually an embedded middleware that handles all issues related to playout of an experience, e.g., DRM, integration with devices and 3rd party applications, playout control.

Special effort is put on special peripherals enabling touch and gesture-based interaction. The first one is an interactive wall system that is implemented with infrared computer based technology and TUIO framework. The second one is a wrapper framework for Leap Motion, a popular platform for gesturebased interactions. This wrapper framework applies some more advanced data analysis methods to the standard Leap Motion framework.

The project will build upon open and mature technologies in order to provide the aforementioned functionality. Integration of third party applications and devices will be supported by a well-defined application model and open APIs. Special APIs will support integration of Web games, implemented through Phaser.io framework.

The final system will be assessed by real users, mainly school classes visiting the Music Library of Greece, where a reference deployment will be made. A special evaluation methodology will be designed in the course of the project to allow for identifying problems and opportunities for such systems.

### Conclusions

The present work is still in progress. Until now in terms of "smart peripherals" we have a first prototype of an interactive wall module and a programming framework for controlling smart (WiFi-enabled) light bulbs to control ambient light. In terms of the Orchestra platform architecture we have come to an initial design and are currently running a survey for potential implementation technologies and frameworks. The system prototype will be hosted in the Music Library of Greece "Lilian Voudouri", which is also a partner in this project, together with Tetragon S.A..

### ABSTRACT

### Georgia Tsimpida Ionian University, Greece

### Translation through the looking glass of Augmented Reality

A new age of discoveries is emerging from the increasing interaction and strategic linkages of the scientific fields of Translation Studies and Augmented Reality. In the light of the present Translation's definition broadening, a new promising field is being born – which we take the initiative to name 'Augmented Cultural Translation'- and is focused on giving a fresh impetus on the world of Foreign Languages, Didactics and Traductology.

In the context of the modern hybrid environment, the new experiential, interactive and active learning possibility is called on to resolve translation equivalence dilemmas, focusing on microstructure and

offering a different perspective on Cultural Translation. This first attempt to link the Translation World with Augmented Reality is thought to regenerate the related scientific fields offering them a new artistic, audiovisual character.

In the interest of better understanding the present new field of study, it seems necessary to consider different perspectives on this concept, in light of translation equivalence. In fact, Translation studies throughout time evolved and as a result, written and spoken translations have played a crucial role in interhuman global and mutual communication. As world trade has grown, so has the importance and expansion of specialized translating and interpreting initiatives on an academic level.

Interdisciplinarity of the Translation Studies' field and developments have forcefully, over time, showed that the present research area is a unique cultural gate between civilizations and languages, which keeps demanding new information to expand and evolve. In the context of the contemporary financial and migration crisis, it remains one of the most important key areas where action is needed to boost world's potential for sustainable growth and mutual collaboration.

As a consequence, interdisciplinarity challenges the existing conventional way of thinking by promoting and responding to new links between different types of knowledge and technologies. Indeed, the present focus on more cultural studies perspectives and even the recent shift towards areas such as computing and media is evident and logically consistent.

It seems that language and translation services today stand on the cusp of a transformation that will lead to redefining the fields' professional work. Artificial Intelligence extends their reach and capability and makes them far more efficient. This computing power helps language professionals and translators be more consistent and more productive avoiding at the same time 'translating like machines'.

The augmented translation model changes radically the translation area. The next generation of 'augmented translators' will certainly eliminate routine low-value tasks that machines can handle perfectly well. Until now they were forced to speed up the translation process and lower their costs. Now they will be able to focus on increasing the value of language for their clients.

Technologies such as Adaptive and Neutral Machine Translation, Lights-out Project Management and Automated Content Enrichment could provide a new way of working in different combinations. Linguists and translators who are willing to embrace the challenging changing landscape of technology will indeed hold tremendous potential.

In order to deal with the new era it is important to state the importance of translation equivalence issues. A new idea has developed in order to keep up with the new technological challenges and the difficulty to translate culture-specific words or concepts was a key element to the research. We actually studied translation equivalence cases where adjustments in form could not lead to convey of the intended meaning.

In fact, according to existing translation theories there are always limitations identified with the 'cultural equivalence' strategy. These refer to the loss of cultural meaning or cultural substitution failure. Translation from this point of view cannot be seen by "cultural substitution" as it is not an effective way to achieve a similar impact on the target reader. Faced with such translation cultural equivalence concerns and being aware of the rare one-to-one correspondence between any two languages, an attempt was made to present a different point of view, in order to find a more suitable equivalent effect.

