Informatics and Statistical
Tools for Advancement
of Research Success

D2.4: Commission an art work

Project Deliverable

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Deliverable	D2.4: Commission an art work.
Project Title	ERA Chair - Informatics and Statistical Tools for the Advancement of Research Success
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Authors/Reviewers	Brígida Riso, Sérgio Eliseu, Ruy Ribeiro, Paulo Nogueira, Maged K. Boulos (*non-author contributor*)
Dissemination Level	Public.
Abstract	iSTARS is a project of Faculdade de Medicina da Universidade de Lisboa (FMUL – Lisbon School of Medicine) that aims to develop an excellent program in data science in Medicine. Excellent science needs to be communicated. Besides the organization of a communication plan and a branding strategy, iSTARS aims to benefit from new ways of science communication. For this reason, in its plans, iSTARS envisages the commission of two art works. The art works integrates a vision of science communication that encompasses multiple forms, materials and concepts. This will promote a different platform for communicating iSTARS vision that hopefully will expand the perception of data science in Medicine.

History of versions

Version	Date	Changes	Authors/Reviewers
1.1	23.09.2022	First draft.	Brígida Riso
1.2	27.09.2022	SE developed the concept of the art work. RR and PN did minor edits on the text. MKB provided details about Digital Twin concept.	Sérgio Eliseu, Paulo Nogueira, Ruy Ribeiro, Maged K. Boulos

1.3	28.09.2022	Improved and further developed the concept section.	Sérgio Eliseu
1.4	29.09.2022	Final version.	Brígida Riso

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Executive Summary

iSTARS is a project of Faculdade de Medicina da Universidade de Lisboa (FMUL – Lisbon School of Medicine) that aims to build capacity in data science in Medicine. iSTARS will have as a main goal to install an excellent data science unit at FMUL. To support such endeavour, FMUL will benefit from different professional services from different areas from project management to communication.

Communication is one of the pillars of iSTARS. In fact, the project planned an entire work package dedicated to Communication and dissemination of outcomes (WP2). The WP includes all communication done for and through iSTARS, but also specific tasks and outputs that are structural to the project communication success as launching a website (**deliverable 2.1**), establishing a branding strategy and communication plan (**deliverable 2.2**), organising a seminar on data visualization (**deliverable 2.3**) and the commission of two art works (**deliverables 2.4** and **deliverable 2.5**).

This document describes the details of **deliverable 2.4**:

> ***iSTARS*** *will commission from two different artists two art works to explore the links between data science and art.*

The current document refers to the first art work to be delivered, while the second art work is already being prepared, it will only be delivered at a later stage, in month 45.

Both artistic projects will be developed by setting a close collaboration between Professor Maged K. Boulos and an artist from the cultural association Cultivamos Cultura. Professor Sérgio Eliseu is going to be the artist responsible for iSTARS art work I.

The first art work will be derived from the concept of Digital Twin which is central to Professor Maged K. Boulos work. Digital Twin here will assume the shape of an art installation that intends to be provocative, leading not only to the interaction with the public, but also engaging visitors with data science in different ways.

Communicate iSTARS message

iSTARS is focused on data science and Medicine.

However different messages have to be expressed differently to reach different audiences and to benefit from different communication channels. Aiming to spread the message ***health data for society***, Professor Maged K. Boulos in his leading role of iSTARS, as the ERA Chair holder, will be collaborating with Professor Sérgio Eliseu.

The art work will be a way to reflect data science through the language of art, while it will open opportunities to spread the great role that data plays nowadays in our lives, particularly regarding health issues.

Art can also provide connections between lay people or general public to data science and medicine, creating room for new interpretations embedded in social and cultural experience, both individual and collective.

By commissioning this first artistic project, iSTARS also aims to attract the attention of key actors and stakeholders that may play a key role in supporting iSTARS' mission.

Cultivamos Cultura

Cultivamos Cultura is a cultural association that offers a set of events and activities to support the development of artistic work, such as artistic residencies, summer schools or outreach activities. Cultivamos Cultura works also as an artistic hub promoting the encounter of many artists in this field.

In its own words, Cultivamos Cultura is...

