

# **From Virtual Reality to Mixed Reality? The twilight within the real and the virtual**

**by Franz Fischnaller**

F.A.B.R.I.CATORS ARCHITECTS OF CULTURE - FABRICATORS OF IDEAS  
Via F.lli Bronzetti 6, 20129 Milano/Italy  
Phone: 39-2-70128233 - Fax: 76110498  
fabricat@galactica.com  
www.fabricat.com

Keywords: Virtual Reality, Mixed Reality & Mixed Techniques, artistic Tendency, beyond the 2000, Kali Interactive, Tracking the Net, Pinocchio Interactive, Robots Avatars Dealing with Virtual Illusions, CICOV (Centro Interactivo Cordoba Virtual).

Is there a "tendency" in the art of the "beyond 2000? What are the key frames, which could generate this tendency.

The new technology is influencing arts and the way of projecting culture. It is contributing to give form to a new artistic language, which will revolutionize the composition, the treatment of the image, and the concept of "perspective" and of space in the world of art. There is taking place a revision of the what, why, how, with whom, with what?? New behavioral models are being defined which in the process, are producing new sensorial extensions (man-space) generating as a consequence other forms of perceiving, of communicating, of informing, of reacting, of sharing, of distraction, of thinking, of projecting of creating and, why not, of loving.

Do we know what is the twilight within the real, the virtual and the imagination in a virtual piece??.. Sometimes I believe I know it, other moments I do know it.. Most of the time while working in my virtual pieces I find myself within that twilight...reality?? virtuality?? who knows??

Through the new media the modes undergo changes. The actual process of the art anticipates the dematerialization of the corporal aspect of the opera and the fragmentation of the scheme of the tangibility. The possibility to live the imaginary corporal form increases, and at the same time the possibility to live in the work itself from within is extending, the power of the vision is increasing as well as that of the senses, the invisible takes form. Then if you add the fact that the conception of the prospective changes radically with the use of new tool and instruments such as the digital technology. It's a particular revolutionary moment.

We shall reflect on how this tool and the digital technology will transform the perception, the sensitivity in relation to an art piece, the way and modes to relate it... to her.

The perception, the act of creation and the production processes of the author it's also suffering radical changes, as well as the mode of perception, fruition of the visitor in relation to a "virtual" piece. In the traditional art, the pieces are

untouchable by the viewer. The public is able to see them from a certain distance and at times through protective glass frames or casings. This naturally, creates a revolution in the relationship between the arts-the artist- the public. As well as created radical changes for the artist who during the creative and production process, has to take into consideration the fact that the viewing public, once in the proximity of the work will want to touch, navigate in it as well as navigate with his piece.. The piece is interactive, navigable.

The perception and the fruition to a "virtual" piece change as well as it changes the experience and in consequence the conception of the author-art- public changes radically. The fact it's that he age of the "scrivener" is transformed by the arrival of the printing industries - the printed book is itself transformed by the arrival of digital "inputs". There is a change and we are part of this revolution Instead of fearing that run-away-technology will create a collective amnesia in culture and in literature, I like to approach and use the media to developed new ways of creation, to extend the idea and the concept of the communication, the culture, the intangibility and versatility of the arts. Why not to deal with content in a much more creative, free and dynamic way, more adapted to our present, creating new pathways which are more interactive, volatile, versatile, radical but always aesthetically challenging and sublime! ..Is this a tendency? Within the artistic, cultural concept, my interest in technology is based on the use of instruments capable of crystallizing and giving form to concepts, ideas, interactive and integral works. Digital technology, Tele-presence, Virtual Reality, Mixed Reality, Networking, robotic, interfaces.

Mixed reality is an interesting technology for reasons that it offers more flexibility in the production of certain ideas and established projects and opens up interesting and promising possibilities. My "perception" as well of my "definition".. of mixed reality, virtual reality is quite arbitrary or lets say quite creative, and likewise I use the technology in an very personal way. Perhaps to be able to assimilate and use it for purposes of crystallizing the interactive pieces in the most original way. My interest is not based on using one specific type of instrument or an technology or weather carrying out technological innovations, but instead, developing works revolutionary, on an artistic-conceptual level, in which naturally, technology plays the role as a point of cohesion and of crystallization. I am interested in being able to concretely define the works, and above all if the technology allows me, in an extreme and limitless way. This is not always so probable because generally, what is projected and designed mentally is sometimes superior to the works actually produced. ...I am demanding insofar as the results and the treatment are concerned, to the extreme that I try to endure the base problems of the sector such as budget, cost of technology and time... which very often far outweigh the probability of the production nevertheless, I have managed together with my group F.A.B.R.I.CATORS and of our diverse partners to come up with outstanding productions in relatively short times and obtain interesting results despite the inherent difficulties. I will not invest time in speaking, identifying and defining the term and technology, I prefer to move onward to the point of what I have accomplished with my group and partners and how it has been developed, what has been the result of these ideas and what the productions and projects consist of. I prefer to leave it up to the technicians, the critiques, historians, reporters of the sector, to define the system and that of attributing concepts. Therefore I will like to describe briefly few of this works which if I don't

mistake, and I believe I am not mistaken, that they are part of this new tendency!!!

