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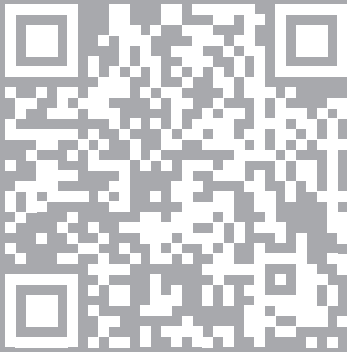
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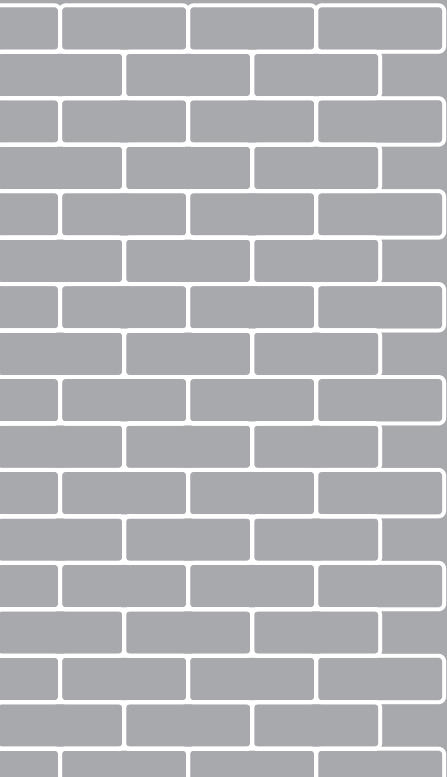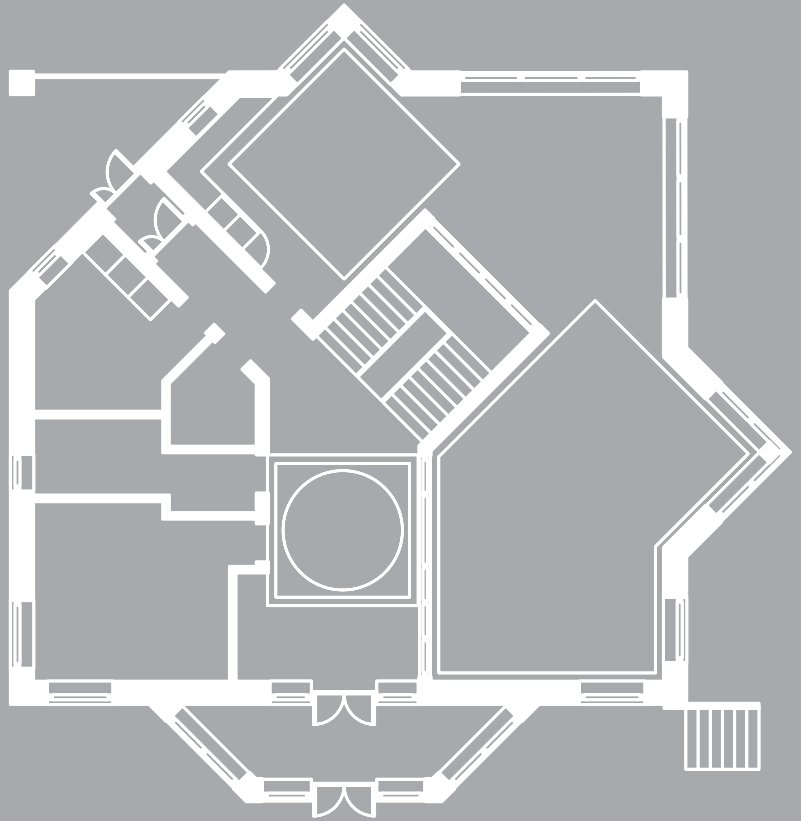Üniversitesi

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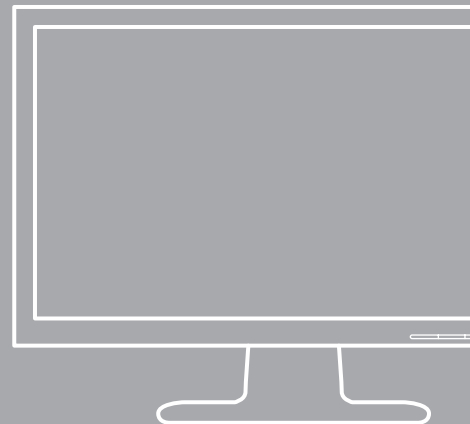UNIVERSITY OF LONDON

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LEONARDO ELECTRONIC ALMANAC

VOL 19 NO 1 VOLUME EDITORS **LANFRANCO ACETI** AND **RICHARD RINEHART**
EDITORS **ÖZDEN ŞAHİN**, **JONATHAN MUNRO** AND **CATHERINE M. WEIR**
This LEA publication has a simple goal: surveying the current trends in augmented reality artistic interventions. There is no other substantive academic collection currently available, and it is with a certain pride that LEA presents this volume which provides a snapshot of current trends as well as a moment of reflection on the future of AR interventions.

NOT HERE

NOT THERE

Not Here, Not There: An Analysis Of An International Collaboration To Survey Augmented Reality Art

Every published volume has a reason, a history, a conceptual underpinning as well as an aim that ultimately the editor or editors wish to achieve. There is also something else in the creation of a volume; that is the larger goal shared by the community of authors, artists and critics that take part in it.

This volume of LEA titled *Not Here, Not There* had a simple goal: surveying the current trends in augmented reality artistic interventions. There is no other substantive academic collection currently available, and it is with a certain pride that both, Richard Rinehart and myself, look at this endeavor. Collecting papers and images, answers to interviews as well as images and artists' statements and putting it all together is perhaps a small milestone; nevertheless I believe that this will be a seminal collection which will showcase the trends and dangers that augmented reality as an art form faces in the second decade of the XXIst century.

As editor, I did not want to shy away from more critical essays and opinion pieces, in order to create a documentation that reflects the status of the current thinking. That these different tendencies may or may not be proved right in the future is not the reason for the collection, instead what I believe is important and relevant is to create a historical snapshot by focusing on the artists and authors developing artistic practices and writing on augmented reality. For this reason, Richard and I posed to the contributors a series of questions that in the variegated responses of the artists and authors will evidence and stress similarities and differences, contradictions and behavioral approaches. The interviews add a further layer of documentation which, linked to the artists' statements, provides an overall understanding of the hopes for this new artistic playground or new media extension. What I personally wanted to give relevance to in this volume is the artistic creative process. I also wanted to evidence the challenges faced by the artists in creating artworks and attempting to develop new thinking and innovative aesthetic approaches.

