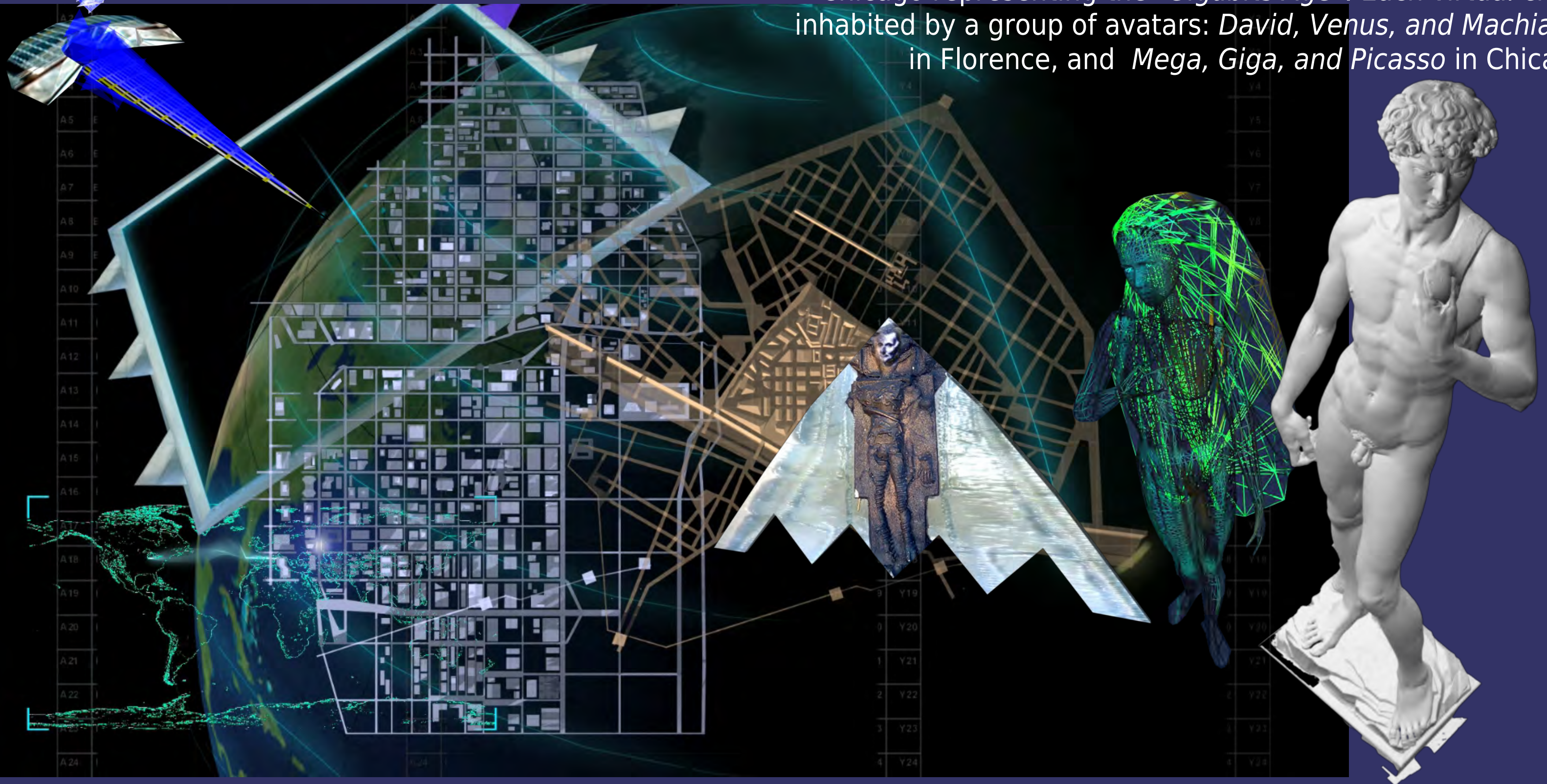


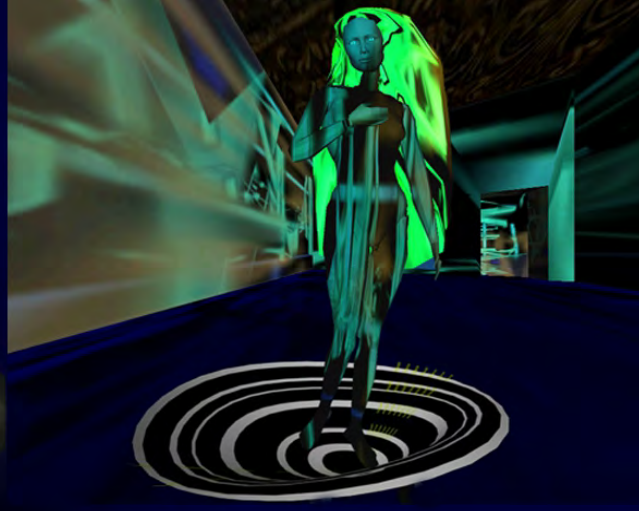
# CITYCLUSTER

Extended Reality (XR) networking matrix  
&  
collective three-dimensional virtual shared space

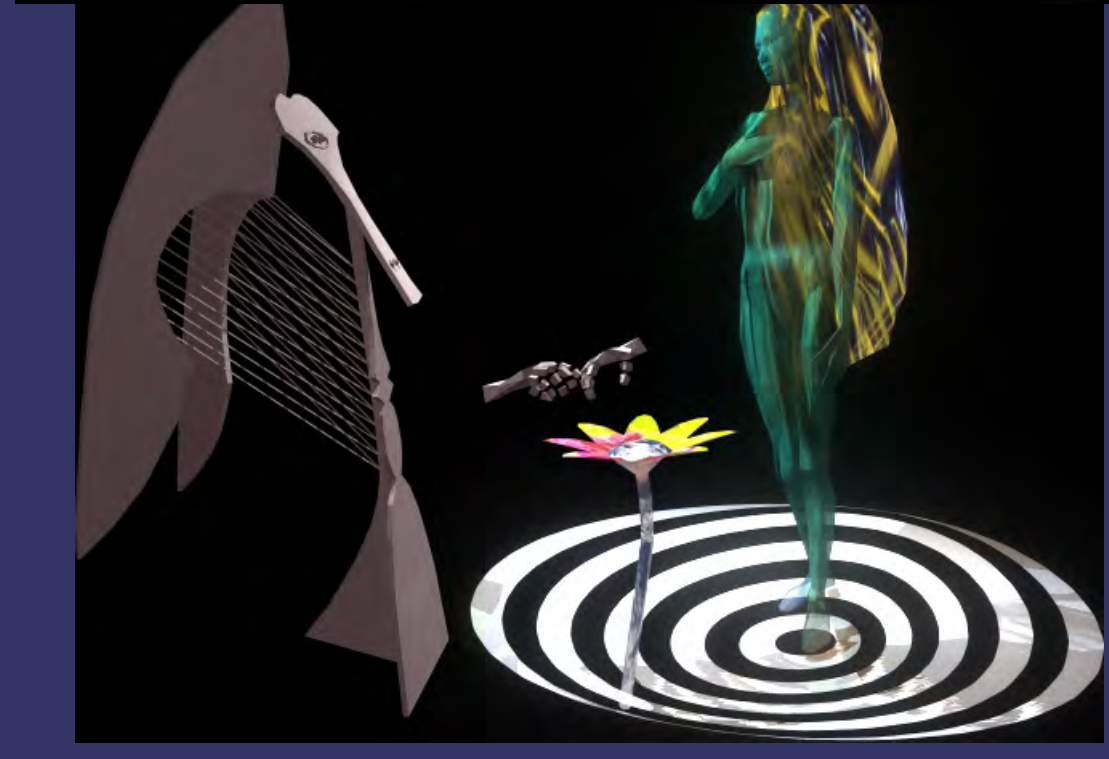
## CC MATRIX **CHICAGO/FLORENCE GRID**

For this application two large scale virtual reality and simulated environments were created: the city of Florence metaphorically represents the "*Renaissance Age*", the other is the City Of Chicago representing the "*Gigabits Age*". Each virtual city is inhabited by a group of avatars: *David, Venus, and Machiavelli* in Florence, and *Mega, Giga, and Picasso* in Chicago.





Venus Avatar Scene



# Networked-Immersion | Collaborative Shared Environments





FLORENCE



CHICAGO

**CITYCLUSTER** *“From the Renaissance to the Megabyte Networking Age”*  
with **METANET PAGE** → **VR Display Interface**

Copyright © Franz Fischnaller  
Author&Designer: Franz Fischnaller  
Project Manager: Franz Fischnaller  
Producer: F.A.B.R.I.CATORS, Milano

Tech-consultancy/Head-programming: Alex Hill, Electronic Visualization Lab (EVL/UIC)

Networking setup together with University of Illinois a Chicago, USA and  
Master in Multimedia, MICC (Media, Integration and Communication Center), Università di  
Firenze (I) | Director: Prof. Alberto Del Bimbo | Coordination: Barbara Iraci.