## **Tracking the Net**

Motion capture & VR Interactive Installation By: F.A.B.R.I.CATORS & ELEKTON based in an original idea of Franz Fischnaller.

Tracking the Net its a collective interactive installation in which more than ten users can interact in real time simultaneously. Several visitors interact in real time simultaneously just by touching it, pulling it, and stretching it! Several visitors to interact in real time simultaneously just by using is a powerful VR & Motion Capture installation which allows their body limbs, their senses and their intuitions. Visitors can freely interact and navigate within the virtual environments by interacting with the "Net". By touching it, pulling it, stretching it.! they will be able to navigate, manipulate and interact with objects, sounds, worlds, voices. The visitor gets a real time feedback from the "Net". The installation is an interactive, elastic, netted cube of 3X3 mts with rear-projection onto one wall-screen with high resolution image. It is designed to be used through Internet, being tracker commands adequate to be transmitted through a narrow bandwidth transmission line The interactions between the subjects and the "Net" are identified by a motion capture system based on Qualisys optoelectronic technology. Any movement is captured with extreme precision (up to 0,1 mm resolution)

"Tracking the Net" its an very promising start to proceed in the path of Interactive installation with Motion Tracking systems and VR interactive in real time which can host a considerable amount of interactive players. Another main objective is evaluating the possibilities of optical motion tracking systems in real-time VR appliances. These kind of applications are traditionally exploitation area of magnetic trackers that are capable of retrieving true real-time positional data featuring several limitations (such as limited capture area, exposition to interference, relatively poor resolution). With regard to multimedia applications, optical trackers are typically used in post-processing, and, dueto higher costs, where limitations imposed by magnetic ones are actually unacceptable. Our system will be able to detect position of more than 10 reference points in real-time with high accuracy and virtually without interferences. Those data will be handled by a plug-in software made for well-known Division VR Software." Marco Monzani, Elekton.

Tracking the Net is available in different versions. Basic: 3X3 Mts. with one rear projection onto one wall. PC Platform. Any Larger than 3X3 Mts. with 1 or 3 rear projections onto one large wall or 3 walls. High End Platform. "Tracking the Net Version Y" more than 1.000 visitors interacting in real time. Special cameras detect position of small infrared beam reflectors placed on different points of the elastic network. A computer-based process generates real-time 3D positional information about reflectors, and issue commands to another computer, which hosts VR software. Tracking the Net can be use as a motor rehabilitation tool.

## Kali Interactive

Interactive installation by Franz Fischnaller- F.A.B.R.I.CATORS (Italy), produced ad hoc for the Berliner Festspiele GmbH (Germany) for The exhibition "Seven Hills. Images and Signs of the 21st Century" 14 May-29 October 2000- Martin-Gropius-Bau Berlin. The exhibition is supported by the Stiftung Deutsche Klassenlotterie Berlin.

Kali, The Goddess of the millennium emerges like an enigma, with her four winding arms, her body naked, of a dark intense blue and her eyes illuminated by virtual spaces. Oriental melodies, sounds, music, screams, laughter... slip from her body saturating the entire space. Kali is the shift between the cosmos and earth; the city and the jungle; the negative and the positive; the cause and effect, she stands on the top of a hill, immersed in a play of shadows in the center of a dark space. Two screens full of images in movements are placed both sides of her. She is inclined on the right leg. Her right foot lays on top of an active screen, which represents metaphorically, Shiva. Kali is an Interactive sculpture of 2mts(eyes level 175cm) made of wood, metal, high tech materials. Special display are fix in the inner part of the head and eyes. She stands in top of a hill, immersed in a play of shadows in the center of a room. Three steps conduct you to her. A retro projection screen lays on her right feet. Two retro projections screens of 3mts x 225cm each are placed onto Kali's right and left side, separated within each other by a glass wall of 225cm where Kali's sculpture stands. Kali's back look toward the glass wall while her face look toward the visitors.

"For me Kali is a metaphor of time which concentrates the cosmic forces; that of the natural, the apparent and the real, the real and the virtual, a compendium of intrinsic illusions which goes from the most extreme of realism to the most refined of myths, and in which the concept of cause and effect, as that of the oriental philosophy, adapts perfectly to the concept of virtual reality, since virtual reality makes possible the carrying out of actions which produce, in real time, the corresponding reactions which we are able to experience in real time. I have gone to the extreme in my efforts to interpret and to bring to life Kali, by means of my art and of the digital and make of her a bridge between the real and the imaginary the negative and the positive, but deep down within I consider Kali as the most pure representation of nature..., and on occasions, while working with her, brings to my memory the concept of the description of the black hole... illusion, reality, it is hard to tell!" Franz Fischnaller

