AHEILOS VIRTUAL WORLD. CREATION AND EDUCATION IN THE SPACE OF INFORMATION

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ABSTRACT

Aheilos is an interactive 3D virtual environment functioning online that allows the creation and presentation of dynamical interactive 3D content to many users. The idea of the *Aheilos* world is to promote creative, educational and informative activity profiled for art and touching various aspects of culture functioning on the edge of art, science and technology. The virtual space shared for development in the *Aheilos* world was divided into several areas with different functional profiles in which several projects were launched, exploring the potential uses of this type of environment?. Projects initiated in the *Aheilos* world that will be showcased on the ISEA symposium: 1. Virtual reconstruction of the White Eagle Square in Szczecin in its form from 1938. Virtual 3D environment as a potential platform for sharing historical knowledge associated with architecture and urban development; 2. Remote artistic education in virtual space. Based on examples of classes that took place during the exhibition design workshop at the Visual Arts Department of the Academy of Art in Szczecin; 3. Virtual and hybrid exhibition space. Based on examples of ongoing and past exhibitions that were using the *Aheilos* virtual environment and its tools, such as 2-way real time multimedial communication, remote presence, capability of displaying dynamical interactive content; 4. Virtually aided architectural design. Presentation of the potential of virtual dynamic 3D online environments for enhancing contemporary architectural design process; 5. Experimental artistic projects using the specifics of the interactive online 3D environment.

CONTEXT OF THE *AHEILOS* WORLD
Game engines

Production of the technologically advanced computer games has led in time to the creation of tools automating some parts of the creation process, which have evolved in time in the direction of integrated systems for games creation, the so called game engines. That kind of systems allow the creation of interactive multimedia 3D environments, offering the functionalities of render engines, physics simulation, collision detection, sound design, animation, 3D modelling, texturing, AI simulation, network solutions and scripting languages. These tools were developed in the past mainly for the needs of one company's own projects creation, but there are present tendencies of releasing them to the public in the form of complete applications for use in game creation. The structure of such software is often consisting of trunk – the basic engine and optional components altering its capabilities according to user needs. Amongst the most popular tools of such functionality currently released we can count: Unreal Engine, CryENGINE, Unity, Blender and OpenSimulator. [1-5] Applications such as Unreal Engine or CryENGINE are dedicated by assumption to game design, but the offered functionality and quality of solutions are often beyond CAD technologies available on the market. That fact will probably cause their evolution also in that direction. An example of such advanced functionality is the quality of real time visualization offered by these tools that is often better than the effects of a time consuming rendering process offered in software such as 3ds Max or Cinema 4d. This impression is multiplied by the awareness that this is actually an interactive navigable spatial environment that offers the possibility of designing dynamically changing audiovisual effects that can be determined by the reactions of individual users. The Crytek Company is currently working on a product called CryENGINE Cinebox which is adapting the engine interface towards CAD functionality and the Unreal Company, in partnership with the public sector in USA, has developed the Unreal Government Network – a network that allows licensing of its application in government led projects. The portfolio of this project includes a wide range of implementations in industrial, military, medical, social and space simulations.

The *Aheilos* world was built based on the OpenSimulator engine. It is an open-source application that allows building spatial virtual environments enabling access and interactive 3D content creation for multiple users. It is capable of connecting many servers in wider structures which could initialize the emergence of global 3D network (Web3D) according to the development team aspirations.

Web3D

The idea that initially stood behind the term Web3D was the replacement of presently functioning "flat" internet with an interactive 3Dimensional content. The term in time has become used to refer to all the available interactive content embedded in websites. Receiving this kind of content usually requires installation of special plugins on the web viewer or use of other interfaces. Currently there are many independently designed technologies and formats associated with the idea of Web3D, such as: Adobe Shockwave, Burster (for displaying content designed in Blender), Java 3D, Unity Web Player (for content created in Unity 3D), VRML or X3D. The two last formats are associated with the Web3D consortium – a non-profit organization created for the purpose of developing a world wide open standard of a file and engine for displaying interactive 3D content in the web. The Virtual Reality Modeling Language (VRML), created initially by the consortium, was the first language of this type acknowledged as a standard by the International Organization for Standardization (ISO). The successor of VRML – the X3D format also received ISO standardization. The idea of Web3D has caused the emergence of virtual reality 3D platforms that had the ambition of replacing the functionality of "flat" websites with a navigable interactive 3D content, such as: Active Worlds, Dotsoul or Second Life. OpenSimulator application development started in the year 2007 when Linden Labs company released the code of Second Life

viewer for modifications. The released viewer application contained most components responsible for the environment functionality facilitating the creation of the complete engine.

