

BOOK OF ABSTRACTS

LOST AND TRANSFORMED CITIES: A digital perspective
International Conference, November 17-18, 2016
Faculty of Social Sciences and Humanities,
Nova University of Lisbon, Portugal



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Welcome

The city is by definition a living entity. It translates itself into a collectiveness of individuals who share and act on a material, social and cultural setting. Its history is one of dreams, achievements and loss. As such, it also bears a history of identity.

To know the history of cities is to understand our own place in the contemporaneity. The past is always seen through the eyes of the present and can only be understood as such.

Time erases memory through development and disaster. Cities can simply disappear because they lost their status in society, suffered severe catastrophes or transformed themselves so radically that their history is no longer materially traceable. They can also exemplarily absorb the built and cultural heritage through rehabilitation and re-use. Archaeologists, historians, art historians, geographers, anthropologists and sociologists try to decipher and interpret a diverse but comparable amount of data in order to translate remote realities into a contemporaneous discourse. The more interconnected the research is the more efficient it becomes.

Digital technology is playing a major role in the study of the city and the preservation of its built and cultural heritage. It allows the collecting, processing and testing of an extensive amount of data in a swift and proficient manner. It also enables interdisciplinary research teams to work collaboratively, often in real time. Digital technology applied to the study of cities and their cultural heritage not only widens the scope of the research, but also allows its dissemination in an interactive fashion to an extensive and diverse audience.

Through the intersection of digital technology with historical practice it is possible to convey a perspective of the past as a sensorial-perceptive reality. The resulting knowledge furthers the understanding of the present-day city and the planning of the city of the future. Cities in the digital realm are, therefore, presented in their historical continuum, in their comprehensive and complex reality and are opened to interaction in a contemporary social context.

On the occasion of the 261st anniversary of the 1755 earthquake in Lisbon, we invite scholars and experts in the fields of heritage studies, digital humanities, history, history of art and information technology to share and debate their experience and knowledge on digital heritage. We aim for an integrative perspective of the study of lost or transformed urban realities stressing its multidisciplinary character and the impact of the digital in this equation.

We especially welcome papers that address (but are not necessarily limited to) the following topics:

- The historic city from 2D to virtual and augmented reality;
- Cities as virtual museums;
- Cities, tourism and digital heritage;
- Digital Heritage: methodological and epistemological challenges;
- The contemporary city and digital citizenship.

We are very pleased to be hosting you and we wish you a great stay in Lisbon!

Keynote Speakers



António Câmara (CENSE/FCT- UNL, Portugal)

António Câmara is a Professor at Universidade Nova de Lisboa and CEO of YDreams. He obtained a PhD at Virginia Tech (1982) and he was a Post-Doctoral Associate at Massachusetts Institute of Technology (MIT) (1983). He has been a pioneer in the area of geographic information systems having led the development of innovative virtual reality and mobile applications. He has over 150 international publications including the book *Environmental Systems* published by Oxford University Press (2002). António Câmara co-founded YDreams in June 2000. YDreams is a world leader in augmented reality.



Catherine Clarke (University of Southampton, UK)

Catherine Clarke is Professor of Medieval Literature and Culture at the University of Southampton, UK. She has published widely on place, identity and uses of the past, and her work draws on digital, practice-led and collaborative methods, as well as close reading of textual and material evidence. She has led major projects on the cities of Chester (www.medievalchester.ac.uk; <http://discover.medievalchester.ac.uk>) and Swansea (www.medievalswansea.ac.uk), bringing together new research with urban regeneration initiatives, heritage interpretation and public realm transformations. She is interested in the intersections between traditional scholarship and more affective, creative and imaginative idioms, and the ways in which technology can mediate between visible and invisible landscapes.



Maurizio Forte (Duke University, US)

Maurizio Forte, PhD, is William and Sue Gross Professor of Classical Studies Art, Art History, and Visual Studies at Duke University. He is also the founder and director of the DIG@Lab (for a digital knowledge of the past) at Duke. His main research topics are: digital archaeology, classical archaeology and neuro-archaeology. He has coordinated archaeological fieldwork and research projects in Europe, Asia and US. Since 2010 he is director of the 3D-Digging project at Çatalhöyük. He is editor and author of several books including “Virtual Archaeology” (1996), *Virtual Reality in Archaeology* (2000), “From Space to Place” (2006), “La Villa di Livia. Un percorso di ricerca di archeologia virtuale” (2008), “Cyberarchaeology” (2012).



Organizing Comitee

Scientific Committee

- Alexandra Gago da Câmara (UAberta, CHAIA/UÉvora)
- Amélia Aguiar Andrade (Instituto de Estudos Medievais/FCSH-UNL)
- Ana Maria Ferreira (CIDEHUS/UÉvora)
- Daniel Alves (IHC/FCSH -UNL)
- Helena Murteira (CHAIA/UÉvora)
- Luís Gonzaga Magalhães (ALGORITMI/UMinho)
- Maria Leonor Botelho (CITCEM/FLUP)
- Maria Manuela Martins (Laboratório de Paisagens, Património e Território, Lab2PT/UMinho)
- Maria Teresa Cordeiro de Moura Soeiro (CITCEM/ FLUP-DCTP)
- Mário Jorge Lopes Neto Barroca (CITCEM/ FLUP-DCTP)
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- Guida Casella (IHC/FCSH-UNL)
- Helena Murteira (CHAIA/UÉvora)
- Maria Leonor Botelho (CITCEM/FLUP)

Practical Information

Venue:

Faculty of Social Sciences and Humanities – Nova University of Lisbon

Room Multiusos 2 and 3, I&D building, 4th floor

Address:

Avenida de Berna, 26-C / 1069-061 Lisboa

Phone:

+351 21 790 83 00

Access:

Metro: Campo Pequeno station (Yellow line), Praça de Espanha station (Blue line),

São Sebastião station (Blue line / Red line)

Bus: Av. de Berna – Rego (Carris, numbers 716, 726, 756)





VIRTUTIBVS
MAIORVM

VT SIT OMNIBVS DOCUMENTO P P D

Keynote Lectures

Thursday 17 November

Auditorio 1 – Tower B, 10:15 - 11:15

A Digital Paradigm for Ancient Cities

Dr. Maurizio Forte (Duke University, US)

Chair: Helena Murteira (CHAIA, University of Évora)

The presentation will be focused on the impact of digital technologies for the interpretation, reconstruction and perception of ancient cities. The complex, and sometimes controversial, relations between empirical urban archaeology (the evidence) and virtual/cyber archaeologies design new inferential models based mostly on human interaction rather than pure visualization. Latest methods of investigation such as high res georadar, LIDAR, UAV remote sensing, digital photogrammetry, procedural modeling, virtual reality systems open new perspectives in the interpretation of urban models. Finally, the lecture will discuss the impact of embodiment and interaction in the interpretation process of city models.

Maurizio Forte (Duke University, US)

Maurizio Forte, PhD, is William and Sue Gross Professor of Classical Studies Art, Art History, and Visual Studies at Duke University. He is also the founder and director of the DIG@Lab (for a digital knowledge of the past) at Duke. His main research topics are: digital archaeology, classical archaeology and neuro-archaeology. He has coordinated archaeological fieldwork and research projects in Europe, Asia and US. Since 2010 he is director of the 3D-Digging project at Çatalhöyük. He is editor and author of several books including “Virtual Archaeology” (1996), Virtual Reality in Archaeology (2000), “From Space to Place” (2006), “La Villa di Livia. Un percorso di ricerca di archeologia virtuale” (2008), “Cyberarchaeology” (2012).

Friday 18 November
Multusos 2 – Building I&D, 10:15 - 11:15

Seeing the invisible city: medieval to modern
Dr. Catherine Clarke (University of Southampton)

Chair: Leonor Botelho (Faculty of Humanities, University of Porto)

This presentation will explore approaches to recovering, analysing and interpreting lost or invisible heritage within the urban landscape. It will focus on the Welsh city of Swansea as a case study: a thriving port, multi-cultural community and political base in the Middle Ages, but today scoured of its medieval material fabric and layout by wartime bombing and later re-development. What kinds of research methodologies and digital tools can enable scholars to engage with this kind of lost environment? And what strategies can we use to re-inscribe the absent historic city within today's urban environment and to connect local communities with their invisible heritage? The presentation will ask questions about the place of imagination and creativity in scholarship, and the ways in which research into lost or invisible historic environments might disrupt heritage practices and discourses so often predicated on notions of linear continuity and material relics as conduits into the past.

Catherine Clarke (University of Southampton, UK)

Catherine Clarke is Professor of Medieval Literature and Culture at the University of Southampton, UK. She has published widely on place, identity and uses of the past, and her work draws on digital, practice-led and collaborative methods, as well as close reading of textual and material evidence. She has led major projects on the cities of Chester (www.medievalchester.ac.uk; <http://discover.medievalchester.ac.uk>) and Swansea (www.medievalswansea.ac.uk), bringing together new research with urban regeneration initiatives, heritage interpretation and public realm transformations. She is interested in the intersections between traditional scholarship and more affective, creative and imaginative idioms, and the ways in which technology can mediate between visible and invisible landscapes.

Friday 18 November

Multiusos 2 – Building I&D, 17:00 – 18:00

Augmenting Cities: State of the Art and Unorthodox Views

Dr. António Câmara (YDreams)

Chair: Daniel Alves (FCSH, Nova University of Lisbon)

Augmented reality is now seen as a digital tool where one superimposes synthetic images, text or voice on real images. Smartphones and glasses are enabling the rapid development of visualizations augmenting current cities. Such visualizations may also report to the past or simulate urban futures. Holographic representations are recently introduced tools that enable high quality in situ visualizations even at the worst lighting conditions.

However, augmenting cities should be regarded with a broader vision, this presentation highlights ideas that have been proposed around the World to "augment" cities' environment and creativity.

Augmentation may use digital, physical or mixed tools. It may be brought by individuals or via collective intelligence.

António Câmara (CENSE/FCT- UNL, Portugal)

António Câmara is a Professor at Universidade Nova de Lisboa and CEO of YDreams. He obtained a PhD at Virginia Tech (1982) and he was a Post-Doctoral Associate at Massachusetts Institute of Technology (MIT) (1983). He has been a pioneer in the area of geographic information systems having led the development of innovative virtual reality and mobile applications. He has over 150 international publications including the book *Environmental Systems* published by Oxford University Press (2002). António Câmara co-founded YDreams in June 2000. YDreams is a world leader in augmented reality.



Sessions

1. The historic city from analogue to digital reality

Room 1 Auditorio 1 – Tower B

Chair: Paulo Simões Rodrigues (University of Évora)

Thursday 17 November

Room 1 Auditorio 1 – Tower B, 11:30 - 11:45

Buda(pest): the virtual life of the city in a novel

Ferenc Hörcher

Pázmány Péter

(Catholic University, Hungary)

This paper addresses a philosophical issue about the way cities exist in the minds of their inhabitants.

The theme of the posthumously (1993) published novel written by the Hungarian writer Géza Ottlik (1912-1990) entitled *Buda*, is the Western part of Budapest, where the royal castle is situated. The novel is written in an autobiographic mode, but its genre is fiction. The idea is to try to re-present the city (as it was experienced by Ottlik – from his early childhood until his experience of it as a dying old man) in the novel through a story happening in realtime when its author actually writes it, but narratively taking us back in time (and space) in the city. In other words different spatial-temporal units of Buda are recaptured here through the temporally ordered (and disordered) act of narration, itself printed in the spatial form of a book. The task is to read the novel as a virtual veduta, helped by the fact that its hero is a painter, working on his masterwork, entitled *The Window*. The story is in many senses self-referential: a lot of the events, protagonists and locations are taken from the biography of the writer. In a way the town Buda is here “identified” with one of its dweller, the book with its author.

