

performative interfaces

mixed reality environment

distributed systems and
parallel archives for the web

cast01

// living in mixed realities

netzspannung.org event //

September 21 – 22, 2001
Schloss Birlinghoven (near Bonn)

Conference on artistic, cultural and
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cultural archives

interactive tv

awareness, memory space and knowledge discovery

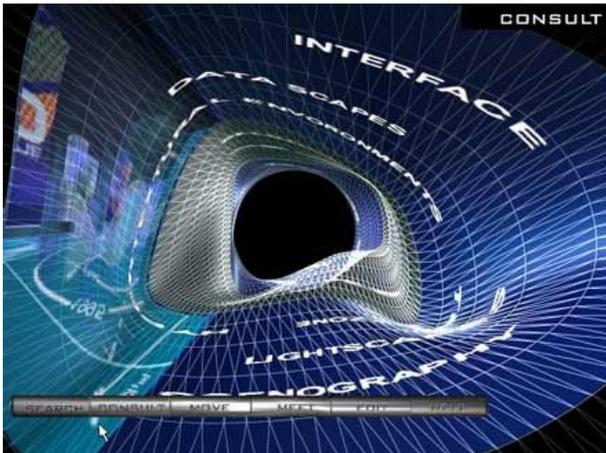
tracking tracing vision systems

hypermedia formats

proceedings

mNemoTIC SPACE

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mNemoTIC SPACE: Information tube

Abstract:

The increasing implication of communication and computation technologies in the process of production and diffusion of knowledge leads to the augmenting need to flatten the imperatives of knowledge transmission (networks), knowledge creation (research), and knowledge access (shared resources) with the conception of electronic space constructs.

The project 'mNemoTIC SPACE' therefore targets new forms of diffusion and production of knowledge in electronic space addressing the issue of interfacing and connectivity. In this objective the project works out a concept for a web-browser allowing each user to index and share information through networks. The project 'mNemoTIC SPACE' thus proposes a graphical user interface, a navigation system, for online databanks. Based on information cartographies displaying inFORMATION processes as processual and generative spaces, it is an investigation in three-dimensional hypertext mappings and its social and cultural implications.

Keywords:

:://memo/

Interface qualifying and quantifying stored and shared information.

:://Network/

transfer protocols as transmission and associative information interconnection – knowledge diffusion and production

:://mnemo/

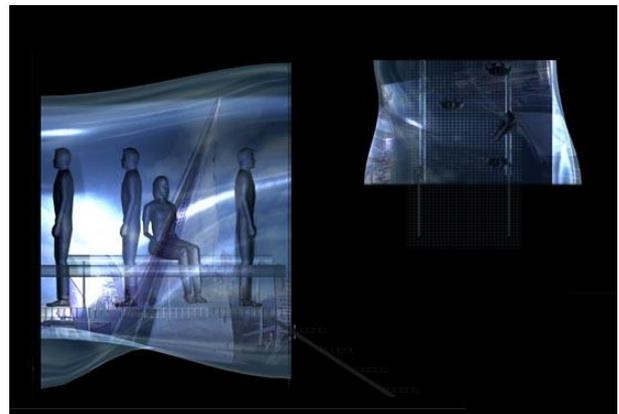
shared associative information qualification – hyperlink and meta information -, transmissible and editable knowledge storage -dynamic database settings-, in networked mental spaces

:://New Technologies of Information and Communication/

inFORMATION processes - computation and communication - based on semantics and syntax - programming languages

Project URL:

