

Festival of the Fourth Dimension

South of France 8-10. 06. 2006



artists

James Tyrell

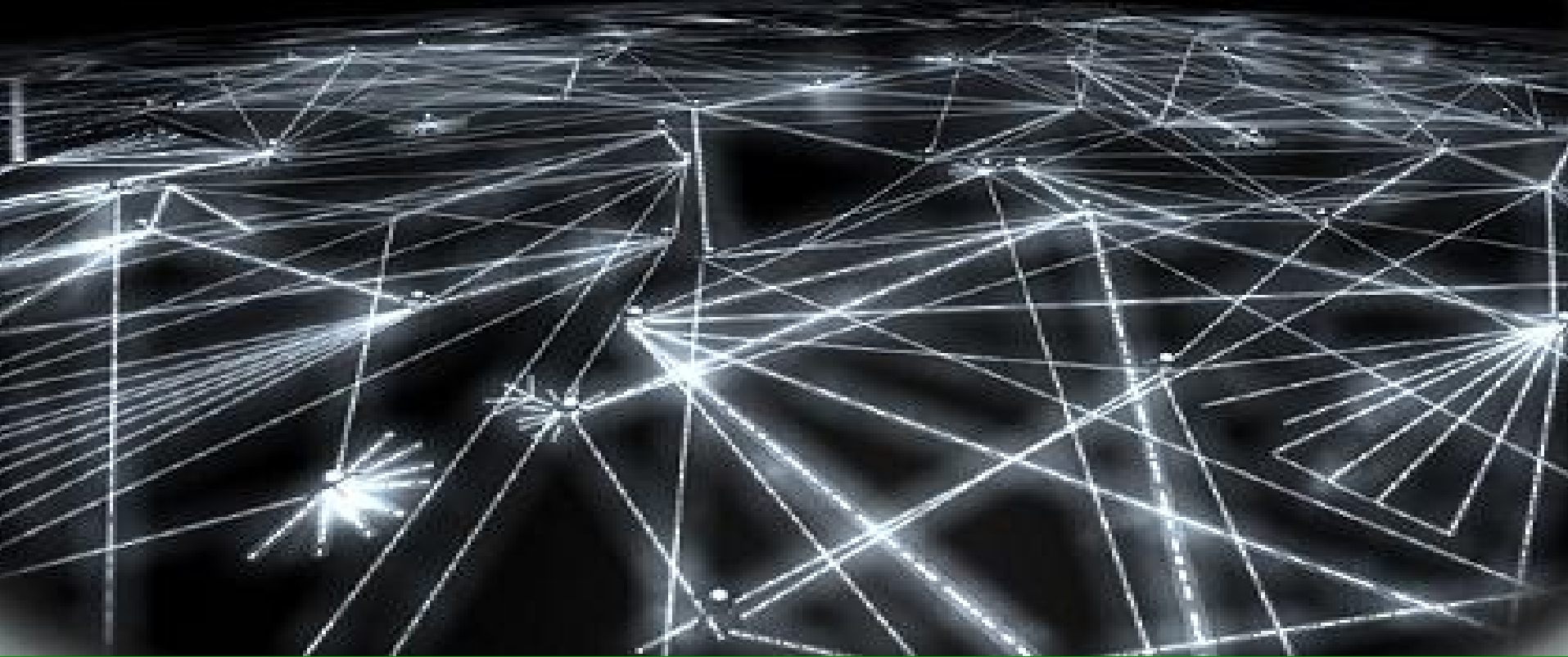
Sofia Anitipoli

Other

Other

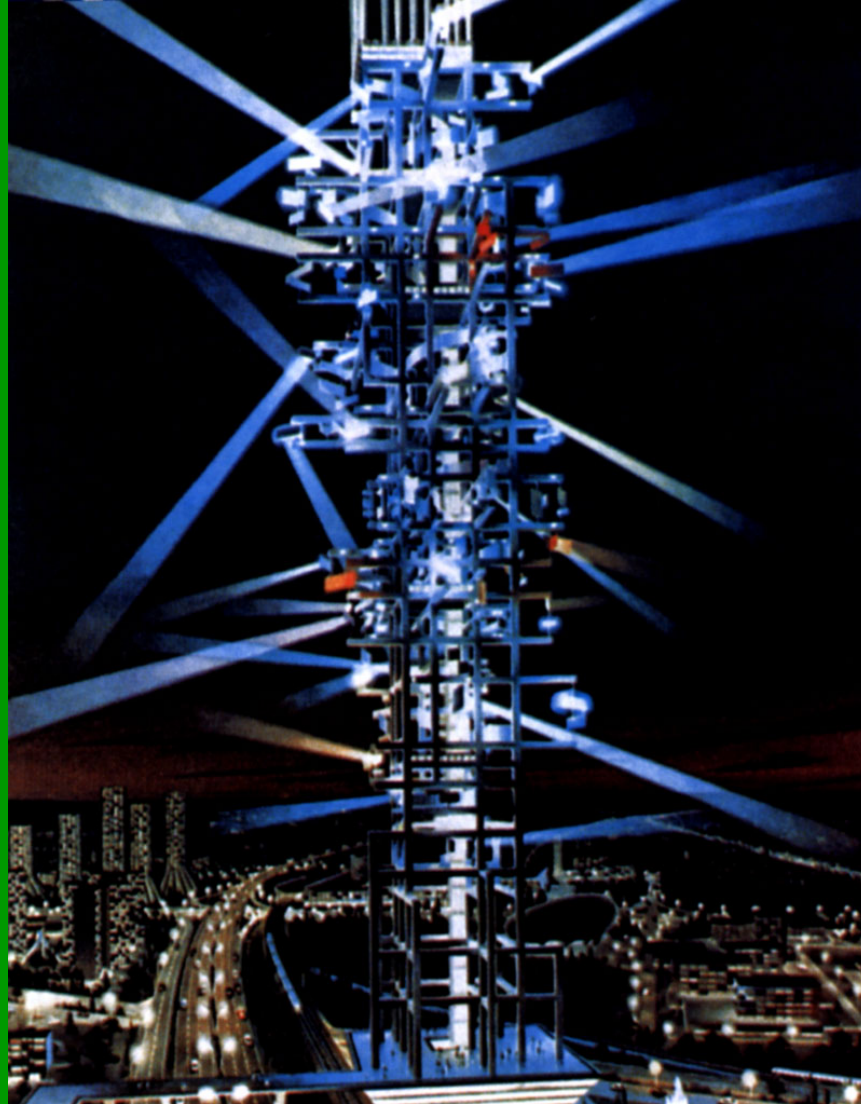
The fusion of art & science

The Festival of the Fourth Dimension is a celebration of artistic and scientific fusion. On three consecutive days leading artists from all over Europe will come together, each bringing with them their vision of what can be achieved when non-traditional materials - light, sound, the elements, are harnessed to achieve insight.

