

Join Us Now!

The VISTA project aims to be a step towards promoting scientific research in Egypt and the Middle East. Not only does VISTA provide the most advanced visualization and computing technology, but it also provides a team of trained developers to help researchers develop their applications and simulations on this system.

If you are a researcher wishing to benefit from this advanced technology, all you have to do is submit a proposal describing the idea, objectives, the expected outcome, and provide the necessary data. We are ready to help researchers working in the fields of chemistry, Medicine, Computer Science, Engineering or Architecture. Your proposal will be studied thoroughly by the VISTA team. Upon acceptance, we will contact you directly to proceed in execution.

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VISTA

Virtual Immersive Science and
Technology Applications

Perceive as Never Before



In the midst of your research, have you ever thought "If only I can see it in 3D and be immersed in it?" This is no longer far-fetched; it is now available at the BA.

In its efforts to serve science and development, the Bibliotheca Alexandrina, through its affiliated research center, the International School of Information Science (ISIS), launched the VISTA (Virtual Immersive Science and Technology Applications) project to meet the digital challenges of today. Managed by ISIS, VISTA uses the latest generation of Computer Aided Virtual Environment CAVE™ systems known as FLEX™ visualization systems.



What is a CAVE™?

CAVE™ systems are among the most practical tools of visualization during research. They enable the researchers to get immersed inside the 3D visualized results of their simulations. This allows them to experience the natural or human-engineered phenomena in a way that provides new insights and understanding.

The FLEX™ is a re-configurable visualization solution for those whose viewing, collaboration, and presentation requirements cannot be met within the confines of a single visualization technology. The system is configured with two vertical walls and a floor to form the corner of a cube, while a third vertical wall moves, at the press of a button, to change the environment from an immersive room to an L-shaped theater type configuration, enabling viewing by a large audience. This walk-in virtual reality system enables interactive work within three-dimensional computer-generated models and environments.



Perceive as Never Before

Often eliminating the need for physical models, work within virtual environments has been shown to save time and resources in both commercial and scientific research.

If you are a surgeon:

Imagine if you can see the results of your operation or attempt different trials before getting started. Immersive Visualization enables you to do that, saving a lot of pain for the patient and also time and effort, not to mention costs, and also leads to better results. Moreover, more accurate results can be obtained by employing related algorithms and mathematical models making use of the powerful computing tools.



If you are an architect:

You can have your design visualized in a walk-in effect, which enables you see it as if it is already executed and allows you to handle problems and deficiencies before it is too late.



MEDICINE

Mandibular Hypoplasia is one of the re-constructive surgeries which require more than one operation to reach desired results. Preview of the operation can be done using immersive visualization, where multiple operations can be combined into a single procedure. This virtual surgery is done in the University of Munich.



ARCHITECTURE

The Cathedral of Santa Maria Maggiore is one of the largest and most important prayer places in Rome, Italy. Now, using VISTA, anyone can visit this valuable historical monument. Viewers can go around the cathedral, examining carefully the finest details which decorate the walls, columns and the ceiling.



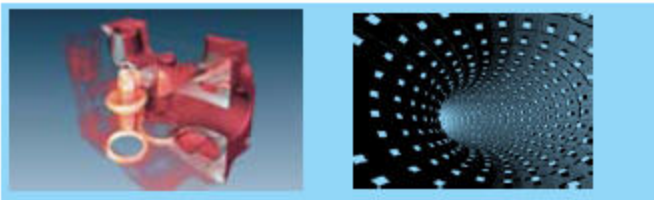
CHEMISTRY

Immersive visualization allows the researchers to live inside the molecules and study related complex phenomena, such as the electrostatic fields associated with benzene rings, in a very clear way.



ENGINEERING

Immersive visualization facilitates non-destructive investigation of structural parts or reverse engineering. The model is for a motor block constructed from a set of CT scans.



GEO SCIENCE

The virtual model shows the earth's layers. Several natural factors can also be carefully studied. This visualization is based on a seismic data set provided by the Landmark Graphics Corporation.



VISTA Projects

Bibliotheca Alexandrina Model

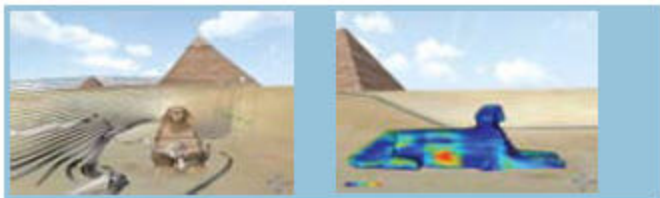
The ISIS team has created a model that is completely identical to the Library. Using the walk-in effect, you can virtually visit the Library's main building, study rooms and others and see all details, such as the Library's furniture and equipment. You can move freely from the 4th basement to the 5th floor with no restrictions. The team has also added The Bibliotheca Alexandrina Antiquities Museum, Manuscripts Museum and the permanent exhibitions: Impressions of Alexandria; the Awad collection and The World of Shadi Abdel-Salam. You can examine paintings and artifacts and see all the details.



Numerical Visualization of Low Speed Wind over the Great Sphinx:

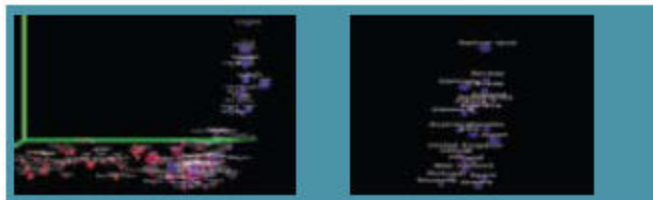
This visualization demonstration is a collaborative work between IBM and ISIS. Since the statue of the Great Sphinx is eroding due to the effects of wind, humidity and smog, this application focused on studying these phenomena and their effects on the surface of the statue. 3D sophisticated equations were solved using enormous amounts of data in order to simulate low speed wind over the great Sphinx through an immersive visualization system.

The system helped the scientists to study some phenomena that were impossible to see using traditional methods, a case in point is the secondary phenomena on the left of the statue. Results of this study will help researchers figure out techniques for protecting and preserving this colossal statue which is considered a monument of global heritage.



Socio-Economic Data Visualization

This is a case study that uses data provided by the UN. This data includes health care, life duration expectancy, literacy rate, population size, and age groups in some countries. Analyzing this multiple data, in the traditional ways, is time and effort consuming as it will be presented in many tables and graphs. However, through the visualization, you can grasp much information with a single glance. You can see the six dimensions all at the same time as well as their evolution through the past 25 years.



Theory visualization

Visualization using VISTA facilities can help in understanding complex theories, such as the Losch Theory. The Losch theory deals with the natural development of settlements into farms, villages, towns, etc. Through visualization, researchers are now able to virtually view the growth of these settlements.



Those are only examples of the huge benefits that this advanced technology can provide in fields as diverse as medicine, engineering, architecture, socio-economic analysis, seismic interpretation and well-planning, biotechnology research, manufacturing and design, fluid dynamics, and chemistry manufacturing and design.