<http://www.lab-au.com/i-tube/index.shtml>

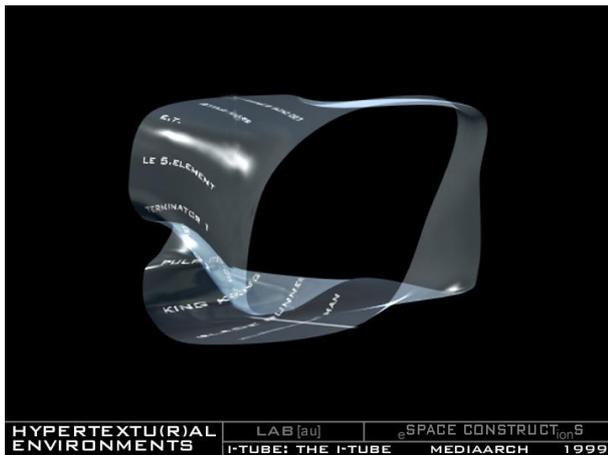


mNemoTIC SPACE: pavillion

[Introduction]:// ‘mNemoTIC SPACE’

The spatialization of information is achieved throughout the process of membranes folded into space according to user-defined parameters. Each membrane thus acts as a support of information display - search results - and illustrates at the same time its filtering function. The successive consultation of the databank thus forms, by assembling these user-defined membranes, a coded space ; between an individual space of browsing and an information one, an i- tube.

[> see ‘ thinking space, digital topographies’]



With the proposed interface, each user navigates in a three-dimensional universe that dismisses any mimetic spatial simulation to existing physical models, and thus constitutes a specific and interactive space of information generated in real-time by the user and the information it contains.

[> see ‘Procedural and generative settings – processes’]

By the specific information it contains and the visual codes it sets up (images, keywords, form, shape, color..), this user-defined environment leads to the concept of a user profile, a trace of the personalized consultation, in form of an e.space. Through a spatial transcription of information processes by means of a structural and semantic hypertext cartography, the interface becomes a formalized canvas of cognitive behaviors, a mental map of each user. In the project, these profiles are called ‘genetic codes’ according to the constitution of identity through a common material – bytes / s.

[> see ‘Dnarchitecture’]

In this manner each linking of information – assembled membranes – can be stored on a web site in order to provide a sample of its identity - a representation - and a personal space, both sharable with others, in order to

stimulate social exchange through the vector of information.

[> see ‘AvatarArchitecture’]

The representation of the individual through a mental map - i.tube - offers a playful and intuitive tool to access information. In this manner the transposition of the experiences of video games in terms of interaction, immersion and representation of the individual within the electronic space, to the general issue of the organization and accessibility of information leads to the exploration of a shared electronic space as a social matrix.

[> see ‘Networked realities – active space shared information processes’]

In the project, the combination of shared information spaces based on the user’s associations leads to a dynamic setting of the general indexing system itself, hence, to the qualification of stored information. In this mnemonic field, the shared mental space – the database - is generated by the transmissions of knowledge specific to the networked society.

[> see ‘Mnemonic space’]

The project ‘mNemoTIC SPACE’ thus addresses the topic of G.U.I - graphical user interfaces – as spatial hypertext mappings, in relation to the qualification and quantification of knowledge in networked systems. It is the investigation in new fields of research according to computation and communication technologies, ‘meta-design’, and their social and cultural implications. In this manner information architecture deals with intelligible electronic constructs not only as a modality of perception and cognition, but as the mental and psychic settings of behavior, ontological concerns, as well as the production of active and functional e.space. In this manner ‘metadesign’ deals with information in terms of programming and meta-inscription – versus as an output of interpretation - and data as objective reality - versus information as narrative and simulation. In this manner ‘metadesign’ formalizes electronic space constructs relative to information processes according to social, semantic and spatial structures (architecture) at the level of language (code, structure) in order to build up connectivity and effectiveness.

[1]:// graphical user interface

‘mNemoTIC SPACE’ proposes a graphical user interface for database navigation systems based on information cartographies displayed as electronic environments of exploration and exchange. The creation of a three-dimensional navigation constitutes

both an environment for research and a sample of post-industrial knowledge combining multiple potentials (that is, knowledge (scientific), facts (cultural) and experiences (artistic)) to access specific data. Conceptual investigation in hypertextual environments transforms architectural design into a metadesign based on the structuring of information process and social space settings within information flows.