DESCRIPTION OF THE AHEILOS WORLD

Map of the *Aheilos* world:
Aheilos 1 region (+) - social interaction forum,
Aheilos 2 region (Δ) – didactic activity area,
Aheilos 3-5 regions (E) – areas with exposition profile,
Aheilos 6 region (Δ) – didactic area, lectures,
Aheilos 7 region (I) – project presentation area,
Aheilos 8 region (EΠ) – presentation area,
Aheilos 9 region (Π) – area for artistic experimentation,
Aheilos 10 region (ΔΔ) – model of the project
"Architecture in the space of information."

Idea of the Aheilos world

Aheilos is a project of virtual interactive spatial environment for the purpose of artistic, educational and social interaction project implementation. The aim of this project is to create an environment available for artists that will give the possibility of exchanging ideas based on the specifics of architectural virtual space. The basic structure of the *Aheilos* world is area defined in metrical units associated with human scale represented by avatars. The space in urban scale is divided to regions. A single region represents spatially an area of 65 000 m². Currently there are 10 regions launched (*Aheilos 1*-10) with a functional diversity, that offers 650 000 m² of area for development. The *Aheilos* world allows modeling of spatial forms, applying textures and colors, filling the forms with multimedia content, two sided content streaming with the outside world, physics and natural environment simulation, defining interactions. and object behavior by scripting. The environment development was based on an open-source engine – OpenSimulator, equipped with a database and configured for online functioning by the New World Studio software. The idea assumes expansion of the *Aheilos* world by adding new regions according to the needs of content and population capacity. [6] It also assumes connecting *Aheilos* to the global virtual worlds network – the Hypergrid. [7] Some aspects of functionality of the OpenSimulator environment were shown in my Ph.D. dissertation in 2008: "Models of architecture in the space of information." A single region model focused on the potential of the interactive 3D environment to deliver information content. For this purpose it was filled with content presenting the written part of the dissertation in the form of interactive multimedia spatial installation. The dissertation model is available for exploration as content of the *Aheilos 10* region. The next step on the way to developing the *Aheilos* world was the project "AS metaverse," created in 2011, in which the online functionality of the OpenSimulator environment with multiple remote users was tested. For the purpose of that project one region sized model of White Eagle Square in Szczecin was created. The effect of work at that stage is the *Aheilos 1* region, profiled for social interaction. *Aheilos* world is an open

project continuously filled with content profiled for art and artistic education. There are currently over 100 users registered in the system and 7 of 10 regions more or less filled with content. The following pages of this paper will present all specific regions currently functioning in the *Aheilos* world along with the hosted projects. Up to date information about ongoing events taking part in the *Aheilos* world, video tutorials and timeline are available on the YouTube channel and Facebook profile. [8-10]

Functionality overview of selected regions
Aheilos 1 region (+)
Aheilos 1 region has by assumption a social interactions profile. The presented spatial model is a copy of White Eagle Square in Szczecin. The first illustration (Fig. 1) shows the Palace under the Globe – the main location of the Academy of Art in Szczecin. In the second illustration (Fig. 2) the representative fountain is visible, flanked by the Palace Under the Globe and a building previously occupied by Polmozbyt, with the St. Jacob Cathedral in the background. This square is a place to which all the new users are coming with the first login.

Fig. 1. *Aheilos 1* region. Palace Under the Globe.

Fig. 2. *Aheilos 1* region. White Eagle Square.

There is an information point here and a teleporter allowing rapid movement to all other nine regions. In the information point there is a possibility to enter the website of the project and the login page associated with the up to date statistics associated with