> *a platform for experimentation and development of shared knowledge in the theory and practice of science, technology and contemporary art. It provides conditions to foster creativity and organizes activities in the areas of production, dissemination, research, education and exhibition. Part of its mission is to contribute a strong sense of identity by strengthening the generation of bonds with the local community and environment. It has established a national and international reputation within the specific field of experimental art and bio-art: as the importance and overall impact of art, science and technology has been increasing, a leap is made towards a new level of achievement in the context of bio-art practices and its role in the wider cultural field. The organization is based in Portugal and led by one of the most internationally recognized bio-artists, Marta de Menezes.*

The strong focus of Cultivamos Cultura in science and technology was one of the main reasons for us to choose them to collaborate with iSTARS.

The artist

Sérgio Eliseu was the artist chosen to create iSTARS art work. Sérgio has worked in different fields focusing in digital approach mainly around augmented and virtual reality. His work also evidences the intersection of Science and Art.

Sérgio holds a PhD in Arts and Design by the School of Fine Arts (University of Porto). In his doctorate he developed the project “O mundo como uma C.A.V.E: Estratégias Narrativas em Realidade Aumentada” (*The world as a C.A.V.E. : Narrative strategies in augmented reality*). The project was funded by Fundação para a Ciência e a Tecnologia. Sérgio Eliseu has also a Master Degree in Contemporary Art Creation by University of Aveiro with the project "Immersion and obsession: the obsessive character of artistic production/creation" and a degree in History of Art by University of Coimbra.

Sérgio combines his artistic projects with teaching activities. Currently he is an invited Professor at the Department of Communication and Art at the University of Aveiro and Coordinator Professor at ISCE DOURO - *Instituto Superior de Ciências Educativas do Douro* (Institute of Educational Sciences of Douro).

He coordinates NIAM - Research Group in Arts and Multimedia at ISCE Douro.. He is a member of ID+, Institute for Research in Design Media and Culture. Heis also Senior Designer (Design) at AbsoluteBPC (medical device company) since 2017.

Recently, Sérgio's work was distinguished at Awards of the Portuguese Museology Association (2021) in the multimedia category.

Sérgio's artistic work has been present in several art exhibitions from 1994 onwards. His most relevant and recent works were:

- 2011- "(Un)seen Sculptures" Sydney / Melbourne / Cairns.
- 2012 - "ARnatomy" CAE - Centro de Artes e Espetáculos da Figueira da Foz – Portugal
- 2015 - "Selfie Museum" – ARTECH 2015 - Museum Abílio de Mattos e Silva; Óbidos. Portugal.
- 2015 - "Imaginary Museum" – Museum of Aveiro. Portugal
- 2017 - "Pequenas Histórias do ser" – in "Olhar e Experiência: Interferências no Arquivo" – Penafiel Museum. Portugal
- 2017- "Homúnculo" EM MEIO9.0 do #16.ART. Museum of the Oporto School of Fine Arts. Portugal
- 2018- "INHUMATUS". Porta 14 - Lisboa. With Gilberto Reis and Moirika Reker. Portugal
- 2018- "Space time" in "Matéria Pensamento Tempo Forma" – Penafiel Museum. Portugal
- 2019 - "A terra é feita de céu". VR project in "Ensaio" - Atelier Eliseu. Lousã. Portugal
- 2019 - "INHUMATUS VR". Lisbon School of Fine Arts (University of Lisbon). With Gilberto Reis and Moirika Reker. #18. Art, Lisboa, Portugal.
- 2021 - Uma Pedra no Estômago – Installation/Performance. International Conference ARTECH2021 Aveiro. With Gilberto Reis.
- 2021 - Two Polish Jews: Rich and Poor. Video work on Mussorsky pictures at the exhibition "Viver ao vivo com tempo no centro". Celorico da Beira. Portugal

More information about Sérgio Eliseu's work may be consulted here: www.sergio.eliseu.com

The concept

Digital Twin combines the presence of interactive projections of real-time three-dimensional shape-shifted particles – an AI computed vision entity - mixed with real world artefacts (gold gilded skull and a fan).