The visitor approaches Kali by walking up the stairs, laying his face against hers, Interacting with the virtual devices integrated in her neck and looking through her eyes. He/she can interact, navigate within Kali's inner world as well as generate inputs and reactions in Kali's External world. depending upon the input and the output of the Virtual World, on the external screens will be projected the effects of his/her actions. The images, videos, animations, music, sound projected on the external screen are the consequences of the actions and interactions of the visitor who, in that moment, happens to be interacting with Kali's inner- world. The visitor is able to generate situations (causes) of, which is possible to see the corresponding consequences (effects) in real time. He/she can interact, navigate within Kali's inner world as well as generate inputs and reactions in Kali's External world. Depending upon the input and the output of the Virtual World, on

the external screens will be projected the effects of his/her actions. .. Kali's worlds with all its categories are contain in :Kali's inner world.(Virtual Worlds) . The world of the causes, the decision making Possible to navigate and interact looking through the eyes of kali Kali's external world . Is the effect. The effects generated by the person who is conducting and interacting with the virtual worlds. It will show up depend on the percouse, actions, reactions and interaction of visitor by navigating through Kali's inner world. Possible to see it in the external screen of Kali installation. Ashvatta tree ..the Cosmic three of Kali.. This parallel installation could be seen, in real time, by means of a screen as well as the results of the actions generated. The green tree of kali will grow only if the participants generate constructive, positive inputs else the black tree will appear. Owing to the dynamism of the installation the results of the interaction with the visitors will be seen on a screen on site or on the web, in real time.

Technical description Kali Tree (the Ashvatta tree in Sanskrit) is a mathematical process graphically represented by two tree-like branches overlapping each other. These two threes are generated considering actions of Kali visitors in the virtual world as input. Each possible action of the visitors is assigned a positive or negative value. The so-generated stream of values is collected into a specially designed database, and also sent in real-time to Kali Tree generation process. This way branches are real-time growing depending on user's actions. On the other hand, branches can be rebuilt any time by reading the database, being the Kali Tree process a strictly deterministic one. A copy of the graphical output can be kept constantly updated during installation operation period, and can be accessed by Internet web site software. Kali Tree its an idea of Franz Fischnaller and has been produced technically by Marco Monzani, Elekton.

### **Interactive experience with Kali**

I approach Kali' s body, lay my face towards her face, and look through her eyes while I touch her neck. The transparent image of a Kali Yantra occupy my entire field of vision. It is the departure world: "Kali' s Mother World", the genesis from which the visitor can start his exploration. The access to Kalis' inner world is possible by navigating and interacting with the mythical icons, spread within "Kali' s Mother World", the matrix of the virtual world. Kali Yantra is the Supreme Generative Energy in the central point or, enclosed by three pentagons a circle and an eight-petal lotus. While the triangle within a female deity's yantra points downward, it points upward within the male deity's Yantra.... I start the navigation through Kali Yantra. A sort of cosmic lotus...an eight-petal lotus. I slip through layers of transparent blue, delicate shiny clouds of petals, moving towards the astonishing center of Kali Yantra. Shiny rings under the form of a Yony emerges in front of my eyes., is Shiva. The eight petals stand for eight elements; each angle of the petal is interactive, clicking on it will bring up one of the eight elements... earth, water, fire, air, ether, mind, intellect and egosenses. Instead the fifteen corners of the five concentric triangles represent organs of knowledge, organs of action, organs of perception, organs of procreation and the organs of evacuation.

"It is interesting that each time I work on her I come up with new discoveries. For example on working on an digital level, with the form of Kali Yantra, a very ancient oriental symbol, I find out how symmetric and perfect, the form, the precision of the mathematics involved and realize, how with the use of modern

Instruments and of creativity you could continue and find a natural bridge to fill the gap between ancient knowledge and the outstanding development that was obtained in ancestral times in relation to present day findings and concepts and at the same time provide a rational understanding for delving into the remote past and recuperating, for practical purposes, the evolutionary process of a civilization, mystified and considered impractical by modern concept" Franz Fischnaller

The kali Yantra, has four exits which conduct to four gateways, the four category. At the entrance of these four gateways I see, floating in the air, the four main interactive icons which, clicking on one of them will conduct me to one of the categories. I see the severed head, which will bring me to the category (A) Man Destroys Nature; in the other entrance I see the sword of physical extermination which corresponds to the category (B) Nature destroys Man, on the left side I recognized the light to dispel fear, which correspond to the category (C) Nature and Man live together, and finally the spear of the queen which will bring me to Category (D) Kali as a Metaphor of the Jungle.