the *Aheilos* world functionality. There is a special area behind the Polmozbyt building dedicated to users that are not land owners for testing advanced modeling, physics simulation and scripting functions without restrictions. One of the effects of such experimentation is a large monument dominating above the area with its form evolving from time to time by the actions of new users. The *Aheilos 1* region was developed in 2011 as part of "Metaverse AS" project for the purpose of testing the online functionality of the OpenSimulator platform with the online presence of many users. After successful tests it was included in the *Aheilos* world as a socially profiled starting region, becoming a kind of bridge between the real and the virtual for the users of White Eagle square public space. Objects included here are in the constant modeling process. There also will be some of the interior spaces included in the project in the later stages of development. As an example of such actions, the hall of the Academy of Art main building can be viewed, which is already in the modeling process. The *Aheilos* world is by assumption an open project that can evolve in several directions according to actual needs. Region , that is largely part of the city mockup, could potentially acquire functionality connected to urban public space with informative, promotional, urban planning or architectural design functionality and could evolve by other regions representing the larger part of the city. There is currently a debate in Szczecin about possible design solutions concerning the revitalization of the White Eagle Square space. The model in *Aheilos 1* region could be used for verification of the planned solutions in the simulated virtual reality environment. Currently *Aheilos 1* region is undergoing a redesign to become a reconstruction of the White Eagle Square in its form from the year 1938 (Fig. 3). There are also a few teleporters added near the St. Jacob Cathedral with destinations to other educational regions in the Hypergrid network (Fig. 4)

Fig. 3. *Aheilos 1* region. White Eagle Square, 1938.

Aheilos 2 region is by assumption an educational activity zone. Starting in the summer semester of the academic year 2012/2013, the Exhibition design workshop of the Academy of Art in Szczecin is performing courses utilizing this environment. Two projects took part here in the summer semester: *Spatial poster* and *Trade stand.*.

The first subject was about making a spatial interpretation of an idea behind the selected poster in the form of a small architectural structure in the context of a closed public space. The aim of the second project was to design a *trade stand* for the selected company, product or event in the context of assigned space in a typical trade hall. For the purpose of these courses models of a trade hall and a trade center were created with the intention of simulating the conditions typical of such objects functioning in real environment. Realization of the tasks by the use of this new tool was not obligatory and created the greatest interest amongst the students of the 1st year. Generally there were 14 projects developed with the use of the *Aheilos* world space in the summer semester – 11 of them with the subject of S*patial poster* and 3 considering the T*rade stand.* The remaining works were developed by utilizing standard

Fig. 4. *Aheilos 1* region. Hypergrid teleporters.

Aheilos 2 region (Δ)

CAD tools and included posters in the end of the year exhibition that took place in the second half of June, in real world and in *Aheilos 2* region of the virtual world simultaneously. The model of the trade center is located in the upper part of the region. The object was divided functionally to store spaces and shopping malls, which were the context for the project task developed in the 1st year's course. A 16m wide mall was divided into 28 sections of 16x16m and an area 256m² each. Every student had to choose one of these locations for the development of his project. After assigning the locations students gained full rights for content development within their own area. The trade hall is located in the lower right part of the region. Inside the hall there is a communication area and technical area and fields assigned for *trade stand*s, most of them with dimensions 12 (or 16 if the math is going to work) x16 m and area of 256 m². These fields were distributed amongst the students that were designing their *trade stand*s.

There is a wide range of new possibilities and tools for didactical work offered by the *Aheilos* environment for teaching architectural design. The possibility of simulating design context is one of these assets. The advantages of CAD tools are expanded by the in-world

factors of immersion, remote team work, remote consultations (e-learning) by utilizing built-in tools for text communication, voice communication and multimedia. By telepresence the process of design work is a subject of continuous dynamical verification in reference to scale, human presence and context. Handling multimedia content, introducing interaction and variable properties of objects by scripts gives the possibility of simulating dynamic changes, such as changes of lighting or impact of spaces utilizing led systems, projections and sounds. All these assets can be used for remote presentation of the project, highly altering the capabilities of traditional transmission techniques.
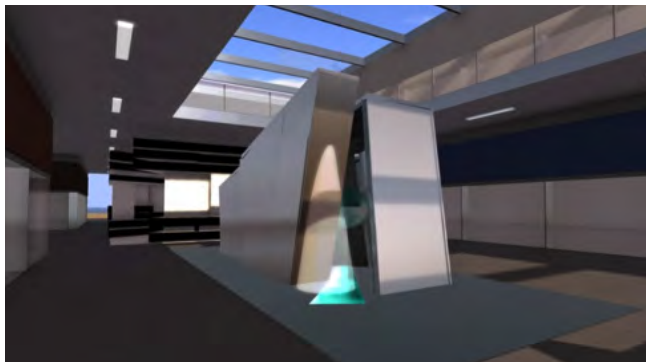