Moreover, the late technological vision expanding to all research fields created an interest to get to know

better the Virtual Reality field as Audiovisual Arts seem to have the answer to some translation equivalence dilemmas, promoting at the same time an interactive experience to the user/reader/translator/editor.

In this new context, focusing on Cultural Translation, especially addressing the issue of cultural inequivalences or losses occurring in the translation of literary texts, we tried to explore the notion of Translation through the looking glass of Augmented Reality on a cultural microstructural level.

ABSTRACT

### Aleksandar Vejnovic Darmstadt UAS, Germany

### The Artist as Facilitator - Selected Aspects of Media Aesthetic Education

### Introduction

This presentation will reflect upon the concept of Media Aesthetic Education. It is well known that every new technology alters not only the individual person, but also our cultural values in private and social life in society. This is what media theorist Herbert Marshall McLuhan called the "real revolution". Digital natives are constantly conflicting with older educational modes and values, which are not fitting in their environment, it then becomes necessary to approach schools with concepts to bring awareness of the existing digital culture.

The negative attitude towards the digital environment by adults as a result of rushing to one's judgement have caused devastating consequences for nowadays adolescents. Although the educational system deals with media literacy, this term is lacking of references to culture and art. Therefore, methodologies must be found to complement the educational system. This system involves the cooperation with artists, museums, and other cultural institutions.

To understand "media" we have to know how media enters our minds and shapes our consciousness. This cannot be communicated and understood by only "teaching" media literacy nor the ability to understand simplistic media grammar.

Media aesthetic education goes along with media literacy. The word "aesthetics" is used here to understand not to "seek to identify the essence of beauty in a work of art. Rather it delineates a study of perception and the senses in connection with a certain form of technology", much alike Walter Benjamin's work; alluding to Walter J. Ong explanation that "media" is something within our mind.

An exemplified project made in year 2017 for Media Aesthetic Education was "An Encounter with Sound." Students recorded with their smartphones the acoustic environment and created soundscape compositions. The project's goal was to create awareness of the accessibility for creative working with a daily device and to encourage students to listen to the soundscape with an "open" ear. This presentation will highlight some more projects that exemplified the idea of Media Aesthetic Education and brings the importance of artists as a facilitator to discourse.
### Methodology

All in all the focus is to create projects with an interdisciplinary and participatory approach in cooperation with artists, museums (e.g. Film museum) and cultural institutions (e.g. ZKM Karlsruhe). Instead of a lethargic environment of repetition of others thoughts, the classroom's space can be transformed into an active environment of critical reflection. The method here is to move away from the well-known "frontal teaching" to more round discussion tables. An obstacle is the implementation of artistic workshops into the tight curriculum. In many countries the schools offer full-day lectures and day-nursery for children in need. This might be an opportunity for making space for workshops and creative work.

### Objectives

The major goals of Media Aesthetic Education are in short:

- Reflecting media, art and culture without confusion
- Raising students' curiosity and encouraging them to think critically and reflectively
- Working with artists can avoid a "tunnel view" towards media, art and technology

#### Conclusion

It is much doubtful that forcing students to reproduce the original by depicting reality is the right way to prepare future generations for the society within which they grow. Workshops at schools organized by artists gives students the space to discover media and its environment from an experimental point of view. Media Aesthetic Education encourages students how to use digital media in order to interpret the reality through their senses and aesthetic experiences of the environment (and daily lives) rather than simply depicting it. The traditional hierarchies between lecturer and students change into a space of mixed and shared perspectives.

What does "facilitating" means for artists? The German artist Joseph Beuys elucidated his experience as a lecturer at the Kunstakademie Düsseldorf with the phrase: "Teaching if it were a work of art."

#### Word summary

Digital culture is an interdisciplinary sphere of media, art, technology and culture. Media Aesthetic Education brings awareness of this field in the form of educational approaches in schools and other institutions. In this presentation the discussions are deduced from the school system in Germany, however, the goal is to find a global method.