The whole volume started from a conversation that I had with Tamiko Thiel – that was recorded in Istanbul at Kasa Gallery and that lead to a curatorial collaboration with Richard. The first exhibition *Not Here* at the Samek Art Gallery, curated by Richard Reinhart, was juxtaposed to a response from Kasa Gallery with the exhibition *Not There*, in Istanbul. The conversations between Richard and myself produced this final volume – *Not Here, Not There* – which we both envisaged as a collection of authored papers, artists' statements, artworks, documentation and answers to some of the questions that we had as curators. This is the reason why we kept the same questions for all of the interviews – in order to create the basis for a comparative analysis of different aesthetics, approaches and processes of the artists that work in augmented reality.

When creating the conceptual structures for this collection my main personal goal was to develop a link – or better to create the basis for a link – between ear-

lier artistic interventions in the 1960s and the current artistic interventions of artists that use augmented reality.

My historical artist of reference was Yayoi Kusama and the piece that she realized for the Venice Biennial in 1966 titled *Narcissus Garden*. The artwork was a happening and intervention at the Venice Biennial; Kusama was obliged to stop selling her work by the biennial's organizers for 'selling art too cheaply.'

"In 1966 […] she went uninvited to the Venice Biennale. There, dressed in a golden kimono, she filled the lawn outside the Italian pavilion with 1,500 mirrored balls, which she offered for sale for 1,200 lire apiece. The authorities ordered her to stop, deeming it unacceptable to 'sell art like hot dogs or ice cream cones.'" [1]

The conceptualization and interpretation of this gesture by critics and art historians is that of a guerrilla action that challenged the commercialization of the art system and that involved the audience in a process that revealed the complicit nature and behaviors of the viewers as well as use controversy and publicity as an integral part of the artistic practice.

Kusama's artistic legacy can perhaps be resumed in these four aspects: a) engagement with audience's behaviors, b) issues of art economy and commercialization, c) rogue interventions in public spaces and d) publicity and notoriety.

These are four elements that characterize the work practices and artistic approaches – in a variety of combinations and levels of importance – of contem-

porary artists that use augmented reality as a medium. Here, is not perhaps the place to focus on the role of 'publicity' in art history and artistic practices, but a few words have to be spent in order to explain that publicity for AR artworks is not solely a way for the artist to gain notoriety, but an integral part of the artwork, which in order to come into existence and generate interactions and engagements with the public has to be communicated to the largest possible audience.

"By then, Kusama was widely assumed to be a publicity hound, who used performance mainly as a way of gaining media exposure." [2] The publicity obsession, or the accusation of being a 'publicity hound' could be easily moved to the contemporary group of artists that use augmented reality. Their invasions of spaces, juxtapositions, infringements could be defined as nothing more than publicity stunts that have little to do with art. These accusations would not be just irrelevant but biased – since – as in the case of Sander Veenhof's analysis in this collection – the linkage between the existence of the artwork as an invisible presence and its physical manifestation and engagement with the audience can only happen through knowledge, through the audience's awareness of the existence of the art piece itself that in order to achieve its impact as an artwork necessitates to be publicized.

Even if, I do not necessarily agree with the idea of a 'necessary manifestation' and audience's knowledge of the artwork – I believe that an artistic practice that is unknown is equally valid – I can nevertheless understand the process, function and relations that have to be established in order to develop a form of engagement and interaction between the AR artwork and the audience. To condemn the artists who seek publicity

in order to gather audiences to make the artworks come alive is perhaps a shortsighted approach that does not take into consideration the audience's necessity of knowing that interaction is possible in order for that interaction to take place.

What perhaps should be analyzed in different terms is the evolution of art in the second part of the XXth century, as an activity that is no longer and can no longer be rescinded from publicity, since audience engagement requires audience attendance and attendance can be obtained only through communication / publicity. The existence of the artwork – in particular of the successful AR artwork – is strictly measured in numbers: numbers of visitors, numbers of interviews, numbers of news items, numbers of talks, numbers of interactions, numbers of clicks, and, perhaps in a not too distant future, numbers of coins gained. The issue of being a 'publicity hound' is not a problem that applies to artists alone, from Andy Warhol to Damien Hirst from Banksy to Maurizio Cattelan, it is also a method of evaluation that affects art institutions and museums alike. The accusation moved to AR artists of being media whores – is perhaps contradictory when arriving from institutional art forms, as well as galleries and museums that have celebrated publicity as an element of the performative character of both artists and artworks and an essential element instrumental to the institutions' very survival.

The publicity stunts of the augmented reality interventions today are nothing more than an acquired methodology borrowed from the second part of the XXth century. This is a stable methodology that has already been widely implemented by public and private art institutions in order to promote themselves and their artists.

Publicity and community building have become an artistic methodology that AR artists are playing with by

making use of their better knowledge of the AR media. Nevertheless, this is knowledge born out of necessity and scarcity of means, and at times appears to be more effective than the institutional messages arriving from well-established art organizations. I should also add that publicity is functional in AR interventions to the construction of a community – a community of aficionados, similar to the community of 'nudists' that follows Spencer Tunic for his art events / human installation.

I think what is important to remember in the analysis of the effectiveness both in aesthetic and participatory terms of augmented reality artworks – is not their publicity element, not even their sheer numbers (which, by the way, are what has made these artworks successful) but their quality of disruption.

The ability to use – in Marshall McLuhan's terms – the medium as a message in order to impose content bypassing institutional control is the most exciting element of these artworks. It is certainly a victory that a group of artists – by using alternative methodological approaches to what are the structures of the capitalistic system, is able to enter into that very capitalistic system in order to become institutionalized and perhaps – in the near future – be able to make money in order to make art.

Much could be said about the artist's need of fitting within a capitalist system or the artist's moral obligation to reject the basic necessities to ensure an operational professional existence within contemporary capitalistic structures. This becomes, in my opinion, a question of personal ethics, artistic choices and existential social dramas. Let's not forget that the vast majority of artists – and AR artists in particular – do not have large sums and do not impinge upon national budgets as much as banks, financial institutions, militaries and corrupt politicians. They work for years

1. David Pilling, "The World According to Yayoi Kusama," *The Financial Times*, January 20, 2012, http://www.ft.com/cms/s/2/52ab168a-4188-11e1-8c33-00144feab49a.html#axzz1kDck8rzm (accessed March 1, 2013).

2. Isabelle Loring Wallace and Jennie Hirsh, *Contemporary Art & Classical Myth* (Farnham; Burlington, VT: Ashgate, 2011), 94.

with small salaries, holding multiple jobs and making personal sacrifices; and the vast majority of them does not end up with golden parachutes or golden hand-shakes upon retirement nor causes billions of damage to society.

The current success of augmented reality interventions is due in small part to the nature of the medium. Museums and galleries are always on the lookout for 'cheap' and efficient systems that deliver art engagement, numbers to satisfy the donors and the national institutions that support them, artworks that deliver visibility for the gallery and the museum, all of it without requiring large production budgets. Forgetting that art is also about business, that curating is also about managing money, it means to gloss over an important element – if not the major element – that an artist has to face in order to deliver a vision.