Fig. 5. *Aheilos 2* region. *Spatial poster*. Students project at trade center. Author: Joanna Roguszczak.
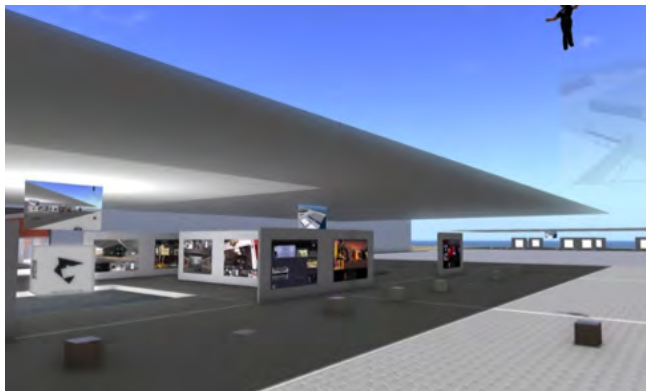

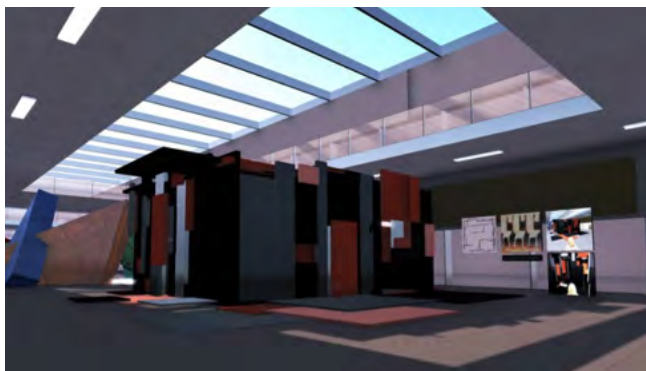Fig. 6. *Aheilos 2* region. End of the year students' exhibition.

Fig. 7. *Aheilos 2* region. *Spatial poster*. Students project at trade center. Author: Monika Delik.

Aheilos 2 region was also hosting the end of the year 2012/2013 exhibition of the Exhibition Design Workshop II and Visual Identity Design Workshop. Projects developed in the *Aheilos* environment as well as other projects developed with traditional techniques were showcased on exposition boards arranged in the middle part of the region, between the two halls. This event took place on 15 July, 2013 in the wider context of the first edition of "Cubetura" student's architectural design triennial in Szczecin. During the opening of the festival the capability of two-way content streaming of the *Aheilos* platform allowed live communication and visual contact between quests in the virtual and the real world.

Fig. 8. *Aheilos 2* region. Trade hall.

Aheilos 3 region (E)
Aheilos 3 is one of the areas profiled for exhibition purposes. The difference between this region and the other exposition areas is the assumption that periodic exhibitions, also those associated with parallel real live events, will take place here. After content replacement the exhibitions are moved to *Aheilos 4* region, where they are available for exploration as a form of 3D archive. *Aheilos 3* region functionality was inaugurated between January and February 2013 with Witold Gawłowicz poster exhibition. In the period of 16.03 - 10.04.2013 an exhibition "*Aheilos* – creation and education in the space of information" took part simultaneously in Delta Club – a branch of City Cultural Center in Szczecin and the *Aheilos 3* region. The opening event took part simultaneously in the two spaces, allowing real or virtual presence (with avatar). The guests on both sides had continuous live visual and sonic contact allowed by the two-way content streaming ability of the *Aheilos* platform. In *Aheilos 3* region a big screen was located with live streaming from cinema interior of the Delta Club. The comments made by real space visitors could also be heard in-world. Real space visitors had the same opportunity to see what was happening in the *Aheilos* space, hear the virtual spectators speaking and read their messages on the big screen in the cinema room. Guests represented by avatars could fully participate in the discussion in real time. The subject of this exhibition was two parallel impressions about the structure of information in real and virtual world.
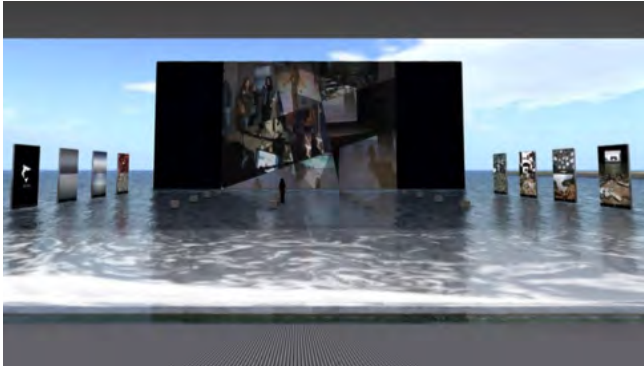
Fig. 9. *Aheilos 3* region. Exhibition: *Aheilos* - creation and education in the space of information.