To address some of the key problems of the book in a short form, a purely philosophical problem will be raised. How exactly should we imagine the ontological status of a city? In other words: what exactly makes a city? The paper argues that we can with good reason claim that it's a virtual entity, existing only in the minds and body of the inhabitants, guests and invaders of a city, who have embodied and linguistic experiences of parts of the physical and social environment (themselves always changing), as well as in the minds of those who are not familiar with the given city but who form a certain mental (pre)conception of it, through gossips, intimate chats, and further, wholly impersonal information bits.

Géza Ottlik was by profession a mathematician, with a very interesting theory of space-time. The paper wants to show that the story of *Buda* is an argument in favour of the virtual life of cities in human minds, bodies and interactions.

Keywords:

Budapest, narrative of a city, veduta, embodied experience, life of a city

Thursday 17 November
Room1 Auditorio 1 – Tower B, 11:45 - 12:00

A Drama in Time: The life of a city

Kit Devine
(Australian National University)

Cities are more than locations - they can be likened to living entities with lifespans of hundreds, or thousands, of years. Cities, like all places, are uniquely characterised by their topography and by the webs of history, cultural meanings, individual memories that overlay the architecture of homes, businesses, places of worship, civic buildings, parks and spaces. Cities are dynamic. Daily, weekly and annual rhythms drive patterns of behaviours in human inhabitants, fauna and flora. At the same time cultural expression in all its forms, tangible and intangible, is constantly changing. London during the 'Cool Britannia' period of the 1990s was different from the 'Swinging' London of the 1960s.

Museums devoted to the history of a city often try to capture this dynamic aspect of a city by showing a series of snapshots using dioramas or illustrations. Computer generated 3D models are increasingly common but these rarely use time, an inherent capability of the medium. This paper reports on the creation of a time-based virtual heritage city and the results from testing with a museum audience. The Virtual Sydney Rocks consisted of a dynamic and interactive virtual model of the built environment of one of the oldest districts of Sydney, Australia from 1788 to the present day. Users were able to take a tour, play a game or explore freely and they were able to set the time, the date and the speed of time.

Virtual environments are known to engender presence, a sense of being physically present in the virtual world, and time-based virtual heritage allows the creation of culturally and phenomenologically richer virtual heritage places leading to memorable and affective engagements with heritage. While being able to go to a specific place at a specific time gives users a richer sense of place, travelling through time in a time-lapsed fashion reveals the evolution of place over timescales outside of normal human experience. Navigable time was shown to be a popular and powerful tool for creating affective experiences, engaging learning opportunities and fostering a deeper understandings of heritage places.

Keywords:

Virtual heritage, place, time, education

Thursday 17 November
Room 1 Auditorio 1 – Tower B, 12:00 - 12:15

The measure of the ideal: the painted architecture of the Città Ideale

Irene Di Bernardino
(University “Sapienza”, Rome, Italy)

This present study focuses on the panels paintings preserved at Urbino, Baltimore and Berlin as well as the city of Sforzinda described and drawn by Filarete. This work aims to explore both metrically and virtually the environment of the Città Ideale. It starts from the role of the laboratory of linguistic experimentation that painted architecture played in the theoretical and artistic context of the Italian Renaissance.

The remarkable correspondence of these works to a perspective logic is the starting point for applying a geometrical restitution of perspective, in order to submit these painted spaces to metric and volumetric analyses. The deconstruction of the urban structure into its architectural components, by perspective restitution, allows for two different approaches. On the one hand, it allows for hypothesising on specific functional role of the „ideal cities“ in the urban context. On the other hand, it enables comparison between „ideal cities“ and the buildings of sixteenth-century masters, according to dimensional, typological and stylistic terms.

This study focus on the so-called *Città Ideale* of Urbino. It is reproduced by using images from three-dimensional models, both the traditional wooden maquette, at 1:50 scale and, a geometrical digital one. An animation extracted from this latter model relaxes the constraint of a fixed point of view by moving into the space of the *Città Ideale* with the purpose of evaluating the perspectival relationships and spatial connections. This „perspective walk“ shows the reasons for a visual harmony in this Western World“s aesthetic manifesto.

In the conclusions of my study I have developed mainly the following concept: the "historical" public space still has value due to its location and its precise recognition and self-identity; as opposed, "contemporary" public places are likely to be anthropological "non-places" because they have no identity, rational and historical quality. I think that the next mission of the Architecture is to rediscover the meanings of the places when designing new sites of progress. We need to recover the local culture, history and sense of the place that represent the increasing need of belonging to something and of the self-identity.

Keywords:

Geometric restitution, Frontal Perspective, Renaissance, Non-place, Città Ideale

Thursday 17 November
Room 1 Auditorio 1 – Tower B, 12:15 - 12:30

Reconstructing the image of the ideal city in Renaissance painting and theatre: Its influence in specific urban environments. Digital technology and visual culture

Carmen González-Román
(University of Málaga, Spain)

Isabel Alcudia Solís
(The National Distance Education University UNED, Spain)

The city devised by the humanists of the Renaissance involved the design of an urban prototype inspired by the classical language and iconic architectural elements of the city in Antiquity.

Before the urban reforms were implemented in the medieval city, the image of the city in Antiquity, lost and longed for, was visually conveyed both in Early Renaissance scenery and painting. Theatre and painting represent the appropriate way of experimentation and definition of a model that would eventually find its embodiment in the actual city. We are referring to one of Early Modern Age's urbanism principles: the monumental perspective. This paper shows a virtual reconstruction based on a comparative study between scenography designs of urban views, and similar landscapes used in painting, in order to eventually find correspondences with specific urban environments.

This analysis is the result of a research study carried out in a National Research Project of the Spanish Ministry of Economy and Competitiveness (Spain) entitled: *Appropriations and Hybridizations between Visual Arts and Performing Arts in the Early Modern Age*. The project has as a priority to progress in the knowledge of an essential aspect in the visual and material culture of the Early Modern Age: the theatrical and festive activity in an urban setting. To this avail, the correspondence is analyzed between the visual resources employed in both visual and performative arts, using the capabilities offered by 3D-reconstruction digital tools.

Keywords: city, urban perspective, scenography, visual culture, virtual reality.

2.The historic city from analogue to digital reality

Room 1 Auditorio 1 – Tower B

Chair: Alexandra Gago da Câmara

(Open University, Lisbon CHAIA, University of Évora)

Thursday 17 November

Room 1 Auditorio 1 – Tower B, 14:30 - 14:45

Project Évora 3d: research, methodology, reconstruction and visualization

Filomena Barros, Nicola Schiavottello, André Filipe Oliveira da Silva
(CIDEHUS, University of Évora, Portugal)

Gustavo Val-Flores
(Câmara Municipal de Évora, Portugal)

Évora 3d is a project in collaboration between the Câmara Municipal of Évora and the research centres CHAIA and the CHIDEUS at the University of Évora. It has concluded its first phase in 2015 with the virtual reconstruction of the Muslim town between the XI and the XII century A.D. The exhibition of Yábura (the ancient Muslim name) has closed its successful campaign in September 2015 at the *Convento do Remedios* in Évora. The new phase will explore the reconstruction of the medieval town from the period of the 14th to the 15th century. An initial textual database of buildings is been created and will serve as a base for the reconstruction of each architectonic element of the ancient town. The same database will also be used for the translation of the historical information facts to more engaging format for the final audience.

After the creation of the database, a first reconstruction attempt of architectonic elements and housing proposals will be pursued, allowing the creation of a first hybrid and dynamic 3d model. A new methodology for interpretation will be explored during the visualization stage, and while the Muslim town has been presented with a fixed rendered output to the final audience, this time around the final model will be visualized in real-time.

The initial hybrid 3d model will be inserted into a new 3d web platform (currently in development); this will permit the editing of the initial 3d model, as well as the presentation of the facts, such as the socio-economic aspects of the town during this period. This will be presented to the public of a possible new exhibition throughout 3d digital storytelling. According to this, the attempt will be to allow a full immersive experience, not only in terms of the unique approach to the reconstruction phase, but also when considering the models scale and the new instruments available for their presentation.

Keywords:

3d visualization, database, 3d reconstruction, socio-economic studies, public engagement

Thursday 17 November
Room 1 Auditorio 1 – Tower B, 14:45 - 15:00

***Viseu’s “Direita” street during the Modern Age:
from documentation description to the building
of a virtual model***

Liliana Andrade de Matos e Castilho
(CITCEM, Polytechnic Institute of Viseu, Portugal)

The historic city tends to disappear due to not only natural and manmade catastrophes but also the regular discourse of time and the adaptation to new cosmogonies and ways to inhabit. If the so called “buildings of exception”, that make up for symbolic and historical landmarks often survive, of those considered “current buildings” – that in fact constitute the vast majority of the urban setting – very few material remnants arrive to our times, that being as more of a truth the further we go back in History.

This communication intends to focus on Viseu’s “Direita” street during the Modern Age, as a study case and methodological testing object as to the possibility to recover and treat documental data envisioning its transposition into a virtual platform/medium. The utilized documental base is focused on the Viseu’s Cathedral Chapter property administration records, from a chronology dating from early sixteenth to late eighteenth century. From these documents one can obtain a complete or at least partial description of the buildings that form the mentioned street, either for the buildings implantation, volume and scale, or the specific dimensions of its composing rooms.

Through a qualitative and quantitative analysis of the compiled data and integration multidisciplinary contributes from architecture and design, it is possible to digitally (re)create these buildings, starting with the creation of plants and facades (using AutoCad), deriving in future to an augmented reality interaction, by developing an App (using Vuforia) available to the public through QR codes , allowing for a transition from abstract to concrete and a clearer perception, for researchers and general public alike, of an historic reality of which almost nothing remains.

Thus, a continuous and potentially interactive reading of a city (and/or street) is made possible, overstepping the boundaries created by the lack of material remnants and the documental “immaterial” descriptions, to achieve a solution that configures a compromise that allows for the construction of the contemporary city and the widest possible knowledge of the historical city, the first is built upon.

Keywords:

Viseu’s “Direita” street; Modern Age; documentation description; virtual model

Thursday 17 November

Room 1 Auditorio 1 – Tower B, 15:00 - 15:15

The Real Ópera do Tejo: between Atlantes and Tritons, a baroque module in the Enlightenment reconstruction of the city

Luis Alves da Costa

(Escola Superior de Artes Decorativas da Fundação Ricardo do Espírito Santo Silva, Lisboa, Portugal)

Following the research promoted, among others, by Pedro Miguel Januário, Alexandra Gago da Câmara and Aline Galach Hall, the mythical baroque building of Giovanni Carlo Bibiena, the Royal Tagus Theatre, is back to the cultural and academic agenda concerning contemporary Lisbon.

As a landmark of architectonic skills and political statement, the Tagus Opera was a key piece in the imaginary of its time. After the unfortunate loss, it resurfaces in today's imaginary, but as a digital presence.

Insofar, we are able to fully realize its influence in urban *pre pombalino* trace. Nevertheless, the ways by which its ephemeral existence could have influenced the urbanistic guidelines of the rebuilt city or even how its ruins continued to determine the route of reconstruction are still open to discussion.