Augmented reality artworks bypass these financial challenges, like daguerreotypes did by delivering a cheaper form of portraiture than oil painting in the first part of the XIXth century, or like video did in the 1970s and like digital screens and projectors have done in the 1990s until now, offering cheaper systems to display moving as well as static images. AR in this sense has a further advantage from the point of view of the gallery – the gallery has no longer a need to purchase hardware because audiences bring their own hardware: their mobile phones.

The materiality of the medium, its technological revolutionary value, in the case of early augmented reality artworks plays a pivotal role in order to understand its success. It is ubiquitous, can be replicated everywhere in the world, can be installed with minimal hassle and can exist, independently from the audience, institutions and governmental permissions. Capital costs for AR installations are minimal, in the order of a few

hundred dollars, and they lend themselves to collaborations based on global networks.

Problems though remain for the continued success of augmented reality interventions. Future challenges are in the materialization of the artworks for sale, to name an important one. Unfortunately, unless the relationship between collectors and the 'object' collected changes in favor of immaterial objects, the problem to overcome for artists that use augmented reality intervention is how and in what modalities to link the AR installations with the process of production of an object to be sold.

Personally I believe that there are enough precedents that AR artists could refer to, from Christo to Marina Abramovich, in order develop methods and frameworks to present AR artworks as collectable and sellable material objects. The artists' ability to do so, to move beyond the fractures and barriers of institutional vs. revolutionary, retaining the edge of their aesthetics and artworks, is what will determine their future success.

These are the reasons why I believe that this collection of essays will prove to be a piece, perhaps a small piece, of future art history, and why in the end it was worth the effort.

Lanfranco Aceti
Editor in Chief, Leonardo Electronic Almanac
Director, Kasa Gallery

Site, Non-site, and Website

In the 1960's, artist Robert Smithson articulated the strategy of representation summarized by "site vs. non-site" whereby certain artworks were simultaneously abstract and representational and could be site-specific without being sited. A pile of rocks in a gallery is an "abstract" way to represent their site of origin. In the 1990's net.art re-de-materialized the art object and found new ways to suspend the artwork online between website and non-site. In the 21st century, new technologies suggest a reconsideration of the relationship between the virtual and the real. "Hardlinks" such as QR codes attempt to bind a virtual link to our physical environment.

Throughout the 1970's, institutional critique brought political awareness and social intervention to the site of the museum. In the 1980's and 90's, street artist such as Banksy went in the opposite direction, critiquing the museum by siting their art beyond its walls.

Sited art and intervention art meet in the art of the trespass. What is our current relationship to the sites we live in? What representational strategies are contemporary artists using to engage sites? How are sites politically activated? And how are new media framing our consideration of these questions? The contemporary art collective ManifestAR offers one answer,

> "Whereas the public square was once the quintessential place to air grievances, display solidarity, express difference, celebrate similarity, remember, mourn, and reinforce shared values of right and wrong, it is no longer the only anchor for interactions in the public realm. That geography has been relocated to a novel terrain, one that encourages exploration of mobile location based monuments,

and virtual memorials. Moreover, public space is now truly open, as artworks can be placed anywhere in the world, without prior permission from government or private authorities – with profound implications for art in the public sphere and the discourse that surrounds it."

ManifestAR develops projects using Augmented Reality (AR), a new technology that – like photography before it – allows artists to consider questions like those above in new ways. Unlike Virtual Reality, Augmented Reality is the art of overlaying virtual content on top of physical reality. Using AR apps on smart phones, iPads, and other devices, viewers look at the real world around them through their phone's camera lens, while the app inserts additional images or 3D objects into the scene. For instance, in the work *Signs over Semi-conductors* by Will Pappenheimer, a blue sky above a Silicon Valley company that is "in reality" empty contains messages from viewers in skywriting smoke when viewed through an AR-enabled Smartphone.

AR is being used to activate sites ranging from Occupy Wall Street to the art exhibition ManifestAR @ ZERO1 Biennial 2012 – presented by the Samek Art Gallery simultaneously at Bucknell University in Lewisburg, PA and at Silicon Valley in San Jose, CA. From these contemporary non-sites, and through the papers included in this special issue of LEA, artists ask you to reconsider the implications of the simple question *wayn* (where are you now?)

Richard Rinehart
Director, Samek Art Gallery, Bucknell University
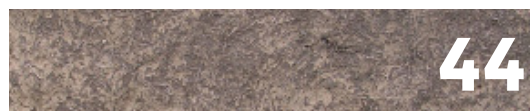
Leonardo Electronic Almanac
Volume 19 Issue 1

In Between: Experiencing Liminality

ABSTRACT

The present paper is a study of rituality in art and daily life; its main subject is the detailed analysis of the rites of passage which de-contextualise the individual when s/he enters in contact with traditional architectural spaces. Therefore, the paper proposes a close reading of the discontinuities of the spaces experienced by the individual, realised by means of art and Augmented Reality (AR). The authors intend (by means of relating the creative act to digital technology) to put the spectator in a position of awareness of the physical and psychological discontinuity of a ritual space, which situates the viewer not here, not there in a stage of liminality.

by

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INTRODUCTION

The two authors of this article are a visual artist / cultural anthropologist and an IT expert who collaborated on the transfer of artistic and anthropologic works in the contemporary digital space. The joint effort resulted in the development of a mobile application, which allows the observer to perform an urban exploration, both aesthetically and anthropologically.

We intend (by relating the creative act to digital technology) to position the observer in a liminal position which situates him/her not here, not there, yet aware of the physical and psychological discontinuities of the

Chalcolithic palisade and building. Dragoş Gheorghiu, 2003–2005, wattle and daub, h= 2–3.5 m. This full scale reconstruction allowed the viewer to experiment the rites of passage which structured the prehistoric settlements. © Dragoş Gheorghiu, 2003–2005.

space. Such a transition from the role of spectator to that of actor (even if only at the level of mental experience) is the result of the immersion into a real-virtual collage.

Thus, one can visualise the immateriality of past and present *liminal* zones which de-contextualise the viewer, and experience the *in-between state* transmitted by the productions of the past, with the help of contemporary art.

ABOUT ART AND RITUALS (GHEORGHIU)

Although the rites of passage (with their tripartite structure: separation, liminality and reintegration) [1] [2] play an important role in humans' lives. [3] they seem to have been overlooked by contemporary art. One cannot ignore the significance of everyday rituality in traditional societies, with emphasis on corporeality and structured actions. [4]

Positioned between art and science (for this liminal state see Calzadilla and Marcus 2006), [5] and practicing art-chaeology (i.e. the use of metaphors to stimulate the archaeological imagination), [6] I was preoccupied by this phenomenological aspect of the human body in space, both from the artistic and anthropological points of view.