Fig. 10. Exhibition: *Aheilos* - creation and education in the space of information. Cinema room.

14 km North-West from the Ancient Corinth, alongside the Corynthian Gulf, over a small cove surrounded by steep rocks, lies the Temple of Hera Akraia in Perahora. It was the location of a cult from the 9th century BC to 146 BC, when the Roman general Mummius conquered Corinth during a war with the Ahaian League. According to Euripides' texts, Medea buried her murdered children here after her escape from Corinth. In the surroundings of the temple there are many excavations from Neolithic, early-Hellenic and Mycenian eras. Probably somewhere here was the location of the ancient city Heraion. From the earliest times to the current days this area was densely urbanized. In ancient times, in a relatively short period of time and in a small area, there was a great cultural bloom happening, creating the ideological base for the construction of western civilization. Ideas that then harmonically built the overall picture of the world have survived to our times as a group of fragments deconstructed in time and often mixed with other cultural influences and reassembled in another manner. The inhabitants of these areas were always accompanied by the sea. The coast neighboring with the Temple of Hera is rich in stone beaches, where many interesting stone specimens of unusual shapes and colors can be found. Examples of such stones could be seen during the exhibition at the Delta Club.

Fig. 11. Rhizome interior at *Aheilos 10* region. Part of an exhibition poster.

Virtual world is built with information. The value of the information is determined by the structure of its arrangement in association with users perception capabilities. Humans natural environment is the interactive real space and the interaction with it is happening by the mediation of senses. The formal concept of the exhibition was to show analogies of information in the digital space with pictures recalling the once harmonic and now deconstructed structure of European civilization. The idea was a try for a different approach to the stones from Corinthian Gulf as a source of disordered information about our culture, that we can someday reassemble and absorb along with science development.

Fig. 12. Temple of Hera Akraia in Perahora at the Corynthian Gulf. Part of an exhibition poster.

The virtual part of the exhibition was built on water, which is the initial state of the platform – before regions emerge there is only sea. The sea is also a motif connecting the two parallel impressions. Space arrangement referring to cinema resulted from the main functional assumption of the exposition – existing on the edge of the real and the virtual, where the projection screen was the linking element of these two spaces.

Aheilos 4 region (E)
This area is profiled for permanent exhibitions and archiving periodic exhibitions that previously took part in *Aheilos 3* region. The space has been initially divided to 640m² plots adjacent to a few squares and communication passages to the neighboring

regions. Currently there are three locations functioning here: Leszek ebrowski, Ireneusz Kuriata and Witold Gawłowicz poster galleries. In the future the other plots will be distributed between users with the aim to develop individual exposition concepts. The lower part of the region hosts the first launched object – poster gallery of Ireneusz Kuriata. The form of this gallery emerged after consulting the author, who needed for the purpose of his exhibition a one store hall divided in two inner spaces and an outside area with a billboard holder emphasizing the entrance area. Such type of object was then approved for the next two exhibition areas. By entering inside the gallery we have the possibility to explore the newest creations of the artist, that have been presented on his two last exhibitions in Brama Jazz Cafe and Delta Club in Szczecin and also his older works. The posters of Ireneusz Kuriata can be characterized as simple and synthetic in form and their subjects are oscillating around music. The author is a supporter of a so called "self edition" creation and most of his works were developed as autonomous creations. In his work he mainly operates with forms of sign and self-developed typography which are communicating the content in a simple way. This approach is clearly visible in the last series of works called "Audiopiktofilia." The latest research of the artist shows an animated sonic poster that is located in the exterior area in the form of an animated billboard. *Aheilos* virtual environment has made it possible to simulate solutions offered by contemporary public space that introduced the technology of led displays that are liberating the poster from its traditional medium in favor of dynamic multimedia solutions.
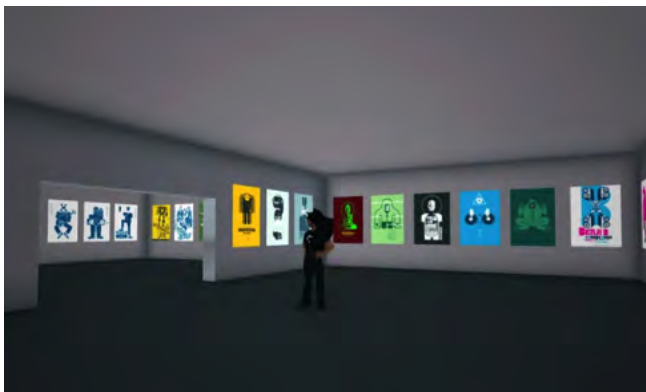

Fig. 13. *Aheilos 4* region. Poster gallery of Ireneusz Kuriata.