# ABSTRACT

# Mirsini Vounatsou University of West Attica, Greece

Stelios Dexis Aristotle University of Thessaloniki, Greece

# Ο ψηφιακός καλλιτέχνης ως δημιουργός δυνητικών χωροχρονικών ετεροτήτων

## Περίληψη

Αυτή η εργασία διερευνά τις δυνατότητες του καλλιτέχνη που εργάζεται με τα ψηφιακά μέσα να επαναπροσδιορίζει, να ανασυνθέτει, να αναδιατάζει τον χώρο αλλά και την αισθητηριακή αντίληψη, το βίωμα και την νόηση του θεατή, δημιουργώντας νέες αφηγήσεις, μεταμοντέρνα τοπία, ρευστούς χώρους. Με όχημα το έργο echo chamber (2017) μια βιντεο-ηχητική – mapping εγκατάσταση των καλλιτεχνών Στέλιο Ντεξή, Μυρτώ Βουνάτσου, Σύνθια Γεροθανασίου, Ιωάννα Καζάκη, και ο Παναγιώτη Τριανταφυλλίδη επιχειρείται μια διερεύνηση των σταδίων δημιουργίας, των ιδιαιτεροτήτων του ψηφιακού έργου και εν τέλει των νέων "πραγματικοτήτων" που αυτό δημιουργεί, αναδεικνύοντας τον καλλιτέχνη ως αρχιτέκτονα του χώρου των συμβάντων, του σχεδιαστή άπειρων κόσμων και εν δυνάμει ιστοριών.

Η παρούσα μελέτη προσπαθεί να αντιμετωπίσει τις ακόλουθες ερωτήσεις:

Τι δυνατότητες προσφέρει ο συγκερασμός τέχνης και τεχνολογίας μέσα από τα έργα mapping projections όσον αφορά την δημιουργία νέων χωροχρονικών ετεροτήτων μέσα στην τέχνη;

Πως διαχειρίζονται αυτά τα έργα τον χρόνο και τον χώρο;

Πως διαχειρίζονται την πραγματικότητα για την δημιουργία δυνητικών χώρων; Πως ο καλλιτέχνης μπορεί να επεμβαίνει στην αισθητηριακή εμπειρία και τις αναμνήσεις του θεατή δημιουργώντας -μέσα από ένα μοντάζ «πραγματικοτήτων»- ουτοπίες που αφορούν το "παρόν", τη ρήξη με το οικείο και τη σύλληψη Α-ορατών κόσμων;

Keywords: mapping projections, μοντάζ πραγματικοτήτων, Mixed Reality

## Εισαγωγή

Η Αντίληψη περιγράφει τους πολλαπλούς τρόπους με τους οποίους οι άνθρωποι λαμβάνουν πληροφορίες από το περιβάλλον τους, επιτρέποντάς τους να το αναγνωρίσουν. Η Νόηση, ή ο τρόπος που οι άνθρωποι κατανοούν το περιβάλλον, γίνεται μέσω της άμεσης αισθητηριακής εμπειρίας, σε συνδυασμό με τις αναμνήσεις και τις εμπειρίες από το παρελθόν αλλά και τις προσδοκίες και τους φόβους για το μέλλον.

Κατά τον J. L. Borges υπάρχουν τρεις χρόνοι και αναφέρονται όλοι στο παρόν (P. BARTOLONI, 2003).. Το παρόν εκείνο που αντιλαμβανόμαστε, μέσα στο οποίο στοχαζόμαστε και το οποίο είναι εύθραυστο και φευγαλέο γιατί γίνεται άμεσα παρελθόν· Το παρόν του παρελθόντος, δηλαδή το παρελθόν όπως το αντιλαμβανόμαστε στο εδώ και τώρα και αναφέρεται στην μνήμη· τέλος, το παρόν του μέλλοντος, δηλαδή ό,τι ελπίζουμε, προσμένουμε και φοβόμαστε Σύμφωνα και με τις θεωρίες του Einstein για τον χρόνο οι έννοιες του παρελθόντος, του παρόντος και του μέλλοντος ταυτίζονται. Ολα συμπιέζονται σε ένα σημείο του χρόνου. Στο τώρα. Ορισμένες μορφές τέχνης και ιδίως εκείνες που διαχειρίζονται τον χώρο, τον χρόνο αλλά και τα ψηφιακά μέσα, είναι περισσότερο ικανές να εμπλέξουν την αισθητηριακή εμπειρία του θεατή, τις αναμνήσεις και τις προσδοκίες του, δημιουργώντας μια ουτοπία που αφορά το "παρόν", τη ρήξη με ότι θεωρείται γνώριμο και οικείο και εν τέλει τη σύλληψη μιας χωροχρονικής ετερότητας.