With the proposed interface, the user navigates in a three-dimensional universe that dismisses any mimetic spatial simulation, an interactive cyberspace generated in real-time by its users and the information it contains. The project anticipates the development of new methods of consultation and creation of shared resources, by transposing the video gaming experience in the fields of interaction, immersion and representation of individuals in the electronic media (avatars), into general questions relative to the organisation and access to information, reconfiguring the exploration of electronic environment into a medium of collective exchange. By structuring cartography and a spatial transposition of the network, the interface becomes a formalised canvas of cognitive behaviours. In this mnemonic field, the shared mental space is generated by the transmissions of knowledge specific to the networked society.

[2]:// Procedural and generative settings - processes

The conception of the 'MNemoTIC SPACE' interface explores structurally and visually the process engaged in a hypertextual consultation and navigation, as well as its transcription into parameters generating an electronic environment. The access to information implies – in case of a database, the use of search engines devices. The setting of such systems uses the intertextual “metatags”, which in the case of our interface is enlarged to additional settings such as colour codes (specificity), intensity/saturation (density) and spatial shapes (theme, space, time – related). These settings generate, individually or by continuous combination, a result in form of a space, varying in real time with any change made to them. The chosen codes enable a continuous variation determining the fluidity of their combinations, light spectrum, opacity, formal morphing among square, circle and triangle.

The search is configured according to the following settings:

'Time', by chronology: simple organisation of the content according to its date of realisation or diffusion and, for historical contents, according to the date of the event they describe. The setting is scaled in units of century–year–month–day–hour (fixed by the desired accuracy and the range of search). A circle in the interface formalizes this setting.

'Space', by space: simple organisation of the content according to the location of its conception or production, or the area it describes. This setting is represented by a square in the interface.

'Theme', by thematic: simple organisation of the content according to keywords representing several thematic levels, from a general very simple level. It is a thematic tree structure where sublevels are displayed as rings. This setting is represented by a triangle in the interface.

'Specificity', by level of accuracy: this setting colorizes the membrane from red for general information to violet for specific ones. It visualises the quality according to shared indexing. [> see 'Mnemonic space']

'Density', by the range of search: this setting configures the light intensity applied to the colours and the membrane. It visualizes the quantity, i.e. the amount of information relevant to the search. These parameters offer more than just a combination; as inter-dependent filters, they preserve the consultation of information from saturation effects. Every one of them is in itself a tool, on behalf of the calibration window which role is to combine them, defining preferred relationship among graphic codes, interfaces and interactivity.

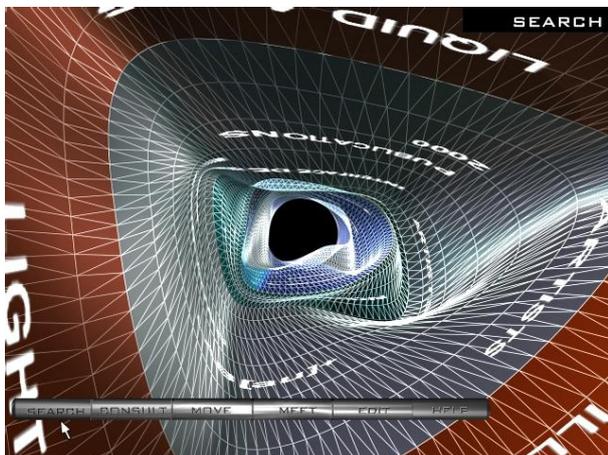
The transposition of computed information into the creation of three-dimensional operands is related to the mem-brains (memory – brains), modules of research and access to data, formalized in ring-shaped membranes generated from the textual contents and the search resulting from the user calibration settings. The activation of a textual link mapped on the surface of a mem-brain provokes the extrusion of a new ring-shaped membrane, relative in its form and contents to the former mem-brain. This chain of mem-brains formalizes successively an intertextual environment of consultation. In this processual environment, space becomes an intelligent matrix relative to the programmed settings (algorithm) and the influence of the parameters.