The next object already functioning in this region is the poster gallery of Leszek Zebrowski. The rich portfolio of the artist is mainly connected with cultural issues – theatre, music, opera, film and cultural events. His works are characterized by recognizable individual style based on manual illustration techniques and self-developed typography. Leszek Zebrowski is classified as the middle generation of Polish poster artists and continuously present in art from a few decades with a portfolio of over 350 posters. This is a unique exhibition for a few reasons. The work of Leszek Zebrowski is part of the most-recognized Polish poster history and the context of exhibition in the *Aheilos* world connects this history with new technologies of art exposition. The second great value is

the selection of works, which are characterized by subjects and a formal approach away from the main stream of artist's creation and they were never published before. The *Aheilos 4* region exhibition is the premiere presentation of these selected works.

By moving forward towards the region's center we can explore the poster gallery of Witold Gawłowicz. His artistic research is most often characterized by the use of photography, sign and typography. Poster concepts are developed based on a simple and accurate idea that in connection with a professional workshop is making a strong impact on the spectator. The artist is a winner of many prizes and many of the posters presented here are functioning in the public space and publications associated with art and culture.

Aheilos 7 region (I)
This area is dedicated to virtual aid for projects developed in the real world. On the current stage there are three projects located here: concept of a modular system of prefabricated floating houses, project of a seasonal house and a model of Delta Club exposition interior arranged with an exhibition.

Fig. 14. *Aheilos* 7 region. Model of seasonal house.

The seasonal house model is located in the lower part of the region. The local development plan strictly defined the maximum building surface (75m²), the height (7m) and the roof geometry (gable roof). The goal was to create the most simple form complying with these restrictions. The object was slightly offset from the center of the plot. Single space with daily functions of the ground floor is open to the garden in both directions. Similar terrace and natural lighting layout was adopted on the attic floor, where night functions were located. The main door leading to the hall and the other leading to the kitchen were set on the side area of the plot, where the parking area for two cars is also located. The emerged model was used for consulting the form of the object and the functional plan with the client. In the central part of the region a mock-up of the exhibition interior of the Delta Club is located. This model was used for creating the initial concept of space arrangement for the exhibition "*Aheilos* – creation and education in the space of information" that allowed it to noticeably

shorten the exhibition installation process, because the effect of work on the model accurately simulated the real conditions of the location. The upper part of the region was arranged with the project of modular floating houses. Project guidelines assumed the creation of a system of prefabricated residential objects with a few functional options, based on ready modular 10 x 2,5m floats that could be joined in larger blocks. Such sizes of the elements allowed their transport by road on typical trucks. For initial project needs, three basic functional options emerged based on two or three float module combinations and a few sub-options with slight functional modifications. The form of these objects was inspired by small floating units. Each of these objects was designed as single story with a terrace on the roof top. The two float options were designed to accommodate two persons and the three floats option was considered for a family of four persons. The project was consulted remotely with the client in the *Aheilos* world during the concept phase work.

The ability of remote presence and interaction in 3D space opens new perspectives for remote teamwork and presentation of architectural designs. The advantages of virtual environment in this range should not be underestimated by architectural offices, developers, real estate dealers, the hotel business and all the other services associated with architectural space. Amongst the potential implementations of the virtual space in this context are the possibilities of exploring and furnishing an apartment before purchase, exploring a hotel before making a reservation, remote presentation of projects, consultations with clients or partners in distant locations and initial arrangement of exposition areas. Following that track, many more examples of utilizing the virtual architectural space for enhancing the service sector in the real world can be mentioned.
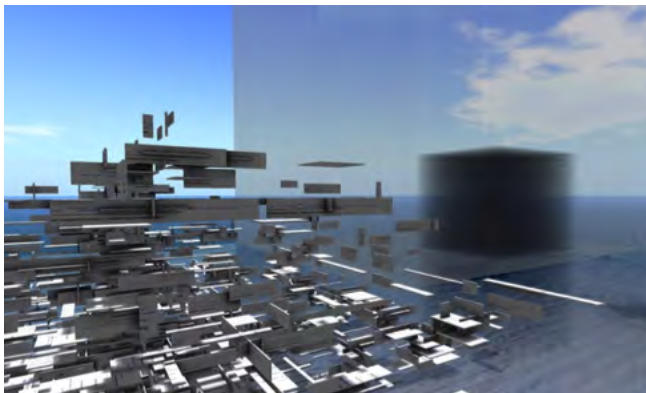

Fig. 15. *Aheilos 9* region. Multimedia structure and light tracer.