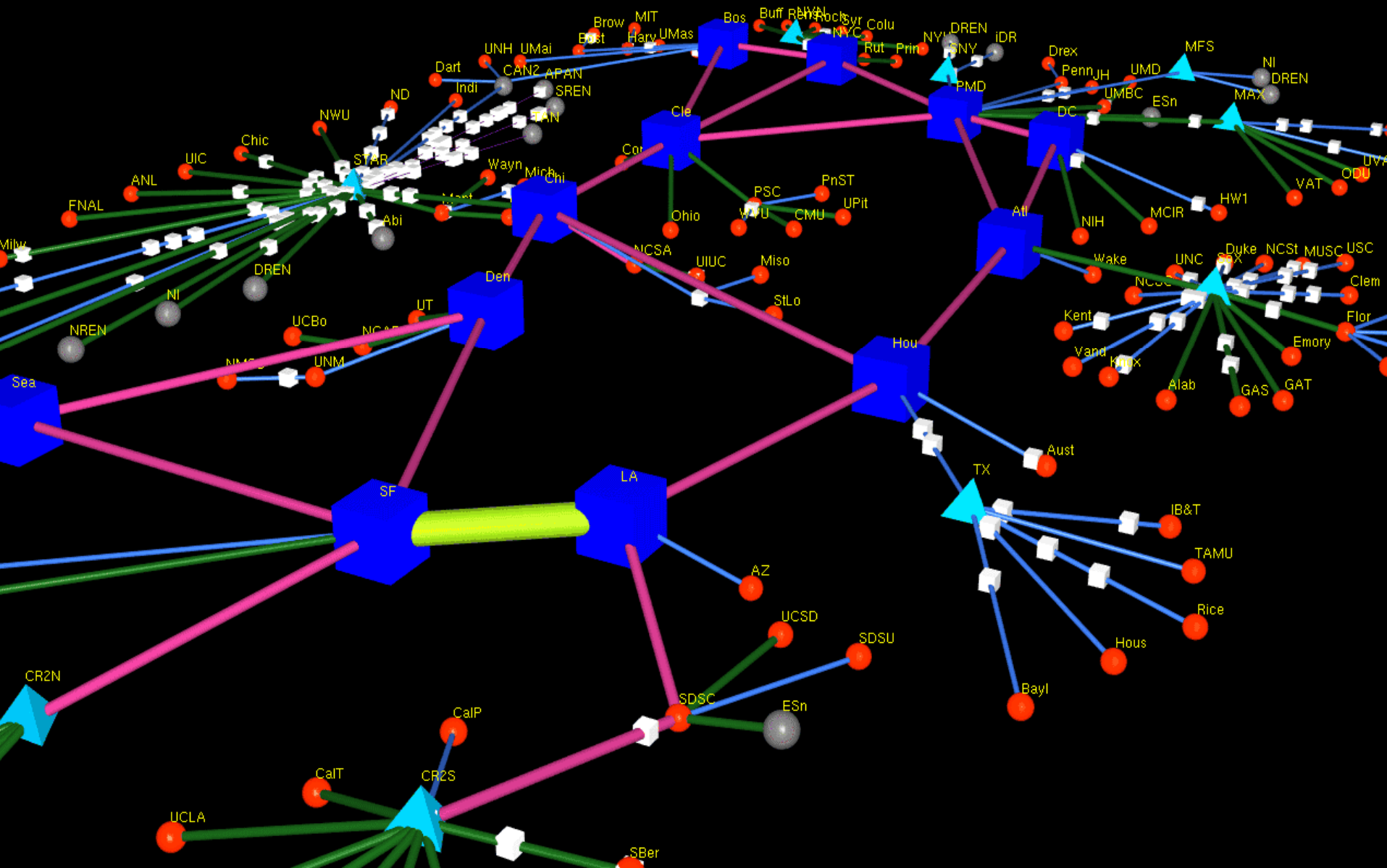


Le mariage de l'électricité avec le langage

Multiplication du maximum de la vitesse avec le maximum de la complexité



L'ère de réseaux





Jeffrey Heer –
jheer@cs.berkeley.edu
Group for User
Interface Research
University of
California, Berkeley

Visualisation du réseau personnel de Jeffrey Heer sur www.friendster.org
47471 personnes connectées par 432430 liens (circa février 2004)

L'ère de l'aura

La société aurale
(Marco Susani)