Production and coordination of the project: F.A.B.R.I.CATORS, Milan (I)

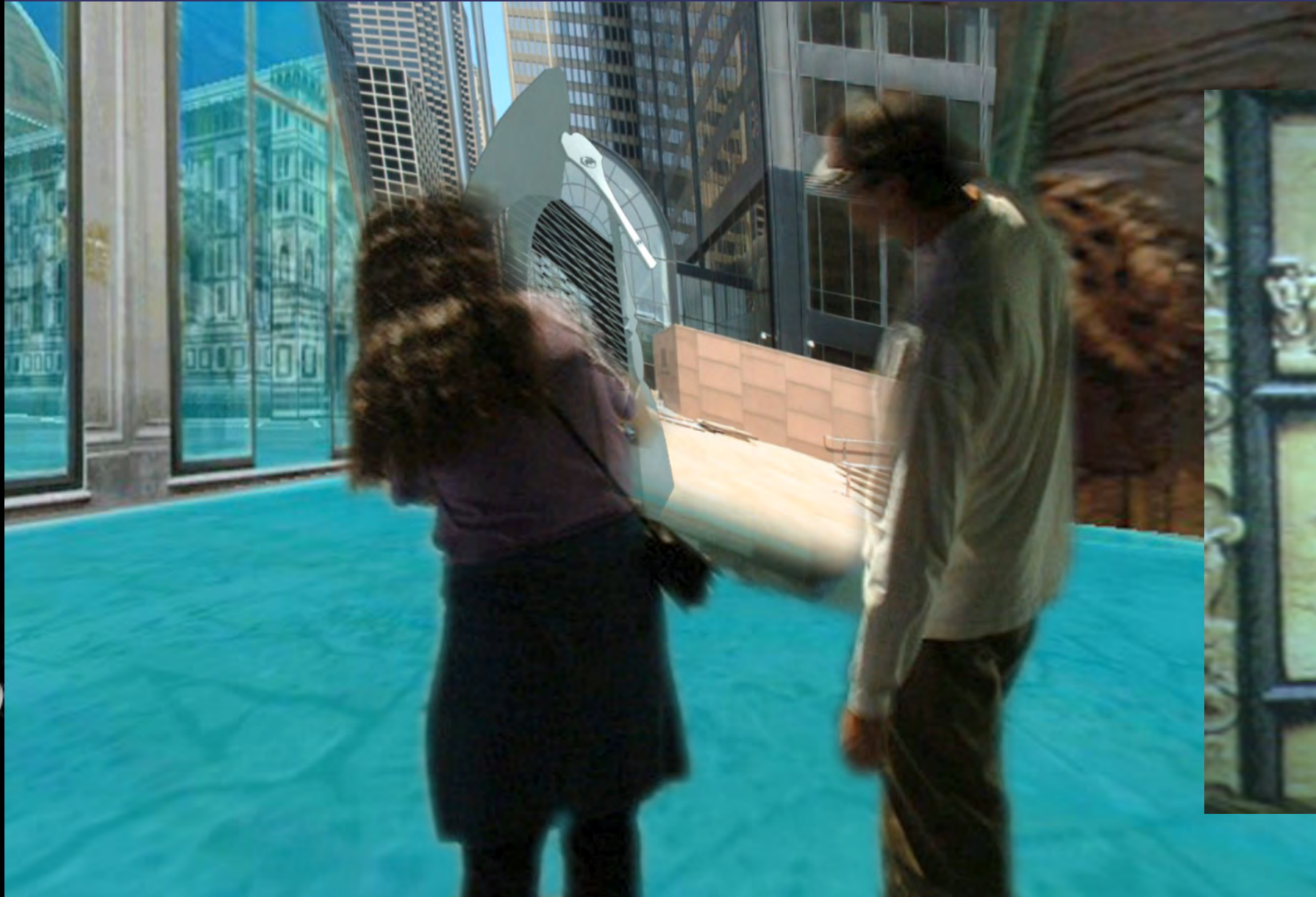
The application - *From the Renaissance to the Megabyte Networking Age* is the first virtual reality networked full immersive real time stereo production created for CC

**The CITYCLUSTER System** (CC) is a virtual-reality networking matrix, a high-tech container with original technological features, navigation and interactivity, graphic and content style, in which multiple large scale stereo environments real/simulates and/or imagined, can be hosted within a common alternate virtual territory, interconnected by high-speed network, enabling remote participants to interact and collaborate in shared environments with each other through streaming audio communication and through their AVATARS.



## Users Interaction

Within a single interconnected virtual matrix, visitors can navigate, interact, exchange buildings, objects ideas and teleport high res stereo three-dimensional models, objects, buildings and dynamic data over distance in real time.







... Palazzo Medici Riccardi e Palazzo Vecchio- Florence...



Networked Visitors in the CAVE



Cave in Chicago at the EVL

# Embedding Story into alternate virtual Environments

## Intuitive Driven navigable scenes

"From the Renaissance to the Megabyte Networking Age" is the first CC virtual-reality networked application, which offers visitors a thrilling interactive journey, from the Renaissance to the Super Broadband Networking and Electronic Age.

Florence represents the "Renaissance Age," Chicago the "Gigabits Networking Age."

FLORENCE



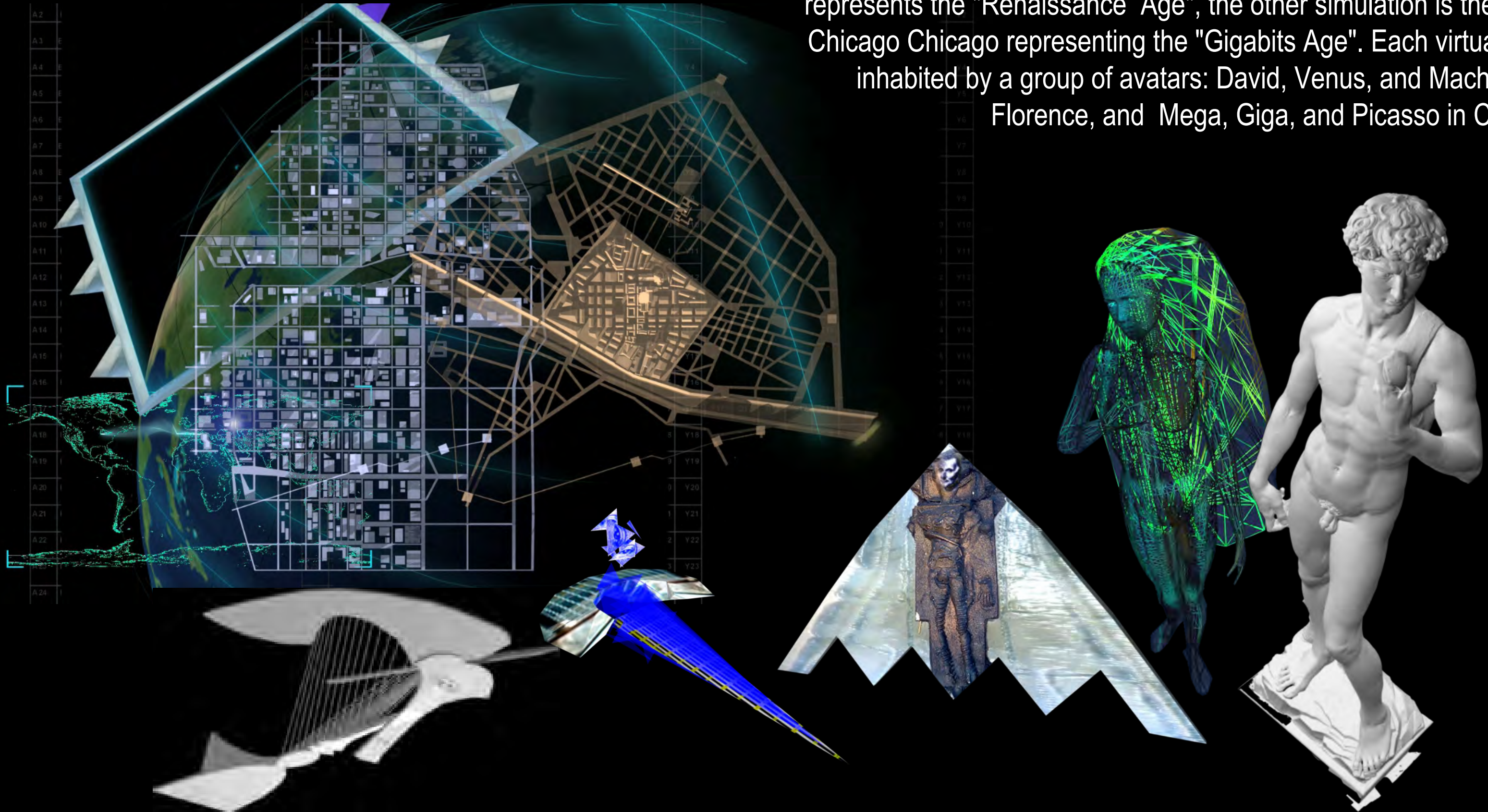
**CITYCLUSTER** *"Dal Rinascimento all'Era-dei-Megabyte in-rete"*  
 Copyright © 2003-2006 Franz Fischnaller  
 Autore: Franz Fischnaller  
 Project Manager: Franz Fischnaller  
 Produttore: F.A.B.R.I.CATORS, Milano  
 Consulente tecnico: Alex Hill, EVL-UIC, Electronic Visualization Lab (EVL), University of Illinois  
 a Chicago, USA  
 Master in Multimedia, MICC (Media, Integration and Communication Center), Università di  
 Firenze (I) | Direttore: Prof. Alberto Del Bimbo | Coordinatore: Barbara Iraci.  
 METANET PAGE  
 Display di Interfaccia in Realtà Virtuale in Rete  
 Copyright © 2003-2006 Franz Fischnaller  
 Designer: Franz Fischnaller  
 Capo consigliere tecnico: Alex Hill, EVL, University of Illinois at Chicago, USA.  
 Produttore e coordinatore del progetto: F.A.B.R.I.CATORS, Milan (I)

CHICAGO

MNP | Co-location within Multiple Cities

# CC MATRIX CHICAGO/FLORENCE GRID

For this application two large scale virtual reality and simulated environments were created: the city of Florence metaphorically represents the "Renaissance Age", the other simulation is the City Of Chicago Chicago representing the "Gigabits Age". Each virtual city is inhabited by a group of avatars: David, Venus, and Machiavelli in Florence, and Mega, Giga, and Picasso in Chicago.