Aheilos 9 region (Π).
This is a zone for artistic activities experimenting with the nature of the *Aheilos* virtual world, which is created out of information shaped as spatial forms, colors, textures, sounds, films, interaction. The built-in script language gives freedom in designing objects behavior which allows the development of complicated project concepts.

There are currently two installations functioning in this region: cinematic spatial multimedia structure and light movement detector.
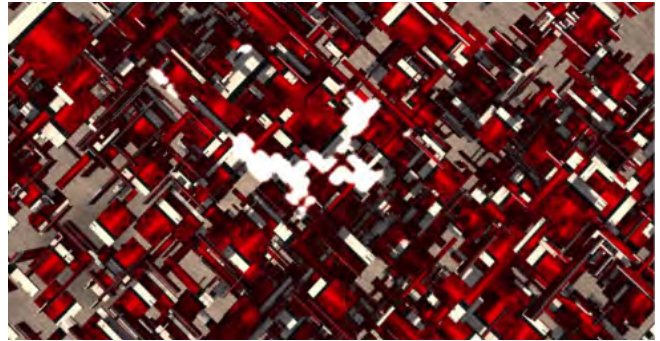

Fig. 16. *Aheilos 9* region. Multimedia structure from above.
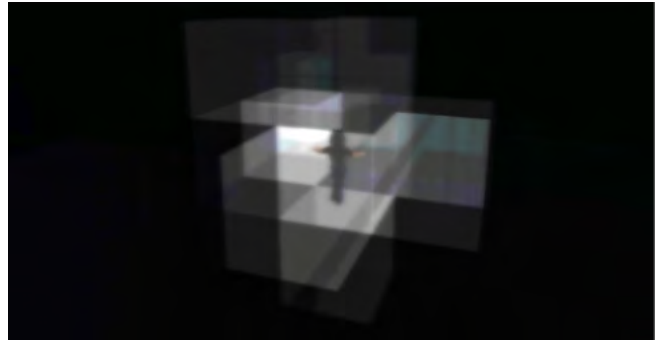

Fig. 17. *Aheilos 9* region. Inside the light tracer.

The middle part of the region is built-up with an abstract spatial structure made out of a few thousand blocks of different sizes and proportions. The structure is sparse outside and concentrated towards the central area. All the objects have the "Phantom" property assigned that eliminates collisions and allows free movement of the avatar in all directions. Dark coating of the objects was defined as multimedia texture. When someone is entering the structure a projection of "3D structures" animation is initialized on all surfaces. The user finds himself moving through space built-up out of film and generating frames dynamically from this spatial installation.

In the upper left part of the region there is an installation called *Light traces*. It is a spatial interactive matrix built-up from a few thousand transparent cubes with a property of light detector scripted and nested in each object. The elements of this matrix are analyzing the space in a 3 meter radius in 5 second time intervals searching for an avatar nearby. In case of detection the element switches on as a light source. In the next cycle the detection is limited to a 2 meter radius and if there is no avatar present in that range the intensity of the light decreases by half. If the avatar is not detected nearby in the 3rd cycle – the light source will turn off. By moving in the field of detectors the user generates light traces in the structure that are fading away in time. Below is the script that is the key element of the installation.

