Shared, Collective, Generative, Dynamic Virtual Environments

GENEVE

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Abstract

In this project we plan to create an experimental novel medium setup for the study of the "presence" experience in shared, collective, generative, dynamic virtual environments (GENEVEs) in order to study the cross interactions between a given GENEVE and/among its creators/users and to explore the logic of presence in each GENEVE. The new shareable/generative media will try to add personal creativity and social dimension to telefruition of contents. For the European Industry having a leading edge in the technology for hw/sw/contents for shareable novel media is both a strategic asset and a social imperative.

1. Introduction

The Television industry, besides indisputable "good", has been often criticized of being responsible of many "evil", among them of increasing isolation of citizens in general and divide among family members. The added interaction dimension (i.e. as in videogames) is far from having improved the situation. Movie and theater have been (partially) spared from this criticism mostly because of their "intrinsic" social dimension in the fruition process. The new shareable/generative media will try to make the best of both worlds adding personal creativity and social dimension to telefruition of contents. A European Industry with a leading edge in a technology for hw/sw/contents for shareable novel media is both a strategic asset and a social imperative.

1. Objectives

In order to better understand the objectives of the GENEVE project it can be useful to discuss the space illustrated in Figure 1.
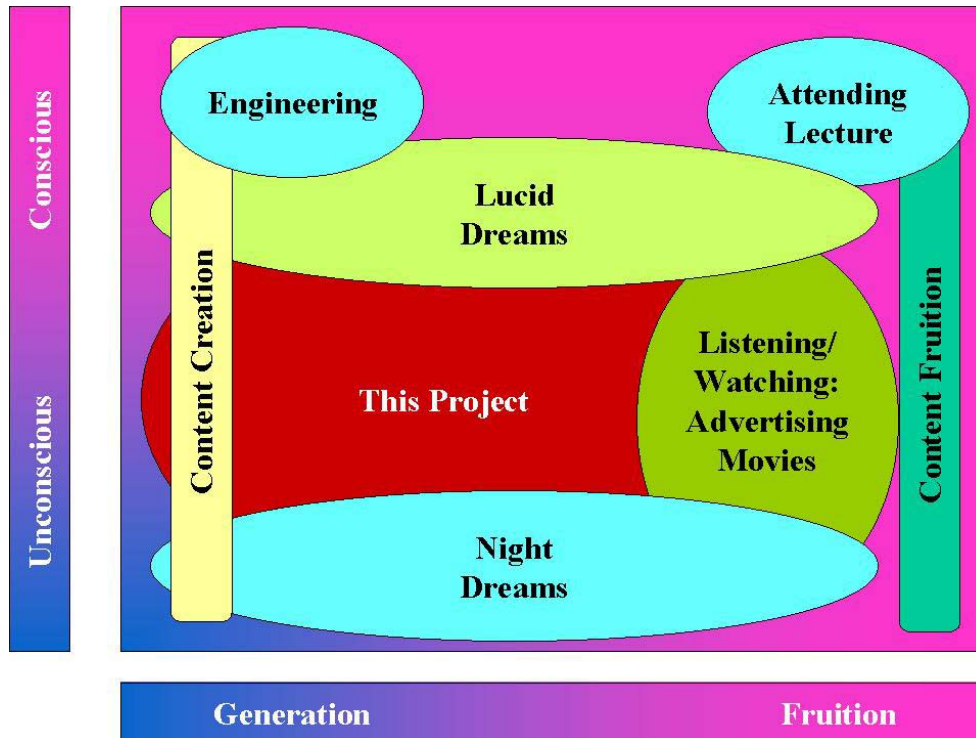

Figure 1: An Abstract Space Illustrating GENEVE concepts

If we partition that space along its two dimensions Unconscious-Conscious and Generation-Fruition we can easily visualize the following facts:

- Usually, in the media industry, including the video/computer game industry, the generation/creation and the fruition of the "contents" are two completely separated processes.