What shall I do! I think for a few seconds: I can fly, see, walk, navigate... I decide to go for Nature Destroys Man. I navigate toward this gate and click on the icon; I fly and get into a singular micro, macro landscape. The surface is a terrestrial landscape, with craters and depressions of that of a natural cataclysm, consequences of an earthquake. It's a devastated landscape, consumed. I find floating alongside this landscape, resembling a massive bridge or perhaps a virtual chain of clouds, a virtual representation of the DNA. Here the DNA represents a positive inputs of "genetic" events, understood as life. that upon touching it, occur fascinating and constructive events. Depending upon how I click, they start generating actions in a parallel manner, either in the virtual or in the external digital world which are projected on the external screens. The DNA is there hanging as such chain of life on the top of this burnt and destroyed landscape.. The code of life, exposed to the external natural influence floating as a skeleton that requires positive human action. Every living thing has a DNA. It's an element that contains every living thing. It's a unique element, which characterized each and every one of us vegetables, a common denominator, and nevertheless each one has a different characteristic. It is what determines our genetic (inherited) traits world. The DNA, storehouse of the genetic information, is also the base for genetic evolution, a process that alternates with mutation and selection. Constitutes in great part, the identity but it is likewise constructed in function of the external experience! I click upon another part of the DNA and I see; in an amusing way, two little heads, metaphorically two sperms and one ovum as two likeable faces, who run in the virtual world as symbol of life... on the exterior, the image of two charming spermatozoon which run to play with the ovum and upon coming in contact they create flowers, trees, music and children... a treat of light, flowers and life...

Within the interior of this apocalyptic terrain I find myself with a sort of eggs, of enormous germs, in process of incubation. This are the negative icons in this category.. Barely covered by an almost transparent veil which protects, the burnt out terrain from further destruction from the emanation of negative radiation. The words: Danger! Negative! Danger, Negative causes me to anticipate the horror, which could be unleashed, were I to remove, just the slightest bit, the protective veil... what do these harmful bombs contain... enclosed within them, devastating

natural catastrophes if unleashed, could have a most detrimental effect on the environment and on man. Another egg is virus bearing that is affecting and destroying the human kind in modern times. The other egg is the hole in the ozone layer as well as the effects of radioactive contamination. The other egg represent the "effetto Serra". The last type is what cause me to go back and cover the negative, radioactive eggs which could unleash a holocaust and the destruction in this category by means of the interaction with these eggs.

I feel to go to another category, but do not want to go back to Kali's Mother world again and I decide to go directly, clicking the icon of Category C which float within the landscape of category B. Suddenly I find myself in a vortex of light and images in which I could navigate and penetrate into an unimaginable dimension and enter into a dreamlike world but at the same time quite real. A world that correspond to the category Man and Nature lives together, a petrified sea of marble of opaque colors, covered with pistols, deadly weapons, hard and threatening. I am within a sort of world, in which the ill-fated and the positive seem to coalesce into a common reality, despite which, it is possible to have absolute consciousness and make decisions, whether to destroy or construct, by means of the icons defined, and feel in a shuddering way the revival of my memory, that I am capable of destroying and or constructing. The objects are revealed as living elements, synthetic, that will induce in me a reaction, in real time, of the realworld. I find them here in this ideal, unique environment rich in symmetry, color and depth.

I navigate among them like a fish; I could penetrate, touch and go through this virtual world, in which the images are integrated like an articulated dream of different layers. The music reacts in function of my inputs, depending upon how and what I touch, where and how I go; the sounds, music and noises, emerge immediately in a sonorous layer, in real time, accompanying the reactions of the sounds and the images. The weapons emerge beneath my feet, it is like a long highway, of horror, which by getting close prolongs the horror, in turn if I should go back and seek the flowers, the smiling faces of the children confirm the construction. All depend upon me. I am a thinking entity and acting in real time. An experience which resembles the dreams and perhaps a surrealistic vision. A space which includes worlds, realities, dreams, desires, fear, horror... and what I proceed to select and cause to react, receive the results in front of my eyes, immediately as well as on the large external screens. The icons lead me to a response...the reaction of my actions.

My exploration continues... I go back to Kali Mother world by clicking on the icon of the mother world floating within; there I can navigate and experiment, the emerging of imageries, temples and symbols of Kali cosmology. I navigate toward the light blue transparent gateway, which will conduct me to category (D), which correspond to Kali as a "Metaphor of the Jungle".

And suddenly I see myself trapped, flying in a whirlwind of fantastic Indian Sanskrit worlds which recalls the sound of the universe, before the chaos and the sounds of wisdom. I am, attracted by flying words. I navigate forward and discover that they are flying out of the cosmos to the earth through the tunnel of Kali, full of Sanskrit symbols. Far from the horizon I recognize a sort of a labyrinth, symmetrical, perfect, endless, interactive, and which indicate to me what belong to

the cosmos, the earth, the city and nature, a magical path to those worlds will conduct me to this aspect with the positive and negative. The presence of Kali in this world is most fundamental, like one unique entity, Kali is cosmos Earth, micro and macro. Her whole presence is flowing in this energy space. I can stay endlessly in this fascinating world but I want to have also, an experience of Category A, Man Destroy Nature.