Space emerges from successive iterations far from any metaphoric figure, but intrinsically bound to the hypertext navigation, the very essential functionality of the system. Every piece of code underscores an information that augments the readability and qualification of the information. The consultation of information inscribes itself in a complete process of communication in which every element is qualitatively and quantitatively relevant to the elaboration of a sub-structural semantic field that transcribes the information in terms of a calibrated material setting up the spatial codification.

These generated spaces are codification system based on continuous visual, shape and sound recognition. This set of codes builds up a cognitive mental structure opening the field of consultation to an auxiliary subtexual reading.

[3]:// thinking space, digital topographies

The creation of a three-dimensional operating system constituted by the assemblage of unitary yet configurable modules, the mem.brains, the environment for information research and access generates an information tube. This initiated process is a visual display of information, a spatialization of a hypertext, a e.space generated in real time evolving with each act of consultation.



The different spatial constructions based on hypertext cartography (the mem.brains and the Information tube) reveal an efficient spatial topography which characteristics relate to Deleuze's consideration on striated and smooth space. In topography, texture is a term describing the four-dimensional field of a diffuse cluster, which in the case of the hypertext, can characterize its inter-

woven structure in multi-linear and multi-temporal aspects. The introduction of topography into the processes of communication enables us not only to qualify the various structures of information, but also to describe their spatial implications. The mapping of this digital territory has now become an innovative field of research on new perception and comprehension of space in networked information and communication structures.

The semantic mapping of rhizomatic information structures and the mapping of hypertextures explore the information structures in their relation with space concepts through the cartography of networks and the flows of transiting or stored data.

According to these information patterns, the mem.brains constitute direct information accesses, centered to the behavior of searching, where the information tunnel induces explorative browsing.

The analysis of information structures allows to determine space concepts specific to the modalities of the electronic media. As schematic representation of complex structures directly influencing cognitive and behavior processes, the mapping acts as the linkage between the structural, the visual and the conceptual in the construct of intelligibility as an interrelated system of its diagrammatic, semantic and rhetorical as well as mnemonic inscription, and thus constitutes the base in the construction of electronic intelligible space settings.

[4]:// hyper.spaces, performative space settings

As information exchange is directly linked to human experiences, communication processes determined by binary codes transpose our experience and perception of space into the digital media. The topographic construct of electronic space turns into a variable of information processes where the experience of space depends on cognitive stimulation of the neuronal system - process of space acts - displacement, movements patterns... influencing the actions and reactions - behaviours of the user. This space experience becomes increasingly differentiated from its direct inscription to materiality, becoming eventually related to mental parameters of 'insiderness' (replacing parameters such as gravity, distance...).

In fact, the experience of space, 'insiderness', is mediated through information formalisation processes, invoking perception, semantic inscription (cognition) and the mental representation (script).

Communication and computation technologies therefore project us into new electronic spaces where the construct of 'hyperspaces' determinates a new relation between information and the individual by combining the perceptual with the conceptual, the concrete with the abstract. The direct correlation between information structures and space constructs thus determines a performative language, augmenting cognition and mental processes by inscribing new modalities of interaction and immersion, 'being there', within the rhizomatic and digital networks and systems. Acting in cyberspace thus defines interactivity and immersion by linking hyperspace settings to information processes at the surface of the screen.

To put the GUI in prospect with space representation of information is therefore equivalent to examining architecture of information, making possible to identify the manner that has this architecture to work the space of information as well as the interactions which it sets up.

In the project, six words evoke the possible actions. Whenever activated, they open contextual toolbars, enabling interactions with cyberspace. The "search" toolbar, for example, splits into several tools, which use several visual codes. The graphical code based on "form" is part cognitive, part metaphoric; space, time and themes are neither object nor actions in a primary sense, but in cyberspace, they correspond to its formal and spatial configuration thus as an interaction. Abstract signs, a square for "space", a circle for "time" and a triangle for "themes" represent them. The particularity of the project is that, as a search engine, it translates all the search parameters into spatial parameters. This relation between space and action, i.e. to generate the form in real-time (interactions), determines a performative language, applying an intuitive character both to space and to the search itself, and involving the user into information space. Therefore, this system establish itself as functional and semantic device.

