

La Biennale di Venezia
Biennale Architecture
11th International Architecture Exhibition
Out There: Architecture Beyond Building

Hyperhabitat: Reprogramming the world

An installation by Guallart Architects, The Institute of Advanced Architecture of Catalonia (IAAC), MIT's The Center for Bits and Atoms and Bestiario



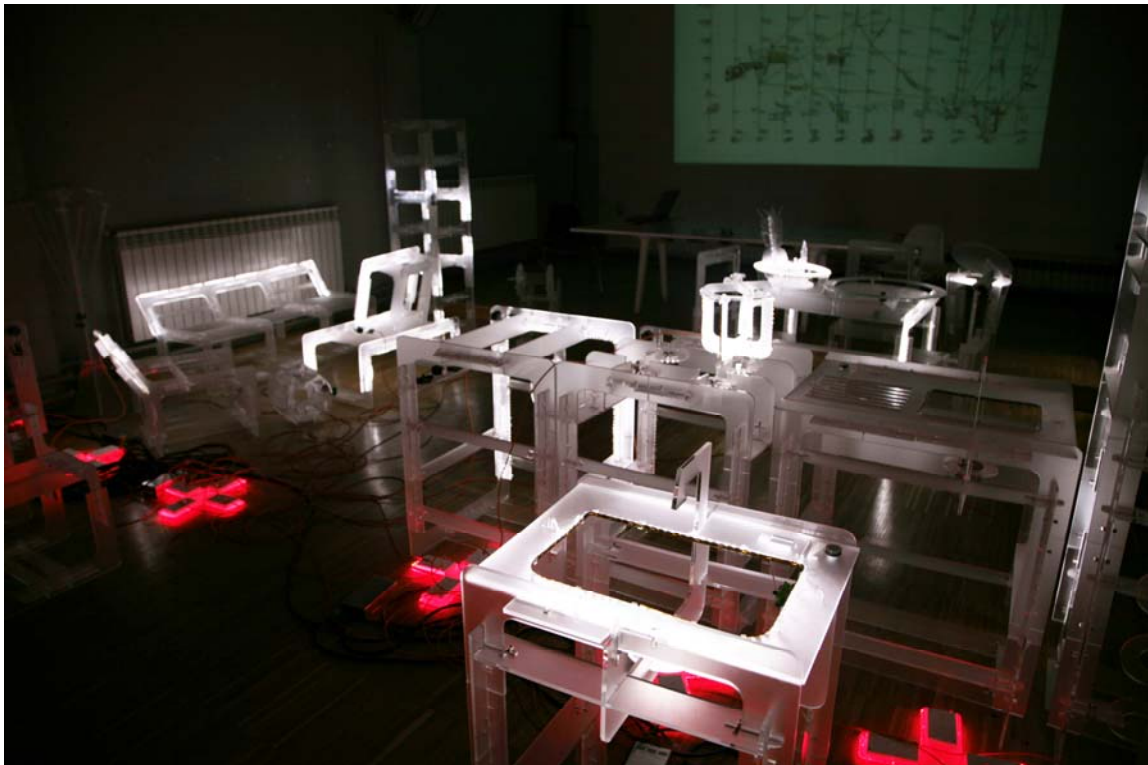
INTRODUCTION

Hyperhabitat. Reprogramming the World is an installation created by Vicente Guallart and produced for the XI Venice Biennale directed by Aaron Betsky, entitled "Out there: Architecture beyond Building".

For its development a consortium has been created merging Guallart Architects, the Institute for Advanced Architecture of Catalonia (IAAC), MIT's Center for Bits and Atoms and Bestiario.

The project responds to the theme of the Biennale proposing the need to re-schedule the structures to inhabit the world, introducing distributed intelligence in the nodes, networks and environments with which we build buildings, cities and territories.

The project incorporates developments made in recent years with digital manufacturing, development of the Internet 0 (a new micro servers technology developed at MIT to create ambient intelligence linking small computers) and the theory on multiscale habitat, a project of "urban genome" developed at IAAC that seeks to introduce new patterns to generate buildings and cities that may restructure the functional relationships between the parties that compose it.