Hybridation de
l'organique et du
technique

Sens étendus au
satellite

L'arrivée de la
personne globale

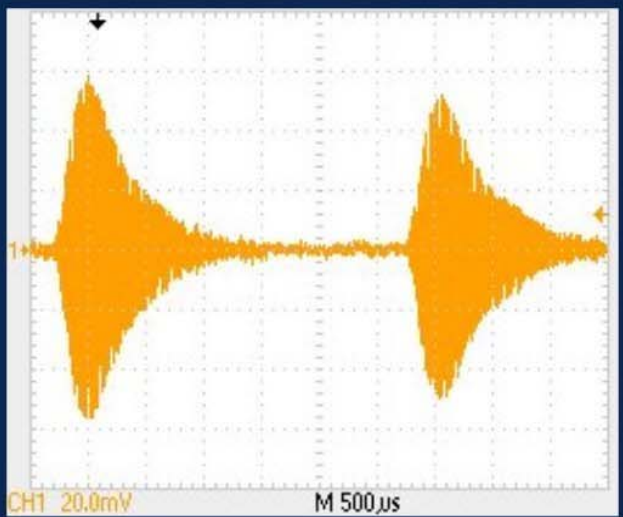
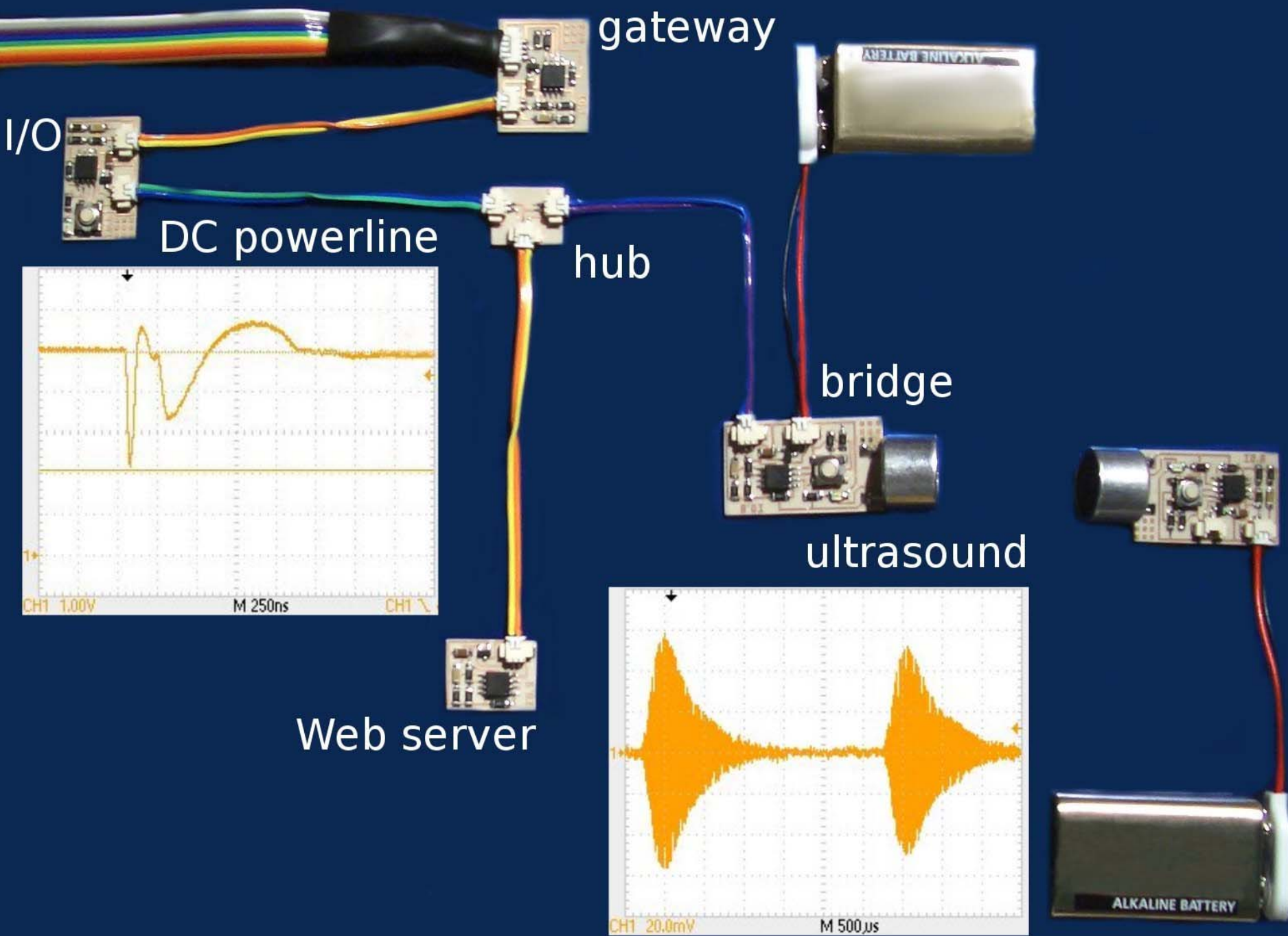
Interconnection totale