As an experimentalist, I am aware that no space is homogenous, and I have attempted through my theoretical and artistic work to put this idea into evidence. Among the three stages forming a rite of passage, the liminal stage is the most interesting because of its special, symbolic character, being situated between the phase of dis-membering and re-membering. [7] A liminal phase makes one aware of the space where you come from, and of the space you are entering. In a liminal space, there is no here, no there; but an in-between. [8] This is the reason why a liminal phase may appear to threaten. In some of my artworks such as the reconstructions of the palisades of the prehistoric Danube settlements, [9] [10] or of the prehistoric strongholds in the mountains of Portugal [11] (https://www.youtube.com/watch?v=Eyq8FZUyB8E&feature=relmfu), I imagined these liminal phases as spaces of tense expectations.

In my analysis liminal spaces can be perceived not only in the real world, by means of the materialization of metaphors with the help of art installations and land art works, but also as a hybrid space, liminally positioned between real and virtual. [12]

After having used digital technologies to record artworks and scientific experiments I started to exploit their poetic [13] [14] and modelling [15] potential, and added a new dimension to my works, with digital mapping [16] (http://www.panoramio.com/photo/45692516).

Have you ever seen the Rain?, 2007, Dragoș Gheorghiu. Watercolour on wattle and daub facade, h= 3 m. An experiential work to perceive the rite of passage in a prehistoric building. © Dragoș Gheorghiu, 2007.

The entrance of Manuc Inn, Bucharest. Early 19th century. One of the rarest examples left of vernacular architecture specific for the South Eastern Europe. © Dragoș Gheorghiu.

By overlapping metaphors on real contexts with AR technology, one can create a state of liminality, the spectator's psyche situating itself for a brief moment between the real and the virtual, before proceeding to their synthesis, and immersing into the hybrid space thus created.

Through the study of the **protective strategies of pre**-historic settlements which implied the existence of a series of rites of passage, [17] as well as of the vernacular architecture, [18] [19] I approached the traditional rituality and symbolism materialised under the form of solid metaphors. [20] Through the experience of the process of construction of the traditional buildings I approached the rituality of the human body [21] in relationship with the materiality of architecture.

An important aspect of my current research is the experience of materials, [22] and the extent to which the material itself can transmit information. [23] In this perspective the present paper tries to approach the following topic: the presentation of architectural space as a discontinuous state, with liminal zones, whose experience of their own materiality creates a special state of mind.

Because architecture is structured on a dual principle, with an interior and exterior space, [24] [25] thus implying the existence of a rite of passage, the experience of a liminal space can be embodied, like any other body experience. [26]

For the last decade I have worked towards laying the foundations of an archaeology of the ancient architecture's ritual spaces, which collected and studied the phenomenological and artistic features of the ancient spaces. [27] [28]

With the help of Livia Ștefan's IT expertise, within a research grant aimed at the preservation of immaterial heritage, [29] I started using Augmented Reality (AR), to highlight the rituality of architectural spaces, the present paper being a continuation of this research.

The smartphone application we propose is designed to approach a rite of passage with the help of a hybrid space, combining real and virtual elements. This augmented space, which is generated by visual metaphors intended to evoke into the spectator's mind the liminal phase of the rite of passage, is geo-coded, and

geographically determines the human experience. As metaphors I designed images to evoke one of the antique principles in architecture (i.e. *soliditas* or resistance), which could be experienced when passing through the portico of an ancient building. This augmentation is realised with freehand drawings and 3D reconstructions of scaffolding, which make visible the immense pressure of the ceiling and the thick walls. The investigation site selected was Bucharest's old city centre, one of the most fascinating parts of the capital. To emphasize the ritual entrances, and the materiality of the liminal stages of this site, the most suitable example is Manuc's Inn, a splendid example of the local architecture dating from the beginning of the 19th century. [30]

The visitor approaching the arched entrance of the building will be visually notified of the existence of a rite of passage by a coloured threshold, and when stepping in beneath the entrance's vault, namely when stepping into the liminal zone, s/he will be faced with the metaphorical images of the invisible forces of the building, and thus become aware of the liminal space.

Visual emphasis of the ancient threshold of the entrance of Manuc's Inn, 2012, Dragoș Gheorghiu. Coloured chalk on photograph, A4. By visualizing the now invisible threshold the viewer is aware of the ancient liminal space of the passage. © Dragoș Gheorghiu, 2012.
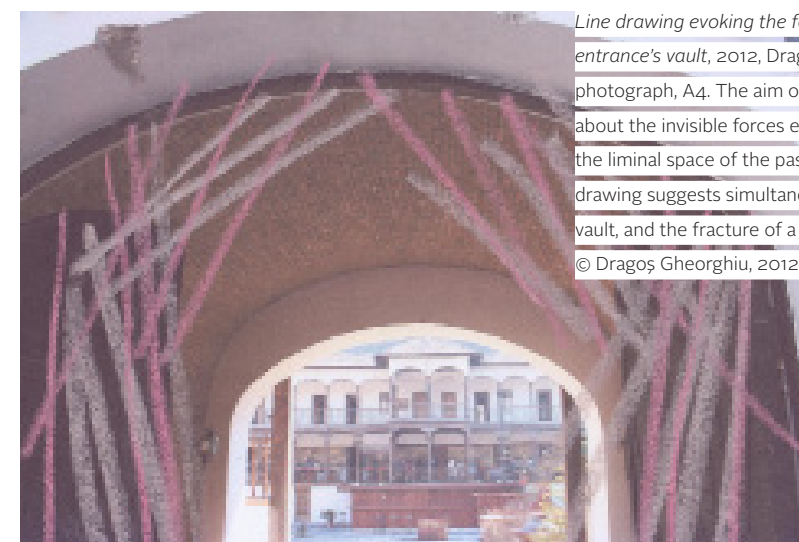
Line drawing evoking the forces of pressing in Manuc's Inn entrance's vault, 2012, Dragoș Gheorghiu. Coloured chalk on photograph, A4. The aim of this image is to warn the viewer about the invisible forces existing within the vault and walls of the liminal space of the passage inside the old building. The drawing suggests simultaneously a scaffold to support the vault, and the fracture of a structure supporting it. © Dragoș Gheorghiu, 2012.

MOBILE AUGMENTED REALITY (STEFAN)

In order to illustrate the artistic concept elaborated in this paper, the authors have chosen to use the technology of Augmented Reality on mobile devices (called mobile AR or MAR), which implements AR on smart phones and Tablet PCs. We created a content layer called LIMIN-AR which targets Manuc's Inn and can be visualized on the video live stream by means of a commercially available mobile application for Android devices, called Layar AR browser. This "AR browser" [31] allows users either to automatically see an augmentation of the targeted reality, or to browse through available augmentations, presented as POIs (Points of Interest) in a surrounding area. An activated mobile Internet connection (3G or Wi-Fi) is required.