Fig. 18. *Aheilos 9* region. Inside the multimedia structure.

```
// Simple script for turning the light source in an object
on
// and off by detecting movement of nearby avatars.
// The default state of the object that is defined here
default
{
 // Here begins the action launched immediately after the
 // state "default" starts.
 state_entry()
 {
 llSetPrimitiveParams([PRIM_TEXTURE,ALL_SIDES,
 TEXTURE_BLANK, <1.0, 1.0, 1.0>, <0.0, 0.0, 0.0>,
 0.0]); // This function is removing the texture from the
 // object in if any is applied.
 state dark; // Redirecting to the state "dark."
 }
}
// The state defining the parameters of the object
// simulating a turned off light source starts here.
state dark
{
 // Here begins the action launched immediately after the
 // state "dark" starts.
 state_entry()
 {
 llSetPrimitiveParams([PRIM_COLOR, ALL_SIDES,
 <0.0,0.0,0.0>, 0.1, PRIM_FULLBRIGHT, ALL_SIDES,
 FALSE, PRIM_POINT_LIGHT, FALSE,<1.0,1.0,1.0>,
 1.0, 20.0, 1.0, PRIM_GLOW, ALL_SIDES, 0.0]);// This
 // function is turning off the light source in the object.
 llSensorRepeat(","  ","  AGENT_BY_LEGACY_NAME,
 3.0, PI, 5.0); // This function is launching the detection
 // of avatars within a radius of 3 meters in 5 seconds
 // time intervals.
 }
 // Here starts the event launched after avatar is detected.
 sensor (integer how_many)
 {
 state light; // Redirecting to "light" state.
```

```
 }
}
// The state defining the parameters of the object
// simulating a turned on light source starts here.
state light
{
 // Here begins the action launched immediately after the
 // state "light" starts.
 state_entry()
 {
 llSetPrimitiveParams([PRIM_COLOR, ALL_SIDES,
 <1.0,1.0,1.0>, 0.1, PRIM_FULLBRIGHT, ALL_SIDES,
 TRUE, PRIM_POINT_LIGHT, TRUE, <1.0,1.0,1.0>,
 1.0, 20.0, 1.0, PRIM_GLOW, ALL_SIDES, 0.2]);
 // The above function is turning on the light source in
 // the object.
 llSensorRepeat(","  ","  AGENT_BY_LEGACY_NAME,
 2.0, PI, 5.0); // This function is launching the detection
 // of avatars within a radius of 2 meters in 5 seconds
 // time intervals.
 }
 // Here starts the event launched if no avatar is detected.
 no_sensor ()
 {
 state halflight; // Redirecting to "halflight" state.
 }
}
// The state defining the parameters of the object
// simulating a turned on reduced intensity light source
// starts here.
state halflight
{
 // Here begins the action launched immediately after the
 // state "halflight" starts.
 state_entry()
 {
 llSetPrimitiveParams([PRIM_COLOR, ALL_SIDES,
 <0.5,0.5,0.5>, 0.1, PRIM_FULLBRIGHT, ALL_SIDES,
 TRUE, PRIM_POINT_LIGHT, TRUE, <1.0,1.0,1.0>,
 1.0, 20.0, 1.0, PRIM_GLOW, ALL_SIDES, 0.1]);
 // The above function is turning on the object as a light
 // source with half intensity.
 llSensorRepeat(","  ","  AGENT_BY_LEGACY_NAME,
 2.0, PI, 5.0); // This function is launching the detection
 // of avatars within a radius of 2 meters in 5 seconds
 // time intervals.
 }
 // Here starts the event launched if no avatar is detected.
 no_sensor ()
 {
 state dark; // Redirecting to "dark" state.
 }
}
```

Object scripting allows the use of metaverse engine in a most

comprehensive way. There are many scripting resources available, even very complex, that are converting a single region in flight simulator, car racing simulator or an arcade game. [11-13] It is not difficult to imagine that such functionality can be applicable in professional simulations supporting various science disciplines or eventually in art, for designing interactive artistic installations for the real world or these functioning autonomously and experienced by the user in virtual 3D space.

Aheilos 10 region (ΔΔ)

The content of *Aheilos 10* region is a model of my doctoral dissertation from 2008, entitled "*Models of architecture in the space of information – based on examples of own works, the works of known theorists and practical implementations.*" The work stated that teleinformation space is a new virgin field for architectural design, where its form and function is determined by the need of an interface for information flow. The aim of the architectural installation present in *Aheilos 10* region was to show the potential of this type of interface for transmitting information. The model located here is equivalent to the content of written dissertation. Chapters are reflected by urban structure of the model. Master plan including all thematic sections of the installation can be found in the starting point - inside the "Rhizome" object (Fig. 11). Sharing the model online was made possible through the *Aheilos* project. Detailed description of the content of *Aheilos 10* region is available in separate publication as mentioned above. [14]

Fig. 19. *Aheilos 10* region. Architecture in the space of information. Chapter 1.3. Historical overviewT

Fig. 20. *Aheilos 10* region. Scripted dynamical sculpture.

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