The access to information becomes an exploration, navigation through the tube, a particular journey in the gravityless space of information. Cyberspace operates as a tangible and active space, expressing the problematic of interfacing by the information structuration issue (access, progression...), as well as by the immersion and interactivity issues. Consequently, in the case of the project, the real-time generating system is a performative system, extending mental processes to sensitive processes.

This description of cyberspace enlarges the understanding of the electronic space from a simulation principle to a structural and sub-symbolic formalisation.

[5]://DNArchitecture - hyper.traces - mental mappings

"With one fact or idea in its 'grasp', the mind 'snaps instantly to the next that is suggested by the association of thoughts, in accordance with some intricate web of trails carried by the cells of the brain"

Vannevar Bush, *As we may think*, 1945

As a spacetime structure of data and an associative and performative form of relation (interactivity) between the reader and the structure, the hypertext functions in ways similar to the human brain. It is a neuronal system combining structure and behavior settings. The brain, as the 'memex' (memory expander by Vannevar Bush) follows a structural and functional logic comparable with the one of the hypertext, revealing the complexity and the multiplicity of links which binds the concepts of mental space, memory and nervous system to fuse them in one single construct. The same processes stimulate phenomena of spatialization and mental representation of the data structure by influencing the actions and the reader's behavior.

mNemoTIC SPACE: mapping of rhizomatic information structure and the user's specific path, a hypertrace of its reading. The hypertext is not only one particular mode of data structuring, but is a data itself. It is this interweaving of the rhizomatic structure incorporating the reader's trajectory (association) through which the hypertext reconstitutes continuously its specific signification. The reader consults text fragments, connecting them in an unforeseeable yet temporal continuity, reinforcing reading as a single experiment, that sets the reader as an active element, taking part in the unfolding of information. The implication of the associative and subjective potential in the information organization furthermore renders a hypertext as a polysemic and open structure. Just as the reading of a hypertext induces a new behavior based on the reader's active implication, the mental displacement (s)he constituted can be described as a space. By integrating in this "displacement" the interpretative and associative factors of the reader, the hypertext

exploits its constructive, emotional and subjective potential.

In mNemoTIC SPACE, the information tunnel is a series of extruded rings configured by information and hyperlinks as by the consultation mode and the previously chosen links of the user. This formal and dynamic logic of the consultation space is fixed while editing the tunnel. It becomes a fixed state of the user consultation, which distinguishes non-edited spaces – like the consultation space– from edited ones. The space edition is intrinsically bound to the elapse of time, so that it can only be edited in real-time. In the edited space, membranes keep their shapes but only the consulted information remains mapped on its surface. The remaining links form a sentence, an hypertrace – metatext specific to each user.

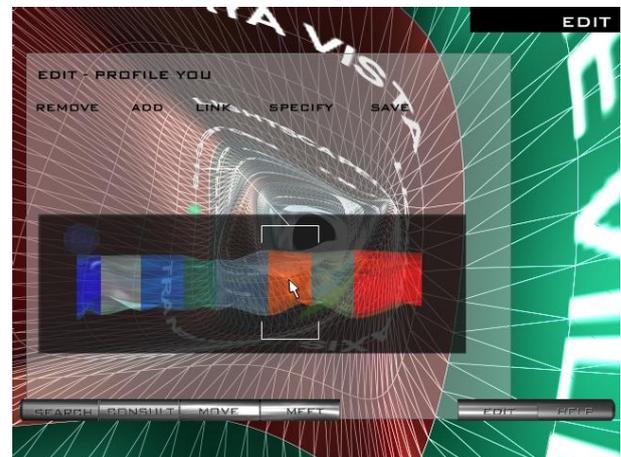
In this manner mNemoTIC SPACE constitutes a mapping of rhizomatic information structure as the one of the specific path of the user, a hypertrace of the users reading.