Even if not a recent technology, it is only in the last few years that the concepts and the uses of Augmented Reality have been oriented towards ordinary users, by means of every-day purpose applications. At its beginnings, AR was mainly used in academic laboratories and research projects, [32] and needed highly specialized equipment, such as HMDs (Head Mounted Devices). [33] [34] Currently the availability and the expected user-centered success of the technology, mainly by means of educational and cultural applications, [35] are made possible by the rapid advancements in the mobile device industry which have led to "smart" and "wearable" devices. [36] To cite just a few of these facilitation factors: the miniaturization techniques which allowed several sensors (such as compass, accelerometer and GPS) to be integrated in one piece of equipment; the increase in mobile processing power; the improvements made in the mobile display size and quality; and last but not least, the improved financial affordability.

The hardware elements which make the smartphone, or a Tablet PC, an ideal AR platform are: [37] the GPS (Global Positioning System) receiver, the WiFi/3G, the cell tower radio receiver/A-GPS, the video camera, the

solid-state compass and the accelerometer. The reality is perceived by means of a video live stream, on which digital content is overlaid. [38] Predefined conditions trigger the augmentations.

The mobile AR (MAR) supplements the AR technology by allowing users to be mobile and to discover places and information. [39] MAR facilitates the provision of contextual [40] or "situated" information based on a combination of geographic position and user behavior. The "behavior" is expressed in device movements on the 6 degrees of freedom (6 DOF), translated by the accelerometer sensor, and in direction changes, translated by the compass sensor.

The AR applications fall under 2 main categories: [41] geographic/sensory AR and computer-vision AR. The latter can be either marker-based / marker-based / image tracking, which uses "helper" or fiducial images for augmentation triggering, or marker-less / image recognition and tracking, which uses advanced natural feature recognition.

The marker-based AR would not be appropriate for our paper (having the target buildings environmentally distributed), as we wish to leave users to discover them based on "indices" offered by the AR application by means of POIs (Points of Interest) [42] and not by making any changes. On the other hand, the triggering only based on geographic localization it is not possible, due to the imprecision of the GPS satellites. The localization accuracy has to be improved with additional information from the other device sensors and/or with different techniques such as computer vision algorithms.

Although a "state-of-the art" technology, Augmented Reality has not yet reached a mature developmental stage, [43] as has its counterpart, the Virtual Reality technology, because AR algorithms need to be further

Description of the LIMIN-AR Layar layer, publisher Dragoş Gheorghiu. Download the LAYAR AR Browser from the play store (if not already installed); Activate an Internet connection; Launch the LAYAR AR Browser; Select Layers/Categories: Architecture and Buildings: LIMIN-AR-Dragos Gheorghiu Or copy the link http:/layar.it.lxrea3 in the address bar of a mobile Internet browser and select "open with Layar." © Dragoş Gheorghiu.

improved, significant applications are yet to be developed, and user content created. The potential of AR for knowledge development and mediated perception is proven, due to its capacity to naturally add and interact with digital content, in various formats (simple text, images, audio, video, 3D graphics), thus creating a new kind of sensory immersion. [44]

The difficulties faced by an AR developer arise from the fact that there are no standards. [45] There are several development tools and environments, which offer proprietary AR algorithms, each offering different technical advantages.

Of course, as expected, the authors of the paper encountered some of these difficulties in selecting the appropriate development tools, but ultimately decided that AR, as an IT technology, would serve the artistic and cultural ideas of the paper. The reasons behind the decision lie in the very specific characteristics of AR, which integrates / juxtaposes the real and the virtual, in real time, in a 3D space and in an interactive manner. [46] The highest objective of an AR application, besides the obvious one of enriching reality with additional information, is to dissolve the line between the real and the virtual, and that was what the artist (Gheorghiu) needed in order to express his idea of liminality.

THE APPLICATION DESIGN

The AR application was designed to use both mobile device's sensors and image recognition.

An additional requirement was that the application be accessible from Android smart phones and Tablet PC, which are not equipped with GPS receivers but can be a better AR application platform due to their larger screen and rapid processing.

Finally, we selected the *Layar platform,* [47] a major commercially available AR platform from a Dutch software company. The reasons for this choice were: the functional flexibility which allows the development of both geographic AR applications and image recognition application (by means of Layar-Vision component); good product documentation; the fact that it is open to third-party partners for content storage (publicly available), and thus allows the automatic updating of content; and the compatibility with iOS, Android and Bada based smart phones. [48] The front-end application i.e. the mobile application, the Layar *AR browser*, is pre-installed on most Android/iOS smart phones.

As the content storage and delivering platform we chose the *Hoppala Augmentation* platform, [49] developed by a German IT specialist, due to it being recognized as a stable platform and its free of charge services. It also has the advantage of being able to deliver content to all 3 major AR platforms.

Our AR application is based on an "AR layer" in the concept of the Layar platforms, [50] [51] or a channel with the cultural target, the augmented content evoking the idea of liminality. This layer was segmented in
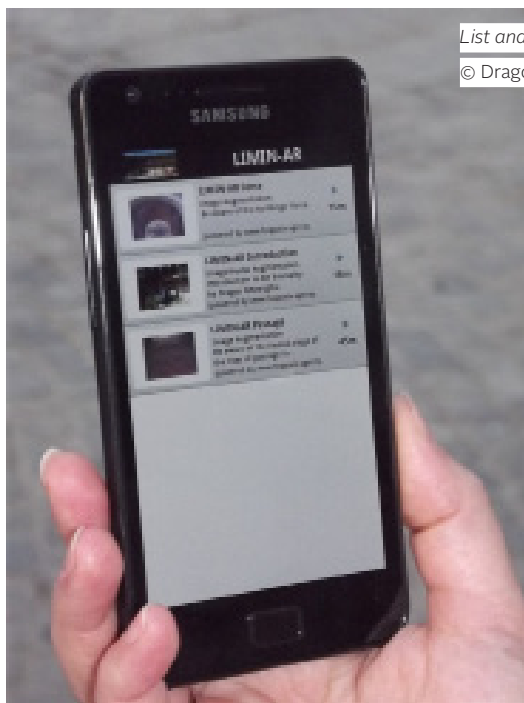
List and description of the 3 LIMIN-AR's augmentations, provided as POIS.
© Dragoș Gheorghiu.

3 POIS, corresponding to the different passage stages: one *close to the target*, one evoking the *idea of ritual passage*, and one evoking the *idea of force*. Each POI is defined by geographic coordinates, a Google Maps address and the augmentation content, represented by processed art images.