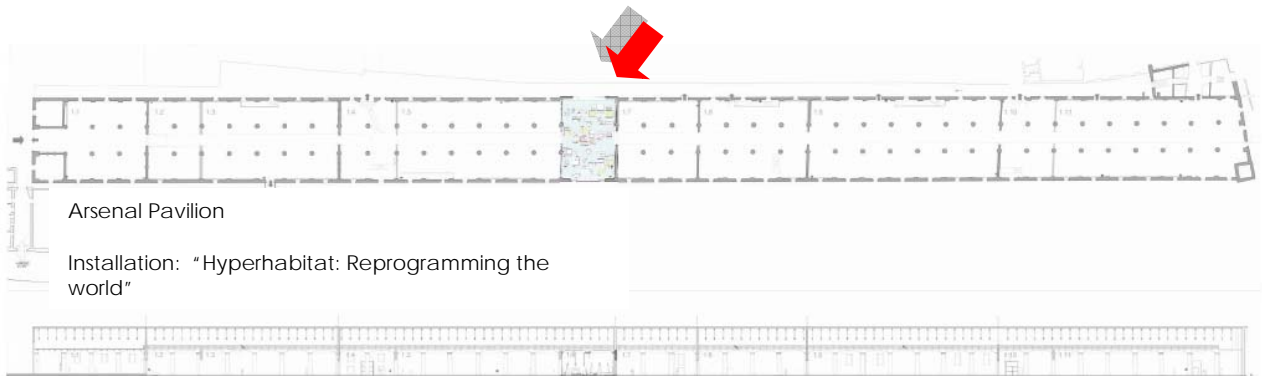
HYPERHABITAT: THE INSTALLATION

The installation is an interface that maps the relations between objects in a set of related houses and tries to stimulate from www.hyperhabitat.net the research related to potential relations that can be created in the world when objects become digitally active.

In Venice simultaneously there will materialize several examples of rescheduling the world.

- A 1:1 scale plant an apartment building with shared spaces to be held in Gandia (Valencia) will be built in Venice, as an example of functional reorganization of domestic space based on the internet principles of "sharing" emerged from the "Sharing Tower" at Sociopolis. (<http://www.quallart.com/01projects/sociopolistower/default.htm>)
- The entire facility was manufactured at IAAC by architects, in a way that promotes local production of goods, from advanced machinery emerging from principles of the Fab Labs, promoted by CBA MIT (www.fablabbcn.org)
- Each object of the house will have an Internet node 0, this is the largest micro server's network done to date, and that will allow connection between them directly. As neurons do in brain (<http://cba.mit.edu/projects/I0/>)
- In the installation multiscale relations can be viewed between a small object and one of a higher scale (from the scale of an individual to that of the entire planet, with ten billion people), and display lines of code that visitors may propose. (<http://www.iaacblog.com/hyperhabitat/>)
- The installation includes an Internet platform to receive proposals to reschedule the world through "lines of code" that shows how, linking things in different ways, we can achieve urban systems that consume less energy and promote social interaction. (www.hyperhabitat.net)

This produces a multidimensional facility, which participates actively in the Venice Biennale, understood as a platform to spread new ideas and promote innovation in architecture.



X-Ray of a building

A building plan with shared spaces for young people is built in methacrylate; here all objects have an internet node and can establish relationships with other objects.

Visitors will be able to operate directly the objects through an interface with buttons and establish relationships among them.