I click on the icon A, within category C and I find myself travelling inside a tunnel, surrounded by flying objects: codes, numbers, keywords, symbols, machines, fragments of landscapes, the images and sounds are intense and bombard me from all sides. Everything is turning in a high-speed vortex... layers of network landscapes appear... coming from all directions. There are no boundaries, everything expands into an open cyber space connected by electronic streams... I fly up; everything becomes like a vortex and Flash! The tunnel brings me to a dimension of death and destruction... a skull is in my terrain??... is this the city of the 2000's of Kali's universe..??

I find headlines of newspaper with the news of war, of destruction of man destroying man, man destroying nature.. Images which appear in front of me like a virtual screen. I navigate within this jungle of news, horror. I look desperately for the positive icons: the third eyes of Kali. Suddenly I find it !. It is in the skin of the terrain, is the Third Eye of Kali. It looks more like a volcano. I get inside this eye to find a solution to this horror!!..After a while I decide to click on an icon which has the appearance of a virus. After a second the whole environment changes.. I escape this vision but in my way I find new virus . I know that it contains disasters but it looks so fascinating.. I cannot resist the temptation; I click on them and... Splash!!

## **Robots Avatars dealing with Virtual Illusions**

Mixed Reality based work of Franz Fischnaller+Fabricators in collaboration with K-Team/Lausanne/Switzerland.

"In the field of mobile robotics, researchers are working on several hard subjects:  
- Human-robot interaction - Mobile robot navigation - Robotic tele-manipulation - Relationship between simulated (models) and real robots. This work accesses several of those subjects from a very original viewpoint, with an artistic background and very sophisticated techniques, including - REAL mobile robots: a real mobile robot (type Koala, from K-Team) is used as physical representation. This robot has been programmed for navigation in the performance environment and has a connection to the virtual world and its model in this virtual environment.- Mobile robot models: a model of the robot is associated to the real robot in the virtual world and acts in relationship with the robot actions. - Virtual reality: complex environments and virtual worlds are linked to the robot activity, internet activity and visitor interactions. - Internet. The project is pushing particularly the limits of technology in the field of human-robot interaction and robotic manipulation, integrating a large number of complementary tools (mobile robot, virtual worlds, robot models, internet, visitor reactions) giving an important role to complex subjective \par aspects. Both the integration aspect and the



subjective approach make this project a very innovative and leading research project." Francesco Mondada, K-Team.

"Robots+Avatars dreaming with Virtual Illusions" integrates virtual reality, robotics and Tele-presence, with a high esthetical content as well as a suggestive and enigmatic interaction. The Real ambience is represented by a scenography under the form of an Arena with labyrinthine pathways, made of mirrors, metal, wood, in a shiny, colourful sand and stone landscape. On a screen 4X4 Mts., is projected the VR world and the results of the interaction between the user and the (robot) and avatars... The Virtual Ambiences are articulated, by ten different worlds or cities contained in the "Mother-City" Ying&Yang. The personages in this installation exist both in real space (Koala=robot) and in virtual space "Ying and Yang" avatars. Each can control the other and yet both are controlled by the user in a local space and also through the net (from a non-local space). The public can interact with each single robot in its environment, by moving a joystick. This interaction generates a real time reaction in the behaviour of the robot as well in the avatars in the Vr-world, visible on the projection screen at the top of the scenography of the arena "the real world". There exist the possibility of attracting Koala clicking on the button of the joystick and causing Koala to move towards Yang, trying to find him either in the physical or virtual world. In synthesis either Koala or the avatars, Ying and Yang can interact with the visitors by means of the network or telepresence... Network which becomes a sort of prolongation.

The personages: 1) Koala (Robot). Koala is a robot in the form of a cyber turtle. Its body is covered by an intelligent skin which is at the same time a catalysing element and mirror of its experience and emotions which it lives by means of the interactivity, since this skin is a porous and expressive entity... Koala lives in its real ambience, which is strongly related to the virtual world through Ying (avatar). 2) Ying (avatar) and alter ego of Koala. Ying is the alter ego of Koala in the Virtual World Ying the avatar represents the feminine principle. She is closely related to the physical world through Koala. 3) Yang (avatar) lives alone by itself in the limbo of the cyber space, with no alter ego in the physical world. However, Yang becomes connected to the real world by means of the manipulation of a joystick provided for the purpose. Yang, a virtual creature has no alter ego with the real world. He exists by himself in the limbo of the cyberspace and represents the masculine principle. a) A real ambience represented by a physical structure under the form of an Arena. This is the physical habitat of Koala. b) Virtual Ambiences is articulated by the mother city Ying Yang and ten different worlds or cities, contained in the mother city. The worlds or cities are ten in number and are known as: Avalon, Amazonia, Root of Knowledge, Black Hole, Lautriv's City, Bosh Hell, Ynte Colony, Skin City, Boundary City and Amazonas City.

