



Virtual reality © Visionair

VISIONAIR

Vision Advanced Infrastructure for Research

A picture, as the saying goes, is worth a thousand words — and advanced visualisation technologies can convey even more information. They are already contributing to advances and innovations in many areas of human endeavour. Visionair, a consortium of leading authorities from Europe and Israel, will add further momentum to the development of these powerful enabling technologies. It is establishing an integrated framework that reflects the partners' determination to pool and refine their expertise and their infrastructures.

Focusing on the bigger picture

With the help of advanced visualisation tools, life-saving operations can be performed at a distance, if it is impractical for the patient or the surgeon to travel. Sophisticated designs, models and representations can be studied from every angle. Real and imaginary environments can be simulated, responses to hypothetical situations can be examined, and complex information can be streamlined and shared. Visualisation technology empowers experts in a vast array of disciplines.

It does, however, represent a substantial investment into capacity which may not always be fully used, particularly in cases where visualisation is only relevant for specific parts of a wider scientific or engineering project. A regrettable waste of precious resources, which provides few opportunities to interact with experts who specialise in these technologies. Better access to available tools and facilities, exchanges of ideas and expertise, and joint research into potential upgrades would help to boost existing infrastructures and their impact on science and innovation across the EU. Visionair is rising to the challenge in a bid to create an integrated infrastructure that will enhance the attractiveness and the visibility of the European Research Area.

World-class infrastructure thrown into high relief

Visionair provides a range of visualisation services online and also encourages physical access to several high-level platforms, dedicating 20 % of the global usage of these platforms to applications which are selected for excellence. It will also stimulate the exchange of knowledge and best practice, impulse the definition of a PhD curriculum for visualisation specialists, support successful applicants with advice and training to ensure that they can reap the full benefit of physical access to the respective infrastructures, and engage with external research communities.

The project's activities are divided into several streams: scientific visualisation, ultra-high quality images, virtual reality, and collaborative environments including holography and augmented reality. All four rely on crucial background technologies. These include the pan-European data network for the research and education community 'Gigabit European Advanced Network Technology' (GÉANT), and increased dark fibre connections between major facilities to support the required high-speed connections for distributed uses.

In order to hone the cutting edge of services provided by the emerging integrated infrastructure, the partners are conducting research in three areas. One of these explores advanced methods for interaction and collaboration that will increase the adaptability of participating facilities for the purposes of scientific visualisation and virtual prototyping.

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Another encompasses extensions of existing technological capacity and the promotion of innovative interaction and display technologies. The third covers human-centred aspects of visualisation, for example to support the conceptual modelling conducted prior to physical design in engineering and the physical description of structures in science.



Augmented collaborative environment © Visionair



Project acronym: VISIONAIR

Funding scheme (FP7): Integrating Activities (IA)

EU financial contribution: €6.50 million

EU project officer: Bernhard Fabianek

Duration: 48 months

Start date: 1 February 2011

Completion date: 31 January 2015

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Institut Polytechnique de Grenoble (FR)

University of Patras (GR)

Cranfield University (GB)

Universiteit Twente (NL)

Universität Stuttgart (DE)

Instytut Chemii Bioorganicznej PAN (PL)

Université d'Aix-Marseille (FR)

Consiglio Nazionale delle Ricerche (IT)

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