## Exchanging cultural artifacts and buildings over the net

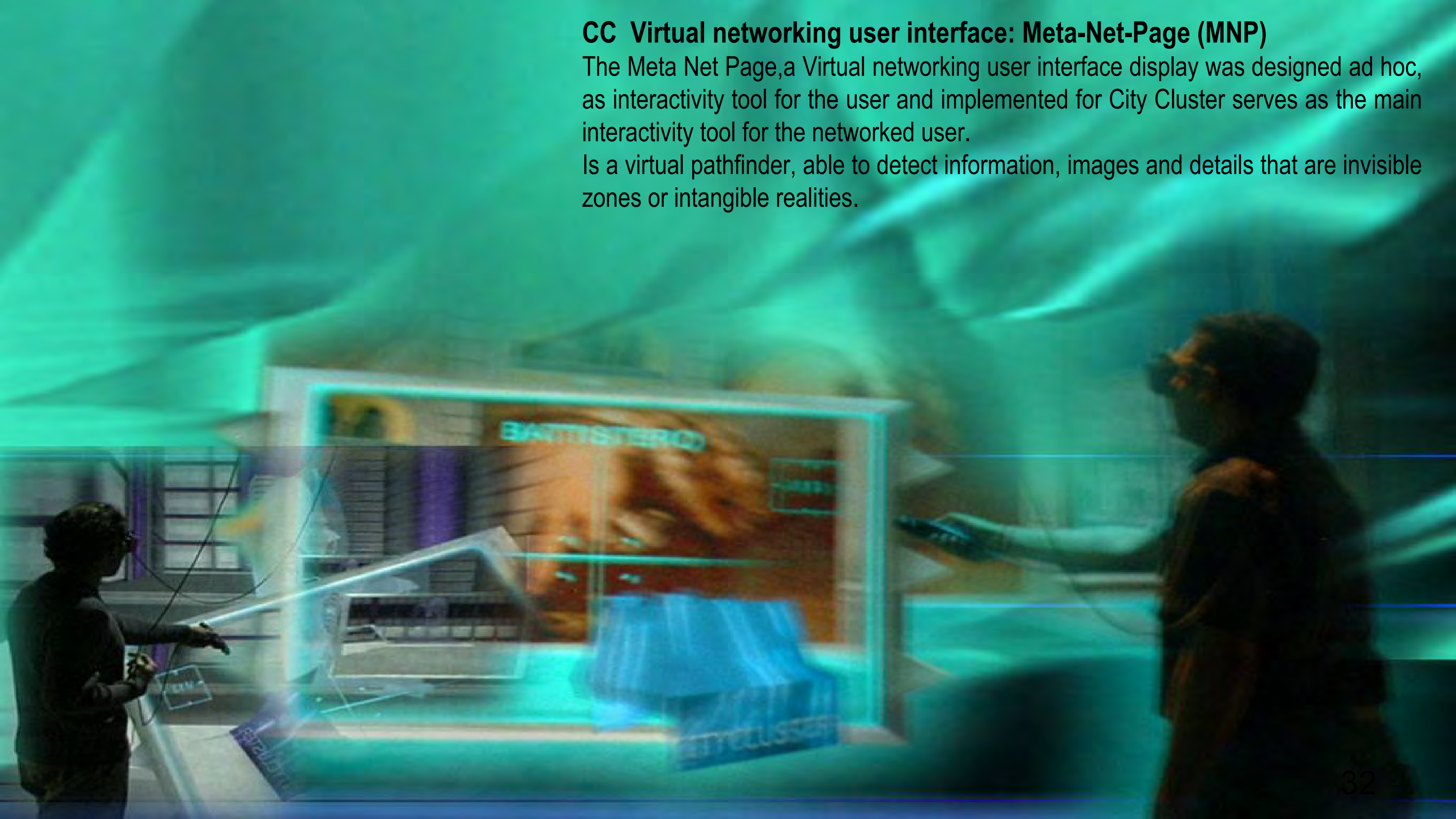
Visitor can exchange cultural artifacts and heritage buildings from City to City over the Net in real time over the Net. The Dome of Florence, for example, can be transported to Chicago or the Sears Tower to Florence and so forth... Buildings may be moved to recreate a new city or urban environment comprising elements and vital parts of Chicago and Florence



## CC Virtual networking user interface: Meta-Net-Page (MNP)

The Meta Net Page, a Virtual networking user interface display was designed ad hoc, as interactivity tool for the user and implemented for City Cluster serves as the main interactivity tool for the networked user.

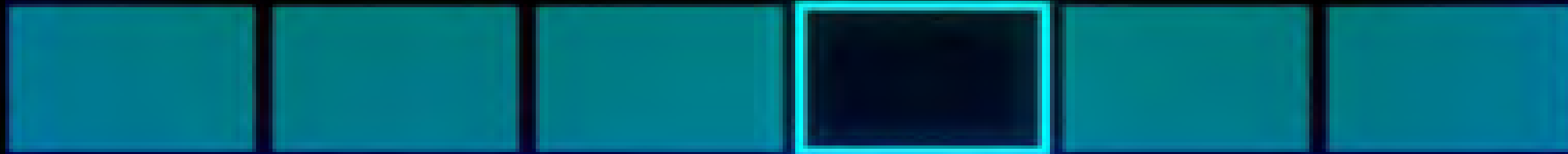
Is a virtual pathfinder, able to detect information, images and details that are invisible zones or intangible realities.