Interactive experience: The public can interact with each single robot in its environment, by moving a joystick. This interaction generates a real time reaction in the behaviour of the robot as well in the avatars in the Vr-world, visible on the projection screen at the top of the scenography of the arena "the real world". There are two joysticks: One is to interact with Koala which makes it is possible to navigate and conduct Koala in the virtual world and the other joystick is for conducting Ying and Yang (avatars). The public can command the actions of Koala and in consequence the actions of Ying in the Virtual Worlds. Ying the avatar will operate in the virtual worlds and Koala will follow-up, step by step what his alter

ego does...and generate the same actions. Koala is cloned with its Avatar Ying. Koala is present in the virtual world through his avatar... Ying. On some occasions, it could be observed that Koala moves in a very peculiar way in his habitat as if trying to avoid some obstacle, as if he is entering into a cave, trying to escape an object of obstruction.

Koala will replicate in real space, the travels of Ying, drawing out the path traversed on the environment of sand. It will seem that he is a sort of somnambulist ... going up and down in a senseless manner. He however, knows where he goes. It is only that the human eyes are not able to perceive it until Koala relives the same, with traces on the sand. This mean that the physical world is an illusion and that what we see in virtual and dreams are projections without consistency. That the avatar, the alter ego sees objects in the virtual world and reproduces them in the real world and the objects you do not see even, are also there, because Koala sees them through his avatar, Ying. The Net experience In the web page that accompanies the installation... Robot avatar dealing with virtual illusions, there is a menu with diverse possibilities of action, viewpoint, and interaction...and of navigation. Koala can be commanded from different points of views and inputs. His actions exercise immediate responses in real time, in his avatars and vice versa. 1) You could become the viewpoint of Koala. This way you assume by means of your interaction the position of the other to see the worlds around you. 2) You could also see the movements of Koala, Ying or Yang as if they were placed in a virtual chamber in front of your eyes and as a consequence, you assume the view point of Koala or that of Ying or Yang... this is to say, see the worlds, the cities from their view point... nevertheless, you are physically behind the joystick, this implies that a sort of Tele-presence is experienced, your body is there behind the joystick but your eyes see what could be seen by one of the three personages and from their own point of view. 3) You could also have an "external view point", that is to say see from the outside, the inside scenes. Change radically from the perspective of that of the personages and assume the position of the view of a bird, for example: fly over the landscape, the visions, landscapes of the virtual world. 4) By means of the web pages, of robot avatar dreaming with virtual illusion, you could enter and leave different cities, and enter again into the mother city, which in turn contains the rest of the cities. This process of entering in contact and navigating and interacting with the city is being done through the net. 5) Avatar. Yang. Yang could be activated and commanded by a second joystick. In reality, Yang represents, in ludicrous terms the "view point" a "moving view point"... There exist the possibility of attracting Koala, clicking on the button of the joystick and causing Koala to move towards Yang, trying to find him either in the physical or virtual world. In synthesis, Koala or the avatars Ying and Yang can interact with the visitors by means of the network or tele presence. Network, which becomes a sort of prolongation. More about the net from a non-local space in the installation. The Avatar Yang reacts and acts in the virtual world with movements of co-ordinates X and Z. Between the co-ordinates X and Z of the virtual world there are invisible barriers, invisible zones that define a net of interactive knots. Each knot is a point of interaction, which in turn is connected to sites, webs, http... This represents the world of the net, of tele presence. In the real human world these tangible realities are invisible, this is because the real world is not represented physically, in a concrete way since in our world there are, in effect, invisible realities, intangible nevertheless they exist. And they are of vital importance for humanity and man in the aspect of communication. On the other hand these

interactive knots in the virtual world are represented by, objects, cubes, geometric forms and symbols. The interesting thing is that Koala, through his alter ego, recognizes where these interactive knots are located and which contain a latent cyber reality which is activated only when touched or someone passes on top or very close to them. The presence of Koala and his avatar creates a stimulus for their connection. In technical terms when the robot or his avatar passes close to these knots whether in the physical world (invisible knots) or the virtual world (visible knots) a collision is brought about and the net of the world becomes connected, activating the knot and connecting at some place in the net. If the connection obtains a positive result there emerges a tree in the virtual world and this signifies and/or symbolises that the connection was activated. If the tree does not grow it means that the connection was not made. Other components necessary for the adequate functioning of the application are (two) analogous joysticks and the corresponding drives. A joystick permits the entry into interactive contact with Koala and its avatar Ying...whether in the real world or in the virtual world. The second joystick permits the entering in contact with the two worlds: the real world of Koala and the virtual world of Ying and Yang. Interacting with these two joysticks and these worlds...interactions, collisions and encounters are generated which permit the entry, exit and the discovery of new worlds all in function with the laws that govern actions and reactions of the three personages of this installation.