After the destruction of this scenographic icon of power, was it only a pragmatic orientation that assisted Manuel da Maia, Eugénio dos Santos and Carlos Mardel's solutions of reconstruction? Should it be acceptable to consider that between the fuzzy baroque conception of the Italian architects and the rational, military, view of the disciples of Azevedo Fortes there is a sort of abyssal gap? In a time seeking for urgent and practical maps and plants, should we suppose that the *Casa do Risco's* rebuilders looked at the Theater's ruins as a mere testimony of glorious past, or that they intended it as an interlocutor for their new volumes and architectural innovations? This communication seeks to validate the hypothesis that the ruins of the Tagus Opera played a decisive role in the *Plano* guidelines.

In order to deal with such questions we will meet again the Royal Theatre of the Tagus Opera through the potential analysis, retrieval and display of virtual instruments. Thus, we shall revisit the places, the measures, and broadening issues concerning both the ephemeral monument and its urbanistic surroundings, applying *Google Maps Pro*, *Autocad*, or *Google SketchUp* possibilities.

In the path of the imaginary places of Urbino, Baltimore and Berlin, and supported by the effectiveness of digital media, Lisbon shall thus appear as a utopian materialization of the Ideal City.

Keywords:

Royal Tagus Opera, Ideal City, Baixa, Digital City, Digital Humanities

Thursday 17 November
Room 1 Auditorio 1 – Tower B, 15:15 - 15:30

Mapping from relics

José Camões

Bruno Henriques

(Faculdade de Letras da Universidade de Lisboa, Portugal)

Theatre gradually attains the qualities and status of an art during the 16th century. From its inception as an entertainment given in royal rooms on festive days it spreads out to the every-day large areas of a social and cultural community, and ends up claiming a house of its own where it can be performed. The first documented public theatre in Lisbon (Pátio das Arcas) dates from the late 16th century; it was still functioning on the eve of the great earthquake, in 1755. Other playhouses coexisted but had closed before the dawn of the Enlightenment.

On the second half of the 18th century the reconstruction of the city led to the building of royal theatres and a number of public theatres – a considerable number in fact, taking into account the city's size and demographics; in addition, some theatres were planned but never built. We have counted more than twenty playhouses so far (they are all lost), which were scattered within the boundaries of the city. A century later, theatres would concentrate in the city's prime area, the so-called "noble district".

We are currently researching the location and history of the lost theatres in Lisbon from the 16th to the 19th century, and outlining their integration in the city. This paper maps the city's venues, indicating their sites and timelines; at this stage of the project, we have found the documentation that allowed us to create 3D models of several theatres. The information we have collected encompasses different layers of preserved memory, from the "palimpsest" to the strictly documental evidence:

- a) The mere change of function, preserving some elements of the building in part or in full;
- b) The demolition and subsequent construction of a new building, with a new function, at the same location, usually maintaining the same volumes and urban context;
- c) The demolition and the substantial alteration of the surrounding area, usually a consequence of a plan for the modernization of the city.

We present an assemblage of relics that, once organized, will add to the knowledge of the morphological evolution of the city and to the preservation of a cultural memory and heritage.

Keywords:

Theatre architecture, Lisbon History, Theatre history.

3.The historic city from analogue to digital reality

Room 1 Auditorio 1 – Tower B

Chair: Leonor Botelho

(Faculty of Humanities, University of Porto)

Thursday 17 November

Room 1 Auditorio 1 – Tower B, 16:00 – 16.15

The manor houses of Lisbon and Rio de Janeiro and digital reconstruction

Ana Lucia Vieira dos Santos

(Escola de Arquitetura e Urbanismo

Universidade Federal Fluminense EAU-UFF, Niterói, Brazil)

Rio de Janeiro has suffered many radical urban interventions, with the loss of an important part of its ancient buildings and original street grid. The reconstruction of the lost city and of lost buildings is highly speculative, and poses theoretical and practical problems. The Portuguese policy of secrecy about its most important colony kept foreigners away from the country, and restrained the production and circulation of maps and images of the land. The written documentation about the city suffered an important loss with the fire that consumed the city hall in 1790. Before we reach the point of producing a digital reconstruction model, many written and iconographic documents must be found, understood and interpreted. Mapping can be achieved through iconography and cartographic documentation. The Laboratório dos Estudos de Patrimônio (LEP-UFF) is working in the reconstruction of the city's grid around 1870, merging information from different manuscript sources in an ARCGIS map. In addition, the map contains land parceling and the horizontal projection of the buildings. In the project "A Casa Senhorial: anatomia dos interiores", we have been gathering information about existing and lost manor houses, both in Portugal and in Brazil. The survey of existing houses produces photographic and drawn documentation of the interiors, accompanied by research in public and private archives, as well as art collections. The work intends to register the present condition of the buildings, their decoration and furniture, as well as understand the interventions that modified the original design. The study of these houses improves our understanding of building systems and materials, measurements, uses and even taste on both sides of the Atlantic. The project now reaches the point of 3D documentation and reconstruction. The existing buildings are documented in photogrammetric techniques using open-source software, in the interior as well as in the exterior, in order to generate both planimetric drawings of walls and façades and 3D models of the buildings. The challenge now is how to treat and match the gathered written information with digital modelling, in order to achieve visualization of the lost buildings described in the documentation.

Keywords:

Heritage, manor house, interiors, mapping, Rio de Janeiro

Thursday 17 November

Room 1 Auditorio 1 – Tower B, 16:15 – 16.30

The Story of the Venetian Ghetto in the Nineteenth Century – a virtual heritage digitally revealed

Alessandra Ferrighi

(Università Iuav di Venezia

Venice Architecture University, Italy)

Following the fall of the Republic, on July 10th, 1797, under the watchful eyes of the Municipal Guard, the gates that locked the Ghetto go up in flames, accompanied by celebrations and joyous dancing. The occasion brings to an end the long period, lasting almost three centuries from March 29th, 1516, of the segregation of the Jewish residents of Venice from their fellow citizens. The appearance of the Ghetto today is far cry from how it looked in the past when it contained the Jews: the Campo del Ghetto Nuovo (main square) then circled by porticoed buildings, the houses rising to eight or nine floors, the alleys of the Ghetto Vecchio forming a network of narrow passageways. Reconstituting, with the help of digital technology, the broad lines of the various stages of the nineteenth century Ghetto's transformation, from a close philological analysis of the available sources, became a challenge vital to the obtaining of a snapshot of how the Jewish Ghetto must have been when the gates came down. This proved feasible going backwards in time, trawling through the copious documentation spanning the whole of that century, adding and subtracting buildings and *calli*, and noting demolitions or reconstructions, the opening or closing of pedestrian walkways.

The aims of our research were twofold. First, to present an overall picture of the transformations over time of a unique area in the city of Venice, on the basis of the sources analysed. And second, to provide basic material for future investigations into earlier phases before the opening of the Ghetto gates, in historical epochs for which the sources are very fragmentary.

The study and interpretation of the nineteenth century transmutations has allowed us to reconstitute by means of 3D modelling, both on an urban and an architectural scale, a comprehensive image of the Ghetto within its confines. These 3D are on show in animated video form to the wide public attending the 'Venice, the Jews and Europe' exhibition at the Palazzo Ducale, continuing until November 13th. By ensuring an accessible and readily understandable reading of urban phenomena in relation to changes over time, we have, we believe, achieved our aim of making available findings that would otherwise remain between the covers of history books.

Keywords:

Venice, Nineteenth-century, Ghetto, Digital Heritage

Thursday 17 November
Room 1 Auditorio 1 – Tower B, 16:30 – 16.45

Visualizing the physical changes in the historic tissue of Samos village between 1889 and 1931

Estefanía López Salas
(School of Architecture, University of A Coruña, Spain)

The building of a new road resulting from a national plan to improve the communications of the late 19th century in Spain caused deep changes in the historic tissue of the monastic village called Samos and in its surrounding rural landscape. The aim of this paper will be to analyse the impact of the planning of this new route over the centre of the village, its buildings and its public spaces as well as investigating the changes in the organization of the existing urban and rural property. The research will be based on archival data, old plans and the examination of the present reality. Among all these sources, the most important for this work is a group of written and drawn documents which were done by civil engineers in the late 19th and the early 20th centuries in order to define the project of the above-referred road. They contain valuable information to discover how the ancient tissue of Samos village was before this significant transformation. In other words, these archival documents will allow us to reconstruct in 2D plans and 3D models the lost image of a historic Galician town as well as understanding the consequences that the construction of a new way of communication caused in a centuries-old monastic village through which it was begun to outline the modern-day one.

Keywords:

Samos village, permanence, losses, archival data, virtual models

Thursday 17 November
Room 1 Auditorio 1 – Tower B, 16:45 – 17:00

A lost or a transformed city? Historical GIS for the study of Lisbon's retail trade (1890-1910)

Daniel Alves
(IHC-FCSH, Nova University of Lisbon, Portugal)

It often reads in the press today that the "traditional" retail trade is dying and that this will bring profound changes to the daily life of the cities. The city of Lisbon and the Portuguese press does not escape this discourse. However, if we look at the history of cities and the discourses about their traders that have been made in other historical moments, we realized that perhaps the most traditional in the traditional retail trade is the speech that it is dying and that with him will disappear the city as we know it! And it is traditional because it is a speech that is repeated, either in Lisbon or in other cities, such as London, for instance, where in August 1902 the British newspaper *The Times* inserted an article announcing "The passing of the grocer", as a result of a crisis in the small retail trade that apparently had bankrupted more than 900 stores. It is a discourse that recurs whenever the cities go through times of crisis, even though they are growing crisis, as happened in the late nineteenth century to the twentieth century with several European cities. But what seems certain is that these crises were never able to dispel the retail trade. They potentiated changes sometimes very abrupt, in other cases more gradual. They stimulated reconfigurations in typology and geography of the retail trade in the cities that were in the process of urban and demographic transformation. With this paper we intend to analyze precisely one such mutation moments in Lisbon between 1890 and 1910, characterizing its commercial sector, analyzing its geographical distribution and identifying some of the drivers of change. This will be done through the use of historical GIS for the analysis of detailed information about the localization and characteristics of every single shop in the city streets that are preserved in Lisbon's municipal archive. With this case study we hope to contribute to a more general knowledge about the processes of urban transformation in the contemporary European cities, trying to show that the cities' retail trade didn't died but was transformed.

Keywords:

Retail trade, urban history, historical GIS, Lisbon

4. Cities, tourism and digital heritage

Room 2 Multiusos 3 – Building I&D

Chair: Catarina Valença Gonçalves(SPIRA)

Thursday 17 November

Room 2 Multiusos 3 – Building I&D, 11:30 – 11.45

Digital heritage, the new tourist attraction lever. The case of the city of Annaba in Algeria

Chibane Douniazed

(University of Constantine 3, Algeria)

Cultural heritage is an essential component of the city and can be an element of significant tourist attraction for the area. Nowadays, more and more cities around the world are committed to their cultural heritage a tourist attraction lever, indeed tourism and heritage are intimately linked, cultural tourism is therefore required as sector should not be overlooked and as a major challenge for economic development. If the definition of heritage by UNESCO is the legacy of the past, what we live today and what we pass on to future generations, it will be question of the mode of transmission to be used to enhance and transmit the heritage in order to tourist attractiveness. For this the digital evolution can provide answers by providing a heritage valuation that fits the era of time and enables the dissemination to a wider audience, through online mediation offers 3D, virtual tour.