Τα ψηφιακά μέσα έθεσαν νέες δυνατότητες αλλά και περισσότερες ρήξεις με την πραγματικότητα. Ο πειραματικός χαρακτήρας της τέχνης του 21ου αι που χρησιμοποιεί τις νέες πιο εξελιγμένες τεχνολογίες προϋποθέτει έναν άλλο τύπο καλλιτέχνη, τον μηχανικό - ερευνητή που είναι ικανός να δημιουργεί μεταβάσεις από το πραγματικό ή το εν ενεργεία υπαρκτό, στο δυνητικό.

Ενας από τους πιο ενδιαφέροντες δρόμους που ανοίχτηκαν στις σύγχρονες καλ-λιτεχνικές έρευνες είναι πιθανόν η ανακάλυψη και η εξερεύνηση των νέων μορφών αλήθειας που με θολό τρόπο μεταφέρει η δυναμική της δυνητικοποίησης (Levy Pierre, 1999).

Με αφορμή την βιντεο-ηχητική εγκατάσταση με τίτλο Echo Champer (2017), οι καλλιτέχνες Στέλιος Ντεξής, Μυρτώ Βουνάτσου, Σύνθια Γεροθανασίου, Ιωάννα Καζάκη, και Παναγιώτης Τριανταφυλλίδης διερευνούν την μετατροπή ενός

νοηματικά φορτισμένου υλικού, το θρυμματισμένο σκυρόδεμα, σε έναν αντιφατικό, αμφιλεγόμενο χώρο μεταξύ πραγματικότητας και ονείρου, αλήθειας, απατηλότητας, ψευδαίσθησης και παραπλάνησης (Βασιλική Βαγενού, 2017).

Μέσα από την ανάλυση του έργου σε τεχνικό αλλά και θεωρητικό επίπεδο επιδιώκεται μια προσέγγιση για το πώς μέσα από την διαδικασία ενός διευρυμένου «μοντάζ» μεταξύ πραγματικών χώρων, αντικειμένων και ήχου αφενός και αφετέρου εικόνων που έχουν δημιουργηθεί μέσα από τα ψηφιακά μέσα, μπορεί να αλλάξει η ουσία του ίδιου του υλικού, ανάγοντας το από απλό μέσο καταγραφής, σε εύπλαστο υλικό δημιουργίας μιας νέας χωροχρονικής πραγματικότητας που παίζει με την αντίληψη του θεατή.

Αν ο χώρος παράγεται, είναι δηλαδή προϊόν του κοινωνικού γίγνεσθαι, και κοινωνικοί, πολιτικοί, οικονομικοί, αλλά και φυσικοί λόγοι παίζουν πρωτεύοντα ρόλο στην παραγωγή του έτσι ώστε ο χώρος δεν προσδιορίζεται μόνο ως υλικός, αλλά και μέσα από την οπτική του χρόνου (Lefebvre, 1996), τότε έργα όπως τα mapping projections, που βασίζονται στην προσωπική αντίληψη και ερμηνεία του θεατή για τον χώρο, παίρνουν διαφορετικό νόημα. Ο χώρος εν τέλει χτίζεται από υλικά προϊόντα (ήχους, φώτα, κίνηση) και μη υλικά (εμπειρίες, προσωπική αντίληψη, κτλ).

Τα ψηφιακά εργαλεία διευρύνουν την ικανότητα του καλλιτέχνη να επαναπροσδιορίσει, να ανασυνθέσει, να αναδιατάξει τον χώρο, να φανερώσει τις πολλαπλές πτυχές ενός ψυχολογικού χωροχρόνου, μιας διευρυμένης χρονικότητας, που είναι άμεσα συνυφασμένη με το εσωτερικό βίωμα του θεατή, τους συνειρμούς, τις προσωπικές διανοητικές και ψυχικές εμπλοκές, την μνήμη και την νόηση του, τη συσσώρευση ιδιωτικών ερμηνειών και τη δημιουργία προσωπικών συμβόλων. Είναι αυτός που πλάθει νέες αφηγήσεις, μεταμοντέρνα τοπία. Α[ορατούς] ρευστούς τόπους και χωροχρονικές ετερότητες.