## **CICOV - Interactive Center of Cordoba, Spain**

The project its promoted by: Ayuntamiento de Córdoba: · Ilma. Alcaldesa: Rosa Aguilar Rivero · Concejal Comisionado del Proyecto: Andrés Ocaña Rabadan · Asociación Plan Estratégico de Córdoba: Director General: José Miguel Salinas Moya · Project development by F.A.B.R.I.CATORS · Strategic plan development by: Ingecon, directed by José Luis Munoz (Spain) · Building design: Franz Fischnaller

CICOV (Centro Interactivo Cordoba Virtual) will be an innovative center of a multidimensional and interdisciplinary character in which culture; history, architecture, communication and technology will be integrated into a common objective. This project is in progress, in different phases of production. Quite articulate and consisting of five floors with more than eighteen interactive installations as well as theatres, conference rooms, commercial areas, multimedia libraries, exhibit areas etc... CICOV will be opened to the public in the year 2003. The virtual interactive center of Cordoba is an Interactive Cultural Center, multifunctional with world wide projection, which will give impetus to Cordoba as a forerunner among cities in the cultural and digital sectors, in the investigation and applied technology to the historical development. It will have available, services for entertainment, reading, food, relaxation, conference rooms and space for the interchange of exhibitions with cultural entities, libraries, museums, festivals, universities, interactive centers.. which will provide for the establishing of a mutual reciprocal growth and stimulation on an international level.

A cultural center of great commercial and cultural impact, which will enrich the historical patrimony of the city with the use of the creativity of the new

technologies. Creating in the process an outline of the history of Cordoba and its three base cultures: Arabian, Jewish and Roman.

Cordoba; past, present and future and its three base cultures: will be interpreted, updated and re-proposed in a dynamic mode in virtual works as well as animated multimedia, tri-dimensional movies. The public will be able to have access to the different installations: interact, navigate, have fun, learn, become emotionally aroused and penetrate the time and space barrier and intensify their knowledge about Cordoba, with the support of the creativity, by the use of sophisticated technology and the magic which the use of Virtual Reality provides, only comparable to dreams. CICOV will be located to the southern side of the city, separated from its center by the Guadalquivir River. It will consist of four entrances and eight exits with gardens surrounding the CICOV in 360 degrees around. The gardens will occupy a space of approximately 400 x 400 meters.

Another objective its to construct in the CICOV a virtual library, in which all information will be stored on retrieval systems, consisting of all the knowledge that the Caliphate of Cordoba possessed in astronomy, medicine, philosophy, mathematics, poetry, etc., so that the universities, historians and the studios, of whole world, could access, consult and investigate, by means of the net, the information available that will convert Cordoba, as a world reference of knowledge, about the first millennium. It will be a replica of the XXI century, of the library of Alhaken II which, before its destruction, consisted of 400.000 volumes and was considered as the most important of its time.

Permanent Exhibition Section which in turn will be sub-divided into twosub-categories: the Central Permanent Exhibition Sections, which will consist of three grand installations as that of the "Cave" and the "Visionarium", and the Parallel Permanent Exhibition Section which will consist of virtual platforms, multimedia games and cultural installations. The Temporary Exhibition Spaces will contain exhibition rooms, conference rooms, workshop spaces, presentation rooms for virtual and traditional products, etc. The commercial area will include, classical and digital restaurants, cafeterias, bars, bookshops, shops of diverse types, digital gadget businesses etc. The laboratory, Cordoba will be located on the second underground level floor. The production of the content: historical, cultural, artistic, scientific, architectural, of the Cordoba of antiquity, present and future will be preceded, by a very detailed work of investigation so as to permit the elaboration of installations, virtual works and digital games on a grand scale. Note: The name of this center (CICOV) its a temporary name.

## **Pinocchio Interactive**

By Franz Fischnaller + Fabricators in collaboration with K-Team/ Lausanne/ Switzerland. Supported by Mediartech, Florence, Italy.

"One of the important points of this project is the apex of creativity around a classical work integrating, in the process, literature, robotics, informatics, digital interfaces and interactivity in a dynamic installation which is even more surprising than its exterior aspects and interactivity. Pinocchio is an universal icon, created by a Florentine author in Lodi where, years later the interactive Pinocchio comes

into existence again. He was created as a personage to speak to the lecturers. In the past there were great expectation, each week, to see and read the new chapters of Pinocchio's adventures.

This literary Pinocchio becomes, in this installation, a robotic personage as well as a digital clone... Much work and emphasis has been placed in the interpretation of the unfolding of Pinocchio, creating his own clones: one, which corresponds to the Pinocchio as a puppet and a computerised robotized puppet, in which action, movements, dialogue and interactivity are shared with diverse interfaces between the human and the robot and vice versa...its an enigmatic and dynamic relationship between each participant and the digital fantasy of these personages. "Pinocchio Interactive" is a sort of magical labyrinth in which the imagination is exalted to unimaginable heights. Owing to the originality of the content, of the script of Pinocchio Interactive and the technological possibilities, when these two are combined together they bring to life magnificent results, of a classical nature, which becomes essential and which then extends to a new frontier, which opens up an entirely new horizon. There we will start to speak about new consciousness in the field of virtual art, new approach to the interaction and to creativity in the field of high technology, to highlight how high technology and creativity, creatively combined can bring about new realities. This is an instance where technology serves as an integral instrument for the creation of a multifarious and intense work... which resorts to the consciousness of children as well as of adults" Franz Fischnaller

Pinocchio Interactive installation is a dynamic installation, which integrates: robotic, animation, digital fantasy and interactivity. It is a ludicrous experience, which is filled with surprises, tricks and wizardry of the life of Pinocchio. Pinocchio in the version 2000. The installation is comprised of a real stylised puppet, "Pinocchio Puppet" of 1.8 meters in height made out of wood and metal. In the scenery, where "Virtual Pinocchio" acts is integrated a screen measuring 3X3mts. And on which the new life of Virtual Pinocchio" evolves.