Indeed digital heritage plays an important role in tourism promotion territories today, in this sense, Annaba like many Algerian cities experienced the many civilizations that passage which today gives it a rich heritage listed part, and we will focus here especially to the museum and archaeological site of Hippone and Basilica of St Augustine, three iconic heritage institutions in the city.

The ultimate aim of this communication will be focus on digital innovations for heritage institutions in other words we focus on digital devices used by the archaeological museums and historic sites to showcase their collections, and the role of information and communications technology (ICT) in tourism promotion of territories, Thereafter, it will be our case study approach the museum and the archaeological site of Hippone , through a diagnosis of this heritage potential and mediation tools which are currently in service. After a comparative type of thinking it will issue favorable digital device to the mediation of cultural heritage to set up for the site of Hippone.

Keywords:

Cultural heritage, digital heritage, tourism, preservation, promotion.

Thursday 17 November

Room 2 Multiusos 3 – Building I&D, 11:45 – 12:00

More than reality: AR technology and other digital features of Barone Fortress in Šibenik

Josip Pavić

Morana Periša

(Šibenik City Museum / Fortress of Culture, Šibenik, Croatia)

This year, Šibenik celebrates its 950th anniversary. The city had developed under the St. Michael's Fortress, a checkpoint on the ancient maritime route. Šibenik experienced a strong social, economic and urban growth in 15/16th century, evidenced by the urbanistic form and features of the Old Centre – the city walls and fortresses, gothic and renaissance-style churches and aristocratic palaces. The most representative building of that period is St. James' Cathedral, a UNESCO World Heritage Site.

Šibenik had only recently turned itself towards revalorization of its rich cultural and historical heritage. Using EU funds, the City of Šibenik has realized revitalization projects of two of the four city Fortresses in the last four years, with the third one pending. The summer stage of St. Michael's Fortress has already become the leading cultural and touristic attraction of Dalmatia, with over 300.000 visitors since its opening in June 2014.

The second revitalized fortress – Barone – opened its doors on January 29, 2016. The fortress itself was built during the Ottoman-Venetian War of Candia, in only two months of 1646, just days before the unsuccessful Ottoman siege. Barone project, initially devised by a local NGO (*Juraj Dalmatinac* Society), was further developed and later realized by an interdisciplinary team of City officials, museologists, architects, marketing and IT experts, filmmakers and various other professionals. For example, Šibenik City Museum employees have collected extensive historical and cultural data about 17th century events, appearance and lifestyle regarding the city of Šibenik and its inhabitants. One of the few primary sources – Frane Divnić – historian and Šibenik native, was later prominently used as a character and storyteller in the developed content. Among many features of the Barone Fortress, the most attractive one is *augmented reality platform* (AR), through which a visitor can relive a dramatic historical story in a modern and innovative way. The tour presents a mixture of AR characters and action with 3D animations showing the city, its fortresses and the siege of 1646/47. With intertwining the past, present and future, Barone Fortress became one of the top stories in the region and an excellent example of contemporary museum experience.

Keywords:

Šibenik; Barone Fortress; revitalization; augmented reality; heritage

Thursday 17 November
Room 2 Multiusos 3 – Building I&D, 12:00 – 12:15

***Designing the “Sabrosa: Landscape and Heritage”
exhibition at the Google Arts & Culture:
challenges and results***

Maria Leonor Botelho,
Lúcia Maria Cardoso Rosas
Hugo Barreira
(CITCEM/FLUP, Porto, Portugal)

As part of the MA in History of Portuguese Art at the Faculty of Arts and Humanities of the University of Porto, an exhibition was organized, dedicated to council of Sabrosa, in the Douro Wine Region, a UNESCO World Heritage Site in 2001. The exhibition aimed to present the landscape and heritage of Sabrosa, based on the combination between the past and present, choosing the parishes which, by their location, are more related to the culture of the vineyard. Preference was given to aspects which define the spirit of place as understood by the 2008 Quebec Declaration. The exhibition’s conception was defined by teachers and students who, over the 2015/2016 academic year, were dedicated to fieldwork and research in libraries and archives, as well as work accomplished through classroom assignments. The development of the exhibition on the Google Arts & Culture platform became an enriching learning experience for the students, as they produced the images and wrote the descriptions, and for the teachers, curators and authors of the section texts. The exhibition served as an exploratory tool through which research methodologies could be applied to a collective project. The ability to create cultural products in a pedagogical setting, particularly noticeable in the analytical comments included in the “Details” of each image, was this project’s central motivation. In this paper, we therefore intend to systematize and reflect on the process of designing this exhibition, which the "user/visitor" can explore through a free-access virtual platform, and whose prime aim is to show different views of the city.

Keywords:

Sabrosa; World Heritage; virtual exhibition; Google Arts & Culture

Thursday 17 November

Room 2 Multiusos 3 – Building I&D, 12:15 – 12:30

Porto – The invisibleness, loss and transformation of the city of water

Mário João Mesquita

(Faculty of Architecture, University of Porto, Portugal)

Cities are a huge battlefield between memory and oblivion. Considering the link between space, social and time condition, progressively more the museification of the past exclusively supported on materiality becomes insufficient to understand human identity. However, this outlook starts changing: considering immateriality in the patrimonial speech, promoting interdisciplinary cross overs and digital platforms maximization, it now displays different paradigms concerning new ways of representing the past, its disappearance, concealment or transformation, widening knowledge, enriching contemporaneity.

Cities, like humans, have changed. After trans/interdisciplinary readings, we realize that this process left multiple layers' overlays, many of them made invisibles, but, even so, significant in our contemporary condition: as "urban beings", builders of urbanity and citizenship. As part of these invisibilities, appears the "city of water" and its nineteenth century layout. This is a missing and submitted to the enormous transformations on water sector "city", whose implementation matters to disclose, in order to recognize and overcome the contradictions of one of the most strategic public services, understand its relevance as essential and universal good and reflect on its role in today's city and territory planning and development. In Portugal, Porto is a singular example for his pioneering, experienced solutions and large spectra of national and international political, social, technical and financing actors involved. This local process of structuring of the public service of water supply and sanitation, under way since the last quarter of the 19th century, helped to build the city as we now know it. However, its dominant matrix of underground and "anonymous" labour, with no exceptional buildings, provided current disregarding for its recovery.

The present communication is a reflection on the current patrimonial process of exhibit and preserve the memory of this urban work in Porto and it's made upon an extensive and intensive scientific research I've been leading. After several years of research on the subject, it was possible to me to draw up a heritage preservation plan that, through digital objects and documents, will (as a digital museum and archive) enable the local service of water distribution to show the richness of this invisible, only apparently missing, city.

Keywords:

invisibleness, loss, transformation, city of water, Porto

5. Cities as virtual museums

Room 2 Multiusos 3 – Building I&D

Chair: Joana Sousa Monteiro (Lisbon Museum)

Thursday 17 November

Room 2 Multiusos 3 – Building I&D, 14:30 – 14:45

Communication/Representation/Sharing of Digital Heritage. From Visualizing Venice to Visualizing Cities

Andrea Giordano, Cosimo Monteleone, Paolo Borin, Isabella Friso and Leopoldo Repola (University of Padova, Department of Civil, Environmental and Architectural Engineering, Italy)

If we consider the basic meaning of the term "communication," as "the imparting or exchange of information, ideas, or feelings," we understand that within the act or the instance of communicating is embedded the ways in which we *share information*, through speech, gesture, signs, symbols, telecommunication systems, publishing and broadcasting.

The term "representation," on the other hand, aside from its simplest meaning as "presenting again" (re-presentation), is a term that includes the significant characteristics of knowledge, illustration and interpretation, as well as the communication of information, ideas, or feelings. The two terms presuppose, and necessarily require, notions of sharing knowledge, a concept that is inherent in the etymology of "communication", in the sense of "making common" and "pooling" a part or portion of something owned, allotted to, conceived or contributed by a person or, in ideal conditions, a group. This consolidated process requires a new gestuality that is enabled by the use of emerging visualization tools and new technologies.

We would like to analyze the close relationship between communication-representation-sharing that forms the basis of the *Visualizing Cities* project, and how new media digitally can facilitate this process.

Our paper will trace the development of an international research program that involves the University of Padua, Duke University and IUAV – Venice, research that demonstrates how the documentation and understanding of cultural sites can be addressed as a multimedia process through the digital representation of the shape, condition and appearance of historic monuments. This presentation utilizes examples from Venice, Padua, Carpi and Napoli to show three distinct phases for this kind of inquiry:

- 1) Data acquisition: archival documents, laser scans and photogrammetric surveys can be processed and organized through 3D modelling and implemented between interoperable platforms.
- 2) Data communication: the information gathered with the methods listed above can be conveyed through the design of apps and interactive systems for multimedia devices and web platforms. This process entails designing and testing augmented reality and 3D models for multimedia devices and the implementation of immersive reality.
- 3) Sharing: integrating the models as a means of analysis into the process of conservation of the architectural asset with the virtual reconstruction of architectural features.

Keywords

Representation; Interoperable 3D Modeling; Immersive Reality; Virtual Museum.

Thursday 17 November

Room 2 Multiusos 3 – Building I&D, 14:45 – 15:00

The polychromatic element in town festivals, the forgotten colour of the fleeting architecture

Maria Victoria Sotto

Isabel Alcudia Solis

(The National Distance Education University UNED, Spain)

Festivals, in the times of the “old regime”, were essentially an experience for the senses and involved all five of these, as we know from the literature and chronicles of the time. Nevertheless, that aspect has now vanished - nothing has survived of those scents and aromas; feasts and banquets; dances, music and deafening boom of fireworks which would amaze the audience looking on. Nor has that ephemeral architecture which graced the city lived on. However, its loss has not been erased from the memory, thanks to the writings published for those occasions. These are chronicles which narrate these events defensively, but in great detail and thoroughness. Through them we can investigate another sensory component - sight - since the colour and polychrome of this ephemeral architecture is present in the narration of the “*Relaciones de fiestas*”. This has not been lost, nor has it been deleted from our memory of history; it has left sufficient traces to propose an interpretation through a virtual application.

Using digital technology, our proposal is to describe the colour of festivals through the ephemeral architecture of the second half of the eighteenth century, which became part of the city of Madrid for a few days. The *Relaciones* of entrance and proclamation by Carlos IV (1789), and their information on the colour applied to these temporary structures, fashioned on canvas and wood, will be the primary source of research, based on prints, engravings, the paintings preserved, the testimony of travellers, treatises on painting, and recipes, etc. The period chosen is of considerable interest, since the dates of these festive events, a very clear development could be seen in architectural style - from the classic Baroque to a neoclassical language - and along with this a different way of understanding colour. The selection of some of the temporary structures erected in Madrid in the eighteenth century will offer a digital perspective of a transformed city.

