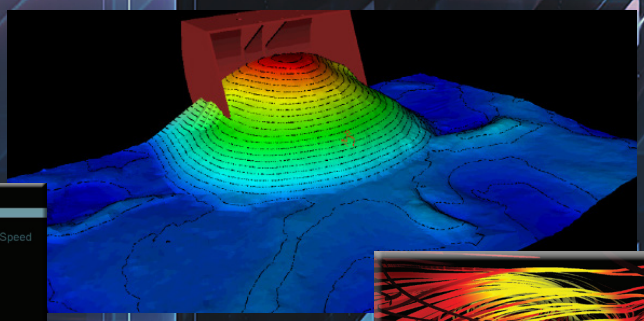
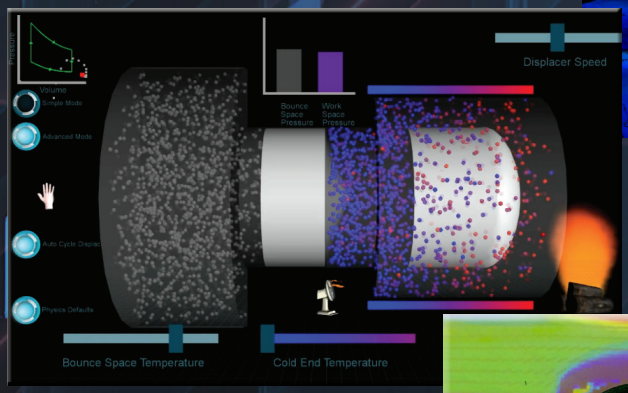
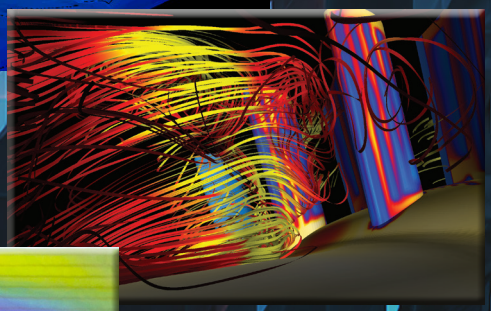
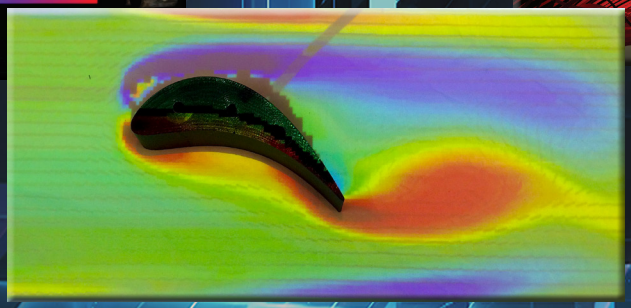
Graphics & Visualization (GVIS) Lab









The Graphics & Visualization (GVIS) Lab at the NASA Glenn Research Center provides services, expertise, and facilities for the visualization of scientific data, engineering analyses, and mission scenarios. GVIS specializes in developing custom data visualization solutions and houses the latest computer graphics and advanced interactive display technologies. Our mission is to apply the latest visualization and human interaction technologies to advance NASA missions.

The GVIS Lab provides researchers the ability to explore their data with higher resolution and more realistic interactivity than currently possible in desktop computers.

We specialize in:

- Natural User Interfaces
- Augmented/Virtual Reality
- Web-based Information Visualization
- Scientific Data Visualization

HERB SCHILLING
HSCHILLING@NASA.GOV | 216-433-8955

RICH RINEHART
RICHARD.D.RINEHART@NASA.GOV | 216-433-5211

Visit our web site:
https://ocio.grc.nasa.gov/gvis/

The GRUVE LAB

Overview

The 3D immersive CAVE™ at the NASA Glenn Research Center's Graphics and Visualization (GVIS) Lab is a reconfigurable, fully immersive walk-in virtual reality facility. It consists of three 8 by 8-ft rear-projected screens and one front-projected floor screen on which computer-generated stereoscopic images are displayed. Special sensors and I/O devices allow the user to fully interact with objects in the virtual environment. The CAVE makes use of extremely high quality mirrors and screens to display high quality images.

The GRUVE Lab is the only large scale, immersive CAVE in northern Ohio.

The CAVE is re-configurable in that it can be used in any of three layouts, according to the specific needs of your project.

Applications Include:

- Fluid dynamics analysis (CFD)
- Computer Aided Design (CAD)
- 3D photogrammetry data
- Molecular dynamics
- Virtual architectural walkthroughs
- Virtual manufacturing
- Big data and data mining
- 3D imaging, including medical imagery
- Training and education
- Biomedical research
- Showroom "theater" for tours and customers
- Education and outreach
- Building Information Management (BIM)
- Safety systems analysis
- 3D photos and videos

Benefits of Immersive 3D Environments

- Easier, more natural navigation of 3D data and 3D spaces
- Large display area encourages collaboration
- Greater resolution and display size provides both large-scale context and small-scale details
- Excellent environment to display complex technical concepts to non-technical audiences