The development of the AR application has undergone the following stages:

1. Identification of the interest areas; photo shoots using geo-tagging facility; the photos were taken in front and from 15–20 degree angles;
2. Verification and correction of the raw geographic positions for POIS using Google Maps;
3. Image processing in order to illustrate the idea of liminality;
4. Creation and definition of the LIMIN-AR layer on the Layar platform, activating the Layar-Vision feature;
5. Selection, processing and loading on the Layar platform of the reference images for target building recognition;
6. Definition and load on the Hoppala Augmentation Platform of the POIS, which contains our augmentations; association of each POI with the reference images and a set of Layar "actions" which can be audio, video, access of a web site, SMS or email;

7. Save on the Layar platform of the web address to Hoppala Platform, which is a connection between the two;
8. Application tests using the Layar AR browser, verification of the visualization of the POIS and of the augmentations;
9. Several functional adjustments in the LIMIN-AR layer and in the position of the augmentations in order to correspond to the user view field as interpreted by the Layar browser.

On the Android platform a possible application flow can be as follows:

1. The user launches the Layar browser from the Android applications (pre-installed or downloaded from the Play Store).
2. The camera is activated.
3. The user selects and launches the LIMIN-AR layer from a list of Layar layers.
4. The user can adjust the search area for the POIS.
5. Upon entering the geographic area, the LIMIN-AR POIS are overlaid on the camera view.
6. The user selects a POI and a predefined action associated with each POI (e.g. to hear an audio record; to write a tweet).
7. When the user position coincides with the POI's position or the referenced image is recognized i.e. the user is in front of the building or within an angle of +/- 15 degrees, the image augmentation, evoking the idea of liminality, is triggered. [Photo 8 and Photo 9 near here]

CONCLUSIONS

The project we propose is a hybrid of real spaces and art interventions with the purpose of recovering the rituality and sensoriality of the past. By accessing the IT application one can experience an immersion 52 into the materiality and rituality of ancient architec-
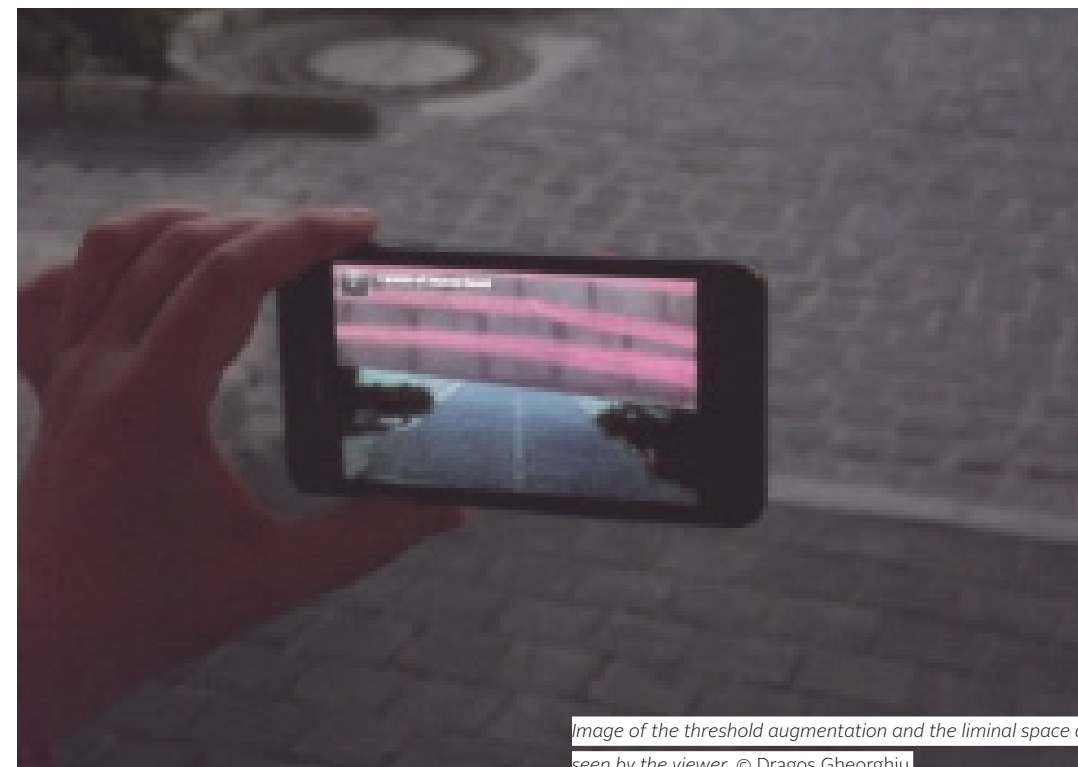
Image of the threshold augmentation and the liminal space as seen by the viewer. © Dragoș Gheorghiu.
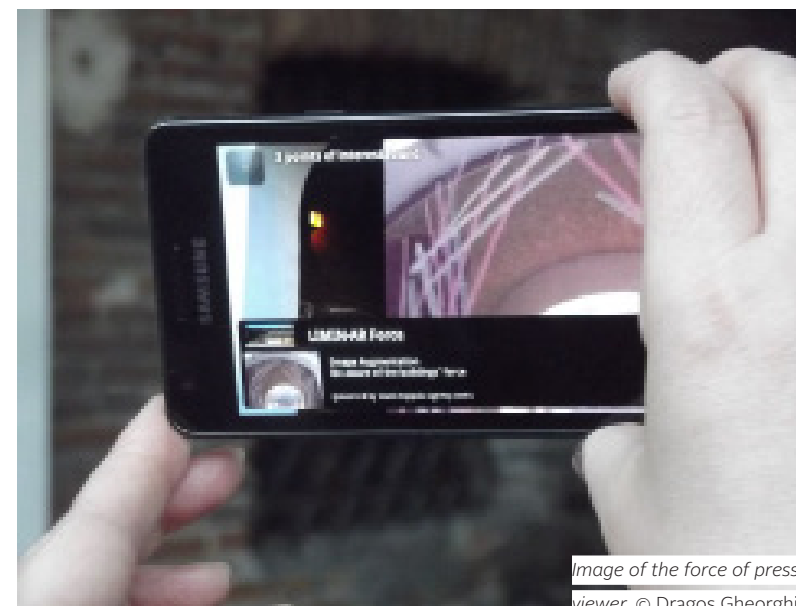
Image of the force of pressing augmentation as seen by the viewer. © Dragoș Gheorghiu.

ture, and develop a virtual archaeological approach based on experientiality. A result of this process could be the re-ritualization of the human body and the re-materialisation of space and of buildings.

The use of mobile phones makes the simultaneous access to art and archaeology available to a broad public, thus the project achieving a sort of in situ exhibition. At the same time, the m-Learning 53 54 potential of the AR application will function as an educational element by displaying the immaterial heritage we identified to the public. ∎

GLOSSARY

AUGMENTED REALITY: a set of advanced IT technologies by means of which the perception of the surrounding reality is augmented with digital objects (images, video, sound files, 3D models), overlaid on a specialized display, or on the camera view. The augmentation is triggered based on real time tracking and recognition of specific markers, or natural features, or landmarks.