Keywords:

polychrome, colour, ephemeral architecture, royal entrances, virtual application

Thursday 17 November

Room 2 Multiusos 3 – Building I&D, 15:00 – 15:15

Frankfurt here, now and digital: participation and citizenship at the Historical Museum of Frankfurt

Katharina Böttger,
Franziska Mucha,
Érica de Abreu Gonçalves
(Historisches Museum Frankfurt, Germany)

In the perspective of urban space, the use of digital objects, the creation of digital expressions, the sometimes establishment of digital bonds is already a reality. In this sense, Frankfurt Now! is a permanent exhibition, which will research the city of Frankfurt trying to collect and display the many perspectives of its inhabitants. Within this new framework, the Historical Museum of Frankfurt will undergo a transformation from historical to city museum, in which it will enable the citizens to collaborate in a digital platform to create contents that intend to convey their own perspectives. Therefore, some practical and theoretical questions emerge such as the challenge to integrate numerous, dense and chaotic perspectives in the museum, produced by people with few aesthetic or artistic knowledge and conceive how these multiple outside subjective views can be displayed in order to be interesting and comprehensible to other visitors. Furthermore, by taking the exhibition as an ever going process, the institution will be defied to deal with disorientation of visitors and with a the negative connotation of a “work in progress” image and still bring people to feel, interpret and understand the city through the museum and other people’s perspectives. The Historical Museum of Frankfurt will try to provide a space where people can appropriate the digital realm to make their subjectivity emerge but also as a tool to tackle contemporary questions of transforming cities and to play their roles as citizens. It’s another way to explore the city and to connect with other people, corroborating in another way to interact with one’s own heritage and identity, hence transforming the image and role of museums in contemporaneity.

Keywords:

Participation; citizen curatorship; digital objects; subjectivity; artistic research

Thursday 17 November
Room 2 Multiusos 3 – Building I&D, 15:15 – 15:30

New approaches to cultural heritage: when virtual materializes values and meanings

Anna Rachel Baracho E. Julianelli
Sérgio Rodrigues Bahia
Felix Carriello
(Universidade Federal Fluminense, Brazil)

This article seeks for expanding the approach between presentation field practices and heritage interpretation - the so-called virtual heritage. Our developing research looks for a mediation between the various perceptions which can be represented on digital media showing not only what the technique is conducted to see in the cities, but also the sensitive and symbolic characteristics of places. The theoretical and methodological approach here proposed is the notion of reflexivity (urban image as identity mirror) providing the residents of the town a new way of looking at it (representation in 2D to 3D), as an experimental field to access certain subjective intrinsic valuations. Through this representative extract, we understand what are the effects caused respecting the valuation identities and symbolic marks. Therefore, the work was divided in two procedures: survey and production of material (photographic records and videos with drone) and prototyping with photogrammetry. The small cities studied were an important coffee production network in the nineteenth century of Brazil, the depletion of this economic cycle and the abolition of slavery led to economic decline; the region is today associated with the short story "Dead Cities", written in 1919 by Monteiro Lobato. Aside from this decay, the material memory of this time is still present in the original layout and the houses that, has even changed, maintain their ambience. The small urban scale allows a clear and possible set of detailed record and enables the representation of places that carry a heritage meaning for those who live there. In conclusion, the city can be seen from two different new angles: for the inhabitants it is the opportunity to see reflected their identity, and for technicians and academics, the design of new tools for management and heritage education, through the evidence of new relations of architecture and urbanism with the landscape. Photogrammetry and virtual representation of small historical centers allow the interaction between technics, connectivity between knowledge and the materialization of values and meanings.

Keywords:

Historical cities; memory; virtual heritage; materiality; Brazil.

6. Cities as virtual museums

Room2 Multiusos 3 – Building I&D

Chair: Helena Barbas (FCSH, Nova University of Lisbon)

Thursday 17 November

Room 2 Multiusos 3 – Building I&D, 16:00 – 16:15

Gameful Places: Expanding the Space of City Museums through Play

Sofia Romualdo
(University of Exeter)

In a world where personal digital technologies have become ubiquitous, digital experiences in museums are now a commonly accepted practice. Technologies such as smartphones, locative media and sensors of all types are being used to improve the ways visitors experience the museum's physical galleries, and also to expand the space of the museum outwards, to incorporate the communities around it. This is particularly relevant for city museums, which are indissociable from the physical urban environment in which they exist.

As one of the most popular digital technologies, videogames are played by people of all ages and from different backgrounds. They have begun to influence contexts besides entertainment, to improve areas such as health care and education, as well as culture and heritage. Play and games can be used to create hybrid spaces of possibility within museums and their surrounding cities. By blending a digital game layer with the physical spaces of the real world, players can create new meanings within familiar and unfamiliar urban and museum spaces. As blueprints for interactive experiences in the 21st-century, games have a lot to teach institutions about creating experiences that are engaging, thought-provoking, and fun, in a format that is both recognisable and appealing.

Exeter's Royal Albert Memorial Museum & Art Gallery (RAMM) has been creating innovative digital offerings since its reopening in 2011. Recently, the museum began using play and games to transform its physical and digital spaces, as well as to virtually expand the museum to the surrounding urban spaces. In this paper, we will explore experiences such as Church Detective, a digital game that connected the museum's Medieval wood carvings collection with their original places, and The Great Exeter Garden Quest, a gameful museum trail which created a playful way to discover the green spaces in the city of Exeter and their connections to the museum's collection.

More than just digital, the museum of the 21st century can be considered gameful. By engaging in gameplay, visitors are empowered to appropriate, re-interpret and add new meaning to urban and museum spaces, which are thus augmented and re-activated through play.

Keywords:

Play, game, museum, gameful, city

Thursday 17 November

Room 2 Multiusos 3 – Building I&D, 16:15 – 16:30

Ghosts in the Garden: locative gameplay and historical interpretation from below

Steve Poole

(University of the West of England, Bristol, UK)

Whether triggering place-specific interventions or enabling greater degrees of interactivity and agency for users, digital mobile technologies have transformed the visitor experience at many European sites of heritage. However, critical commentary on these innovations has been dominated by reflections on form rather than content and purpose. Rather than concentrate on the wizardry of the technology itself, this paper argues that we need to think more deeply about the value of mobile to query the ways in which we make knowledge at historic sites, and to reframe the process of engaging visitors with place. Used creatively, digital tools allow approaches to the heritage environment in which traditional assumptions about audience passivity and instruction from above are replaced by experiential, immersive and affective interaction. Locative game-play and non-directive design are considered here as spurs to reflective critical thinking and understanding. This paper will draw upon recent examples of innovative good practice in European and American urban heritage projects; in particular, *Ghosts in the Garden*, an interdisciplinary project, focussed upon the site of a long-vanished Eighteenth Century pleasure garden in the city of Bath, UK. The project grappled with the re-invocation of absence – both in terms of material culture (material traces) and quotidian life (spectral traces and ‘lost’ narratives). Thus freed from all obvious areas of focus, the project’s organisational rationale was to disrupt both the form and the content of traditional approaches to the use of mobile by requiring active public participation in a non-didactic modelling of knowledge through collective evaluation and decision making (game-play), and by commissioning unfamiliar and newly researched historical content ‘from below’.

However, what we need now are new dialogical, non-authoritative approaches to the interpretation of historic space that more closely reflect the processes of evidence selection and argument that characterise real historical thinking, invite affective embodiment and place the user at the centre of knowledge-making. Two options are suggested for further research and experimentation: 1) first person experiential interventions that privilege empathy over sympathy, and 2) more open interventions that impose no given instruction but instead allow users to ‘find’ their own narratives through self-directed movement between historically researched, non-didactic sound pools.

Keywords:

mobile, games, ‘history from below’, non-didactic, affect

Thursday 17 November

Room 2 Multiusos 3 – Building I&D, 16:30 – 16:45

The virtual museum as the activation and rewriting of the urban landscape

João Abreu, Margarida Carvalho, Maria João Centeno, Helena Pina, Maria Inácia Rezola, José Cavaleiro Rodrigues, Isabel Simões-Ferreira (Escola Superior de Comunicação Social, Instituto Politécnico de Lisboa, Portugal)

The city as a virtual museum addresses a diffuse conception of patrimony and museum and an experience of a digital “hybrid space” (Kluitenberg, 2010), marked by a conflation of presence and distance and blurred boundaries between intimacy and publicness, contributing to re-imagine our experience in the contemporary networked spatiality.

This urban hybrid space is traversed by an increasing interaction of participatory citizens giving way to a paradoxical play of hiding, transparency, nomadism and capture in digital networks.

Henry Lefebvre’s “representational space” (1974) highlights the social, biological and psychological dimensions of spatiality as a form of lived space. The city’s material culture enhanced by people’s perceptions and memories is now empowered by digital networks (cell phones, laptops and wireless technologies combined with locative media and social networks) thus giving rise to a “locational humanism” (Holmes, 2003) and a collective activation of urban landscapes. Bearing in mind the importance of place and locality within the context of a digital age, this paper focuses on the city as a virtual museum, a relational space which creates an urban allegorization and an immersion effect on the digital networks.

Such a museum becomes an experimental mode of living, a two-way street, calling for the activation and rewriting of the urban landscape by artists, curators, historians, scholars, communities, amongst other public.

Keywords:

Urban Landscape, Virtual Museum, Digital Networks

7. Digital Heritage: methodological and epistemological challenges

Room1 Multiusos 2 – Building I&D

Chair: Luís Gonzaga Magalhães (University of Minho)

Friday 18 November

Room 1 Multiusos 2 – Building I&D, 11:30 – 11:45

The virtual model paradigm in the analysis and dissemination of ancient urban facilities

**Paulo Bernardes, Natália Botica, Manuela Martins, Joaquim Madeira
(University of Minho, Portugal)**

At the Archaeological Unit of the University of Minho (UAUM), the entire archaeological process carried out in urban environment is strongly supported by UAUM's archaeological information system. This information system enables not only the management of the multidimensional data which results from the archaeological record, but also the information that outcomes from the research and interpretation process. Additionally, it delivers all the multidimensional data for the visualization process for further analysis and dissemination of the archaeological information.

There are several visualization tools that are suitable for archaeological purposes. However, the authors chose the Visualization Toolkit (VTK) from Kitware Inc., due to the UAUM's concern regarding the exchangeability of data between different commercial or open-source applications. VTK is a free, open-source and cross-platform software system for 3D computer graphics and visualization.

As with the scale model in architecture, the virtual 3D reconstructions should work as a digital virtual mock-up, able to be disassembled to better understand the volumetry of structures, the way they relate to each other and their relationship with the surrounding space. Of course, this paradigm of "virtual model" can only be achieved by including some features that allow the "deconstruction" of the model. Our approach for implementing the virtual model paradigm is based on VTK's interactive data manipulation techniques. We combine different interaction styles to ensure basic data interactions such as translation, rotation and zooming that enable simple scene/data analysis. A more complex interaction procedure allows to continuously retrieving the volume section of the architectonic structures. This procedure is implemented with 3D interaction widgets that are combined with cutting techniques and visualized in separate render windows. To improve the understanding of the data other widgets are used, such as the scalar bar or the legend scale.

These interaction advantages are essential to enable researchers to "deconstruct" freely any virtual model and it appears as a clear benefit over traditional scale models used in the representation of built heritage. It is clearly an instrument that may be relevant to the analysis and study of the stratigraphy.

Keywords:

Archaeological Information System; Archaeological data Visualization; Virtual Model; VTK; Open-source Systems

Friday 18 November

Room 1 Multiusos 2 – Building I&D, 11:45 – 12:00

A Digital Recovery of the Lost City of the Incas: Cuzco

Patricia Morgado

(North Carolina State University, US)

Since its discovery in 1911, Machu Picchu has been known as the “Lost City of the Incas,” a title actually best suited for Cuzco, the capital of the Inca Empire. The Spanish conquest had no impact over Machu Picchu and thus the city remained unaltered. Cuzco, on the contrary, would face a very different future. Despite the conquerors’ astonishment over its carefully planned grid layout featuring plazas, palaces, temples, and over 4,000 residential units, from 1534 to 1590 the city was significantly dismantled to build a Spanish city over its remnants; most of the Inca constructions were stripped of their materials and only one building and some isolated walls survived. In less than a century, Cuzco became the Lost City of the Incas.