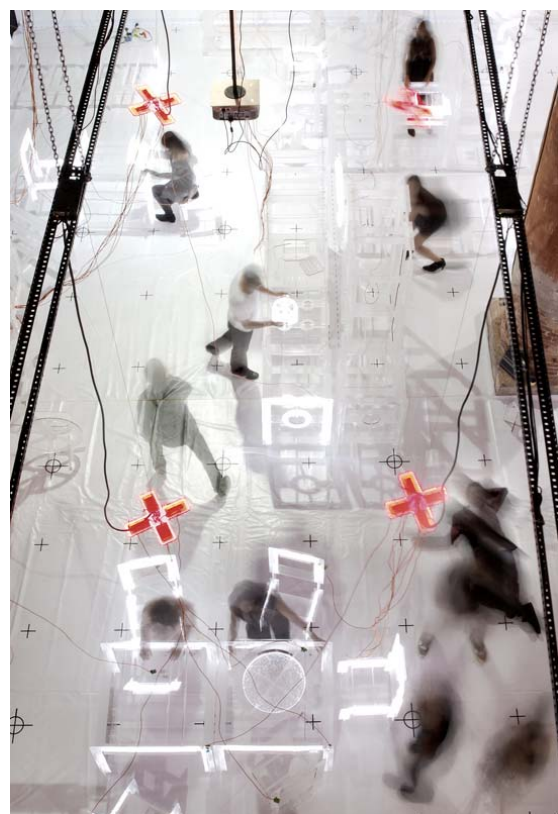
Relational map

The general map of relations between objects can be visualized through a big format projection, which will show the same physical space map in relational format.

Digital space

Any person in the world will be able to interact with the prototype in Venice.

Any person will be able to register their personal objects belonging to any of the categories, and propose the relations that they would like to establish with the world, between same category and scale objects (books with books), objects of same category but different scale (book with the Congress Library), different category and same scale (book and cross) or different category and scale (book with the Vatican).



DEFINITIONS

Internet 0: The internet of things

“Hyperhabitat: reprogramming the world” bases

People inhabit the world while interacting with multiple places operating with multiple scales of relations (from single to collective, from local to global) formed according various configurations.

Any object or building in the world will be an object connected to Internet (through micro servers working with the internet 0 protocols) and they will establish relations with other objects according on people criteria and interests.

In order to build a more natural and efficient world there is a need to reprogram it by establishing relations between objects and places according to natural ecosystems principles that work as emergent organizations.

The World as a Net

The world can be mapped as a series of nodes, connected through nets and inserted in a particular medium. By these means, the physical world is analyzed with the same topology as the digital world to make them compatible; nodes, relations and surroundings.

Any point in the planet belongs to one or several of these categories.

World's history starts with a medium that self regulates through transformation.

The first human settlements are done without altering the environment, producing the first mobility nets by repeating paths over the territory.

Nodes

Nodes are interfaces with specific functions related to inhabit the world. Any tool that allows developing a function is a micro-node that reaches a first habitat sphere in the scale of the house; which is the biggest node of the individual scale. Any single object that exists in a house can find its reflection in a bigger scale place related to it.

Any node has intrinsic properties because of its position, composition or function, and also values related to economical, social and environmental matters that supply or produce information.