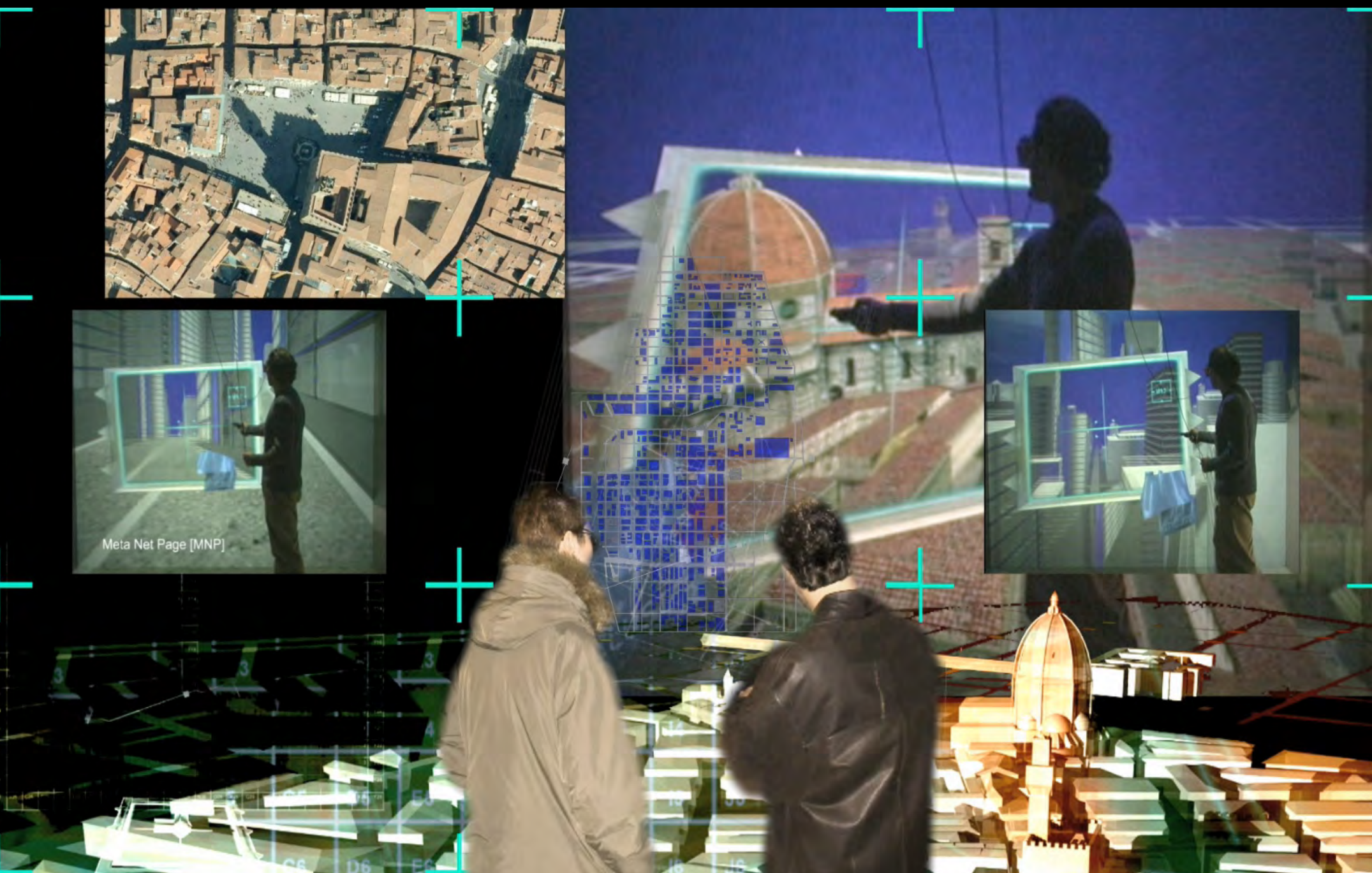


## THE METANET PAGE [MNP]



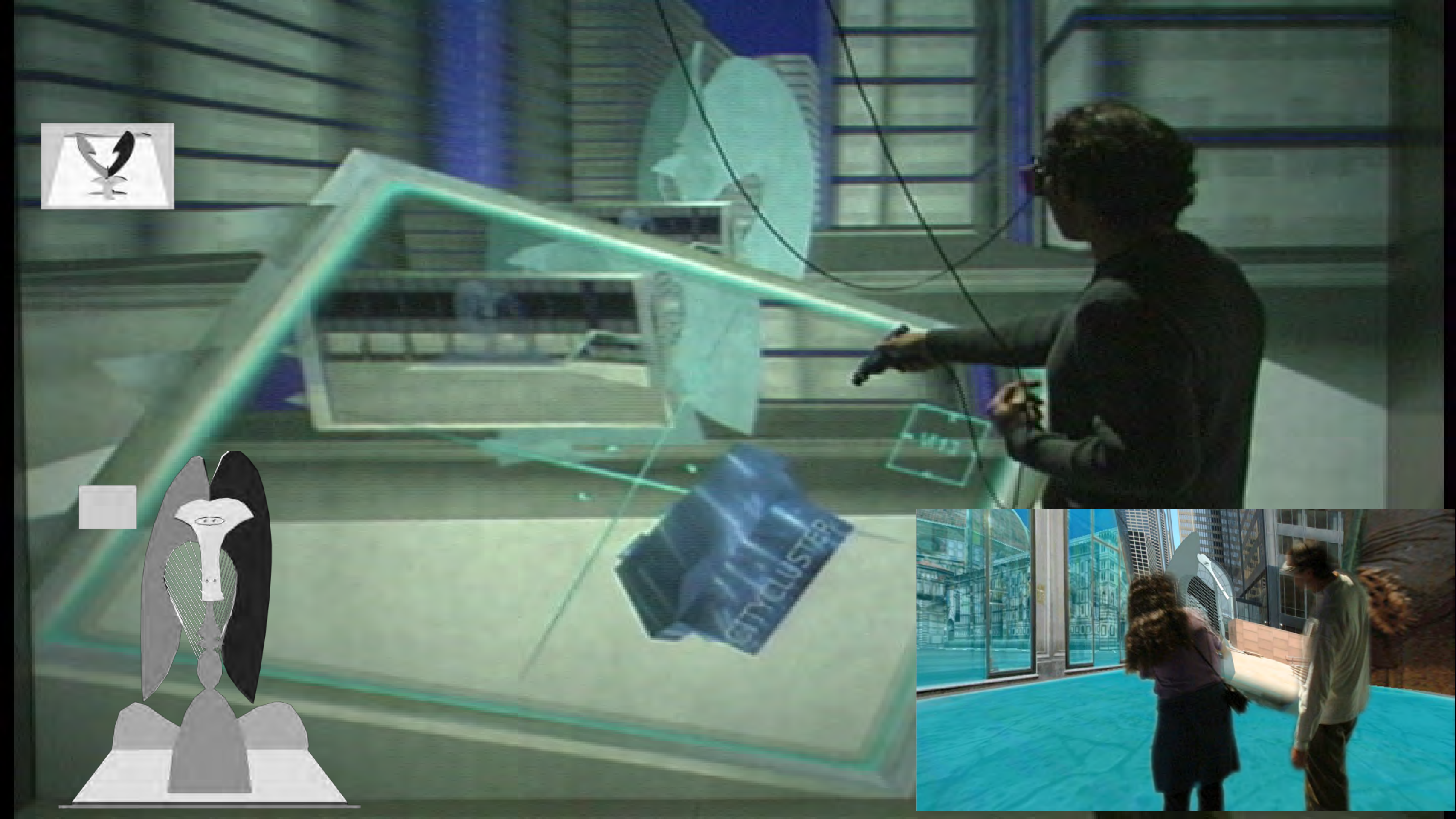
**Meta-Net-Page** indicates the current user coordinates and provides more detailed information about the objects within its view. It will allow the user to zoom in or out by moving the panel closer or farther away from their own eye. MNP includes interactive buttons for accessing several functions available to the user. The user will be able to fly up into the sky to gain a greater overview of the city they are currently exploring. Then, using a button on the side of MNP, the user will then be able to "teleport" immediately to the location shown on the view panel.

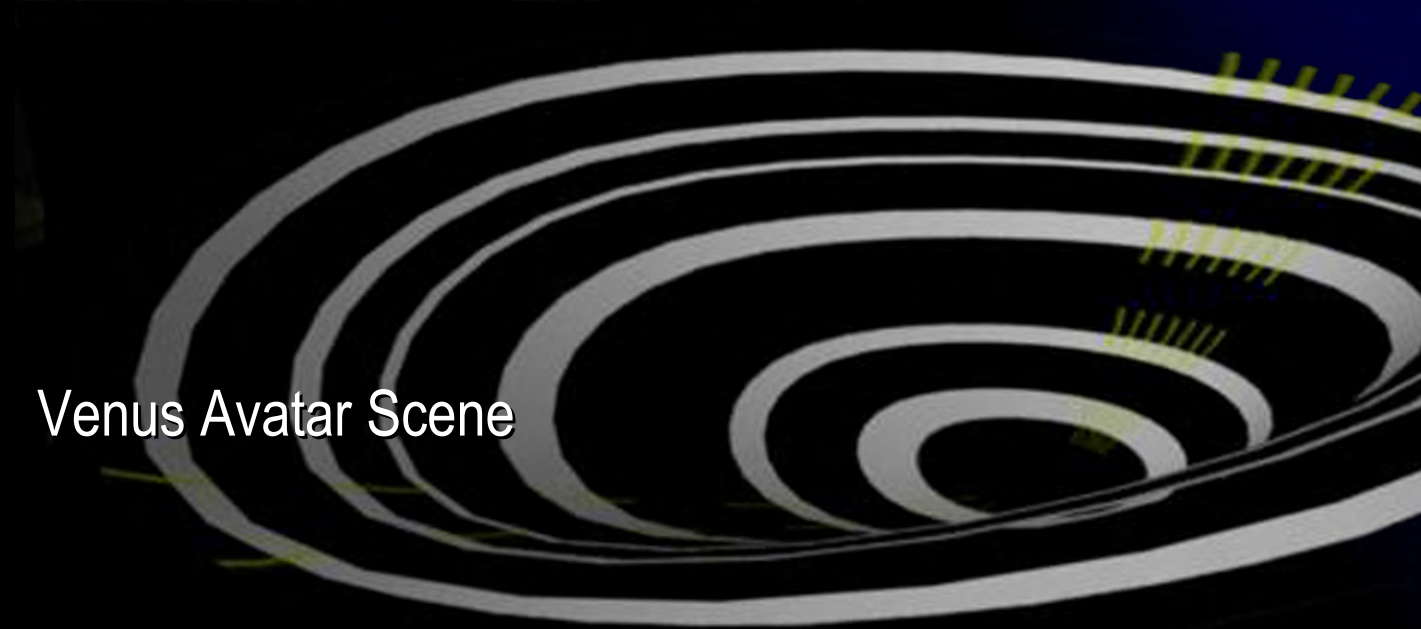
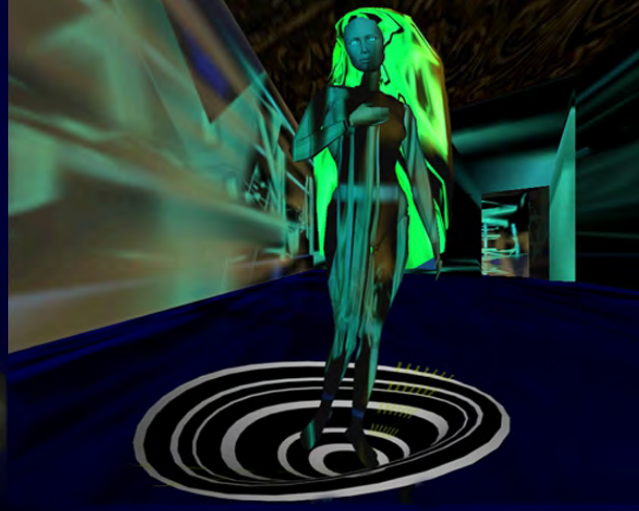




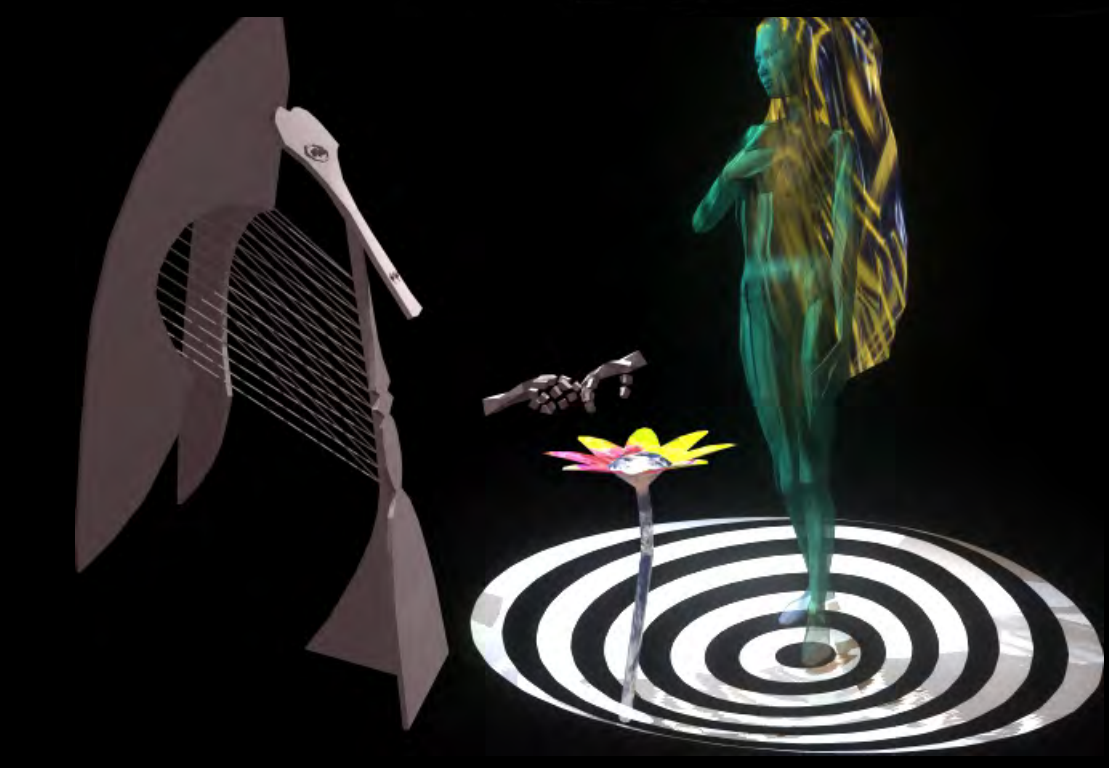
These snapshots will serve as a placeholder for a specific location and heading. When desired, the two users can collaborate to return to this perspective by moving one view panel over another. Moreover, MNP will allow the user to "grab" onto a building shown within the panel and move it to another location or even to another city. Finally, the user will be able to place a select number of textures within view of the panel and capture the texture for later application to another building. MNP also acts as a sort of mirror. The visitor can reflect their avatar in it by turning it around toward themselves while they are within the Virtual environment. Because the avatar of each user will not be normally shown, this allows the user show the other user what they really look like.