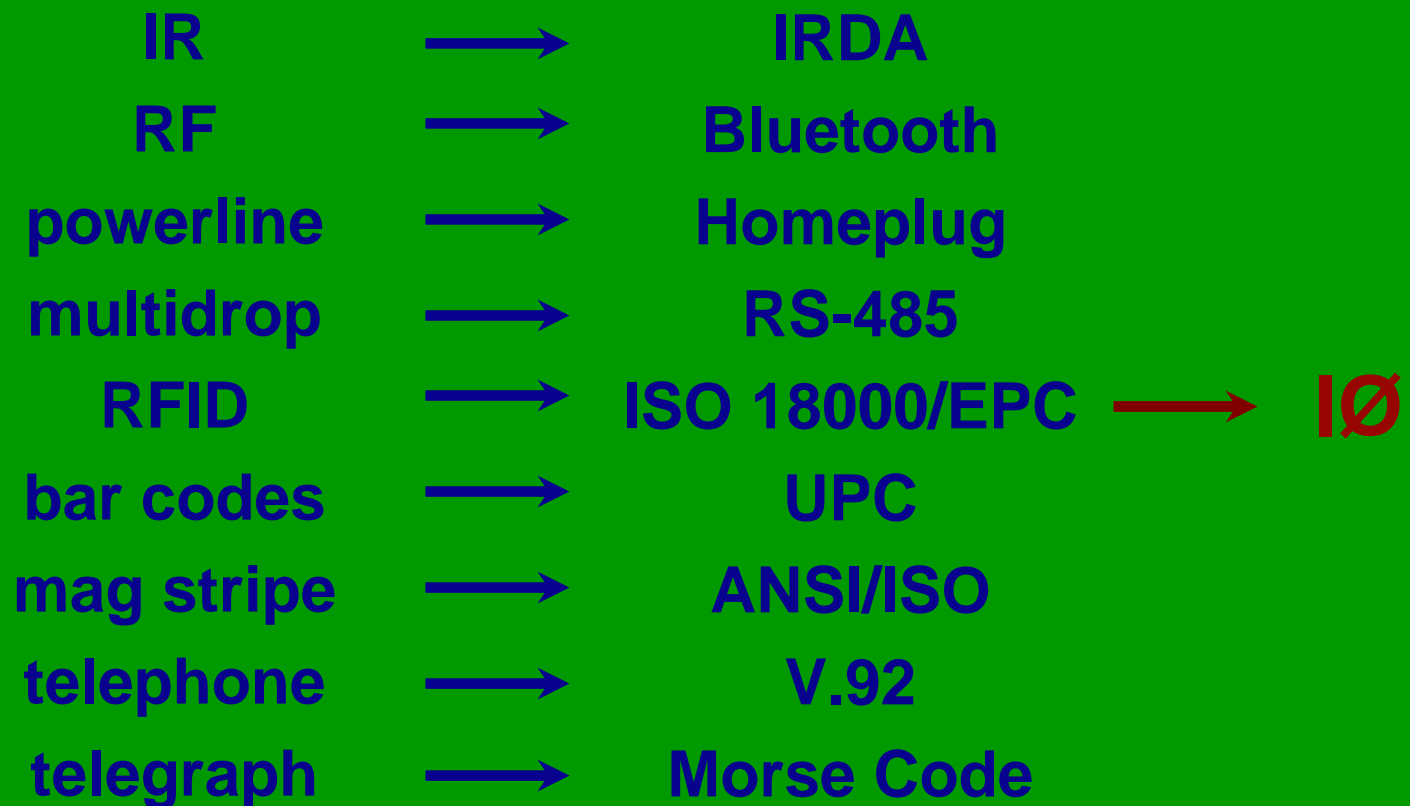




Internet Zero (I0)

**l'interconnexion de tous les
éléments électriques du monde**





ENABLING IMPLICIT HUMAN COMPUTER INTERACTION

Introduction

In traditional computing hard- and software is mainly designed to support users in office environments (e.g. desktop computers with keyboard and mouse). Human computer interaction (HCI) is based on an *explicit* metaphor – the users explicitly request actions that should be performed by the computer.

In wearable computing it is much more difficult to provide input to the system. Most available input devices for explicit interaction either carry a high cognitive load (e.g. Twiddler), are hardly usable when the user is moving (e.g. pen input, arm mounted keyboards, pointing devices), or have significant performance problems in real-world deployment (e.g. speech recognition).

In the case studies described in this paper we explore implicit HCI using RFID's and a wearable tag reader. The term *implicit HCI* describes user actions that are not primarily aimed to interact with a computer, but which are recognized by the computer and used as input.

In many work situations physical goods are at the center of the tasks that workers perform. We made the following assumption to enable implicit HCI: knowledge of which physical objects are handled and of the tasks that determine a work situation enables the system to reason on the intention of the user.

RFID Tags and Readers

RFID systems consist of tags and readers. These technologies have been widely applied over recent years for identification and tracking applications.

Passive RFID tags are small electronic components with an integrated circuit and a small antenna usually sealed in one small package. The tags do not need a battery; they are energized during access by the reader via electromagnetic induction.

The reader is an electronic component that supplies energy to the tags for a short time and then communicates with the tag.

A Wearable Tag Reader

For our case studies we build a wearable tag reader. We also made different types of coils that are integrated into clothing or worn on the body.

We build and used different coils with the reader, which have been connected with a cable to the tag-reader. The coil used in the case study described below is made of a flexible wire sewn into a work glove. The usage scenario determines the type of coil and its placement in clothing. The wearable computer is connected via serial line to the reader module.

Software – Giving Meaning to Tags

Each tag has a unique id. The reader sends this string continuously over the serial line to the wearable computer while a tag is nearby. To build systems that are flexible and can easily make use of the information we decided to implement software that maps RFID's to URLs on the WWW.

The software has three parts: a module that listens on the serial port, a web browser component, and a mapping table. When a ID appears on the serial line this ID is mapped to an URL, then the web browser is called with this URL. The software is implemented using Visual Basic and run on MS-Windows based systems.

Case Studies

We have used this system to explore implicit human computer interaction based on RFID tags. The first case describes an implementation of real world bookmarks. The second shows how complex business processes can be simplified using the suggested technology.

Real World Bookmarks

Physical objects have often a specific meaning to the user. When their identity is associated with a URL, objects can serve as real-world bookmarks. We have explore a range of examples that employ object/URL mappings:

- Objects to trigger applications: pick up pen open editor by calling a URL with an empty document
- Objects as bookmark to information: wooden spoon suggesting a recipe
- Personal object to access individualized information: wallet show user's stock portfolio

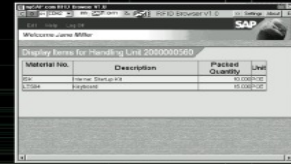


The tag reading system is integrated with mySAP.com

The tag reading system is integrated with mySAP.com enterprise resource planning components like R/3 using the middleware product SAP Business Connector. By mapping the tag IDs to specific URLs the integration of business functionality accessible by remote enabled function calls (BAPI's) and IDocs (Intermediate Documents) is implemented. The output format is either XML or HTML that can be displayed by the browser. The wide range of typical applications includes data reading/recording in inventory management, warehouse management, production planning, logistics execution or quality management. As an example an employee equipped with a wearable RFID reader can check incoming deliveries against the purchase order stored in SAP R/3 by reading the tag that acts as a packing list. If the check has been successful the goods receipt could be automatically posted. In another scenario a quality inspector records inspection results in SAP R/3 by sorting out bad parts.

Conclusion

In the paper we argued in favor of implicit HCI to address the problem of user input to wearable computers. We described a hardware and software implementation of a wearable tag reading system enabling implicit HCI. In this system RFID tags attached to physical objects are associated with URLs. This mechanism makes it easy to build applications using standard web technology or to integrate the RFID system with existing systems, such as SAP/R3.