The piece refers to and positions itself on a luminous plane, building a non-linear bidirectional narrative as a product of the relationship between the audience and the interactive entity - a futuristic volumetric and metaphorical digital Artificial Intelligence (AI) inspired by the evolution of the current concept of Digital Twin. As Kamel Boulos and Zhang (2021:1) explain[1]:

> *"Conceptually, a digital twin is a digital replica or representation of a physical object, process, or service, but also much more than that. It is a virtual model (data plus algorithms) with special features not found in traditional models and simulations, one that dynamically pairs the physical and digital worlds, and leverages modern technologies, such as smart sensor technology, data analytics, and AI in order to detect and prevent system failures, improve system performance, and explore innovative opportunities. The ultimate goal for digital twins, at least in terms of manufacturing, is to iteratively model, test, and optimise a physical object in the virtual space until that model meets expected performance, at which point it is then ready to be built or enhanced (if already built) in the physical world[2]."*

This project reflects both the author's individual research around mixed realities and his musings around reality and mortality. It also intersects, uses, and abuses concepts such as information and databases, highly involved in the contemporary data-centred context, particularly regarding health issues.

The concept's intent is to contribute to a promising debate, open to questions portraying the relationship between new technologies and their use in the creation of narrative strategies based on public action.

Can an artwork be changed and also change its audience?

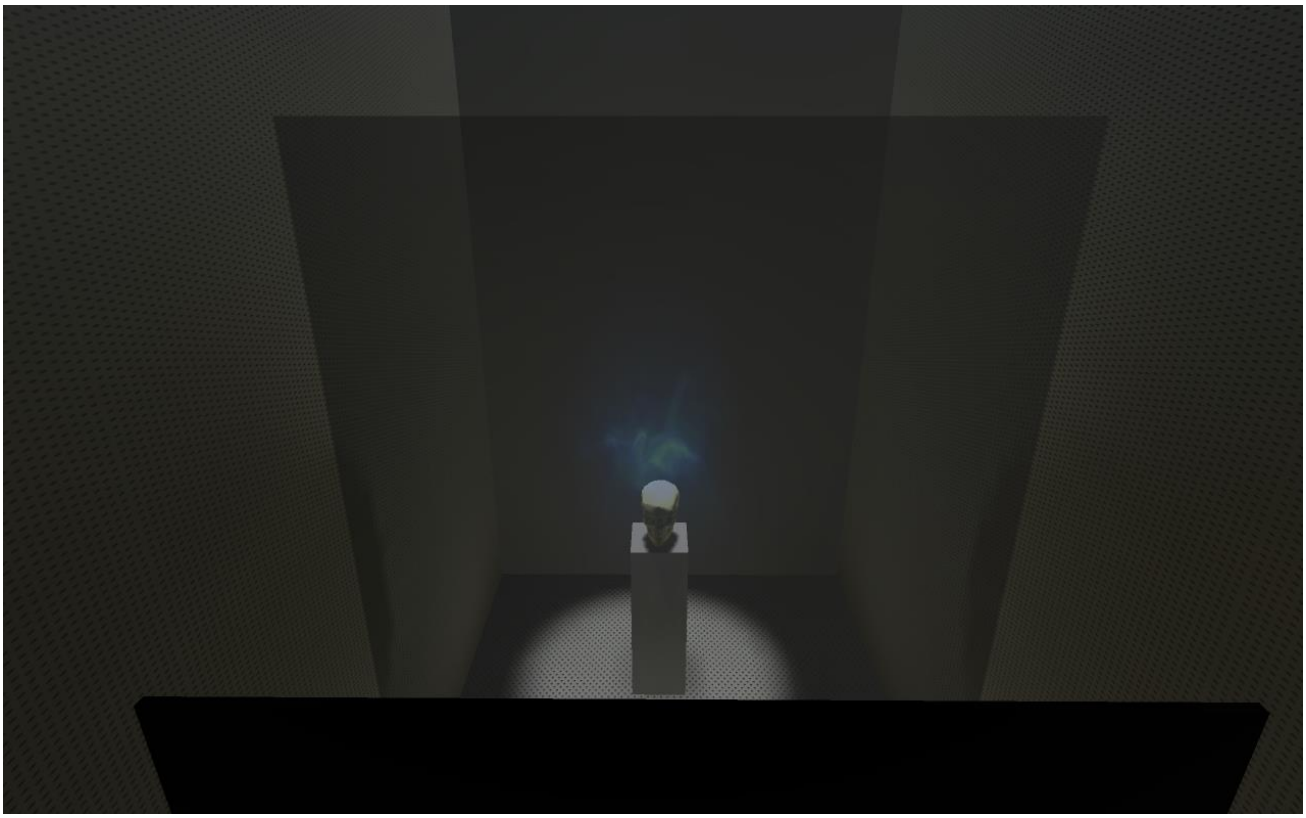
[1] Kamel Boulos MN, Zhang P. (2021). Digital Twins: From Personalised Medicine to Precision Public Health. *Journal of Personalized Medicine*. 11(8):745. doi: 10.3390/jpm11080745 https://www.mdpi.com/2075-4426/11/8/745/htm