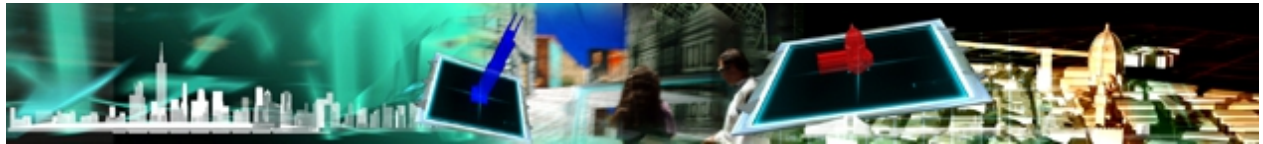


Venus Avatar Scene





# CITYCLUSTER [CC]



<b>Project Name</b>	(1) CITYCLUSTER [CC] VIRTUAL REALITY & HIGH SPEED NETWORKING PROJECT (2) "FROM THE RENAISSANCE TO THE GIGABITS NETWORKING AGE" (CC-VR APPLICATION)
<b>Topic/Key Words</b>	Tele-Immersion   Collaborative Virtual Reality   High Speed Networking   Culture Heritage   History   remote collaboration   collaborative virtual environments   Online Virtual Worlds   Second Life  virtual reality networking matrix   Communication   Art
<b>Project Stages</b>	CC and CC-VR Application was conceived as a seven-phase project
<b>Achievements/Accomplishments</b>	See description bellow
<b>Project Current Stage</b>	All phases are completed
<b>Role/Responsibilities (FF)</b>	Author, Project and Production Management
<b>Credits/Collaboration/Partners</b>	Electronic Visualization Lab (EVL), University of Illinois at Chicago, USA. Lead technical adviser: Alex Hill, EVL, University of Illinois at Chicago, USA. Producer and Project coordinator: F.A.B.R.I.CATORS, Milan, Italy. MICC (Media Integration and Communication Center), Italy Master in Multimedia, University of Florence, Italy; F.A.B.R.I.CATORS, Milan.
<b>Awards/Artist in Residence</b>	
<b>Funding/Grants/Support</b>	See: FF. Awards, Commissions, Prizes, scholarships (selected) 2002 Recipient of a Research and exhibit Grant from DELTA Communication, Italy (City Cluster VR, high speed networking project, Florence-Chicago). The grant was used to organize the Official opening and first Official opening and exhibit of City Cluster "From the Renaissance to the Gigabits Networking Age" a Virtual Reality & High Speed Networking Project The official opening took place on February 7 <sup>th</sup> , 2003 in real-time between Chicago (11:00 AM) and Florence (6:00 PM) across two Virtual Reality Networking platforms: the CAVE™ Display System located in the Electronic Visualization Lab at the Illinois University of Chicago, Chicago, USA and the AGAVE™ Display System located in the City Hall, Palazzo Vecchio Florence, Italy.
<b>Acknowledgments</b>	The Town of Florence: Tuscany Region and Province of Florence. University of Florence; Electronic Visualization Laboratory of the University of Illinois at Chicago.  City Mayor of Florence, On.le Leonardo Domenici and Ms. Robin Schabes, special Assistant for Technology of the Mayor City of Chicago DELTA Communication, Italy; Telecom Italia; Electronic Visualization Lab (EVL), University of Illinois at Chicago, USA. On.le Claudio Martini (Regione Toscana); On.le Elisabetta Del Lungo (Provincia di Firenze); Mr. Enrico Granara, Consul General of Italy in Chicago; Ms.Yannick Mercoyrol, attaché Culturel, Consulate of France at Chicago; Dr. Anne Rashford Exhibits Director of the Museum of Science and Industry, Chicago; Chuck Thurow Executive Director of Hyde Park Art Center at Chicago; Stephanie Whitlock, Director of Special Programs Graham Foundation in Chicago; etc.
<b>Bibliography</b>	See: FF. Publications-5a and 5b
<b>Exhibit/Exposure</b>	See: FF. Exhibit/ Exposure The First Phase Virtual Reality Prototype has been exhibited in October

**Franz Fischnaller [FF] PORTFOLIO [selected]**

The information contained in this document is proprietary to Franz Fischnaller and shall not be reproduced or disclosed in whole or in part, or used for any design or manufacture except when such user possesses direct written authorization from FF

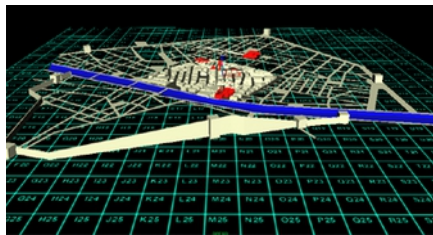
<b>Networked events &amp; exhibits</b>	22nd-26th 2002 at the X Canariasmediafest-Elder Museum of Science and Tecnologia Las Palmas de Gran Canaria, Spain. <b>Official networked opening</b> - February 7th, 2003 7:00 PM, [Italian time], 11:00 AM [Chicago Time] Palazzo Vecchio - Florence City Hall, Florence, Italy Electronic Visualization Laboratory, UIC, Chicago, USA.
<b>Video</b>	
<b>Notes</b>	
<b>Description</b>	See Bellow



### Introduction

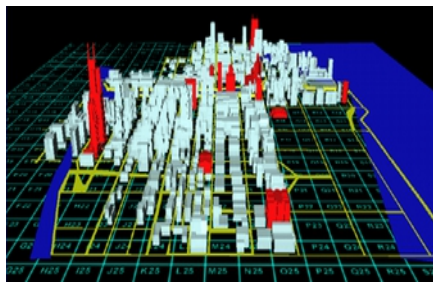
CITYCLUSTER is a virtual-reality fully immersive networking matrix (virtual container) in which multiple large scale stereo environments real/simulates and/or imagined, can be hosted within a common alternate virtual territory. The system connects people from multiple remote locations through VR networking platforms interconnected and running over a high-speed networking system, enabling local and remote visitors to communicate with each other through streaming audio communication and through their AVATARS.

Within a single interconnected virtual matrix, visitors can navigate, interact, exchange and teleport high res stereo three-dimensional models, objects, buildings and dynamic data over distance in real time. Passive and/or active stereo glasses allow the users to see in 3D/stereo. A simple tracked input device, "the wand", containing a joystick and 3 buttons, allows the visitor to navigate and interact through the VR space. The first virtual reality networked full immersive real time stereo production created for CC, is a large scale virtual environment and interactive journey departing from a Renaissance Age (virtual Scenario Florence) and shifting to the Super Broadband Age (virtual Scenario Chicago).



### A Broadband Networking Virtual Space

In [CC] multiple environments, ambiances or cities both real and imagined, can be hosted, coexist and be interrelated within themselves through a common, virtual territory, interconnected by high-speed network, enabling remote participants to interact and collaborate in shared environments. Visitors, with their own creativity and communicative skills, can become protagonist and/or free citizen: navigate, interact, intervene exchange buildings, objects and ideas and/or create their own ideal environment.

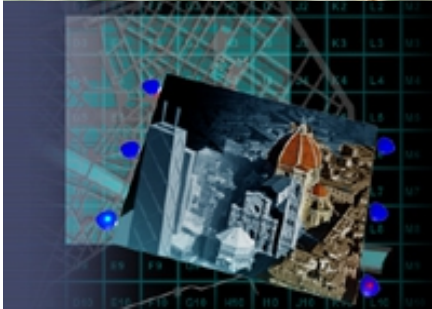
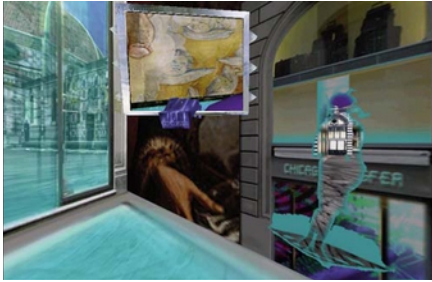
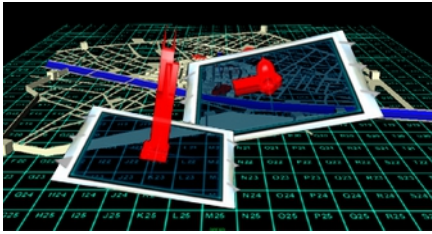


The project has been designed to produce an integrated computing facility and to implement a creative high-tech container in which multiple environments may coexist and be interconnected within a common, virtual territory. [CC] can be adapted to a number of diverse cities or virtual environments.