And the loss still endures. The singularly hybrid city resulting from the superposition of the Spanish architecture over the Inca remains has been studied extensively. Regretfully, this scholarly attention has occurred at the expense of research and documentation of the Inca built heritage. In fact, the latest complete inventory dates back to 1996 and is limited to a plan that, other than locating the remains, offers no further information--such as elevations, sections and the city’s topography--that would allow the visualization of the lost city. Are these efforts sufficient to avoid further loss? Clearly not. Although some progress has been made in the conservation of the Inca built heritage, for every step forward there have been several steps back. In the past decade alone, the revitalization of the most significant archeological remains--Korikancha and Kusikancha--contrasts with the irreparable damage of the superb masonry wall of the Acllawasi during the construction of a shopping center, and the dismantlement of retaining walls during the excavation of a 3-story hotel basement.

Convinced that regulations alone are insufficient to create awareness of Inca Cuzco’s relevance, I have been working towards the construction of a 3D digital model beginning with the development of indispensable 2-D material (up-to-date inventory and topographic map based on historical data). This paper will discuss the findings during this digital recovery of a lost city.

Keywords: Peru, Inca, Cuzco, Digital Visualization

Friday 18 November
Room 1 Multiusos 2 – Building I&D, 12:00 – 12:15

The Displacement of Architecture in Postdigital Humanities: neoanalogue indexes, syntaxes and configurations

Konstantinos Ioannidis
(School of Architecture, Aristotle University of Thessaloniki, Hellas, Greece)

the analysis becomes engaged in the path of transference
– and for us it is the index that this has taken place¹

This paper is part of a research project called “*Indexing Architecture*” that explores key issues on the displacement of architecture from analogue to digital landscapes. The way in which architecture is archived and exhibited has nowadays changed and the continuous emergence of numerous virtual museums and indexes is indicative of the role that digital technologies have on this peculiar displacement. This transmedia transference, however, is easier said than understood. The lacanian conception of the index proposes a possible pathway to conceive the displacement of architecture in post-digital humanities: a humanistic approach to the subject of codifying and displaying architecture and a similar humanistic understanding of web 3.0 leads on to this paper’s argument that digital indexes are in fact *configurations* with peculiar cognitive value. According to Bill Hillier², configuration is defined not simply as connections, but as relations that take into account other relations. At one level, this implies that positioning architecture in post-digital humanities is not at all about building the chronological infrastructure in the study of projects through digital repositories. Neoanalogue forms of indexing architecture do not limit media technology to static snapshots of buildings and public spaces; but instead try to expand the dynamics of the archive as to include the sets of interaction and interrelations produced by the medium specificity itself. In this paper, I explore a tentative path for the displacement to occur: by defining the idea of exhibiting architecture through web 3.0 not as a static repository but as a platform for interactive narratives of cognitive capacity, the main intention is to bring forth those user/machine relations that need other relations in order to become communicative. Moreover, I propose to expand its lacanian limits from something that simply allows us to arrange the individual parts that furnish the signifiers of a presentation, to a tool for the translation of the parts into elements and features with interrelated meaning –being the latter a traditional concern of the humanities. This approach draws from a recent work in digital indexes of architecture in the light of their humanistic engagements with media technologies. *DomesIndex*³, the first major effort to exhibit the contemporary Greek architecture in a narrative mode of tracing objects’ fragmented connections with their formative context, is reviewed as a tool for mapping controversies both within its exhibited projects and through their network of information.

Keywords:

indexes, postdigital humanities, cognition, neoanalogue

¹ Lacan. (2001). *Ecrits: A Selection*: Taylor & Francis. p.64.

² The term *configuration* is central to the syntactic conception of space as developed by Bill Hillier. It is used here in an analogical way, considering the Index as adopting a similar complex system of relations as the physical space itself. For more, see Hillier. (1998). *Space is the Machine*.

³ Manis, Panetsos and Papadopoulos. (2012). DOMES INDEX 2014, from <http://domesindex.com>

8. Digital Heritage: methodological and epistemological challenges

Room1 Multiusos 2 – Building I&D

Chair: Leonel Morgado (Open University, Lisbon)

Friday 18 November

Room 1 Multiusos 2 – Building I&D, 14:30 – 14:45

NA_G_AR project: resilient European cities

Polyxeni Mantzou

(School of Architectural Engineering, DUTH, Greece)

The European city's identity is constituted by the historical traces and chronological reminiscences that accentuate its prolonged existence. Planners and architects have often treated such heritage with indifference or neglect, causing disruptions that go beyond the physical environment and affect social coherence. Digital technologies provide us with a new opportunity to reinsert cultural heritage into public urban space as their immense potential for archiving, processing, circulating and transforming information, allows embedding digital to physical, creating a novel, hybrid condition: intense, as its digital aspects, and profound, as its physical ones.

Digital assets can be, and often are, detached, disengaged and infinitely multiplied but to connect and emplace digital cultural heritage to its context, instead of converting its dissociated and fragmented versions to consumable spectacle, is a critical decision. It leads to enrooting it, to associating it to the place, as culture is associated to the earth and civilization is to the city. This implementation of the digital to the physical can instigate profound and meaningful, reflective experiences.

The paper presents a project proposal NA_G_AR, where the strategy is to exploit the intensity of the digital without giving up the profoundness of the physical, by merging the two conditions in one new, hybrid condition. In order to re-collect lost memories and reinsert these city tales and NArratives in their original context, crowdsourcing through Gaming is applied and finally this digital material is elaborated and reinterpreted in ARTistic, interactive installations that are used in order to create a dreamlike, open-air, responsive, museistic experience in the public space of the city. The project is organized in different layers that interact with each other. As an interactive cartography platform, apart from the official stories and tales, there can be a continuous flow of narratives associated to places, through crowdsourcing. Maps instead of being authoritative and formal constructions become personal, subjective interpretations of the city and are inserted in a gaming experience, in order to stimulate and engage interaction. Specific narratives, chosen by collaborating artists are then recreated in a transparent, digital, interactive web of artistic installations, which stimulates gamers and reinforce their engagement. The dynamic and subjective cartography addresses a new kind of flânerie, a game-oriented and artistically- motivated drifting, which reveals hidden layers of the city and constitutes a multileveled hybrid experience in the public urban space.

Keywords:

city, resilient, narrative, gaming, hybrid

Friday 18 November
Room 1 Multiusos 2 – Building I&D, 14:45 – 15:00

Space syntax as an interdisciplinary research tool for the study of historical city

Rosália Guerreiro,
Israel Guarda
(CRIA- IUL, Lisboa, Portugal)

Space plays an important role in the way we live in cities, having direct relations in our social life, offering preconditions for the patterns of movement, encounter or restriction. In other words, the materiality of the urban built environment is agential in the production of social life and social meaning. Contrasting disciplinary perspectives on the city can be found on urban research. History, sociology and anthropology look at the built environment as a by-product of socio-economic process or as a purely representational process. On the other side, architecture and urbanism do not seek to explain the question of what material arrangements of a society have to do with quotidian practices. Space syntax is an interdisciplinary research tool which intends to facilitate the process of transdisciplinary framing for increasing scholarly interest across the humanities and social sciences in order to explore the relationship between the way cities are structured and the way they function. It is a way of researching cities to understand how social and spatial process shape space over time. The best know aspect of space syntax is a set of methods and techniques for analysing patterns of space or spatial configuration in the built environment. These methods and techniques both uncover spatial structures in cities and relates them to the way people move, stop and interact. A number of these methods have been successfully used for many researchers for more than 30 years including axial and segment analysis (for analysing patterns of street networks), visibility graph analysis or VGA (for analysing patterns of visual fields in public spaces) and spatial agents which evolved from the VGA methods (for creating virtual environments populated with pedestrian agents who have a limited form of forward-facing vision). The objective of this paper is to apply this set of methods and techniques on the study of historical city of Lisbon in order to highlight configurational patterns which are present in different periods of time. Different spatial cultures will be analysed as a result of spatial relationships based on maps and architectural drawings representing spatial layouts before and after the earthquake of 1755

Keywords:

Configuration, space syntax, spatial cultures, virtual community, spatial modelling and simulation

Friday 18 November
Room 1 Multiusos 2 – Building I&D, 15:00 – 15:15

Augmented reality in the urban context: a blurred frontier

Daniela Silva
(ISCTE - IUL, Lisboa, Portugal)

One of the most significant and momentous features of architectural avant-garde of the last 20 years is the proliferation of representational media and design processes.

The desire for the new digital design tools to be imported from the animation industry to architecture originated a tendency towards complexity and fluidity. The analogy of building and organism is as old as the self-conscious discipline of architecture itself.

The impact of the new 3D modeling and animation software increased, leading us to the development of a new language for architecture. Digital technologies - computer and computer-controlled machines - have pervaded all aspects of life, delivering sustained and accelerated rates of societal and economic evolution. Digital technologies will incontrovertibly be one of the key drivers of innovation of architecture and consequently the built environment in the 21st century. Human-machine combinations routinely outperform super-computers and super-humans. Computer and robots are making humans better. In the long term future it seems entirely plausible that an Artificial Intelligence will dominate and more pragmatically, in the near future there is an exhilaratingly rich period of symbiotic progress to be worked on. In other words, we are in the *Intelligence Augmentation* phase of human evolution.

Cities in the future will exist in both a physical and digital form and the frontier between the two will become increasingly blurred. We will be walking around the physical city but also visiting the digital, as a digital layer. As the technology evolves, it will enable people to explore the digital spaces like a real city, so that the crossover between the physical and the digital will increase.

Explosive innovation and adoption of computing, mobile devices, and rich sources of data are changing the cities in which we live, work, and play. A digital landscape overlays our physical world and is expanding to offer ever-richer experiences that complement, and in emerging cases, replace the physical experience. There's a lot of talk about the smart cities of the future. It's important to see in a realistic city setting how some of these technologies could become part of the way we operate with and within information-enriched urban environments.

This article will outline how design and technology are coming together to shape the future cities and the possibilities that technology offers by presenting itself as an extension of the human body towards the city. In the past, architecture was historically concerned with religion. In more recent times, architecture has been about sustainability and technology. And will be the future about the digital age? Technology has been used to help us dream, communicate and build. Taking the example of our massive use of the cell phones, we are already adapting our lives to this tool because it has become the extension of our body - fingers, mind and eyes.

With the development of VR glasses, self driving cars, robots, etc, technologies that are emerging with new uses and ideas, they are also showing us new ways and possibilities to shape our cities. Will they as well be the extension of our bodies, blurring the frontier between city, man and technology? And how will these changes shape the way we live the cities?

One thing we know: the way we live the cities will keep changing.

"Architects should consider a new ideal for a city of the future. We should gradually construct an urban environment that retains the convenience of the modern city [...]" Ma Yansong of MAD Architects

Keywords: Digital, virtual, reality, urban, city, technology

9. The historic city from analogue to digital reality

Room 2 Multiusos 3 – Building I&D

Chair: Daniel Alves (FCSH, Nova University of Lisbon)

Friday 18 November

Room 2 Multiusos 3 – Building I&D, 11:30 – 11:45

Found lost and alive cities in virtual exhibitions. Arab World and Europe (1815-1918) a bridge to a cultural and architectural dialogue

Maria de Fátima Nunes, Rim Gabriel Zougheib
(IHC – CEHFCi-EU, University of Évora)

Our proposal is to go around the thematic virtual exhibitions that we have prepared for *Museums With No Frontiers - Cities and Urban Spaces 1815–1918*, visibly embodied in alterations to the urban plans, views and architecture.