A Wearable RFID-Tag Reader



Abstract

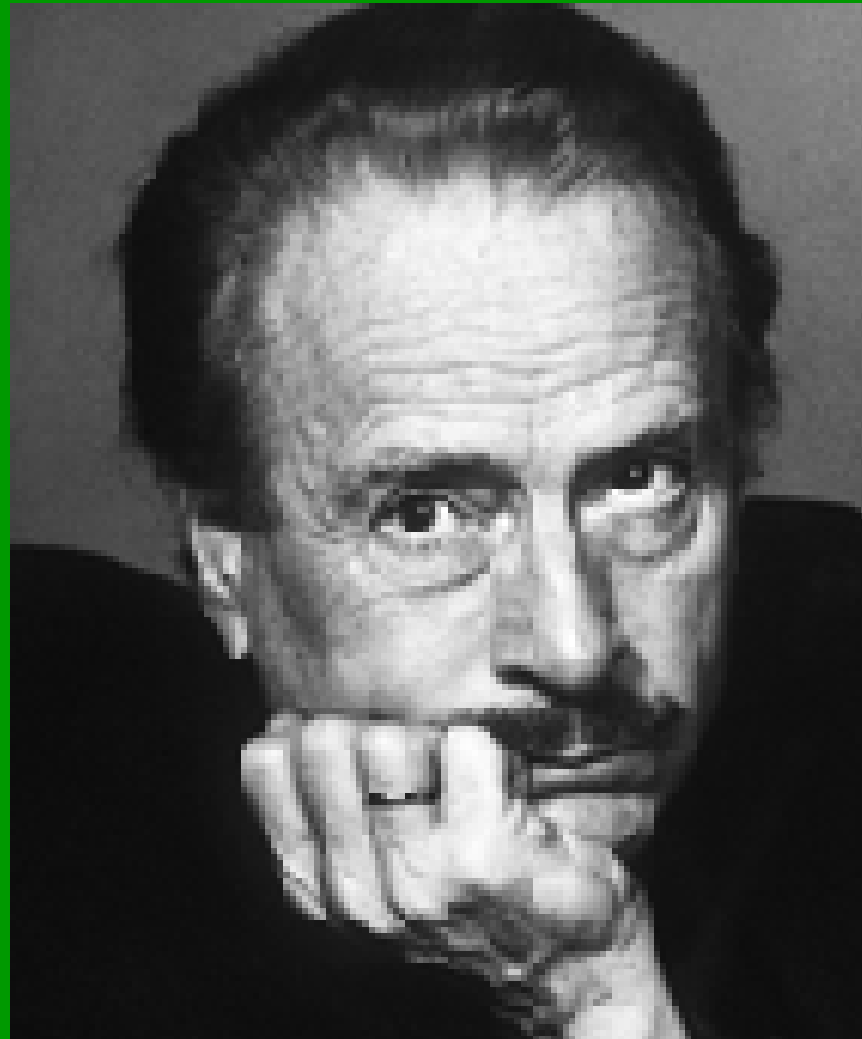
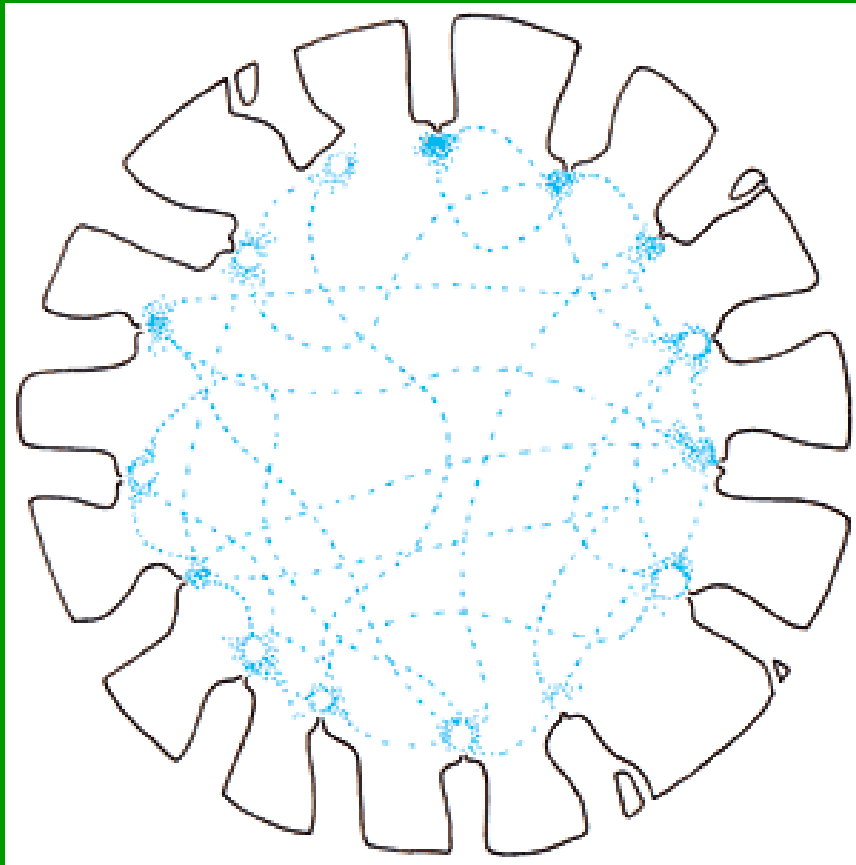
Implicit human computer interaction is based on the concept of using user activity in the real world as input to computers. Implicit HCI can help to reduce the problem of user input to wearable computers. In this paper we report on wearable RFID technology that facilitates applications that are triggered by handling tagged physical objects. We also report on a case study in which the technology was integrated with an enterprise resource planning system to optimize work processes that involve physical objects.