### The Virtual Environments

The CITYCLUSTER project provides new, spontaneous, and fluid virtual code for communication and interactive iconography of interactive networked pieces. It produces engaging virtual environments, creative networked terrains with tools, features, and facilities where visitors, regardless of cultural or professional identification, may feel free to express and intervene with their own creativity and communicative skills. Emphasis was given to aesthetics and content quality, to the use of visual design in the virtual environment and to the intensity of the interaction thus bringing out the content to its fullest expression.



"FROM THE RENAISSANCE TO THE MEGABYTE NETWORKING AGE" is the first CITYCLUSTER virtual reality networked application. Florence, the "Renaissance Age", Chicago, representing the "Gigabits Networking Age". The virtual environments of Florence and Chicago are characterized by multiple narrative spaces that comprise animated sculptures, interactive phenomena, high-tech performances, and characters of distinct and peculiar behavior. It offers its visitors a thrilling interactive journey departing from the Renaissance until arriving and shifting to the Super Broadband Networking and Electronic Age, breaking the barrier of time and space in real time. Each virtual environment is inhabited and guided by a group of avatars: David, Venus, and Machiavelli are the Renaissance-Age avatars. Mega, Giga and Picasso are the Gigabits Networking-Age avatars. One of the most intense interactive experiences that the visitor can have is to exchange objects and buildings from one city to the other in real time over the Net.

This VR-networked piece offers an actively creative experience in the language of interactive design through the use of new forms of interactive narrative. Emphasis was given to aesthetics and content quality, to the use of visual design in the virtual environment and to the intensity of the interaction thus bringing out the content to its fullest expression. Several characteristics of this application presented diverse creative technical challenges, which in turn revealed innovative aspects technical innovation and salient feature relative to content management, the development of juxtaposed virtual environments, networking interactive techniques, avatar design, architecture, and virtual effects.

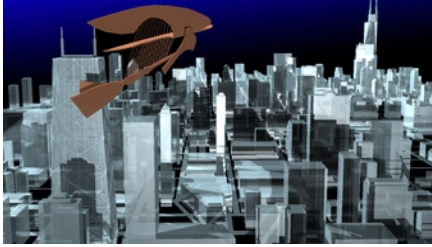
The software is designed to run either locally or through remote networking in both SGI and Linux systems. The networked experience can take place between the CAVE™ ("Cave Automatic Virtual Environment") and the AGAVE™. (Access Grid Augmented Virtual Environment). Both platforms interconnected and running over high-speed networks, enable local and remote visitors to navigate, interact, and communicate with each other through the avatars as well as with three-dimensional models over distance in real time, in a common virtual space.

The project seeks to implement multiple users, immersive systems that allow remote interaction through high-speed network and to explore new modes of collaboration and natural interaction between human beings using the opportunities offered by advanced information technology and the international network as a common infrastructure, operating system and communication tool.

#### GOALS

To design and implemented a virtual-reality networking matrix, a creative high-tech container with original technological features, navigation and interactivity, graphic and content style. In which multiple environments may coexist within a common, virtual territory, interconnected by high-speed network, enabling participants in remote locations to interact and collaborate in shared environments.

- A framework, which can be expanded, modified, enriched and developed ad hoc, in accordance with the nature and typology of the environment to be incorporated.
- To start developing a new, spontaneous, and fluid virtual code of communication and interactive iconography for interactive



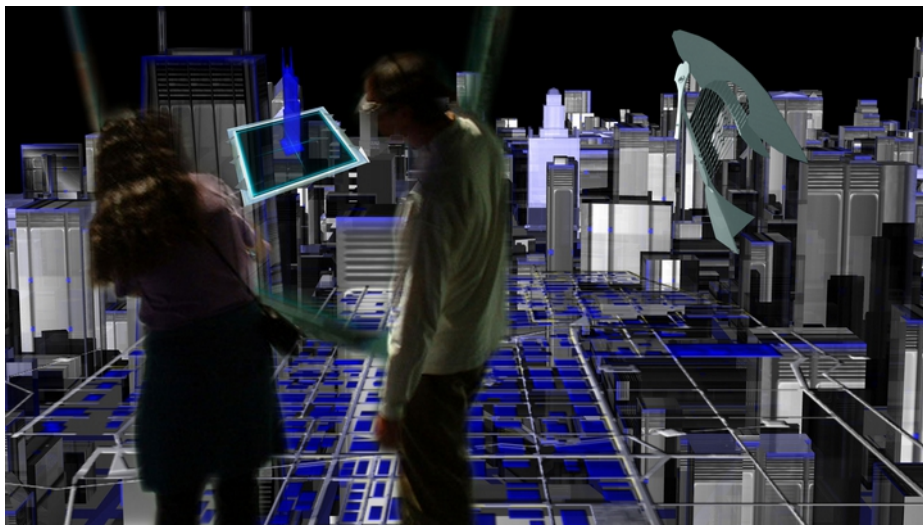
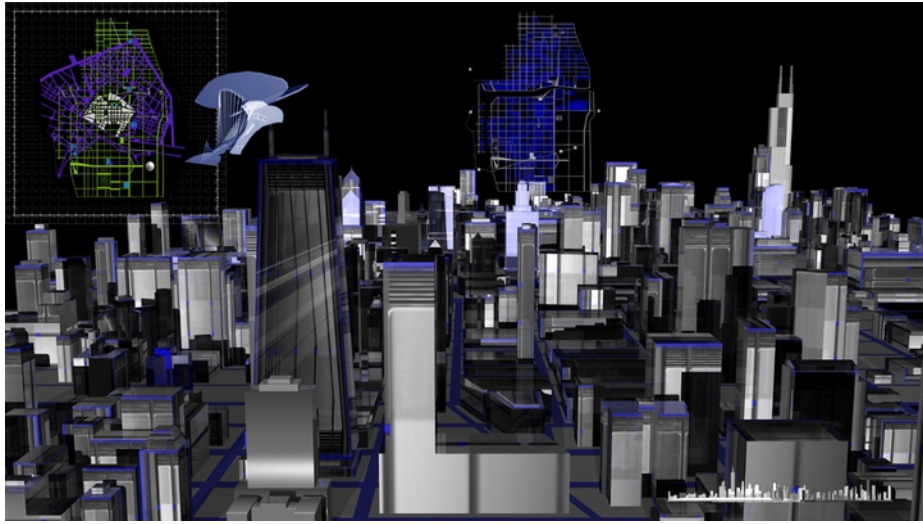
network.

- To produce engaging virtual environments, creative networking terrains with ingenious tools, features, and facilities where visitors, regardless of cultural or professional identification may feel free to express and intervene with their own creativity and communicative skills.
- To transform digital technology into a more humanistic instrument of communication and to explore the opportunities offered by advanced information technology in order to support natural interaction between human beings and a digital system for the fruition of artistic content.
- To enable creative and interdisciplinary remote collaboration, highlighting the various relationships shared among cultures, involving people at multiple locations in a single virtual net art piece as they explore new possibilities available through the combination of high-speed international networks and virtual reality.
- To explore new ways of cooperative, remote-working process and production development projects using the net as a common infrastructure, operative system and communication tool.
- To design and implement a VR -pathfinder (Meta-Net-Page) ad hoc for the project" which will serve as the main interactivity tool for the user.
- To develop and add a series of special features and enhancements to the software to satisfy content and quality levels of interactivity.
- To increase the expressive power of the system. In fact the implementation of City Cluster has given rise to a range of technological challenges. YGdrasil, the software utilized for developing the project, has been upgraded and enhanced to address these issues.

The results were satisfactory; the software YG has been upgraded and enhanced. The current capabilities of the YG system were extended for the implementation and the integrated computing facility for the City Cluster project. As a result the contributions performed to the system will benefit for other users, developers, artists, designers, in synthesis usable by future VR developers.

► CHICAGO ► ► ◀◀ FLORENCE ◀◀





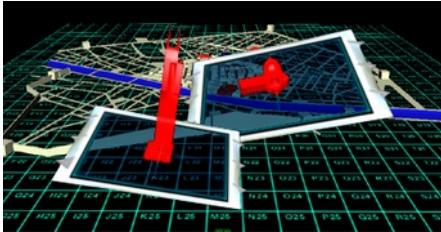


# META-NET-PAGE [MNP]



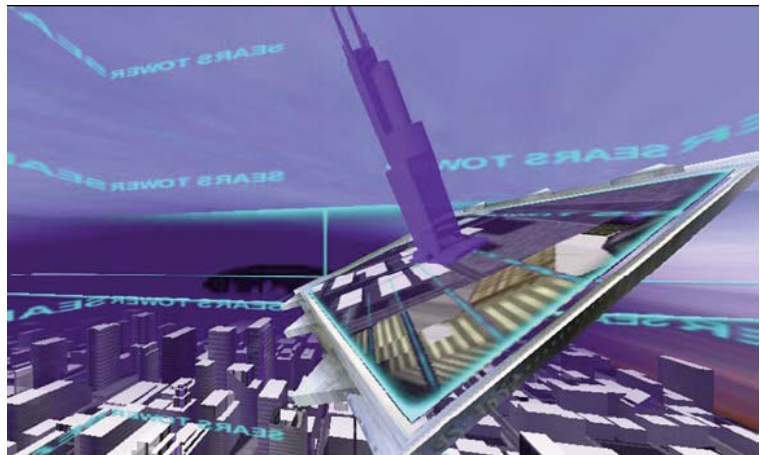
<b>Project Name</b>	<b>META-NET-PAGE [MNP]</b>
<b>Topic/Key Words</b>	Networking interface display, virtual pathfinder. VR collaborative networking tool, virtual pathfinder, collaborative on-line interaction interactions, modalities, navigation techniques
<b>Project Stages</b>	Conceived as a four-phase project
<b>Achievements/Accomplishments</b>	See bellow
<b>Project Current Stage</b>	All phases are completed
<b>Role/Responsibilities</b>	Designer, producers
<b>Credits/Collaboration/Partners</b>	See info under section CC Project
<b>Awards/Artist in Residence</b>	See info under section CC Project
<b>Funding/Grants/Support</b>	See info under section CC Project
<b>Bibliography</b>	See info under section CC Project
<b>Acknowledgments</b>	See info under section CC Project
<b>Video</b>	
<b>Description</b>	See bellow

## Meta-Net-Page [MNP]



VR collaborative networking tool and virtual pathfinder designed and implemented ad hoc for the CC project for collaborative interaction with large simulation and stereo data through the networking. Featuring several interactions, modalities and Navigation techniques, are others: including "gaze-directed" navigation, "target-selection" teleportation, and "grabbing-the-air" movement, to name a few.