1. We can research on virtual realities such as cities, tourism and digital heritage; 2. Explore and compare civilizations and cultural framework; 3. To explore the possibility to link the past to the present through this virtual exhibitions on urban cities, architecture and planning hard structures during the long 19th century; 4. New proposals: virtual cultural heritage, cultural tourism and lost cities in the 21st century.

Cities and urban spaces: goals and practices - The study of the physical form of cities enables one to decode and describe many features of society. This is true in European cities as much as it is in cities of the Arab and Ottoman world. The significant changes that took place in cities during the 19th and early 20th centuries responded to the challenge of population growth, due partly to the migration of rural people to urban systems, and also partly the result of industrialization, technical developments and modernization. While the Arab and Ottoman world was influenced by the ideas, techniques and aesthetic values of the West, other cultural, economic and political impacts were felt as well. The response to the changing demographic in cities is visible in the buildings, in the new architectural types, in the conversion of old buildings and in the introduction of new forms of infrastructural organization. European architectural styles, which also manifested in the late period of Ottoman modernization, physically reshaped some cities of the Ottoman Empire. European architects, receiving commissions for buildings and urban planning, introduced a European architectural vocabulary to Arab and Ottoman cities, reflecting cross-cultural interrelations, but also revealing the European presence at socio-political, economic and military levels. In Europe, meanwhile, the “Oriental” style was highly fashionable: it was used as the subject of paintings and drawings, Turkish Ottoman and Arab motifs appeared in the applied arts, and architects. Let’s have a 19th century bridging the spaces, cities, cultures and civilizations displayed in this virtual exhibition which has been organized into a scientific dialogue between cultural history and architecture, Portugal & Lebam Universities. Our proposal is to display the virtual exhibitions which have been arranged according our patterns work.

1st. Entrance into the 19th spirit: The image of the city: [Identity](#); [The interconnection of design elements](#); [Design influence](#); 2nd. Historical sightseeing into the past: Urban planning and the instruments of planning: [Studying sites](#); [The urban skyline and city plans](#); 3rd. The cultural heritage in the 19th cities – symbols of the past: [New building types, new designs and architectural alterations](#); [Monuments Religious buildings](#); [Houses](#)

Keywords: Cities; Urban Space; Europe; Arab World; Nations

Friday 18 November
Room 2 Multiusos 3 – Building I&D, 11:45 – 12:00

Lisbon's religious houses digital reconstruction

Ana Gil
(CERIS, IST, University of Lisbon, Portugal)

Heritage is understood as a set of man's work, recognized and valued by a community which identifies with it. Memory, in turn, is testimony to the heritage of past generations and leads to the cultural identity of consciousness, where the assimilation by the community has a key-role in its preservation and protection through education, research, science and tourism.

It was prepared digital reconstructions, based on the London's Charter and the Principles of Seville, which are intended to enable the study, preservation and dissemination of architectural heritage. Such an approach required a broader study, going from the city scale to the building scale. Regarding the production of graphical data, it stands out by the development of three-dimensional models that evolve together with the research phase and the life of the building. So, it has been developed a cyclical methodology, with parametric and associative geometry - BIM models -, based on the development of digital models, allowing to at any time add information to the model. Recent advanced photogrammetry and laser scanner survey technics were used for model development, including analysis in some stages of the methodology. It is intended, with the present communication, to present and discuss the methodology used for digital architectural reconstructions, introducing the existent old convent spaces on extinction date in a digital form, and show how parts of them, or in whole, subtle remain until today. Lisbon religious houses represent a vast architectural heritage that marked and still mark the city's image. Considering that there isn't a global perception of its importance, it is essential to study and disseminate the past and present-day reality.

Keywords:

Principles of Seville, Digital Reconstruction, Digital Heritage, BIM, Religious Houses.

Friday 18 November

Room 2 Multiusos 3 – Building I&D, 12:00 – 12:15

Invisible Landscapes, a digital picture of S. Bento railway station in Porto

Cristina Ferreira Fonseca

(Faculdade de Belas Artes da Universidade do Porto, Portugal)

Creating an interactive digital portrait of an urban space of the city of Oporto, the São Bento train station, investigating how we can use the technology associated with digital images, to enlarge our vision of the world. This portrait image is made up of visions that show some of the dimensions contained in the space, from the visible to the invisible, from the real to the imaginary, from memories to everyday experiences. Thus, when we see the images that make up this interactive portrait, we can go back to a vision of the past, look at a detail of the station as we had never done, or watch scenes from everyday life that reality, always in continuous motion, does not allow. Through these images, the result of visual experiences that combine vision, perception and imagination, we see the no visible landscapes of S. Bento that are latent in that place. A creative discovery of space through the image is performed. The composition of the image that underlies the picture is inspired by the metaphor of the photographic lens and the human eye, the circular shape from which come all the images. The digital support inherent characteristics make possible to create an image with which the viewer can interact and establish a visual dialogue.

The digital picture of S. Bento station seeks to show that, as the process of seeing involves various sensory systems beyond sight, there is a multiplicity of different possible perceptions of that urban space.

It is revealed a multiple look on the station that seeks to enrich the partial perception usually obtained. It is in this territory, where there is an encounter between the capture, editing and re-editing, and final display of the digital picture that lies the essence of this reflection.

Keywords:

S. Bento station, portrait, digital, photography, imaginary.

Friday 18 November

Room 2 Multiusos 3 – Building I&D, 12:15 – 12:30

Virtualization and the preservation of a railway heritage

Fernanda de Lima Lourencetti
(University of Évora)

This speech aims to present the virtual as a hypothesis of a railway heritage revaluation, which have a big potential to integrate the urban grid making the citizens' life better. During the 1990s several debates about the virtualization as a threat or an opportunity for traditional museums emerged. Eventually, institutional museums make use of virtual exhibition, but even though, the virtualization is a polemic topic.

Some railway infrastructures influenced considerably in some cities configuration. The *Cité des Science de l'Industrie* in Paris put in evidence this influence thorough an exhibition about the means of transportation development in the urban environment, and it makes use of virtual and interactive technologies. Increasingly, the society demands the use of virtual resources. Some countries have built virtual platforms able to share urban experiences, such as Portugal and the United States (*Legacy Cities e Placemaking*). These initiatives face the *Big Data* challenge, which is based on the accumulation of an extensive number of data that must be organized and verified.

The railway of Araraquara (Brasil) made part of the city expansion and currently is in the process of deactivation. Its infrastructures have many prospects of preservation and reuse. The initiatives aim to safeguard the local identity related to the railway. The citizens' participation is fundamental, because their interest on the protection and reintegration of the railway infrastructure can improve the public policies, which would incorporate the economic, cultural and local potentials in a sustainable urban design.

The speech will insert Araraquara in the *Big Data* challenge presenting the creation of an industrial inventory as the first support given to the conception of a virtual data base able to be used as a tool to spread the knowledge of a railway heritage in constant changing. The introduction of this inventory aims to cause a reflection about the use of new technologies, the creation of virtual museums and the use of new urban planning concepts to enhance the value and to preserve a railway heritage through the design of a participatory urban planning.

Keywords:

Industrial heritage, Virtual museum, Inventory, Railway heritage.

10. The contemporary city and digital citizenship

Room 2 Multiusos 3 – Building I&D

Chair: Hugo Barreira (CITCEM/FLUP, Porto, Portugal)

Friday 18 November

Room 2 Multiusos 3 – Building I&D, 14:30 – 14:45

“AR_Deriva”

José Bidarra, Mauro Figueiredo, Isabel Carvalho
(Center for the Arts and Communication Research – CIAC, Portugal,
Portuguese Open University – UAb Lisbon, Portugal, Center for Marine
and Environmental Research – CIMA, Portugal, Superior Engineering
Institute, University of Algarve, Portugal)

“AR_Deriva” start with the notion that it is essential to understand cities to reveal the complexity of individual perceptions and collective memories when using urban spaces. Associated to the increasing desire of participatory citizenship, this is an intergenerational artistic intervention, which promotes sharing, collection and dissemination of a world heritage site at the village of Caminha – cross-border location in Alto Minho, Northern Portugal. Exploring the contribution of smartphone in the activity of urban drift as art practice, understood as a tool to interaction and a playful way (by georeferenced narratives) to preserve (to register and to show) information about that village’s urban spaces and to encouraged local population’s involvement by giving "voice to the stones". These shared moments between generations across the village, results in the artefact 'AR_Deriva', using technology to augment reality (AR).

The application "AR_Deriva" combines, in an interactive way, memories of other periods, told in first person, within the user’s reality: turning both technologically dynamic and promoting physical space/responsive interaction. By augmented reality and the use of mobile technology (smartphones), one set the encouraged of urban drift to the discovery of georeferenced narratives once experienced – one can see and hear the past, with the present as a scenario. The georeferenced narratives, in the form of short videos, contextualised with images (maps, illustrations, photographs, videos), were imbued with the physical space itself. The goal was to incite new perceptions of Caminha’s urban center and to contribute to the preservation of its collective memory.

Keywords:

Augmented Reality, Collective Memory, Locative Digital Media Art, Interactive Urban Narratives, Urban Public Engagement

Friday 18 November

Room 2 Multiusos 3 – Building I&D, 14:45 – 15:00

The “old” new online platforms and participatory dynamics in “Heritage making”: from a specific manifestation/element to the city as a whole

Rui Manuel Macário Nunes Ribeiro
(CITAR/UCP-Porto, Portugal)

Cultural Heritage is not and must not be assumed or defined as History, although it maintains a notion of historic record, or as in a free translation of ALMEIDA (1993: 414): “(...) [Heritage] only truly is, when it [the community] is aware of and assumes Heritage as such”. In that sense, the models and processes of participatory dynamics are best suited to analyze and intervene within and regarding Heritage.

The Viseu’s Feira de S. Mateus [hereforth FSM] research project can be an example of what was stated. FSM is an annual fair that dates back to the late fourteenth century and has come to adapt and adopt new dimensions throughout the times. Nevertheless, every new edition regular complaints and critics stated that it no longer was “the old FSM”. In 2015 one of the first actions was to create a “mapping”, by asking participants to mark where in the FSM they used to go and what was there, also what time frame they were referring to (and how old they were at the time). It resulted in a 100% reference to childhood, when that was their first contact with the FSM. The “old FSM” was mostly the FSM each remembered as a child or youngster. But, the one they remembered: not the one that had in fact occurred (as can be shown by documental records).

The next step was to create a platform that allowed for multiple remembrances could be inserted and complemented with factual or recorded information. That was achieved by use of a Wiki (that although recent is “intuitive” enough for the general info-included audience). By this, the results were even more surprising: each, maintained vivid memories of what was lived and experienced by them and close relatives, “missing out” on every other dimension of the FSM.

On another hand, memories of the FSM intertwined with Viseu’s territory and its agents: by recording FSM, they recorded the city.

Can digital citizenship related to Heritage be something different than “Heritage making” or should we assume the bias and strive to complement it?