- There is, on the contrary, a continuum ranging from Unconscious to Conscious in both (the separated) situations of generation/creation and fruition

- Night dreams constitutes the best natural examples in which, at an unconscious level, generation is synchronically linked with its relevant fruition.

- Lucid dreams are the dual example of the previous, at an (almost) conscious level. A new research (and industrial) interest is growing about their possible applications.

Those applications relay on the possibilities to "steer" the unconcious natural production of dream content towards some conscious direction.

- There is still a portion of this space to be explored that spans at the (fuzzy) border between Unconscious and Conscious. In this region, generation and fruition can be brought, if not really synchronic as in the case of dreams, asymptotically close. Their distance will diminish with the improvement of the technology. Realizing an artificial real-time 3D environment in which this is possible and study it, are the main objectives of the GENEVE project.

On this basis the GENEVE project has the following objectives:

1. To create an experimental novel medium setup for the study of the presence experience in shared, collective, generative, dynamic virtual environments (GENEVEs).

2. To study the cross interactions between a given GENEVE and/among its creators/users.

3. To explore the logic of presence in each GENEVE .

In order to acheive the previous main project objectives we foresee that:

A) On one hand, the creation of the novel medium setup will require the use and/or integration/development of the following technologies that can be classified as follows:

-   Features (advanced existing technology that at the present state of the art make the project research feasible)

-   Non standard displays (i.e. all surfaces dynamically steereable projectors)

-   Improvements (advanced existing technology to be improved in order to fit project needs)

-   Custom Avatars created automatically from people's bodies

-   Generative 3D graphics

-   "Genome Database" Sharing among creators/users (GENEVEs are generated using information stored in a "digital Genome")

B) In turn the novel medium setup will allow to address the following Research Challenges (original contributions to presence theory):

1. Study of Consciousness/Unconsciousness relevant role and logic in mind's projection through GENEVE based media.

2. Study of Inter-Active-Generative fruition-making in GENEVE based media.

The scope of this research is to contribute to the theory of presence and in particular to the part of it regarding the projection of the mind to designed environments. Since in GENEVEs the environment is only partially and loosely designed beforehand, being for its major part generated real time by the creators/users, we expect to contribute originally to the theory of presence studying it from this particular perspective .

Moreover, while is out of the scope of the present project to make a consistent theory of consciousness (and of its "embarassing" counterpart, the "unconscious"), we will study the projection of the mind from both its conscious and unconscious sides.

The investigation will be carried out using an artificial real-time 3D environment, developped during the first phase of the project, that could constitute the prototype of novel media where fruition of contents will be fading into its own generation.

One of the aims of GENEVE is to try to assess the role of creation vs fruition in determining the quality of the presence experience. After all in real life we are seldom passive, as we are in normal media fruition. Even interaction is a limited activity because is bound to the limits of the environment that has been designed beforehand.

GENEVE will be transdisciplinary bringing together researchers ranging from experts in media psycology to telecommunications belonging to both academia and industry.

State of the Art

1. Underlying Basic Technology (That is: the research is technically feasible.)
All the underlying basic technology involved in this project is present state of the art. In particular:

-   Generative Visual Art is now a well established field of research. This field capitalizes on the tremendous advances in both computer graphics and genetic computation.

-   Genome Exchange and Sharing has been pioneeed by Steve Grand's world best selling video game "Creatures" and is now a well established industrial procedure.

Hence the experimentation needs can be initially met by current state of the art technology.

2. Psychology Formal Theory Background (That is: the research is scientifically founded).

If we regard at the story of media we can see a paradox: while the technology has improved, thanks to our increasing knowledge of the conscious part of our perception system, the quality of contents (dramas, movies, musics, etc.) has been linked, in a way or another, to our capacity of addressing its unconcious counterpart.

Failing to take into account the deep unconscious (and not just the "emotional" part of human experience) has created a hiatus between what technology pushes and what mankind demands. By the way cartesian paradigms have been challenged from several parts: [1], [2]

The scientific investigation of the present project will explore especially (albeit, of course, not exclusively) the unconscious dimension of this mind's projection starting from Matte Blanco [3] formal theory of the logic of the unconscious.