... perspective or in an additional interface such as hand held or external display, the other users sharing the virtual environment do not have access to it.



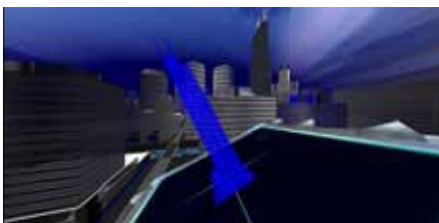
## CONCEPT (MNP) Virtual reality networking interface display

### Meta-Net-Page Features

The Meta-Net-Page (MNP) is a virtual pathfinder, able to detect information, images and details that are invisible zones or intangible realities for the naked eye. It indicates the current user coordinates and provides more detailed information about the objects within its view. MNP allows a user to zoom in or out by moving a view panel closer or farther away from his or her own eye. It includes interactive buttons for accessing several functions available to the user. The users will be able to fly up into the sky to gain a greater overview of the city they are currently exploring. The users can "teleport" immediately to the location shown on the view panel; it is also a collaborative networking camera. Visitors from the different sites see, manipulate and interact



The design of the Meta-Net-Page lends itself directly to this function by simultaneously displaying context-sensitive information available to the user along with the information displays of all other users within the same virtual environment. In addition Meta Net Page allows users to grab buildings and move them to another location or even another city.



This functionality contributes to the mutual understanding across cultures by allowing users to see a building in a completely different context. The Sears Tower, for instance, when placed in Florence, immediately imparts an

through the same virtual interface. The visitors can "take pictures" and store them. These snapshots serve as placeholders for specific locations and headings. When desired, two users can collaborate to return to a particular location by moving one view panel over another. The Meta-Net-Page allows the user to "grab" onto a building shown within the panel and moves it to another location or even to another city.

The user can also capture a selected number of textures for later application to other buildings. The MNP also acts as a sort of mirror. The visitor can reflect his or her avatar in it by turning it around toward himself while he is within the virtual environment. The avatar of each user is not normally shown; only the Meta-Net-Page of each user is visible. This mirror feature allows the user to show other users what they really look like.

#### Collaboration with the Meta-Net-Page



Several other features of the Meta-Net- Page take advantage of the third-person perspective. The interface lends itself readily to the role of camera or video recorder, framing and capturing images as desired. Moreover, the alternative perspective allows the user to see not only context-related information, but also completely different views of the world.

One can easily imagine infrared, x-ray vision, wire-frame, and other novel visualizations of the virtual environment. An engineer interested in structural properties of a design might want to view the objects in the environment with a completely different filter than that of a designer. Several researchers have suggested that having different views of the virtual environment might aid workflow. Again, artists who might want to create bullet holes, tears, or other X-ray-vision related features designed the module in a manner that facilitates reuse. This module was used to create a silhouette of each avatar as they walk through walls in each city. This silhouette creates a perforation in the wall in the shape of the avatar. When not assuming the personality of one of the CITYCLUSTER's avatars, users keep the impression of identification with their own projected image, which they can see when using the Meta-Net-Page as a mirror. Placing some objects in all environments at once elucidates co-location. These objects can be picked up by a user in any city and moved to another location within all cities at once. For example, the planes generated by the Machiavelli avatar fly out from the user and take their place within the city of Florence. Yet, at the same time, a user in Chicago also sees the planes fly out over the city and take their place in the same locations in Chicago.

Orientation from which the image was taken. A user selects a building

understanding of the different context within which Florentines and Chicagoans live.



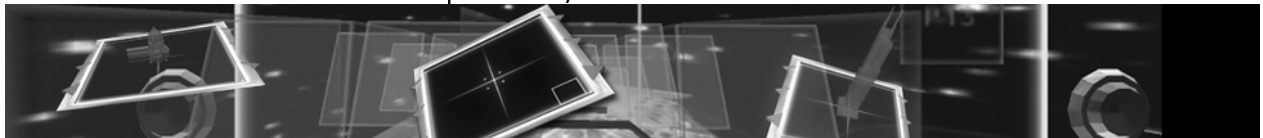
Unlike most cameras, the Meta-Net-Page allows the user to teleport to the exact location and addresses a key issue related to collaborative interaction.



by framing it within the cross hairs of the view presented by the Meta-Net-Page. The user then moves his or her hand to the “grab/select” button. When the user physically presses the actual button on the wand, a small image appears in the center of the Meta-Net-Page and grows to become a three-dimensional model of the building. All information presented on the Meta-Net-Page, including the wand-over, selection of user interface buttons, and the first-person perspective view, is visible and therefore understood by all participants.

### Co-location within Multiple Cities

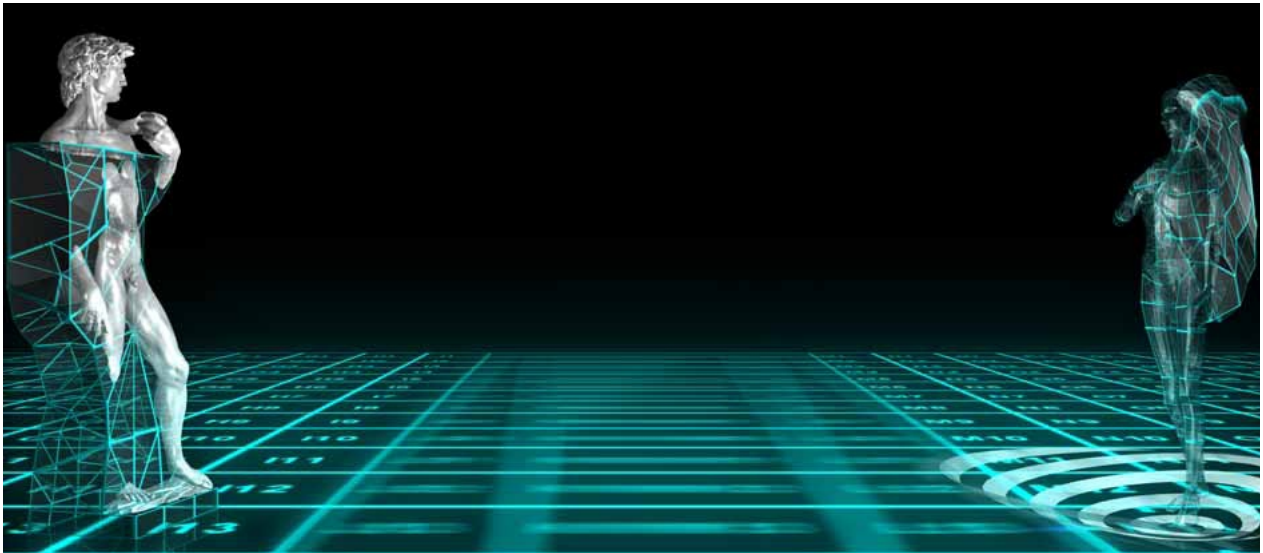
CITYCLUSTER creates the illusion that multiple users are simultaneously visiting multiple co-located cities. This means that there is a fixed correspondence between positions on a grid and the buildings and features of each city. Several techniques were used to accomplish this goal, including teleportation, objects common to each city, and walking through walls. The primary means of re-enforcing the concept of multiple co-located cities is the alternate viewpoint displayed on the Meta-Net-Page. When a user in Florence encounters a user in Chicago, he will see a view of Chicago in the Chicago user’s Meta-Net-Page device. Teleporters are placed throughout the environment to allow users to move between the two cities. To a user watching another user walk through a teleporter, little will appear the view within the Meta-Net-Page changes to that of another city. Teleporters are also placed at interesting locations to re-enforce co-location. In one example, a user traveling to the top of the Giotto Tower is teleported to Chicago only to find himself on the sixth floor of an office building. Another special-purpose module created for the project allows a texture to be superimposed upon another texture. While this functionality is commonly used in video game systems, it was desired that the secondary.