Keywords:

Heritage; “Heritage Making”; Participatory Dynamics; Online Platforms; FSM

Friday 18 November
Room 2 Multiusos 3 – Building I&D, 15:00 – 15:15

Citizens' participation in planning of public open spaces - the contribution of the app way cyberparks

Tiago Duarte
(CeIED, Universidade Lusófona, Lisboa, Portugal)

This paper is concerned with the discussion on how information and communication technologies (ICTs) can be used to increase citizen's participation in the planning of public open spaces. It is built on the Project CyberParks⁴, which aims to increase the knowledge about the challenging relationship between people, spaces and technology, and the production of more inclusive and cohesive urban spaces.

The discussion will be centred on the opportunities ICT offer to support open spaces planning, by introducing examples of experiences made with digital technology to improve the public spaces. With the technological growth that we are experiencing, ICT allows not only planners to improve participatory methods, but it can also be a mean to bring people to be more outdoors and enjoy urban spaces.

The analysis is based on a study case in Lisbon, where the application WAY CyberParks is being tested. This app (smartphone app & web) is being developed to monitor how people use public spaces and as exchange interface between users and planners, increasing in this way our understanding of the needs and preferences of users. The app WAY CyberParks enables planners to obtain the opinions of different users on specific issues related to a public space. The advantage of an application of this nature is related to (1) the real-time data gathering, (2) maintaining an updated database, (3) the different users' activities in the same space, and (4) recording their opinion, via text, video or images. The challenge is to attract users to make use of the app during their visit to public spaces, and defining the number of users required to obtain a representative sample. The data obtained through the app WAY CyberParks in Lisbon will serve to demonstrate the features of the app and type of data gathered.

Keywords:

public open space, information and communication technologies, users of public space, urban planning, CyberParks.

⁴ www.cost.eu/domains_actions/tud/Actions/TU1306 and www.cyberparks-project.eu

11. The contemporary city and digital citizenship

Room 2 Multiusos 3 – Building I&D

Chair: Helena Murteira (CHAIA, University of Évora)

Friday 18 November

Room 2 Multiusos 3 – Building I&D, 16:00 – 16:15

The lost cities of Portuguese cinema

Hugo Barreira

(CITCEM/FLUP, Porto, Portugal)

Since the beginning of cinema, part of a film's visual quality rests on the presence of different architectures. To remember Lumière's first *prises de vues* is to recall a factory and a train station. Under a more inventive approach, audiences oversee the projectile construction in a very detailed workshop on Méliès' Trip to the Moon, whose lunar creatures also inhabit a picturesque palace. With Hollywood's golden age entire cities were built with the necessary pageantry to catch the audience's eye and imagination. A step further from the early unrealistic painted backgrounds, these grandiose constructions existed to serve the needs of the envisioned environment. The rest of the illusion was done by montage and visual tricks. Famous examples are the sets of films, like *Intolerance* or *Gone With the Wind*, built under very expensive productions and conceived by experienced Art Directors or Production Designers. In Europe, architects and painters played major roles in the creation of sophisticated movies that can be associated with avant-garde movements. *Caligari* is a nightmare composed of cardboard and wood architectures, painted and distorted by the imaginative powers of Expressionism. *Metropolis* is a futuristic and terrifying city created by a team with a notorious artistic and architectural training. In the international influenced Portuguese cinema, cities also lent their fragments to films like *A Canção de Lisboa* or *Aniki Bóbo*. With real locations coexisted the "Portuguese" villages built for *As Pupilas do Senhor Reitor* or *Aldeia da Roupas Branca*, or the interpretation of the "historic" Lisbon of *Camões*. Created for specific productions, and sometimes reused, the architectural sets disappeared as studio needs changed. Likewise, real locations, selected and captured on film and rearranged through cutting techniques, also suffered severe transformations or were completely destroyed with the passing of time. Film became the only evidence of their existence. This paper aims to explore the value of Portuguese cinema as a document of locations lost or transformed. Also, as an opportunity for the creation of sets informed by research or pure fantasy. Through these factors cinema allows us to travel in space and time on its pre-virtual environment.

Keywords:

Cinema; Art Direction; Architecture; Estado Novo; Portuguese Art

Friday 18 November

Room 2 Multiusos 3 – Building I&D, 16:15 – 16:30

Capoeira as Critical Urban Practice and Global Connector

Olivia Wynne Houck
(University of Iceland)

Capoeira is an Afro-Brazilian martial art which combines elements of dance, music, and acrobatics, while promoting a philosophy of mutual respect and social cohesion through an emphasis on non-violent physical interactions. This practice is rooted within the specific historical conditions of nineteenth-century Brazil, however, in the last few decades, it has been adopted and adapted worldwide. Capoeira operates by an internal logic and employs strong elements of subversion to exterior authority. Through mechanisms of subversion, such as the use of nicknames or the barriers created by the players bodies, the practitioners publicly assert their cohesion as a group, one which is congealed by a collective understanding of etiquette, language and movement. These dynamics are simultaneously undecipherable and intriguing to outside viewers. It is also, predominantly, practiced in public spaces, the players finding alleys, parks, or plazas in which a game can be quickly established or dismantled. The insertion of these specific movements into the urban fabric works as a critique of public space, the forms and edges of the city reinvented and re-appropriated through the practice's ephemeral movements and sounds. This paper relies on the recordings of three games in Delhi, Paris and Seoul, which have been uploaded to Youtube. I argue that capoeira works to critique and reinvent global spaces, both through its employment within the urban fabric, as well as in the recording and distributing of various games on digital platforms. It is a useful tool in analysis of the multifaceted relationship between cities and the digital, since it is in the space of the internet where players from around the world communicate based on an understanding of the practice, thus circumventing language barriers. They also absorb each specific urban context, and the forms of the city, regardless of history or identity, become accessible and legible to disparate actors. This paper aims to demonstrate a two pronged argument; that capoeira is a global spatial critique operating in the urban realm, and that its dissemination on digital platforms transmits these spaces to a transnational audience who are able to engage with them in an unprecedented, innovative, and productive way.

Keywords: Urban, Public Space, Capoeira, Social Media, Youtube

Friday 18 November
Room 2 Multiusos 3 – Building I&D, 16:30 – 16:45

Digital cities and urban networks in outer space

Pedro Andrade
(Institute of Social Sciences, University of Minho, Portugal)

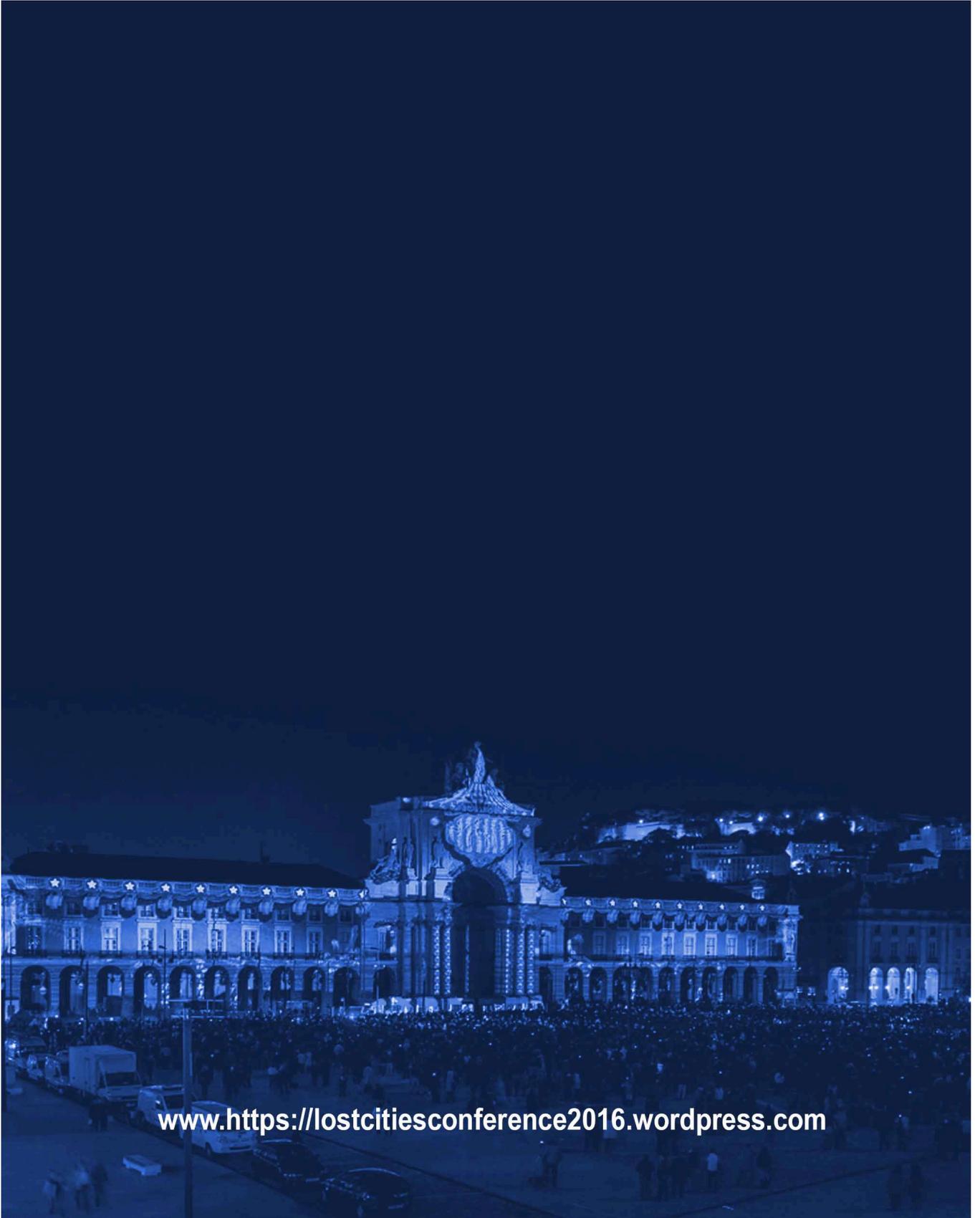
When we speak in the remote possibility of living in outer space in a somewhat distant future, we forget that part of human society is already there, through satellites that enable **Internet or GPS**, two of the central elements of our life on Earth, but lived through that space beyond Earth. In other words, cyberspace is the first serious attempt by man to inhabit interplanetary space. Therefore, the purpose of this paper is to analyse the possible urban life not only in the outer space of the future but also in the context of enlargement of our **habitable territory** at present. Nowadays, more and more segments of urban human life emerge in the hybridization between, on the one hand, the existence of man within his physical condition and, on the other hand, human life in its virtual condition inserted in outer space.

To perform such an analysis in scientific terms, in addition to the contribution of Aerospace Engineering and Life Sciences, it is necessary to develop **Social and Human Sciences** that allow us to think about our existence and social consciousness also around our seminal planet, and not just on its surface.

After all, **digital cities** that now proliferate in cyberspace are only a preliminary figure of **urban networks** that are already being woven not only in virtual form, but increasingly materialized within this **social outer space**. A second manifestation of interplanetary urban life, this time to be held in a longer medium-term rate, is **space tourism**. Many space travels are being marketed and reserved in advance through companies of a new branch of economic activity. What new role will have aero-spatial industries/firms in the fierce competition to get the best tranches of the tourist market in space? A third configuration of interplanetary urban life, now planned for a long term, emerges in programs for building **infrastructures to live on other planets** (*terraforming*, etc.). This possibility, if it will be feasible, may produce urban networks that promise to transform irreversibly our conceptions of **public and democratic space**. E.g., how polis governance and mass/digital media will work in these new realities?

Keywords:

digital cities; Internet/GPS; spatial tourism; interplanetary urban/political networks



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