# ABSTRACT

# Andromachi Vrakatseli University of the Aegean, Greece

# Nikos Bubaris University of the Aegean, Greece

## Sound art and technology: exploring the affective intensities of embodied audibility

The aim of this paper is to investigate the affective intensities of embodied audibility in sound art by using technology. In recent years, the conception of affective intensities that follows the line of thinking of Spinoza, Deleuze and Guattari as well as that of Massumi has been a valuable conceptual tool for exploring the dynamics of the sensorium in making sense of our relations to the world. According to these thinkers, affect is the force that has an effect on the capacity of the body to act in a pre-subjective and pre-conscious way that connects human with non-human bodies through bodily experiences and potentialities. Embodied audibility is a way of bodily hearing, engaging with the world and interacting with sensuous or non-sensuous sounds. The notion of embodied audibility concerns the acoustic experience of sonic phenomena that is related to the whole body due to the tactile nature of sound. Sound phenomena can be perceived not only through the ears but also through the bones, skin, deep tissue and skeletal joints. As a result, the perception of sound is a bodily experience and forms an expanded listening practice. The body has also the capacity to perceive, to be affected and to interact with non-audible and non-sensuous sound waves and vibrations. These vibrational movements constitute affective intensities. Hence human experience is shaped. beyond the perceptible limits of the senses.

A range of sound artworks have explored the relationship between the human body and vibrations as affective intensity using various types of technology. These artworks present the capacities of human body for affecting and being affected through sound, the different and unfamiliar perspectives of the world and the "virtual co-presence of potentials" as Massumi suggests. In this way sound art pushes the boundaries of the known and expands not only the limits of perceptual experience but also the acoustic knowledge of the world. This paper will focus on sound artworks in Greece that have hardly audible and inaudible sounds at the core of their creative process. Firstly, the theoretical framework of affect in social sciences, as presented above, will be analysed. This research will take into account the considerable interest in sound art theory on the materiality of sound and its interaction with the body. The approach of Christopher Cox, who argues for a sound art theory that pays attention to the materiality of sound, will be emphasised. The method of analysing the sound artworks is based on the post-phenomenologist thought of Don Idhe who discusses the capacity of technology to transform the auditory world and expanding the world of hearing through amplification and time compression. The former amplifies sounds that humans are not able to hear and the latter transforms the frequency of vibration in order to be heard.

The sound artworks that will be studied demonstrate how technology unfolds the affective dimensions of embodied audibility in sound art. Indicatively: The sound installation 'I/E Eleusis' focuses on multiple and micro and macro vibrations of Eleusina city. Sound artist Tarek Atoui in collaboration with field recordist Chris Watson captured both audible and inaudible sounds, such as ants, the materiality of buildings and the hum of distillery deep in the sea, in order to show the site itself as a living sonic matter. 'Micropolitics of Noise' is a sound art performance that takes on social and political dimensions inspired from the practices of sonic weapons. Sound artist Lambros Pigounis explores the interaction between the body and vibrational forces and particularly the way infrasound becomes a form of violence. 'Hearing the Magnetic

Storm' is an interactive audio environment by Emmanouel Rovithis and Fiori Metallinou that combines art with Astronomy. Through the sonification of non-audible data it shows the transformation of the magnetic field of the Earth by the activity of the Sun. The relationship between sound production and brainwaves is investigated in 'Inhibition' by Marinos Koutsomichalis. A headset designed by the artist monitors through the use of electroencephalography neuro-physical activity, generating sounds and disorientating consciousness.

### Summary

The aim of this paper is to investigate the affective intensities of embodied audibility in sound art. Embodied audibility forms an expanded listening practice through the body's capacity to perceive, to be affected and to interact with non-sensuous sound waves and vibrations. Drawing mainly on Ihde's post-phenomenological approach, the paper explores how technology unfolds the affective dimensions of embodied audibility in sound artworks presented in Greece, in order to demonstrate how the coupling of technology with sound art may enhance a multi-layered relation of humans with the environment.

# ABSTRACT

# Ebru Yetiskin Istanbul Technical University, Turkey

## Blockchain and Paratactic Media Works

This paper is about the public understanding of technology. Today, financialization emerges as the latest ubiquitous technology. With the advent of high speed trading algorithms, money no longer is being imagined as a universal commodity, source of value, or the monopoly creation of governments by fiat currencies. Money emerges as an artifact of design. We need to rethink about the design of finance technology because technology is not only defined as devices but also a way of organization. This paper suggests rethinking of the alternative uses of blockchain technology via alternative design conception suggested, organized and performed by paratactical media works.

Having been integrated to the techno-capitalist ideology, blockchain technology is represented with its strong attachment with finance. In other words, the limited knowledge about blockchain technology in public is managed by its conception as a new financial tool. Blockchain is represented either as a utopic revolution or as a dystopic catastrophe.