AR BROWSER: a type of Augmented Reality application similar to a web application, designed for mobile devices, through which the user can be shown, on a camera stream, different augmentations, and can also browse through a set of information associated with the objects, usually displayed as POIs. The AR browser also serves as a user interface.

COMPUTER VISION: a general term describing image recognition; advanced computer techniques and mathematical algorithms by which a software program can recognize real and complex images and perform automated actions.

IMMERSION: a simulated user presence in a complete virtual reality or in an augmented/mixed reality.

LIMINALITY: a special, symbolic, stage of a rite of passage, representing the moment between the rite of separation and the rite of incorporation.

M-LEARNING: also mobile learning: e-learning using mobile devices like smartphone and Tablet PC.

POI (POINT OF INTEREST): geographical locations associated with meaningful information which can be presented to a user based on his/her position and within a pre-defined search area (e.g. in a search circle of 50m). This information is offered by certain service providers and is a kind of augmentation used in AR browsers.

RITE OF PASSAGE: ritual, which marks the stages of human life, or a physical passage, and is related to time and space.

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DRAGOŞ GHEORGHIU

interviewed by
Lanfranco Aceti & Richard Rinehart

Is there an 'outside' of the Art World from which to launch critiques and interventions? If so, what is the border that defines outside from inside? If it is not possible to define a border, then what constitutes an intervention and is it possible to be and act as an outsider of the art world? Or are there only different positions within the Art World and a series of positions to take that fulfill ideological parameters and promotional marketing and branding techniques to access the fine art world from an oppositional, and at times confrontational, standpoint?

I always perceived art and science as being two analogous facets, more or less subjective, of human knowledge. The analogy existing between the two represents for me what ancient Greeks labeled *techné*. This is why I cannot imagine a look from "outside" the art field, because I do not know where its limits are. For example, I use artistic metaphors to improve the archaeological imagination, a method, which for me represents a way to augment reality. As experimentalist, I try to use the scientific experiment and the phenomenological experience as well. For example, when studying the architectural structures of a prehistoric settlement I tried to express them at full scale or as art installations, with the aim to embody their material form. It is only after this process of corporal experience of the built forms, which is an augmentation of the archaeological record with my personal experience that I return to their scientific study.

For me, art and science are not two different entities positioned side by side (and therefore which create borders), but each entity is the avatar of the other, existing simultaneously on the same place.

"In *The Truth in Painting*, Derrida describes the *parergon* (*par-*, around; *ergon*, the work), the boundaries or limits of a work of art. Philosophers from Plato to Hegel, Kant, Husserl, and Heidegger debated the limits of the intrinsic and extrinsic, the inside and outside of the art object." (Anne Friedberg, *The Virtual Window: From Alberti to Microsoft* (Cambridge, MA: MIT Press, 2009), 13.) Where then is the inside and outside of the virtual artwork? Is the artist's 'hand' still inside the artistic process in the production of virtual art or has it become an irrelevant concept abandoned outside the creative process of virtual artworks?

To the question if in virtual artworks one can still discern the authority of its creator, one can answer that this depends from case to case (whether a style is preserved in time, and whether this style is observable). A virtual artwork differs from the other art productions by its immateriality. This advantage confers an infinite plasticity to the artwork, but also the risk to lose the identity of its creator.

Virtual art cannot exist outside a high tech instrumental support, and even when the haptic technology will be mass produced, it will continue to maintain the artistic emotion of human sensibility inside a technical device.

I believe the common element of materiality and immateriality is the symbolic thinking of the creator. Finally it is the symbol which allows the immersion, and the generation of emotions; because one shall make a difference between media activism and the work of art which creates emotion. This psychological state is the one which keeps us in the human zone, in spite of the (naïve) trend which believes that if one can put prosthesis into the human body this means a passage to a post-human state.

Therefore, I perceive the world of art as having a borderline, this representing the edge where emotions cease.

Virtual interventions appear to be the contemporary inheritance of Fluxus' artistic practices. Artists like Peter Weibel, Yayoi Kusama and Valie Export subverted traditional concepts of space and media through artistic interventions. What are the sources of inspiration and who are the artistic predecessors that you draw from for the conceptual and aesthetic frameworks of contemporary augmented reality interventions?

In this case technology was for me a source of inspiration. During the eighties, I used the technologies of the epoch: the slide projector. So I overlapped the slide images and worked on film images, i.e. I augmented the art process to be perceived as a palimpsest. At that time, we did not need high tech digital instruments to create immersion because we relied on the artistic imagination, and because we perceived the real, as Baudrillard stressed, as a form of simulation, therefore being a layer that could be augmented.

The palimpsest became more significant for my world vision when I approached art-chaeology; from that moment I perceived the world as being a stratigraphy. A part of the exhibitions of my archaeological experiments were under the form of overlapped transparent images containing different information, which were perceived simultaneously, as a palimpsest. I continued this technique of overlapping different plans when I decided to visualize the invisible data in the archaeological record with the help of art metaphors. For me, Augmented Reality meant an instrument to visualize vague concepts from science, like 'space,' 'ritual,' or 'landscape,' which I tried to reveal by overlapping different layers of information.

The first time I learned about Augmented Reality from an IT perspective was in 1992, when I read Michael Benedikt's *Cyberspace: First steps* (MIT Press), where the concept was presented more for improving design than art, but I stayed away from this technique for a decade because I wanted to express myself using traditional techniques.

In the representation and presentation of your artworks as being 'outside of' and 'extrinsic to' contemporary aesthetics why is it important that your projects are identified as Art?

A long time ago I renounced calling the result of my work as being purely 'artistic.' While working with ancient technologies I discovered astonishing esthetical qualities, which did not belong to works of art. This is the reason why I do not situate myself in the area of science (i.e. archaeology) nor in the area of art, but in a synthesis of the two which is art-chaeology. Thus, the difficulty of the reception of my work: archaeologists perceive it as art or experimental archaeology, depending of the ideology of the group. For example,

a radical group of archaeologists sees my land-art as an experiential approach of the spirituality of the past (Pleistocene Coalition News, vol. 4, issue 2, March-April 2012, p. 16), and an academic journal like Antiquity (March 2010: 278) sees them as being "sensorial experiments depicted in vivid colours."

Therefore, it depends on the receptor of the work to decide the proportion of art and science in each piece of work.

What has most surprised you about your recent artworks? What has occurred in your work that was outside of your intent, yet has since become an intrinsic part of the work?

The period when I began to activate as a visual artist was the one of the emergence of the site -oriented concept. In my archaeology studies, I realized the decisive importance of context to understand material culture, but it was only recently that I began to present it to the public using digital maps as instruments for visualization of the position of the artworks. Working with digital maps I locate my artwork in a real and a virtual space at the same time (http://www.panoramio.com/photo/58368794?source=wapi&referrer=kh.google.com), in this way offering a global perspective to the work of art.