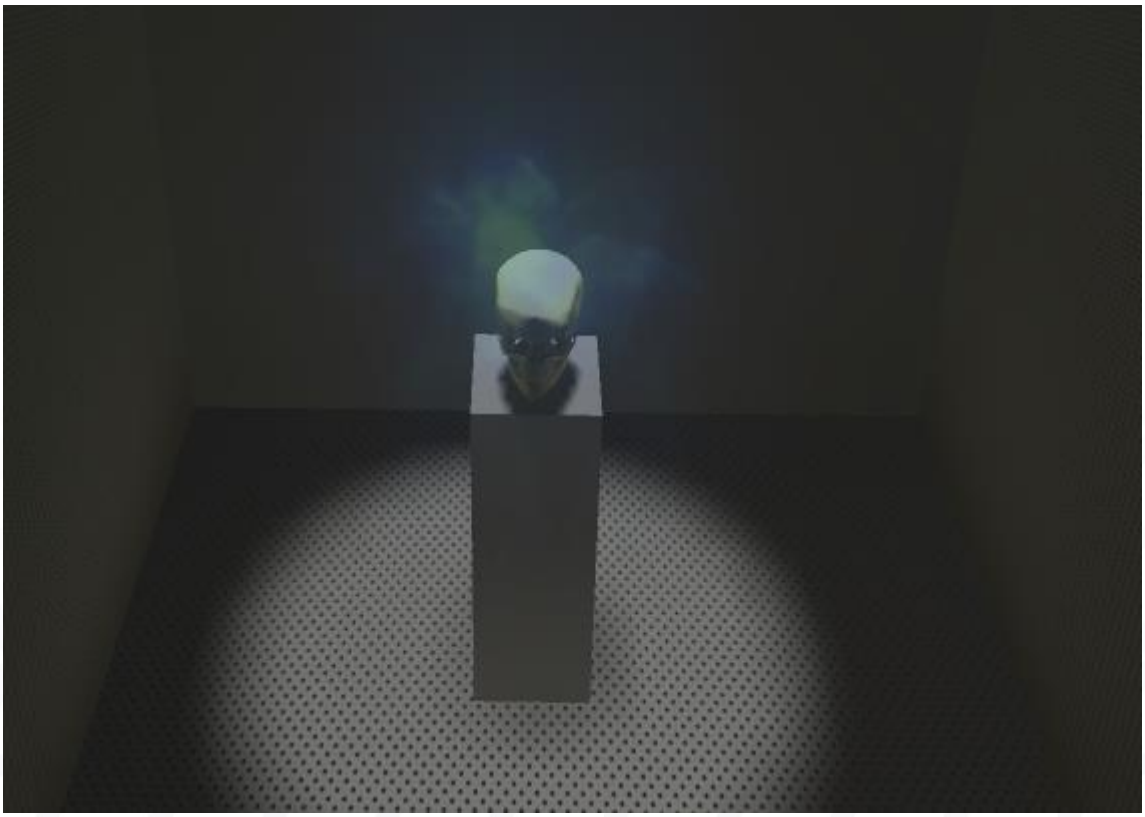
[2] Marr, B. *What is Digital Twin Technology and Why Is It so Important?* (2017). Forbes. Available online: https://www.forbes.com/sites/bernardmarr/2017/03/06/what-is-digital-twin-technology-and-why-is-it-so-important/ (accessed on 2 July 2021) cited by Kamel Boulos, MN and P. Zhang (2021). See above the full reference.