In order to carry out our investigation in a sistematic way, a reference, formal, paradigm is necessary. Hopefully we have an exceptionally good fundamental theory to be based on. Ignacio Matte Blanco in his book "The Unconcious as Infinite Sets" [3] formalizes the logic of unconcious. We will try to summarize here his theory in a very coincise way (the book is the collection of a lifelong set of scientific articles in some 500 pages). Matte Blanco formally demonstrates with both empirical and advanced mathematical evidence that the unconscious do have a logic. The apparent "illogicity" of it is due to the fact that we have, insofar, analized the inconscious with an "unsuitable" (formal) logic. Much like Einstein had to abandon Euclidean Geometry for its General Relativity theory [4], Matte Blanco had to abandon Aristotelian Logic. As it was really fortunate that Einstein had new geometries being available at his time. The same happened for Matte Blanco as far as logic is concernd. (Curiously enough one of the advances of Matte Blanco theory requires a 4-dimensional space, the same explored by Einstein [4].) Other contributions to Matte Blanco theory have been derived from Russel's set theory [5].

3. Hot and Cold media. Active vs. Passive fruition

One of the most widespread commonplaces of media fruition is that the perception is a "passive" process. From various parts it has been objected that this is could be far from being completely true [6], [7]. Marshall McLuhan [8] with his distinction between "hot" and "cold" media addresses also this issue. In fact the fruition process may be a very active one. But, still, we are fruitors of contents created by others, albeit we may be active fruitors.

In saying 'the medium is the message' Marshall McLuhan [8] points (among other things) to changes in meaning that occur when using different media. In the context of this project, one can regard the mixed reality environment that is being created as a novel media setting which will also incur such changes.

In this setting, the participant is not merely a spectator but at the same time the (co)creator of the 'space' in which they take part. Moreover, 'creating' in the context of this project does not mean manipulating ready-made, prefabricated objects. All elements surrounding the participant(s) are generative. They grow, evolve and

develop following their 'genetic code', which forms the basis of their form and behaviour. In addition, the action and inaction of the participant(s) with and within the environment (co-)influences the developmental process of the content making up the environment. Hence, physical meaning is given to 'space as process'.

It is obvious that by placing higher-level creative capabilities directly into the hands of the 'experiencer', this novel media setting shapes a different kind of interaction as well as a different sense of 'presence'. Separately the technologies used here were probably developed within in a framework and mindset likely to be very different from the setting they are placed in now. This calls for an exploration of possible new methodologies, metaphors and approaches in the research and design of such environments. The organic approach seems suitable to describe the processes with and within the kind of mixed reality environment envisaged.

The organic-ness (cf. organicism, [9]) of the process generating the content extends towards and beyond the interaction, the presence, it engulfs the space(s) it creates and the experience thereof. The use and investigation of the organic metaphor/analogy in a mixed reality setting such as this one, proves relevant because of various conceptual similarities and relationships. They are exemplified in elements such as the questioning of certain (Western) dichotomies such as inside/outside, subject/object, part/whole, the revaluation of a notion of product as a mere snapshot of process, that of intermediary space, of symbiosis [10], etc.

Advances with respect of the present state of the art

"Generative" creation of contents

The Inter-Active generative creation of contents (texts and "scripts, images, musics etc.) per se, as stated in the previous section, is a mature field of investigation and constitutes one of the underlying basic technology on which the present project is founded. It capitalizes on the advances of Artificial Life, Genetic Algorithms, Complexity Theory, Memes Theory, among others.

In this project we want rather to conceive a novel medium setup   in which it is possible

1. to generate a real psychological feed-back between the creator and the generatively created content

and

2. to investigate the new presence dimension in which may be living (consciously and) unconsciously the active (real time, Inter-Active) creators/users of (shared, collective, generative, dynamic) contents.

Up to now no attention as been paid to this important aspect. The research has, up to now focused only on the basic technology itself.

1. References

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