Nets

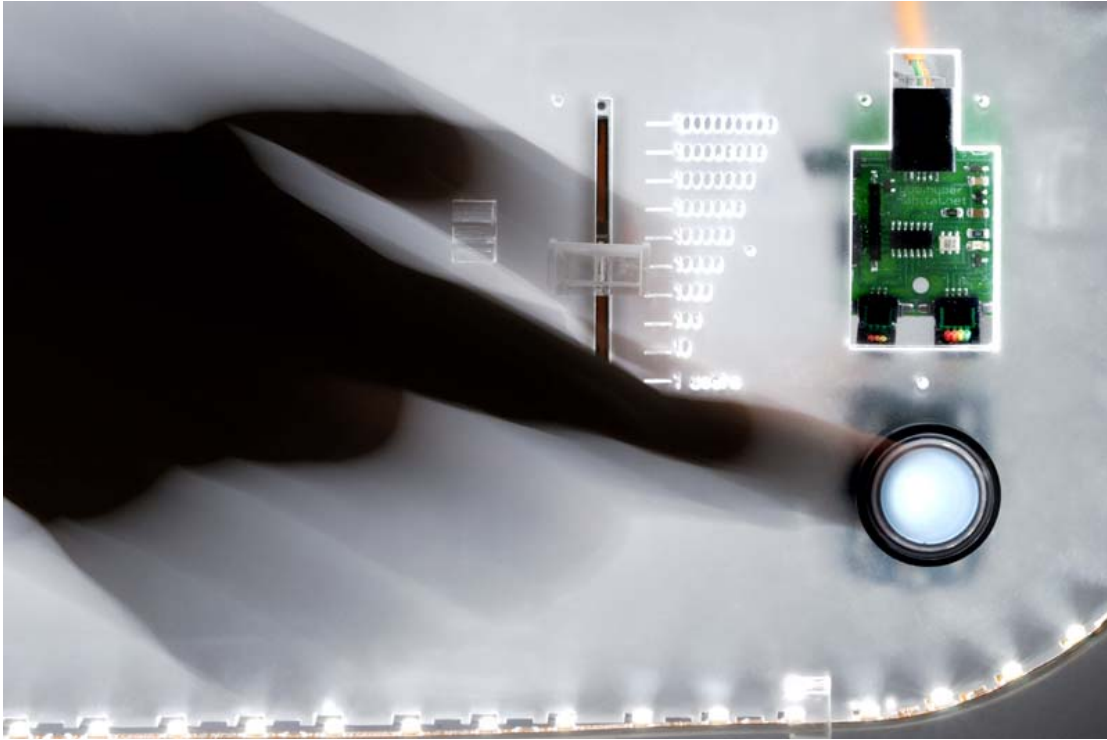
There are three nets related to world sustainability: economic, social and environmental. We can also define emotional relations that go beyond the rational processes. To activate the relations physically, the physical networks of the world need to be running. These are organized in seven categories: water, waste, trash, energy, human transport, logistics and information.

Surroundings

In a natural world the surroundings define the specific properties of things by directly influencing their conformation.

Multiscalar

In a schematic view, nodes can be defined by the number of people using them: 1, 10, 100, 1000, 10.000, 100.000, 1.000.000, 10.000.000, 100.000.000 or 1000.000.000.



The installation is complete with a manifesto, commissioned by Aaron Betsky to all participants in the Arsenal Pavilion.

MANIFESTO

Can the planet withstand another 20th century?

The architecture of the 21st century will be the first that is part of natural history.

Architecture and city are the interface that we have provided ourselves in order to interact with the world.

We construct artificial worlds because we do not want to live naked in the midst of nature.

The structured planet can be recognized as the interaction of a natural environment, networks of infrastructures and functional nodes that are related in terms of economic and cultural principles.

Is it possible to define a general theory of multiscale habitability on which we can live our lives in the decades to come?

In order to live, we humans must satisfy the very diverse vital needs which define the vital functions that are materialized in dwellings, in neighborhoods, and at other regional and national scales.

Any vital function is part of a scalar relation of environments, networks and nodes that interact with individuals on the basis of cultural and economic patterns.

If recent history has been constructed on the basis of centralized systems of energy, information or production, the new history will be constructed on the basis of distributed, decentralized systems, by way of operational nodes —people, things, places, territories— that cooperate freely in order to be more efficient.

What is the architecture for distributed systems like?

As in all mutations, the saturation of the city's vital systems leads to their re-programming on the basis of principles that are closer to those of information systems than the simple accumulation of inorganic matter.

More connected information creates a world that is more specific, not more generic.

To construct anywhere on the planet is to submit the site to structural changes, which should be the product of the emerging relationships with the place, like a geological process of saturation or erosion.

The re-programming of the world occurs when a fine informational rain is capable of drenching every element on the planet, endowing it with a digital identity, enabling it to interact with other elements by means of decentralized relational protocols.

In this way we create living organisms, never again inert, that react to specific geographies and mutate, where appropriate, in response to external influences.

Rather than being a client node in a network, then, architecture is an entity that tends toward the connected self-sufficiency characteristic of natural systems.

Is architecture an iconic or a systemic activity?

Finally, every object we design and construct on the planet forms part of a functional network that connects the different scales of habitability.

1, 10, 100, 1,000, 10,000, 100,000, 1,000,000, 10,000,000, 100,000,000, 1,000,000,000, 10,000,000,000 people organize themselves by programming their relationship with the other scales by way of relational systems whose structure defines the cultural values of each society. From a book to the Library of Congress; from a lamp to a nuclear power station; from a crucifix to the Vatican.

