



V4Design

Visual and textual content re-purposing FOR(4)  
architecture, Design and virtual reality games

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## 2<sup>nd</sup> V4Design Newsletter (June 2018)

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1. LATEST NEWS ABOUT THE PROJECT

During the last months, the project has initiated its research and development activities towards the implementation of the V4Design platform. A first version of the V4Design system architecture has been created which depicts the components that are going to be implemented by technical partners. The architecture also contains technical specifications and restrictions that need to be taken into account during the implementation of the V4Design system.

In parallel, user partners have analysed the use cases and defined an initial set of user requirements which describe the optimal functionality which they would like to see in a “visual and textual re-purposing platform for architecture, design and virtual reality games” such as the V4Design system. The outcome of user requirement analysis has triggered a long standing discussion between technical and user partners in which technical partners decoded hidden aspects of initial user needs and translated user requirements into real research and development tasks.

In addition, use case simulation examples have started to be formulated so as to understand the data flow through the V4Design system. The execution of simulation scenarios document basic component interactions and processing results that need to be captured and forwarded to associated components. More information can be found in section 2.

During the last three months, the project has also strengthened its digital and physical presence in the world of Creative Industries. To better disseminate the V4Design project, a ShowCase video has been created that gives an overview of the work and explains how V4Design can help architects and video game designers. Section 3 provides an overview of the ShowCase video.

Consortium partners also participated in a number of high-profile conferences and fairs disseminating the V4Design project and introducing its concept and its main objectives to the public. More information can be found in section 4.

Last but not least, the Consortium partners were gathered in Bonn having a very productive technical and plenary meeting. Their discussions were mainly centered on upcoming implementation of the operational architecture and further refinement of user requirements. Read more in section 5.

2. SIMULATION EXAMPLE

In this use case simulation example, we used as input multimodal content relevant to the Delphi archaeological site from the YouTube page <https://www.youtube.com/watch?v=jvcA3PMUiT4>. The content contains a video captured from a drone camera and the associate text description.

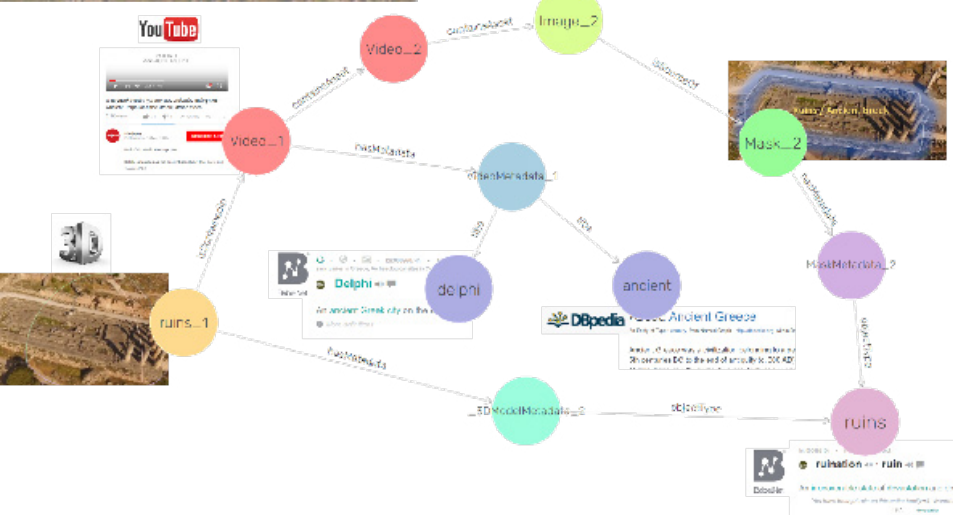
The execution of the simulation scenario includes a number of steps depicting the analysis of the video and text description by the V4Design components and their linking by means of the V4Design semantic representation model.

2.1 Video analysis

Building localisation and aesthetics extraction

Automated localization of building structures and objects of interest within the videos reduce the time and labour spent on searching or examining unrelated visual content while the extraction of aesthetics, style and other image attributes from visual content and its emotional effect on the viewer can serve as a trigger for inspiration.

The below figure shows the segmentation of frame depicting the Oracle of Delphi along with classification and aesthetics extraction.