In this paper, first, I will argue that the dominant representation of blockchain technology is based on a dualistic distinction and this kind of modern representation works for the reproduction of techno-capitalist ideology. Second, I will argue that the construction of a dominant conception of blockchain as a finance technology emerges as a tactical control apparatus for the sake of super-centralized actors/networks in algorithmic governance. Today blockchain technology is used not only in financial transactions but also in a wide range of social domains, which are regulated and governed by centralized institutions. Data is the capital of production and exchange. Hence, in this part, I will critically analyze the hype of decentralization and elaborate on the alternative uses of blockchain technology in various fields of everyday life such as

marriage, archiving, ecology, media archeology and real estate. In the last part, the focus will be given to paratactical media works, which challenges to change this dominant representation of blockchain technology for the sake of commons. Based on literature review and ethnographic research, which is based on participative observation and unstructured interviews, the paper aims to become another source for alternative knowledge / power production.

# ABSTRACT

Loukas Ziaras Loox, Greece Christos Kalaitzoglou Loox, Greece

Smartphones: Tools of contemporary artistic expression. An experiential approach through the artwork of Christos Kalaitzoglou & Loukas Ziaras (LOOX)

### Summary

The use of smartphones has visualized communication. This trend has not left the artists unaffected in the way they get inspired, create and present their work. The purpose of this announcement is to present how the 2 of us, as new media visual artists work and create within an environment of digital culture. We are asked to comment on a series of issues and concerns regarding Art and Technology, Internet Art, Internet Culture, Experimental Art & Cultural product implementing the following methodology:

### Theoretical approach

In this announcement, we are asked as new media visual artists, working as well at the digital media industry, to present the process by which we produce digital art products in an environment that is full of digital capabilities. From the moment of inspiration to public viewing and feedback of the viewers, the technological tools define our identity. More and more artists use their mobile phone as a tool for inspiring, creating and communicating their work. The tool itself offers artists the ability to create and instantly display/share the work on social networking platforms. Portability, 3G data usage and social networks' impact on people make research and creation even easier for the user/artist. A mobile phone has broader possibilities than a conventional camera, offering the photographer more tools. It cannot completely replace the camera, though. Selfie, live editing, repetitive bursts, fast editing applications, but also limitations such as photo quality, lack of optical zoom, and the distance from the photographed object define a new visual communication language.

Using the artistic name LOOX, we are producing artworks, via a creative dialogue we communicate and produce digital images using the possibilities offered exclusively by mobile phones. We shoot moments of our everyday life, edit them in a creative way, enrich them with text, and use the Instagram online platform to communicate with the users.

The Instagram platform is a friendly networking environment for exchange of artistic content. Millions of users across the globe are exchanging daily photobased content of their day-to-day activity. If we look at all the photos of a user, we will easily perceive features and lifestyle behaviors that determine their identity. Through words of interest following a hashtag (#), the user/artist can search for inspiration, describe his work, and implement a targeting strategy.

Taking advantage of the possibilities of the medium, we choose moments of our daily life or lifestyle behaviors, visualize them in the form of digital photography, and communicate them on Instagram accompanied by texts inspired by poetry, literature, philosophy or text of ancient Greek literature. The content of each one's photographs has an independent character and at the same time the work of both of us as a whole defines the spiritual queries and the overall identity of LOOX.

### Our work

We create directed static images and combine them with some inspirational text to describe a personal experience. After examining the lighting conditions, we shoot a set of images, then we compose them digitally in order to create surreal compositions, through which and in combination with the text, we are trying to create a spatio-temporal illusion. From the capture until the publication of the images we only use our smartphones. Finally, choosing the right text leads to the completion of the project and is considered necessary for the number of cohesions that each publication can cause.

For the presentation of our project at the conference a short video will be created in the following format: https://www.youtube.com/watch?v=K49rD8mSSw8 To further take advantage of the possibilities offered by the whole process, we will print mini booklets in the following format: https://printrbook.com/a/img/ default/instagram-book-1.jpg. Our purpose is to make these books a cultural product, a spiritual process that has been completed entirely by digital media.

To close our announcement we will present a range of quick shooting, editing, and exposure tips. A short and fun workshop will take place. At the end, the participants will be encouraged to publish their compositions on Instagram with a specific day hashtag so that they get familiar with digital creation.