To change the history of the world is to change the history of the scalar relations between the functional networks of habitability.

Architecture can remain in the realm of tendency, as an activity that acts on the surface of things, or it can lead this structural transformation through which we can help to write a new history of the world.

Vicente Guallart
Barcelona, July 2008

Guallart Architects

Vicente Guallart (Valencia, 1963) opened his own architecture studio in Barcelona in 1993, combining project design with the production of digital content. In 2000 he founded Guallart Architects in order to carry out work spanning a wide range of scales, “from bits to geography” — projects such as urban design schemes, neighbourhoods, buildings, public spaces and urban elements. Of note among his major projects are the laying out of three tourist ports on the island of Taiwan, the artificial mountain in Denia (Spain), the microcoasts and seafront promenade in Vinaròs (Spain), a building in Paju Book City in Korea, and the Sociopolis neighbourhood in Valencia (in which a number of leading international architects are involved).

Together with the architect María Díaz, he leads a multidisciplinary team that includes engineers, biologists, landscape architects and other specialists, undertaking projects in terms of the hybridization of knowledge. In 2006 he took part in the *On Site* architecture exhibition at the MoMA in New York with the Sharing Tower, an apartment building with shared spaces in Valencia. In 2007 the IVAM devoted a monograph exhibition to his work, curated by Aaron Betsky, under the title *Natural Logic*.

Since 2003 he has been director of the Institute for Advanced Architecture of Catalonia (IAAC), which runs the Master in Advanced Architecture, where he carries out innovative research, and the Fab Lab, a digital fabrication laboratory that works with the Massachusetts Institute of Technology.

He is the author or co-editor of numerous books, such as the *Metapolis Dictionary of Advanced Architecture*, *Self-sufficient Housing*, and *Media House Project*, among others. Actar have recently published a book on his work to date entitled *Geologics*.

More information at:

www.guallart.com

www.guallartblog.com

www.iaac.net

www.iaacblog.com

Credits

Hyperhabitat Reprogramming the world

Gullart Architects

Vicente Gullart
María Díaz
Fernando Meneses
Daniela Fogheri

IAAC

Daniel Ibañez
Rodrigo Rubio
Marta Male Alemany
Areti Markopoulou
Laia Pifarré

MIT's Center for Bits and Atoms

Neil Gershenfeld
Kenny Cheung
Luis Lafuente Molinero
David Kopp (Schneider Electric)
Kerry Lynn (Cisco)

Fab Lab Network

Lucas Cappelli
Tomas Diez
Victoria Viña

Bestiario

Andrés Ortiz
Santiago Ortiz
José Aguirre
Daniel Aguilar

Nitropix Web Projects

Lucas Cappelli
Emilio DeGiovanni
Esteban Lesta
Roberto Lascano
Roxana DeGiovanni

Institutional Partners

Ministerio de la Vivienda
Ayuntamiento de Barcelona
Ayuntamiento de Gandía

Technological Partners

Visoren
Proinosa
Riera

Scoop Comunicación

Pati Nuñez
Carol Burton

Collaboration

Schneider
Perez Camps
Grupo Irpen
Luz Negra
Marc Martí
Imaginart
Mefisa

Experimental workshop

Vagja Pantou
Christian Zorzen
Alessio Carta
Francisca Aroso
Luis Odiaga
Maria Papaloizou
Stefania Sini
Daniel Bas
Melissa Mazik
Georgia Voudouri
Hemant Purohit
Renu Gupta
Luciano Bertoldi
Peerapong Suntainonond
Ifigenia Arvaniti
Georgios Machairas
Ismini Koronidi
Javier Olmeda
Anastasia Fragoudi
Alexandra Theodorou
Higinio Llames
Luis Casado (electricista)
Martinez (electricista)

Press contact:



Pati Nuñez / Carol Burton

pati@scoopcomunicacion.com
arquitectura@scoopcomunicacion.com
Doctor Rizal, 8 local 1
08006 Barcelona
T+34 934 154 653
M+34 622 296 657
www.scoopcomunicacion.com