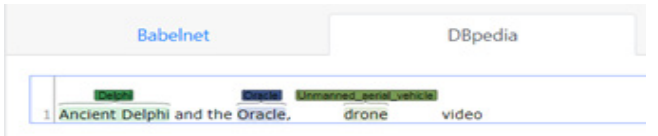
3D reconstruction

On the other hand, the reconstruction of 3D models of buildings and scenes from image sequences maximize their potential for re-use and re-purpose.



2.2 Text analysis

Semantic word sense disambiguation and entity linking of text relevant to the visual data enrich the visual content. The figure below depicts the association of video title with possible meanings through references to lexical databases and semantic networks.



2.3 Semantic representation and linking of visual and textual data

An ontology-based knowledge graph will be used for the semantic linking and enrichment of the generated information and results coming from different components.

The below figure shows the interconnections of video content, images, 3D models and textual information in the form of semantic knowledge graphs.



### 3. NEW PROMOTIONAL VIDEO

To better disseminate our project, we created a ShowCase video that gives an overview of V4Design.

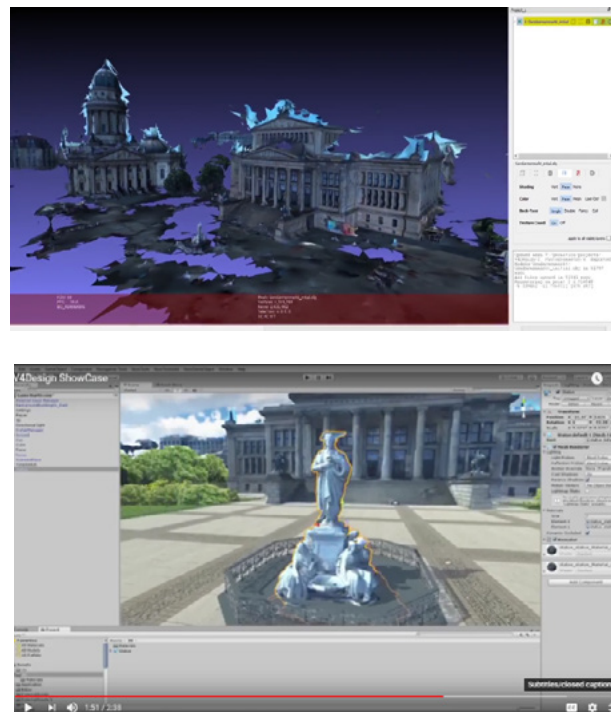
More specifically, it describes the current situation with the increasing amounts of visual data and texts which are of great interest to architects and game designers and the current difficulty to reuse and repurpose them.



Then, it presents the V4Design's goal and explains the new possibilities that it brings such as visual analysis, 3D reconstruction, language understanding and generation of dynamic 3D objects that can be reused as basis for design.



The ShowCase video devotes a significant part in the demonstration that was presented in Digital Assembly 2018 which describes how the novel approaches of V4Design are used for the development of interactive Virtual Reality (VR) spaces by reusing existing digital content.



The demonstration, named "Living the past", focuses on the reuse of video footage taken from a historic square, the Berlin Gendarmenmarkt, in order to create a VR environment for re-living the past.



In order to watch our ShowCase video, please click here <https://t.co/c7wh6dcqC8> or visit our official Website <https://v4design.eu/>.

### 4. EVENTS

#### Shape to Fabrication, London, April 24-25, 2018

V4Design has participated in the "Shape To Fabrication" conference which has a focus on cutting-edge technology, innovative construction and applications in architecture, engineering and design. Luis Fraguada from McNeel Europe S.L participated in the event and showed how Rhino's users are developing custom workflows to build some of the world's most innovative architecture. The talk also looked at the ecosystem of third party tools available for the Architecture, Engineering, and Construction (AEC) market and the V4Design project.

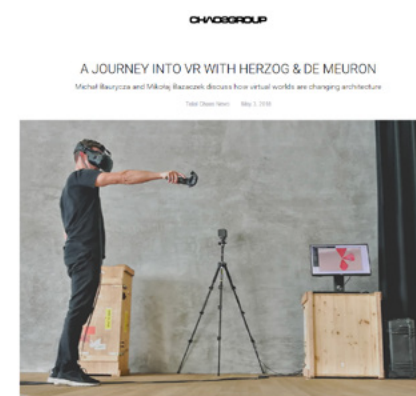
#### EuropeanaTech, Rotterdam, May 15-16, 2018

EuropeanaTech is Europeana's conference centered around technical and scientific advances in the cultural heritage sector. Jolan Wuyts has participated in the conference disseminating the V4Design project and connecting with relevant stakeholders.