RFID

(Radio-Frequency-Identifying Device)

Toutes les étiquettes codées et repérables sur Internet Zéro

*A l'ère de l'électricité, nous portons toute
l'humanité comme une extension de
notre peau*



**VERS L'ART DE
L'INTELLIGENCE**

INDIVIDUELLE



COLLECTIVE

CONNECTIVE

Nouveaux dispositifs





Le tunnel sous l'atlantique (Maurice Benayoun)

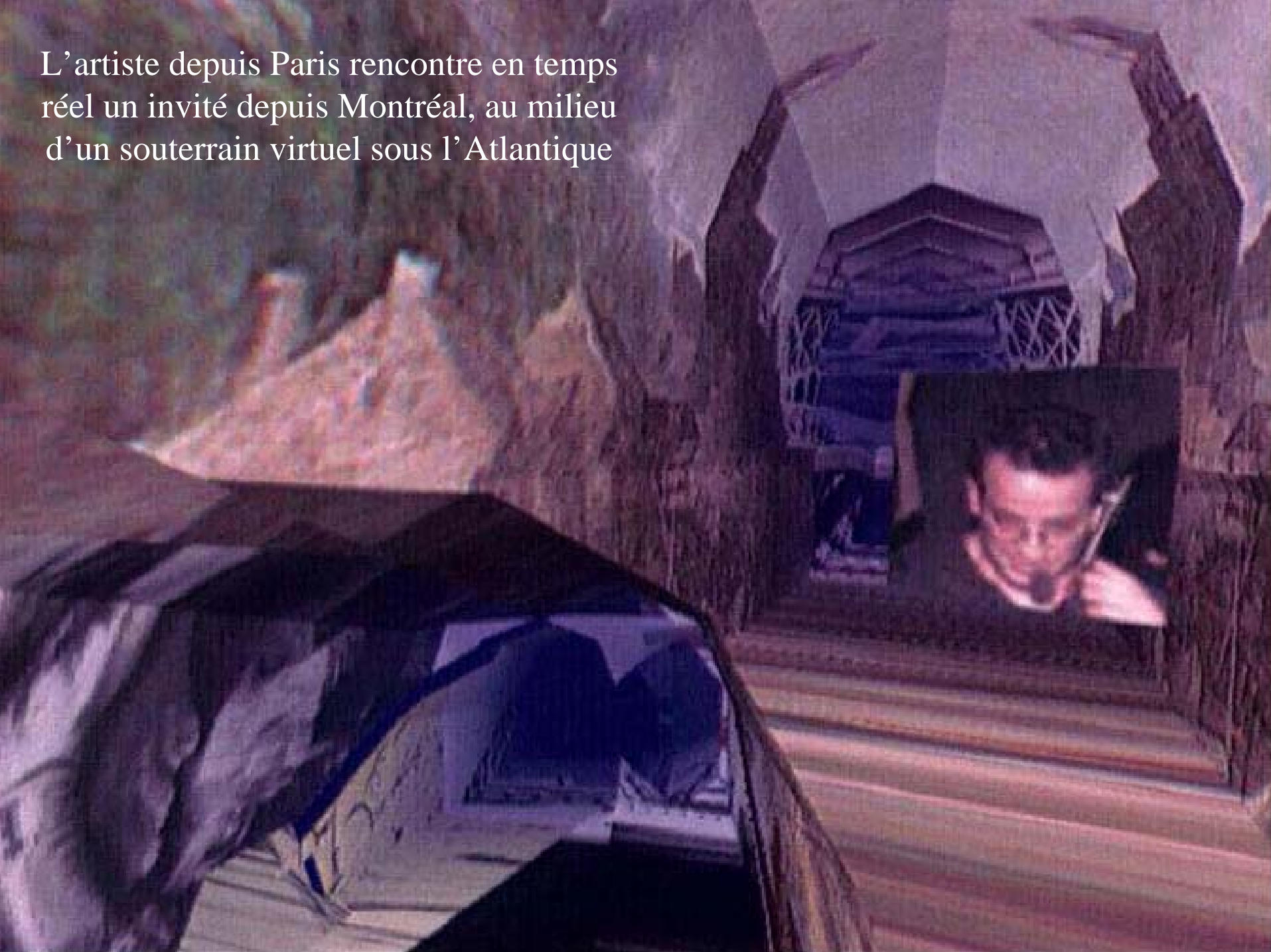
Naviguer dans des espaces virtuels

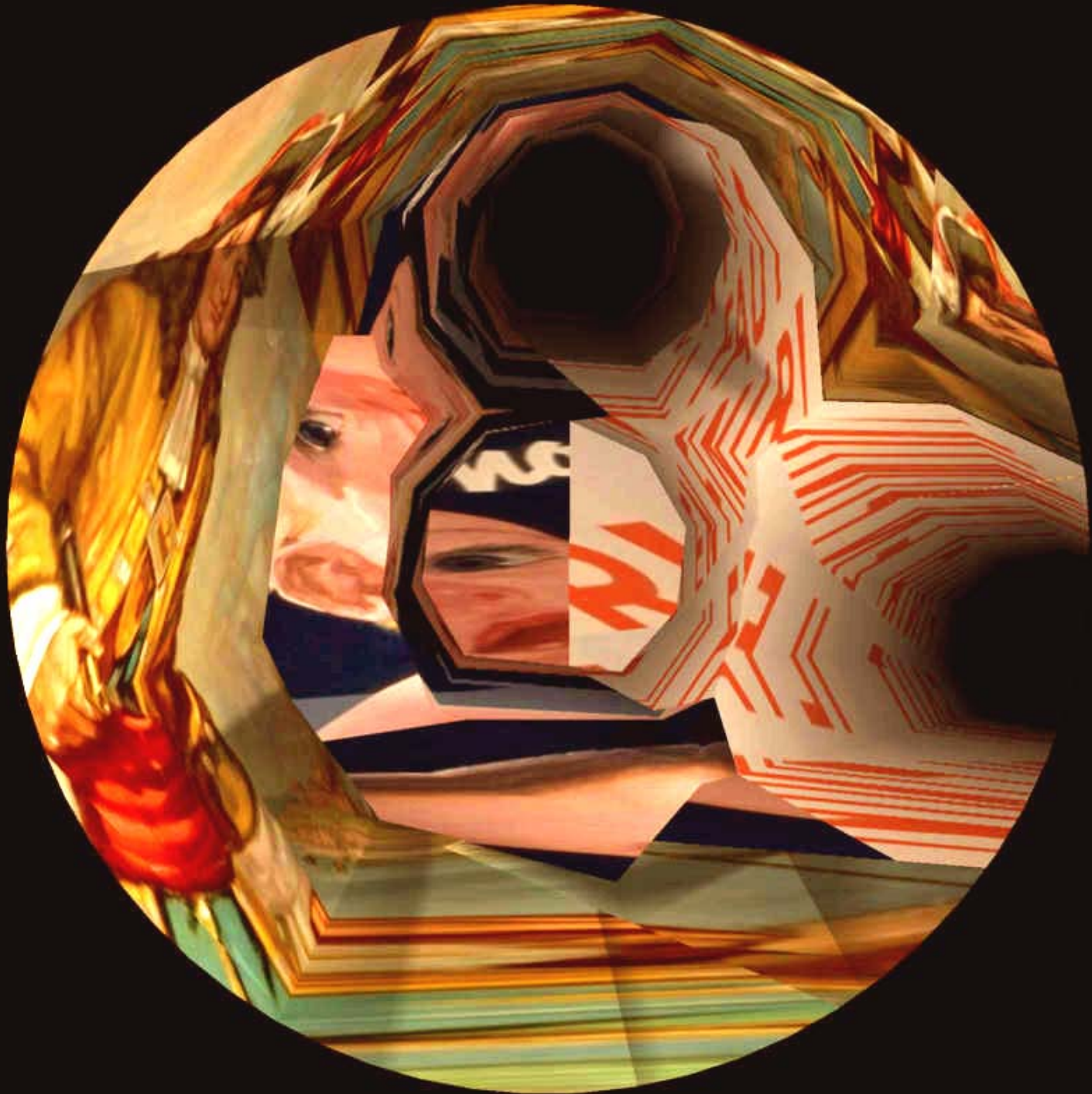




Il s'agit de creuser un tunnel virtuel entre Paris et Montréal

L'artiste depuis Paris rencontre en temps réel un invité depuis Montréal, au milieu d'un souterrain virtuel sous l'Atlantique







