When technology disappears and interaction becomes natural

One of the topics spotlighted at this year's IST Event is* "when technology disappears and interaction becomes natural*". Workshops and exhibits will focus on advances in Ambient Intelligence and Pervasive Computing, where users need never be confronted by traditional computer screens or keyboards.

Liberating users from desks, keyboards and the 'tyranny of dumb machines' is crucial to making the power of advanced information and communication technologies (ICTs) more available to more people, more of the time.

Integrating ICTs into our daily lives more effectively is therefore considered by many as a key challenge facing the industry today. Hence the 'critical mass' of workshops, exhibits and networking sessions at IST 2003 examining the human-machine interface, disappearing computers, autonomous gadgets and advanced robots.

One 'must see' is the keynote speech by Professor Don Norman, former VP of Apple Computer and author of 'The Design of Everyday Things', 'Things That Make Us Smart', 'The Invisible Computer,' and the upcoming 'Emotional Design: Why we love (or hate) everyday things'.

Five other conference workshops explore the topic further, examining issues such as designing for people with disabilities, workplace design and artistic creation.

Virtual and Augmented Reality

Many of the ideas presented in the workshops are complemented by prototypes in the Exhibition.

Dr Norbert Streitz, for example, is Manager of the Fraunhofer Institute's "Workspaces of the Future" research division. He is chairing two workshops, one of which ("**When technology disappears and interaction becomes natural**") will feature presentations of the research results from the IST Programme's "Disappearing Computer" (DC) cluster of 17 research projects.

These results will be on display in the Exhibition's "**DC Village**", which shows how people could interact with everyday objects which have been augmented with sensing, computing and communication capabilities.

One of the DC projects with prototypes on show, for example, is **e-Gadgets,** which is working on transforming everyday objects (lights, pens, TVs, …) into autonomous "Extrovert Gadgets".

Meanwhile, other Fraunhofer staff will be displaying a range of virtual and augmented reality applications in the Exhibition's Public Zone.

Demonstrations at their "**INI-GraphicsNet: Human-Centred Technologies**" exhibit include a mobile augmented reality system, allowing users to see information (e.g., maintenance instructions) displayed directly over real objects (e.g., a car engine); virtual 3D scenarios for buying furniture and clothes; and Virtual Graffiti, allowing users to become legal graffiti artists in the Bronx, New York.

Virtual Graffiti: become a graffiti artist in the Bronx, New York, without leaving Milan

The virtual clothes shopping scenario is also explored in the **ShopLab** exhibit. There, visitors order a custom-made "virtual shirt" by selecting characteristics from a touch screen, and then immediately see themselves wearing their creation in an "interactive mirror" (*right*).

"Cutting edge" health technologies

Several prototypes in the Exhibition exploring more natural interactions with technology are medically oriented.

The **SURGETICA** exhibit, for example, features a surgical station with voice-control systems, allowing surgeons to position endoscopic cameras "hands free", and navigation systems which use "3D phantoms" of the patient to improve surgery.

The **CYBERTHERAPY** exhibit, on the other hand, will present immersive virtual environments for clinical applications. The two projects on display are studying the relationships between virtual tele-presence, mood and health. Visitors will be able to test two environments used for the treatment of eating disorders and anxiety disorders.

See robots think and learn

To explore the future of human-robot relationships, visit the **ArmHandX** exhibit, where a prototype cognitive autonomous mobile robot will be interacting with visitors as it performs a number of different tasks.

Visitors will be able to "see inside it's head" via a computer screen, which displays in real time what the robot sees, how it discovers its workspace, and how it builds this into a virtual world.

The **HAPTY and YTPAH** exhibit, among other things, also looks at interacting with robots. Visitors will be able to experiment with:

- HAPTY: an innovative glove for virtual reality applications which produces force and tactile sensations on the user's hand using electro stimulation and pneumatics;
- YTPAH: a sort of 'inverse glove', which detects forces and positions from a user making manipulations, generating data for 'imitation learning' in robotics applications.

'Interfaces' at IST 2003

Conference Workshops at a Glance:

October 3:

- 9:15-10:00: **Keynote speech:** Designing for effectiveness and enjoyment (Blue 2)
- 10:15-11:45: Natural interaction, design and artistic creation (Blue 2)
- 14:00-15:30: Multimodal interfaces for workplace design (Blue 2)
- 16:00-17:30: When technology disappears and interaction becomes natural (Blue 2)

October 4:

- 9:15-10:45: Interfaces for accessibility and integration (Blue 2)
- 11:15-12:45: Natural communication and interaction - what is needed? (Blue 2)

In the Exhibition and Networking Rooms:

There are 12 relevant **exhibits** in the "When interaction with technology becomes natural" Exhibition Zone, with several more among the European IST PrizeWinners and in the Italian Pavilion and Public Zone.

By the time the Call for Proposals had closed on November 19, moreover, 13 **networking sessions** had signalled their relevance to this topic.

More Information Online

For links to profiles of all relevant workshops, exhibits and networking sessions, select 'Spotlights/Interfaces' at:

http://europa.eu.int/information_society/istevent/

Beyond IST 2003: IST Results

Several of the exhibit profiles on the website also include links to relevant feature articles from the IST Results service (**http://istresults.cordis.lu/**).

These and IST Results features on other relevant projects funded by the EC's IST priority, finally, will also be available in paper format in the IST 2003 Press Room.