#### TOTAL CHAOS Sofia, 18-19 May, 2018

V4Design has participated in TOTAL CHAOS which focuses on uniting the art, science and technology of computer graphics. Michał and Mikołaj from Herzog & de Meuron (HdM) were invited to give a talk about VR in Architecture, titled "The Curses and Blessings of: A Three-Year Journey" describing the three years since VR was introduced at HdM.



#### BEDA event, Thessaloniki, June 7, 2018

V4Design participated in BEDA event disseminating the V4Design project. Collateral discussions to the main event took place between V4Design representatives and relevant stakeholders that actively participate in the design and development of architecture and art objects inviting them to participate in our User Group. We also distributed leaflets to BEDA's participants and other attendees participated in the event.



#### Global Media Forum (GMF), Bonn, June 11-13, 2018

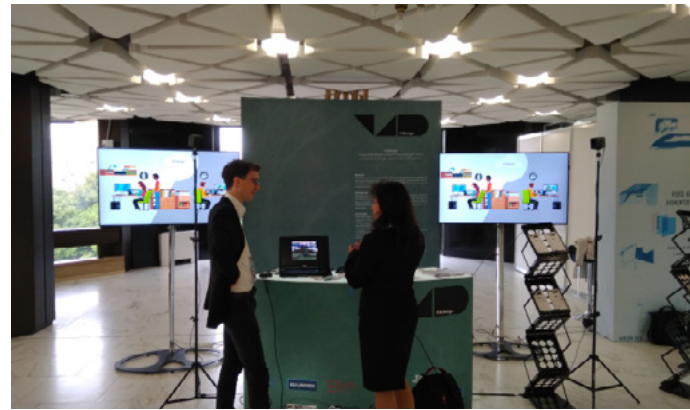
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## Digital Assembly 2018, Sofia, June 25 - 26, 2018

V4Design participated in Digital Assembly 2018 with an exhibition stand where visitors had the chance to have a "Living the past" experience through a VR demonstration of a walk in a historic square, the Berlin Gendarmenmarkt, in different time periods. In the event, we had also the chance to distribute leaflets to the attendees, while useful discussions were made about the concept of the project and its recent results. Attendees of the event were also invited to join our User Group filling in a form or just providing their email account.



## Workshop Organization: MADVR 2018

V4Design is organizing MADVR 2018, the 1st International Workshop on Multimedia analysis for Architecture, Design and Virtual Reality games. MADVR 2018 will be held on October 16, 2018 in Munich, Germany, in parallel with the highly acclaimed IEEE ISMAR conference. MADVR 2018 aims at presenting the most recent works in the area of multimedia analysis in the context of applications for architecture, design and VR games.

The workshop welcomes research works in the areas of Virtual, Augmented and Mixed Reality, 3D-reconstruction from multimedia and 3D-modelling, image/video and text retrieval that is focused in architecture structures and elements, multimedia and textual content crawling and scrapping, video game and architecture VR applications.

The workshop is organized by Konstantinos Avgerinakis (CERTH-ITI), Maarten Vergauwen (KUL), Leo Wanner (UPF-ICREA), Francesco Bellotti (DITEN, University of Genoa) and Stefanos Vrochidis (CERTH-ITI).

More information about the workshop can be found at our website: <http://mklab.iti.gr/madvr2018/>.



## 1st Technical and plenary meeting: Bonn 26-28 June 2018

V4Design Consortium was met in Bonn, Germany from 26 to 28 of June, 2018. The first day of the meeting was devoted to technical and user discussions. From one side, the technical partners had a throughout discussion over the test case simulation examples in relation to each WP technical advances, the current system architecture and data flow as well as technical issues raised so far.

On the other side, the user partners had a parallel session about data collection process for the four Pilot Use Cases and the refined requirement analysis and evaluation plan. During the second and third day, project progress across all WPs has been presented and discussed towards the upcoming Milestone MS2 (December 2018).



## 6. CONTACT INFORMATION

Follow our steps on..

Project website:

[www.v4design.eu](http://www.v4design.eu)

Social media:

FACEBOOK: [/V4DesignProject](https://www.facebook.com/V4DesignProject)

TWITTER: [/V4DesignProject](https://twitter.com/V4DesignProject)

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