Alzado Vertical: Nuit du 31 décembre 1999 au 1 janvier 2000: 18 projecteurs militaires téléguidés par Internet dessinent la nuit del Zocalo à Mexico (Rafael Lozano-Hemmer)

Cosmopolis (Maurice Benayoun)



Cosmopolis (Maurice Benayoun)



Floatables d'Usman Haque est un ballon fait de centaines de bulles individuelles équipées de récepteurs-émetteurs qui répondent par des jeux de sons et lumières aux sollicitations des spectateurs sur leurs portables



Espace d'absence de communications ménagé par Usman Haque pour protéger électroniquement la vie privée des gens



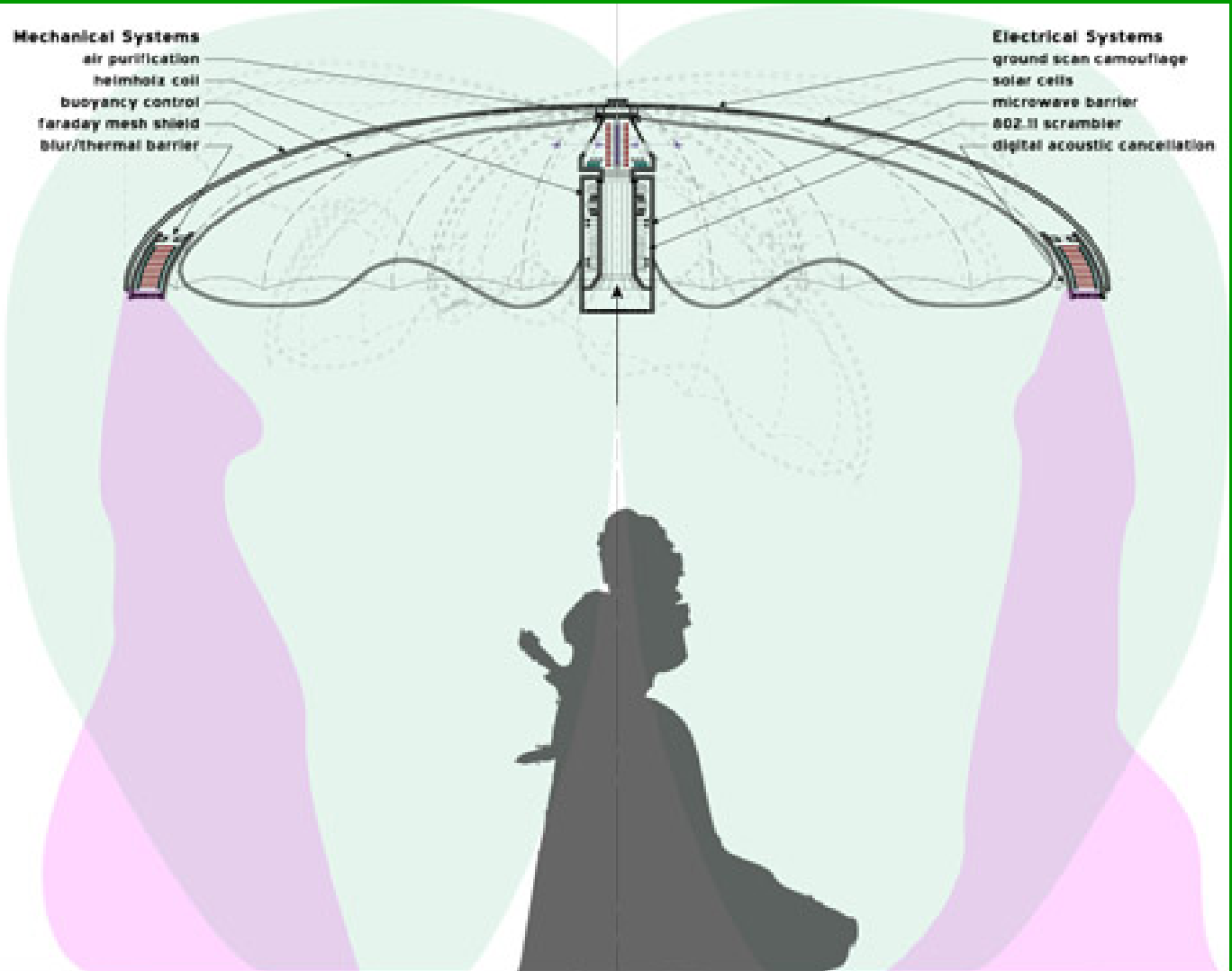
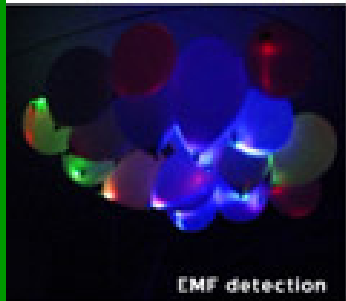
all space is public: our data shadows
follow us around, leak out of buildings,
seep out of our devices... what is needed
is a truly private space... a space of absence



