

# PowerVIZ

## FEATURES / BENEFITS

### ULTRA HIGH PERFORMANCE

*Interactive and intuitive visualization of even the largest data sets*

### SCRIPTING CAPABILITIES

*Create scripts to automate standard visualization and analysis practices*

### 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*

## ROBUST, FAST SIMULATION VISUALIZATION

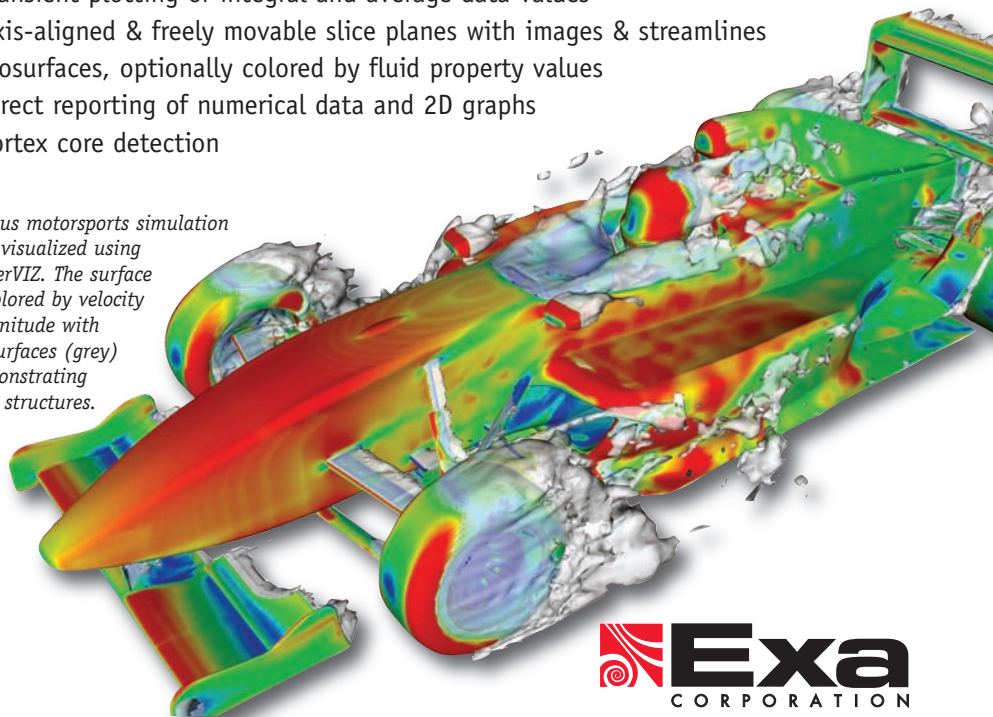
PowerVIZ® is an extremely high-performance CFD visualization tool offering truly interactive analysis of Exa Corporation's PowerFLOW® simulation results. With PowerVIZ, a user can interactively move slices, point probes, streamline rakes and particle sources throughout the fluid domain to observe how flow patterns evolve and change – a feature not possible using any other commercially available software package.

PowerVIZ provides fast, interactive visualization of even the largest data sets, and offers the ability to easily combine different visualization techniques all within the same scene – to 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
- Key frame animation to create sophisticated movies
- Import arbitrary surfaces to measure flux through complex openings
- Locate property extremes in flow field
- Soiling; tracing particles with mass
- Graphs of a variable along an arbitrary line
- 3D streamlines with line, ribbon, 3D arrow and animated 3D arrow options
- Slice planes with contours, flooded contours, 2D streamlines and vector display options
- View location of warnings and errors from PowerFLOW simulations
- Transient plotting of integral and average data values
- Axis-aligned & freely movable slice planes with images & streamlines
- Isosurfaces, optionally colored by fluid property values
- Direct reporting of numerical data and 2D graphs
- Vortex core detection

*Tatuus motorsports simulation was visualized using PowerVIZ. The surface is colored by velocity magnitude with isosurfaces (grey) demonstrating flow structures.*



## VISUALIZATION TECHNIQUES FOR SURFACE DATA:

- Surface contours
- Force development graphs: integrated force along a user-defined line segment
- Torque calculations; simple front/rear axle lift coefficient calculation
- 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:

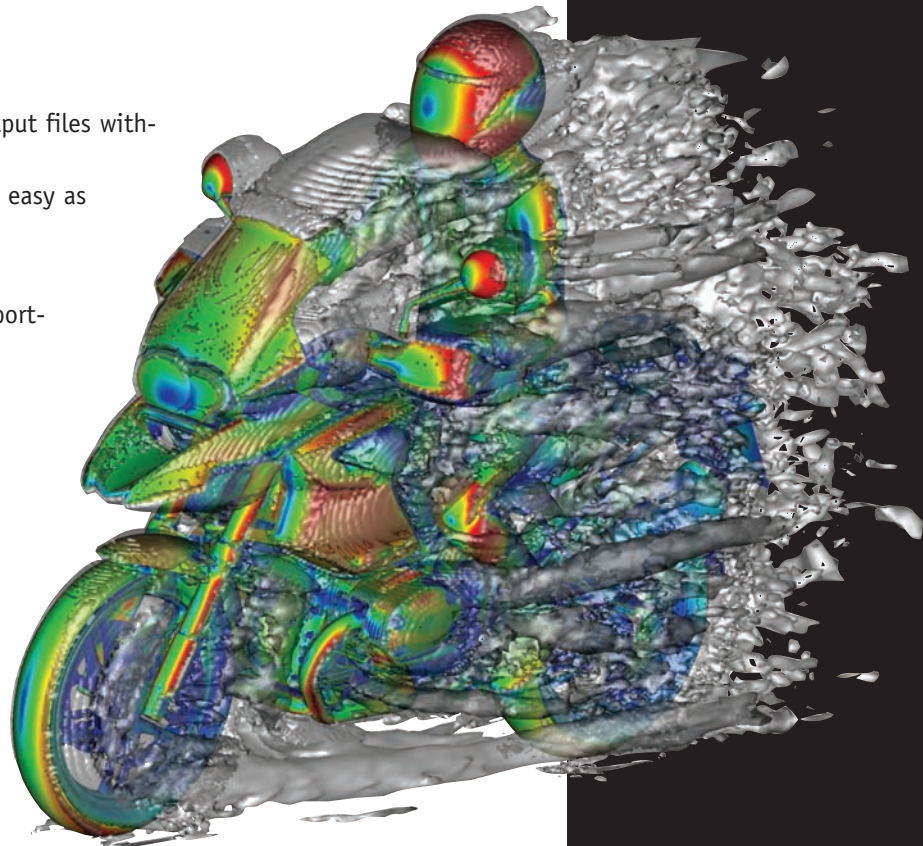
- Automate standard analysis sequences
- Recreate a standard analysis setup
- Generate animations & movies

## DATA IMPORT & EXPORT:

- PowerVIZ quickly & 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 INFORMATION & REQUIREMENTS:

- HP-UX/PA-RISC, Solaris/Sparc, Linux/x86 and Windows/x86 support
- Minimum hardware requirements: 2 GB RAM and 3D graphics card with texture support
- Six degree-of-freedom (DOF) input device (e.g., SpaceMouse) supported
- Stereo rendering supported on some systems
- Soiling (Particle Tracking) requires additional PowerVIZ Soiling license



*PowerVIZ visualization of turbulent aeroacoustic result data from PowerFLOW & PowerSPECTRUM. Image courtesy of BMW AG.*

## CONTACT INFO

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