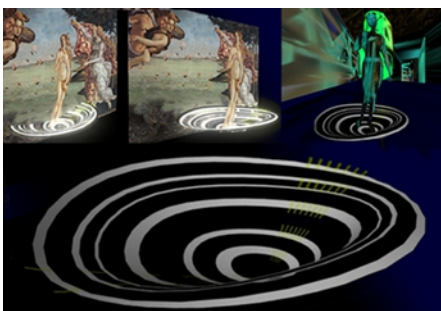
### Franz Fischnaller [FF] PORTFOLIO [selected]

The information contained in this document is proprietary to Franz Fischnaller and shall not be reproduced or disclosed in whole or in part, or used for any design or manufacture except when such user possesses direct written authorization from FF

# AVATARS



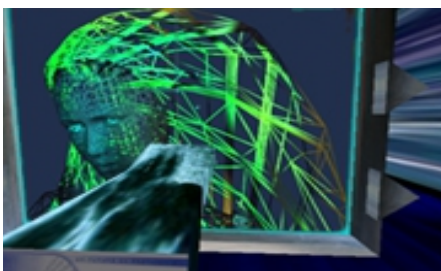
<b>Project Name</b>	<b>AVATARS</b> -The Renaissance Age Avatars, The Gigabits Networking Age avatars. (This works were designed and implemented ad hoc for the CC Project
<b>Topic/Key Words</b>	Avatars ,visual and graphic concepts Gigabits Networking Age, Renaissance-age, cyberspace, "virtual representative"
<b>Project Stages</b>	Conceived as a four-phase project
<b>Achievements/Accomplishments</b>	See description bellow
<b>Project Current Stage</b>	All phases are completed
<b>Role/Responsibilities ( FF)</b>	Author, Designer, Project Production Manager
<b>Credits/Collaboration/Partners</b>	See info under section CC Project
<b>Awards/Artist in Residence</b>	See info under section CC Project
<b>Funding/Grants/Support</b>	See info under section CC Project
<b>Video</b>	
<b>Description</b>	See bellow



**DAVID | VENERE | PICASSO | MACCHIAVELLI | MEGA | GIGA**

## Concept and Design

The avatars represent the visual and graphic concepts and symbols of diverse ages. Each virtual city is inhabited and guided by a group of avatars: Mega, Giga, and Picasso are the avatars representing the Gigabits Networking Age, while David, Venus, and Machiavelli are Renaissance-age avatars. Visitors contact and interact with each other in more expressive ways through the avatars. Each avatar represents a real person in cyberspace, acting as a "virtual representative" able to communicate with others in the environment. Through the avatars, CITYCLUSTER's visitors see and experience a projection of themselves into a virtual body, or altered presence, in another environment, enabling them to interrelate, interact, and become immersed within this altered physical reality .David, Venus and Machiavelli are 15thcentury sphinxes, historical icons, narrative myths conceived, sculpted and enriched by the collective imagination that today forms part of the pantheon of figures related to the "rebirth" of art in Italy. This rebirth was connected with the rediscovery of ancient philosophy,





literature, artistic styles and science as well as the evolution of empirical methods of study in these fields. The Renaissance was a period characterized by humanism, innovation, science, myth, beauty, aesthetics, politics and power. Mega, Giga, and Picasso are virtual embodiments of the Gigabits Networking Age, a time in which the invisible is no longer formless. These avatars symbolize our age of meta-communication and the abstraction of representation, the electronic era, high-speed power, politics, networking, tele-presence, cloning, fear and networking. It is an age in which the act of communication is rapidly shifting in radical ways and the possibility of experiencing the intangible increases as the invisible takes form.

#### Avatar NEM

The interactive Guide in MMB, 1996-97

NEM is the interactive guide in the MULTI MEGABOOK in the CAVE®. The term NEM is the English word "MEN" spelled in reverse. NEM is an "info-point" in the Renaissance environment and a "network agent" and/or a "high speed carrier" in the CD-City of MMB and/or in the 2000's digital environment. NEM is the result of a first experiment of a virtual interactive character animated with an electromagnetic system (recorder motion-tracked animation), accomplished in the CAVE™ of the University of Illinois at Chicago's EVL for the MMB virtual application.



#### The Renaissance Age Avatars

##### DAVID

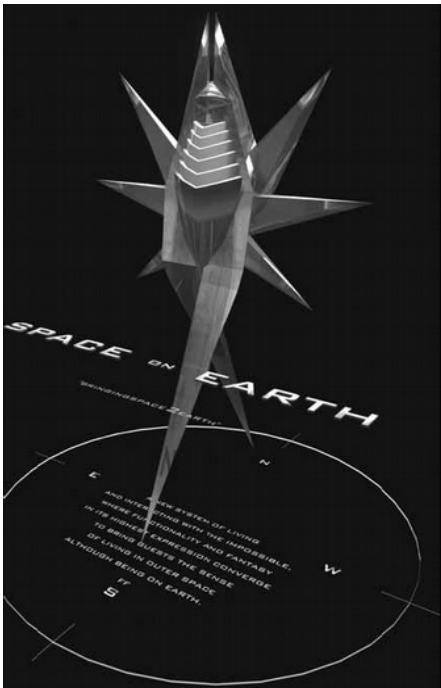
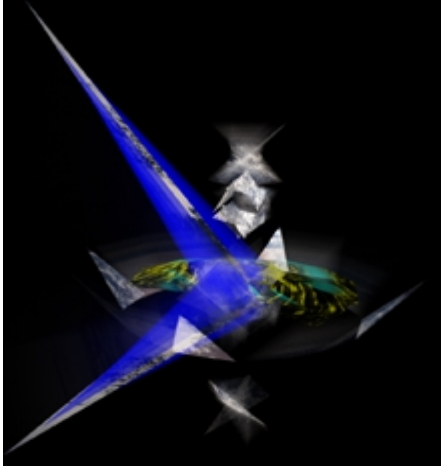
The David avatar was inspired by Michelangelo's sculpture of the Biblical hero, David. In the virtual city of Florence a facsimile of David stands in front of the Palazzo Vecchio in Piazza Signoria, at the center of Florence as a sort of ghostlike plasma, a multi-layered 3-dimensional composition. When a visitor chooses David as avatar, the David sculpture shrinks and a spherical screen appears on the top of his head on which thoughts and visions are reflected. After becoming David, the visitor can step into the shrunken sculpture and be teleported to a time tunnel, eventually arriving into the Academy, in front of the original three-dimensional David. The time tunnel is a composition of a cyber-Renaissance architectonic structure interspersed with details of Michelangelo drawings. David has multiple features and interactive behavior.



##### VENUS

The Venus avatar was inspired by the subject of Botticelli's painting "The Birth of Venus". In the virtual city of Florence, Venus is sensual and enigmatic, enhancing the feminine spirit of the city and demonstrating Renaissance ideals of beauty. Unlike David, Venus represents not a Christian legend but a classical myth. To the Renaissance mind, the mythology of the admired Greeks and Romans represented something more than gay and pretty fairy tales. So convincing was this mythology of the superior wisdom of the ancients that many during the Renaissance believed these classical legends contain some profound and mysterious truth. Botticelli's painting was made for the Villa of Lorenzo di Pier Francesco de' Medici and is now in the Galleria degli Uffizi in Florence. The CITYCLUSTER visitor meets Venus upon entering into the "Piazzale degli Uffizi", where Venus' shell descends from the sky. The visitor can step on to the shell, fly up and penetrate the wall encounters the painting, "The Birth of Venus". While the visitor gets closer to the painting, the painting absorbs Venus's shell; Venus vanishes from the painting and rises out of the water as a 3D cyber-Venus to become the visitor's avatar. The visitor, now as the Venus avatar, can penetrate the painting, which morphs into a three-dimensional environment: Earth and Ocean. The visitor can navigate





around the planet and interact with the satellites. The Venus avatar possesses specific characteristics and features, and depending upon navigation and interaction, she will cause events to happen and phenomena to materialize in the virtual-reality environment around her.

#### **MACHIAVELLI**

The Machiavelli avatar represents power, luxury, high-end technology, politics and fear. The avatar is inspired in the figure of Italian statesman and political philosopher Nicolò Machiavelli, author of "The Prince" (1513), is unquestionably one of the most relevant symbolic representations of modern concerns: power, politics, and domination. The visitor encounters Machiavelli in the Palazzo Vecchio courtyard, the Florence City Hall at the Piazza Signoria. Once the visitor enters the courtyard, Machiavelli's multi-layered portrait rises up on top of transparent layers, picturing a premonitory creature looking down over the map of Florence. Once the visitor gets near the figure, the layers vanish and Machiavelli becomes a three-dimensional aerodynamic figure. In that moment, the Florence city map scales into a red interactive platform while Machiavelli morphs into a sort of black bird, a warplane that explodes decomposing and recomposing itself flying toward the visitor to become his avatar.

#### **The Gigabits Networking Age Avatars MEGA**

The Mega avatar is a sort of compressor, akin to a high-voltage electrical stream; its movements resemble those of electrical signals. It rises to unimaginable dimensions when it has accumulated an abundance of information and floats, enormous and pompous, in space until the visitor decides to interact with it. Mega is a metamorphic avatar whose constant transformation depends upon gathered information. Mega's behavior is multiple: appearing at times as a stream of electricity, it acts as an avatar as well as an interactive guide for the visitors.

#### **GIGA**

The Giga avatar is composed of chromed geometrical forms that shift to create a digital interactive sculpture. Giga appears first as a sculpture on whose surface is reflected digital information that passes by as high-resolution random images. As a visitor approaches, Giga opens and becomes a screen, initiating an interactive relationship and guiding the visitor through the environment. It is a networking agent acting as an information carrier; she sends and receives information, transforms the environment, and projects images and representations onto its surface.

#### **PICASSO**

The Picasso avatar was inspired by Picasso's unnamed sculpture, often referred to as Chicago Picasso, located in downtown Daley Plaza. A visitor gazing upon the statue from another location sees the statue breaking into pieces, shrinking to human scale, and moving onto the visitor's head, body, and hands. What appears to be the face of the statue becomes a pair of wings, moving softly upon the back of the avatar. Stepping into the now semi-transparent remnant of the original statue, the user is taken on a journey through the streets on Chicago that ends in the main gallery of the Art Institute.