- no phone calls
- no emails
- no sounds
- no smells
- no warm seat left behind
by the previous visitor
- no eye contact and no security cameras
- no GPS signals
- no 802.11 wireless networks
- no microwave emissions

the idea of HOME
no longer needs to be
tied to a particular
location... it is simply
a space of absence

Floatables (Usman Haque)



La place du village global™



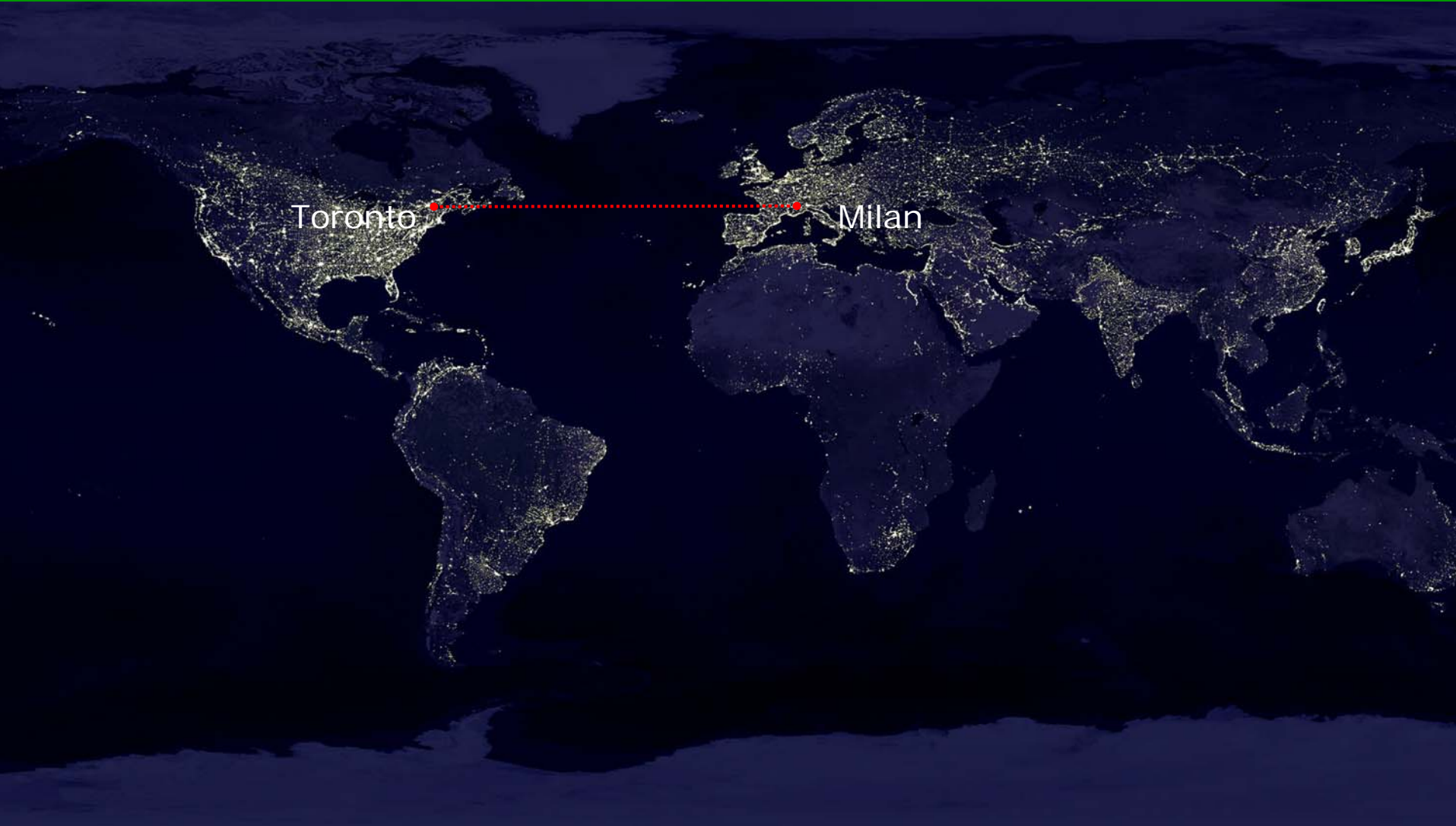
Projet d'architecture globale
Dédié à la mémoire de
Guglielmo Marconi
et de
Herbert Marshall McLuhan





Le village global

La Place du Village Global a été annoncée au cours des cérémonies de jumelage entre Toronto et Milan, le 3 juillet 2003



La galerie Vittorio
Emanuele II
à Milan





Jointe en temps réel à
la galerie Eaton à
Toronto



L'idée de la Place du Village Global n'est pas de changer le monde, mais de changer l'idée que les gens se font du monde

“Je ne l’aurais pas vu si je ne
l’avais pas cru”