The personages are "Pinocchio Puppet", "Virtual Pinocchio" and the Interactive Visitors. There is a dynamic relationship between the three personages and their realities. 1) Robotic physical World "Pinocchio Puppet" who acts in the middle of the scenery, between the digital world and the path of the interactive visitor 2) Digital World "Virtual Pinocchio" and its story, his friends and enemies which are projected on the screen integrated in the scenery. 3) Public... Interactive visitors Within the Digital World "Virtual Pinocchio" appears to be a superimposed Avatar of brilliant green but without a clear physiognomy. The outline of digital Pinocchio is a brilliant outline filled somehow by green intense shadow. It is "Pinocchio Puppet" which is of a decisive clear colour and volume and exercises all the functions that the "Virtual Pinocchio" carries out, if it runs he runs, if it turns he turns. "Pinocchio Puppet" nose becomes lengthened when he lies. He is the interactive (animator) between the real world (the visitor) and the digital world ("Virtual Pinocchio's" story friends and enemies)

"Pinocchio Puppet" has the basic characteristics of the classical puppets but with the difference that this Pinocchio is "robotized. The juggler's natural threads have been connected to the computer and the presence of the Authorship has been translated to an electronic brain, becoming a virtual extension of the author. The

Juggler is the executive robotised system of the author. In synthesis, his new source of life is the computer. The juggler has been substituted by a computer. The technical aspect of the movements of Pinocchio puppet maintains its original concept of being a puppet, but commanded through a robotic system. There are eight interactive points, which are connected by means of threads to the computer and obey the impulse of the public... The juggler is an electronic brain instead of a human hand... While the juggler's hand is connected by threads the electronic juggler is connected to a computer. Bold, tired of portraying the part of the old jester, "Pinocchio Puppet" is little jealous of the "Virtual Pinocchio" for whom he works and sometimes refuses to obey. Often, Pinocchio Puppet acts like a "rebel" clone, which enters in conflict with his alter ego : "Virtual Pinocchio". The dialogue becomes intense, he speaks, acts, reacts, moves until he reaches a point that he reacts and enters in a phase of total contradiction in relation to his virtual counterpart thereby creating a story within the story. It also occurs that at a certain point "Pinocchio Puppet" becomes conscious of his own being and he starts to act by himself, as the whole entity, and tells the story of his own life through the projection he himself orders to be projected. Nevertheless his temperamental character; he shows great courage for hard work in the interpretation. It is he who works, raises and lowers the curtains of the theatre. The visitors will spend fascinating moments with this interactive digital theatrical interactive spectacle in which there is a real illusion to distinguish between the real and the virtual. Inasmuch as it enters in a vortex of unexpected sensations and reactions highly stimulating... that for moments there arises an intense overlapping between the real and literary worlds.

Description of the Interactive Experience. Upon entering, the visitor will find a space of darkness in which is seen an illuminated "Pinocchio Puppet", long and slim of two meters in height in the posture of "The Thinker" (sculpture by the French artist Rodin) . On the screen there appears, in slow motion, several little pinocchios coming out from a log of wood, like the effect of the popcorn. "Pinocchio Puppet" says "uhmmm .. what a situation, no one has come to interrelate with me... come forward my friends". Stumping his right foot Impatiently, in his posture of "The thinker". "Pinocchio Puppet" is one of the main interfaces of the installation. The visitor interacts with both worlds, the robotic and the digital through him. The visitor can activate "Pinocchio Puppet" and command his actions through the joystick in front of the scenery, he reacts touching the "menu panel" he has in the scenery, activating the Digital World and bringing up "Virtual Pinocchio" and its story to life. The visitor has the freedom to explore and participate in an active mode with the installation through "Pinocchio Puppet", which speaks, moves, comments, obeys, becomes irritated as well as acts with great charm with the public and at the same time interacts with "Virtual Pinocchio" and its story, which is of the virtual world and projected on the screen.

When a visitor gets close to the joystick, h/she move and turn "Pinocchio Puppet". It is the visitor who decides to which chapter of the history he wants to enter. But it is up to "Pinocchio Puppet" to let him in. The technical aspect of the movements of Pinocchio puppet maintains its original concept of being a puppet, but commanded through a robotic system. There are eight interactive points, which are connected by means of threads to the computer and obey the impulse of the public...