



PowerVIZ®

FEATURES / BENEFITS

ULTRA HIGH PERFORMANCE

Interactive and intuitive handling of large data sets

SCRIPTING CAPABILITIES

Create scripts to automate standard visualization and analysis practices

DIRECT LINK TO POWERFLOW

No converting of data from other formats...with PowerVIZ you load your PowerFLOW output files quickly and easily

VIRTUAL REALITY & COLLABORATION TOOL

PowerVIZ can be customized for virtual reality systems including stereo projection for PowerWall and CAVE displays...allowing you to easily demonstrate your simulation analysis to team members

Image: PowerVIZ visualization of a truck. Surface is colored by pressure and slices with streamlines help demonstrate how the airflow moves along from the cab to the main body of the vehicle.

ROBUST, FAST SIMULATION VISUALIZATION

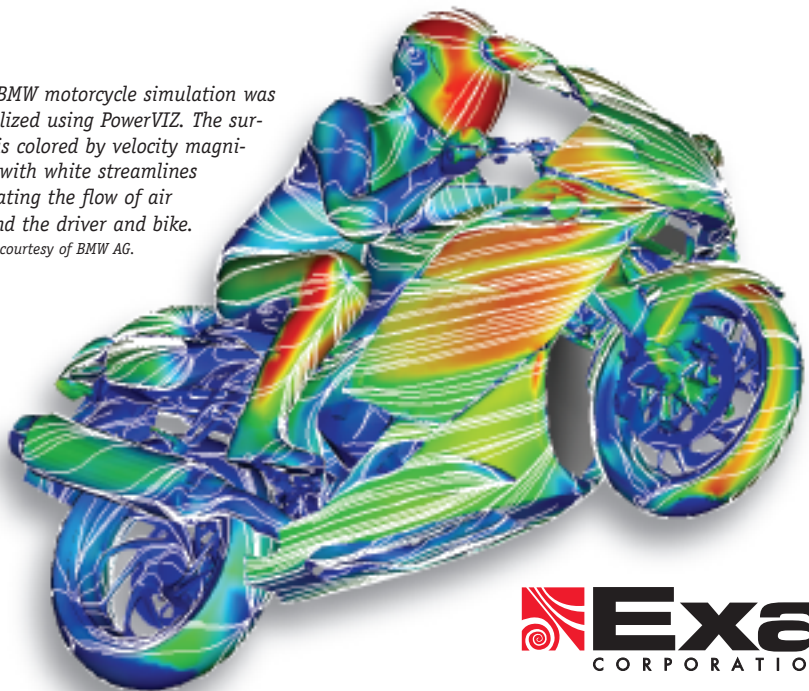
PowerVIZ is an extremely high-performance CFD visualization tool offering truly interactive analysis of Exa Corporation's PowerFLOW® simulation results. With PowerVIZ, users can use tools to virtually slide along the surface of their CAD geometry and observe how visualized flow patterns evolve and change – a feature not possible using any other commercially available software package.

PowerVIZ provides fast, interactive graphics for even the largest data sets, and offers the ability to easily combine different visualization techniques all within the same image – to truly explore your simulation data as never before.

VISUALIZATION TECHNIQUES:

- User defined variables via full featured equations language
- Simultaneously load & synchronize processing of multiple data sets
- Import arbitrary surfaces to measure flux through complex openings
- Locate variable minimums and maximums in flow field
- 2D graphs of a variable along an arbitrary line
- Vortex core detection
- View location of warnings and errors from PowerFLOW simulations
- Transient plotting of integral and average data values
- Axis-aligned & freely movable slice planes
- Particle tracing with various adaptive integration schemes
- Streamlines, streamribbons & colored isosurfaces
- Particle tracing (streamlines) for arbitrary 2D slices
- Direct reporting of numerical data and 2D graphs

*This BMW motorcycle simulation was visualized using PowerVIZ. The surface is colored by velocity magnitude with white streamlines indicating the flow of air around the driver and bike.
Image courtesy of BMW AG.*



VISUALIZATION TECHNIQUES FOR SURFACE DATA:

- Surface contours
- Force development graphs: integrated force along a user-defined line segment
- Torque calculations
- Color coding of surface geometry by surface data
- Surface particle tracing (streamlines)
- 2D graphs of surface scalar values

SCRIPTING:

PowerVIZ supports full scripting of all features via extensions to the Python language. Scripts can be recorded as the user performs actions in the GUI. Scripts can be used to:

- Automate standard analysis sequences
- Recreate a standard analysis setup
- Generate animations & movies

DATA IMPORT & EXPORT:

- PowerVIZ directly loads PowerFLOW output files without any conversion
- Transient analysis and time frame switching is as easy as pressing a button
- Screen shots and movies can be easily captured
- Numerical data can be saved in ASCII files or exported to separate tools

SYSTEM REQUIREMENTS:

- Supports most UNIX workstations and x86 systems running Windows or Linux
- Minimum hardware requirements: 3D graphics card with texture support & 512MB RAM
- Six degrees of freedom(DOF) input device (mouse) is supported
- Stereo rendering is supported
- Custom virtual reality multipipe version for PowerWall and CAVE displays (optional)

OTHER FEATURES:

PowerVIZ has an intuitive and easy to use graphical user interface (GUI).

PowerVIZ offers the option to format legends with several parameters adjustable by the user, e.g., position, size, fonts, orientation.

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