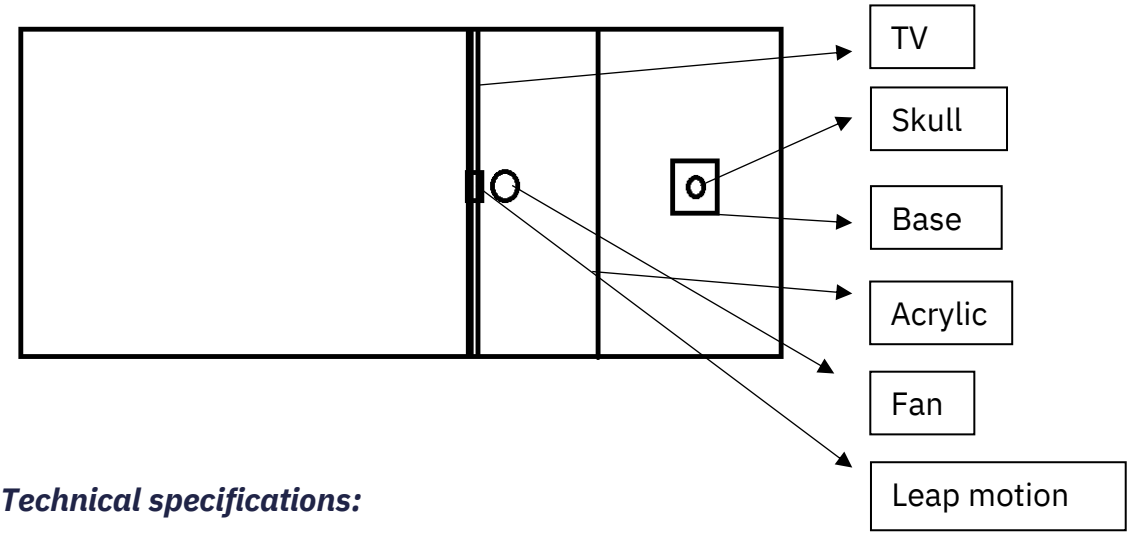
The query endeavours to open paths for new interpretations, deep-seated on social and cultural experiences, albeit it individual or collective.

Keywords: Digital Twin, AI Installation, Interaction, Media Art.

MOCKUP







Technical specifications:

- 1 Arduino
- 1 relay
- 1 Computer
- 1 led TV
- 1 focus led light
- 1 holographic foil - coated acrylic mirror
- 1 leap motion
- 1 220v fan

BLEND initiative

BLEND is an initiative happening at FMUL and Instituto de Medicina Molecular (Institute of Molecular Medicine) both part of Centro Académico Médico de Lisboa (Lisbon Academic Clinical Center).

This initiative has brought together artists and scientists, not only developing artistic oeuvres, but also exploring messages and discourses in a non-conventional manner. BLEND creates a space for conversations while organise galleries of art work in different settings as it is a scientific research institute or a School of Medicine.

Below, a description of what BLEND means:

> *Over the centuries, art has transposed the most relevant issues and advances of its times in its own practice. From the hunts for mammoths in prehistoric art, to religious motifs in the Middle Ages, to the present day where the concerns and hopes of humanity become present in the various forms of contemporary art. In recent years, there have been unparalleled advances in biomedical research and medicine that have influenced society's relationship with these areas: the sequencing of the human genome at the beginning of the millennium, the development of biotechnology that revolutionized the way drugs are developed, new imaging strategies medicine and the development of communication platforms that revolutionized the consumption of information. Many artists have incorporated elements of science and medicine into their works, including the scientific knowledge and technology that are now used to create artworks.*
>
> *In Blend, we seek to bring to the campus of the Centro Académico de Medicina de Lisboa – CAML (Faculty of Medicine of the University of Lisbon – FMUL, Instituto de Medicina Molecular João Lobo Antunes – iMM and Centro Hospitalar Universitário Lisboa Norte – Hospital de Santa Maria – CHULN) a set of initiatives that cross art, science and medicine.*
>
> *BLEND benefits from the collaboration with Ectopia, Experimental Art Laboratory.*

More information about the BLEND initiative may be consulted here:
https://blend.imm.medicina.ulisboa.pt/about/