[6]:// AvatarArchitecture - electronic id's

The hypertrace is a hybrid construct: a cyberspace (architecture), an interface (hypertext topography) and a mental map of the user (avatar) in one single device. This AvatarArchitecture is the expression of the hybridization of body space and mind space, fusing abstraction with figuration, identity with representation. The AvatarArchitecture is either a device allowing the presence of the user, its extension in the electronic medium but also the translation of self-consciousness.

In the project this construction of AvatarArchitecture is called 'genetic code', as specific inscription of consultation logics, consulted information, and the assemblage of activated links according to the user navigation. This assemblage operates like a DNA spiral, a gathering set of processual information, a transmitted and transmissible structure, and an encoded index of behavior. It is in the complexity of the relations among consulted links and the nature of their original organization in a textual sequence, that the genetic chain takes its significance underlining the importance of the constitution of differentiated type but coming all from the same elementary material. From this signifying complexity emerges the possible reading of a behavioral structure, like the genotype of the avatar.

In order to reinforce the identification user/avatar, representation user/architecture, the interface contain an editing board, enabling the visual and direct manipulation of the consulted data rings, mem.brains; save, edit and qualify (puting anotation, keywords...).



mNemoTIC SPACE: DNArchitecture - mental mappings

This exchange and identification device enhances the social participative exchange of data throughout the virtual augmented environment. The question of identification and representation can be extended to social settings – identification and representation, mediated experiences of non physical zones that attend our body.

[7]:// Networked realities – active space shared information processes

"Technology is the indispensable instrument in the realization of an experimental collectivism."

Constant, *new babylon* – art et utopie cercle d'art, pp. 96

'mNemoTIC SPACE' links the question of interconnection between the user and information (or among different users) as a concern of interface, formalizing a place to be collectively experienced and evolving permanently. The consultation space or the genetic code do not constitute in themselves necessary elements to the creation of social relationships in the cyberspace, they only allow to distinguish an individual (avatar) among the others. The avatar creation is the first step in the process affecting the cyberspace as a particular social medium. The interface is not only a communication device with the cyberspace, it is a tool for inter-personal communication that transforms itself into a true social environment. The question of the

language is here central, because it helps to define our social identity in terms of individuals and members of groups. If we had to define the interaction in the project by a simple mailbox, we would elude the performative specificity of the environment by an asynchronous function that does not embrace the entire dimension of the possible exchanges in cyberspace.

According to this aim, genetic codes operate as proactive elements, vectors for exchange and identification among the users – as consultable spaces, they propose at any time the user to consult, compare a hypertrace produced by another user. The project thus enlarges the concept of consultation space and information access to a medium of social exchange, a model of collective space in the electronic matrix.

This inter-relation between individual spaces of navigation and a shared space, the network, is set through two devices, with one oriented to direct exchange among users and the presence of other users: *the spheres of influence* configured by the user himself, and the other as the metastructural inscription of the user generated information in the indexation system of the database itself becoming dynamic, *a mnemonic space*.

These two devices are neither individualistic nor collective, but rather connective extending the topic of intelligibility to the setting of information processes with social settings– relationship to actual structures.

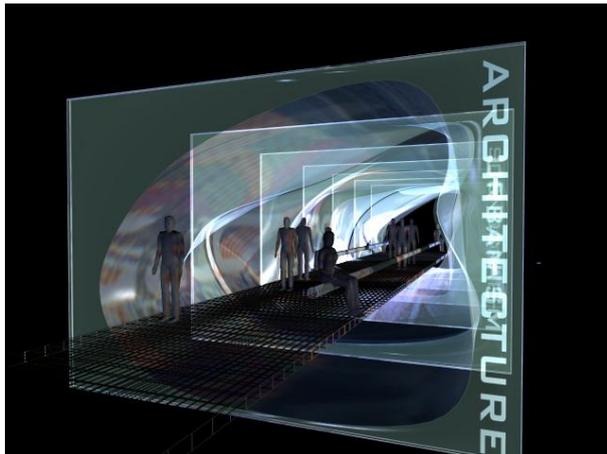
The spheres of influence are interfaces determining a parameter of sociability; of a/synchronous presence or absence among the users. By configuring their range, expelling or attracting forces are pondered so that avatars (genetic codes) would pass from one consultation space through another.