Probably the most surprising event related to my recent artwork was the acceptance in pop culture of a land-art as part of Nature's geomorphs: a Portuguese website for weather forecast: http://www.meteo-europ.com/en/pt/santarem/zimbreira-pictures.html which presents a collage of the specific images of the local landscape, mixed with the images of a land art I carried in the Zimbreira area to evoke the walls of an ancient castro (prehistoric stronghold). These images were collected from Google Earth and repositioned in a different configuration, together with geographical views, in such a way as to evoke roads or waterfalls.

The recycling of my artwork on the Internet is an example of the current status of contemporary digital art, which may become the rough material for an anonymous and global work. ■

DRAGOŞ GHEORGHIU

statement & artwork

With my art I intend to reveal two great mysteries: Earth and the Past.

Both possess two common traits: space and rites, two concepts, which elude scientific approaches. The rites determine space and space creates the rites, and both cannot be represented but only evoked since they elude quantitative methods.

I try to evoke the rites of passage to show that space is not homogenous that it is structured with liminal zones where one is neither here nor there. My objects shall be perceived more as instructions for the different movements of the body of the receptor, to reproduce the ancient paths of the past. From a phenomenological perspective, they embody space and rituals. By posting these visual instructions on digital maps I intend to reveal, at a global level, the corporal experiences of ancient people.

Being minimalist, my art does not represent but evokes, leaving to the mind and body of the viewer to create the image of the whole. Therefore, my objects situate themselves in a complex liminality, between art and science, local and global, real and virtual. ■

Reconstruction of a prehistoric settlement's architecture to experience the rites of passage and liminality. Dragoş Gheorghiu, Vadastra, 2003–2008, clay, wood, reed and mineral pigments. Photo D. Gheorghiu, © Dragoş Gheorghiu.

Reconstruction of the interior of a prehistoric house to experience the lived space. Dragoș Gheorghiu, Vadastra, 2003, clay and mineral pigments. Photo D. Gheorghiu. © Dragoș Gheorghiu.

Evocation of the lived space. Performance in the reconstruction of a prehistoric house with a vertical loom. Dragoș Gheorghiu, Vadastra, 2003. Photo D. Gheorghiu. © Dragoș Gheorghiu.

The boundaries of a prehistoric settlement in Vadastra area. Dragoș Gheorghiu, Vadastra, 2011, textile and land-art. Photo D. Gheorghiu. © Dragoș Gheorghiu.

The author with the help of experimentalist Pedro Cura fixing the plastic foil on Monte Velho. Land-art on Monte Velho, 2010. Dragoş Gheorghiu, plastic foil fixed with plastic ropes and iron nails. Photo R. Damian. © Radu Damian.

Brazilian archaeology students helping to fix the plastic foil on Monte Velho. Land-art on Monte Velho, 2010. Dragoş Gheorghiu, plastic foil fixed with plastic ropes and iron nails. Photo R. Damian. © Radu Damian.

The author fixing the plastic foil on Monte Velho. Land-art on Monte Velho, 2010. Dragoş Gheorghiu, plastic foil fixed with plastic ropes and iron nails. Photo R. Damian. © Radu Damian.

Delimiting the perimeter of the walls of a prehistoric stronghold. Land-art on Monte Velho, 2010. Dragoş Gheorghiu, plastic foil fixed with plastic ropes and iron nails. Photo R. Damian. © Radu Damian.
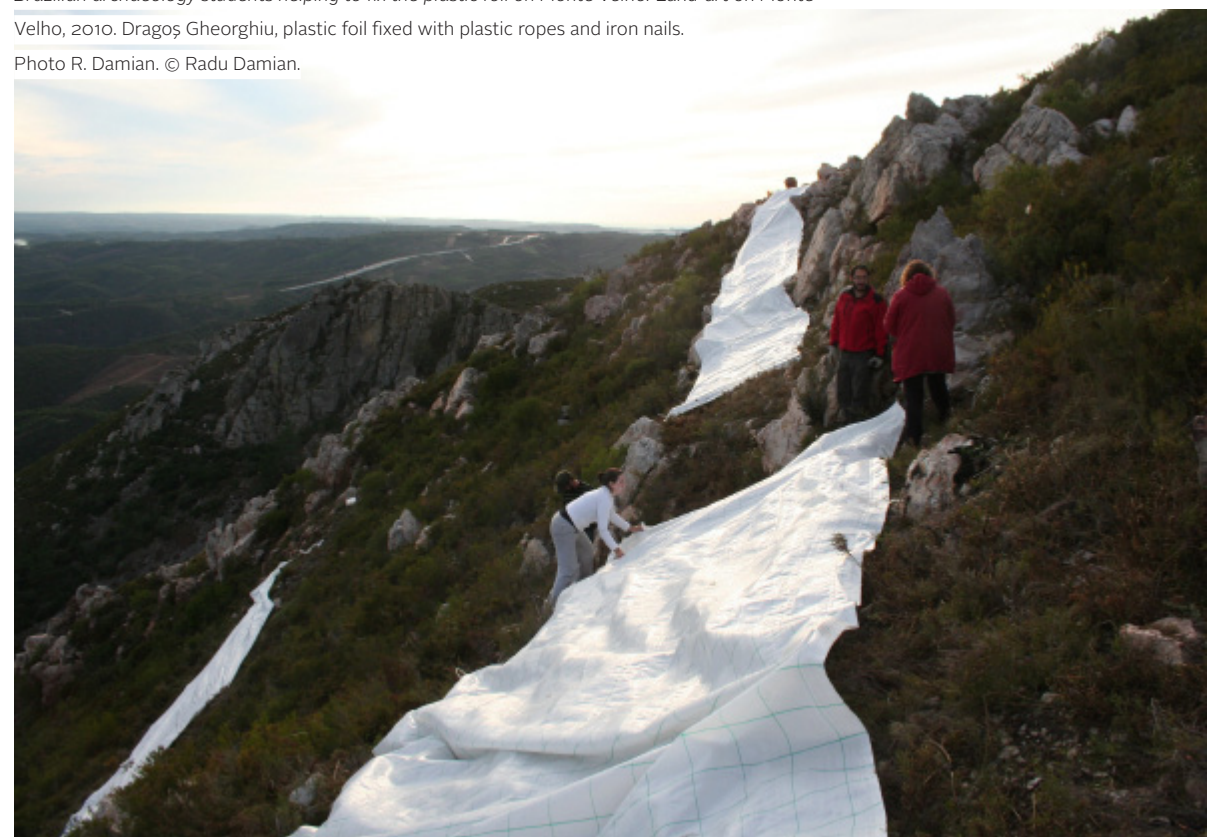
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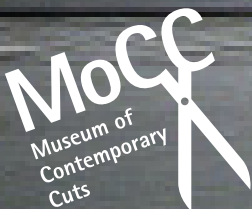
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