If other users are in the ranged ‘influence’ zone (synchronous) it offers the consultation of non edited contents or its use as chat spaces – in asynchronous configuration it allows the consultation of edited tunnels. These two actions allow to initiate communication processes between users, extending consultation logics to comparative reading and understanding. The spheres of influence thus set up collaborative and shared information processes implying necessary contextual indicators in the production of shared consciousness within the presence of the other throughout the network.

[8]:// Mnemonic space

The acquisition, transformation, conditioning, and diffusion of information, together with its accessibility, which articulate the processes of exchange and the diffusion of knowledge, have become the main vectors of social structure; enlarging the problematic of the industrial era, distribution of tools, to that of information access. The evolution of the information society reveals the constitution of a “connective” conscience where networks act as “collectivity” vectors. The consultation of databases permanently produces new structured information due to the indexing system, and association between different concepts arising from the interaction itself with the data basis – use of new keywords and their ordering. Each hypertrace created is a semantic unit in the progression of new associations – of a logical and associative development. The recording and the statistical evaluation of the succession of concepts, the hypertraces, from the data basis allows the formulation of a new fluid and dynamic index system. In this way each association created by a user becomes information itself, a meta-information, which can be used directly by statistical treatment (most frequent to least frequent) in a dynamic indexing of content. This statistical indexation produces an open inter-subjective index system which allows the integration of new hyper-text parameters introducing the trans-cultural, and trans-local nature of a post-industrial society. ‘MNemoTIC SPACE’ proposes a model for qualifying and quantifying knowledge based on the specific sharing of a networked society, which becomes ever more global as opposed to the traditional, fixed forms of classification of universal knowledge. Dynamic indexing systems investigate the qualification and quantification of information from structured and fixed models, universal thought, to the mnemonic culture according to networked societies. In consideration to the development of indexing systems such as the ‘memex’, mind expander of Vanar Bush, initiating the hypertext development, as well as computation technologies, the computer, the question of memory and thought opens up to shared communication processes at the scale of the social. The concept of the MNemoTIC SPACE project refers to the mnemonic culture, a culture of knowledge and its inscription and diffusion in/through shared mental spaces. It is the users as a whole who constitute the memory, a memory in permanent transformation producing social and connective consciousness.

[9] :// Cybrids, merging spaces



mNemoTIC SPACE – augmented reality

The creation of the graphical user interface, the mem.brains and the information tube are related to the design concept of a hardware interface in the form of a modular pavilion, merging the electronic investigations with concrete architectonic and urban approaches. By articulating the various supports of information, the project proposes a 'communication chain' working out a global communication concept using each element of the chain as a dynamic vector of diffusion and access to information and reformulates the relation between the users and their interconnections connectivity interfaces through networks based on the model of shared resources.

The idea of the pavilion consists in assembling several modules, mem.brains, to constitute a tunnel, as direct transposition of a genetic code. Each membrane forms an environment of shared resources, inter-connected and mobile, a vector of diffusion, accessible in the scale of a single interactive terminal. It is an experimental interface by its own which connects the graphical user interface to concrete space. Based on the concept of augmented reality, it transposes the electronic space experience to a reconceptualisation of tangible and concrete body space. The transposition of the electronic space to the actual one reinforces productive interferences between these two constructs: each user operates in one module displaying on its surface the electronic tunnel thus completing, mental projection, the reduced material space, but where each element is a piece of a rhizomatic whole, the network. The architectural model is thus fusing digital with physical, soft with hardware in on single construct, as a cybrid it augments spacetime - an augmented reality in the constitution of shared connectivity.