HyperWorks®

A Platform for Innovation™

Altair® HyperMesh®

The Fastest, Solver Neutral CAE Environment for High Fidelity Modeling

HyperWorks is a division of Altair

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Altair® HyperMesh® is a high-performance finite-element pre-processor that provides a highly interactive and visual environment to analyze product design performance. With the broadest set of direct interfaces to commercial CAD and CAE systems and a rich suite of easy-to-use tools to build and edit CAE models, HyperMesh provides a proven, consistent analysis platform for the entire enterprise.

Benefits

Open-Architecture Design
Combining the broadest set of direct CAD and CAE interfaces with user-defined integrations, HyperMesh fits seamlessly within any simulation environment.

High-Speed, High-Quality Meshing
Streamlining the modeling process and provides a suite of tools to model even the most complex geometries.

Advanced Model Morphing
Delivering the most powerful model morphing tool in the industry HyperMesh allows users to modify existing meshes to meet new designs and reduce model development costs.

Increases End-User Modeling Efficiency
Using sophisticated batch meshing technology,HyperMesh eliminates the need to perform manual geometry clean-up and meshing, thus accelerating the model development process.

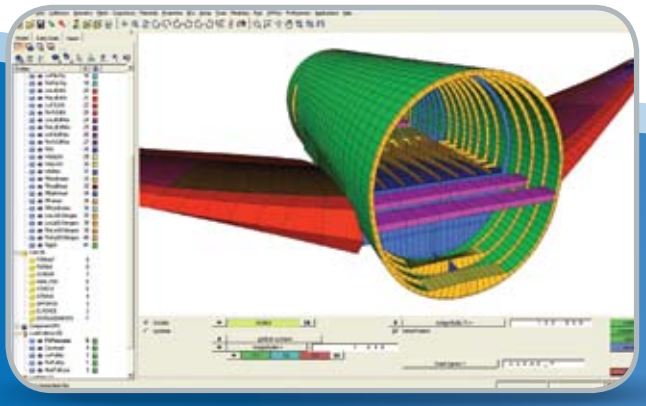
Closes the Loop Between CAD and FEA
Creating surfaces from finite element models enables analysis engineers to easily communicate and share product modifications with design teams and CAD environments.

Best In Class Meshing

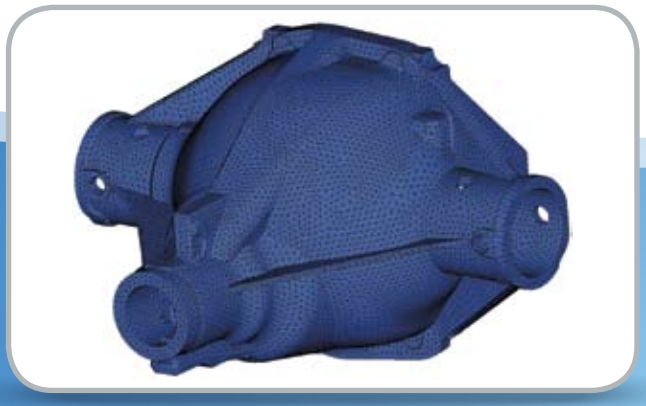
HyperMesh presents users with an advanced suite of easy-to-use tools to build and edit CAE models. For 2D and 3D model creation, users have access to a variety of mesh generation capabilities, as well as HyperMesh's powerful automeshing module.

Surface Meshing
The surface meshing module in HyperMesh contains a robust engine for mesh generation that provides users with unparalleled flexibility and functionality. This includes the ability to interactively adjust a variety of mesh parameters, optimize a mesh based on a set of user-defined quality criteria, and create a mesh using a wide range of advanced techniques.

Solid Meshing
Using solid geometry, HyperMesh can utilize both standard and advanced procedures



Modern and Efficient CAE Modeling Environment



High-performance, Process-driven Tetra-meshing

to connect, separate or split solid models for tetra-meshing or hexa-meshing. Partitioning these models is fast and easy when combined with HyperMesh's powerful visualization features for solids. This allows users to spend less time preparing geometries for solid meshing. The solid-meshing module allows users to quickly generate high quality meshes for multiple volumes.

High Fidelity Meshing
- Surface meshing
- Solid map Hexa-meshing
- Tetra-meshing
- CFD meshing
- SPH meshing

Mesh Morphing
HyperMorph is a powerful HyperMesh module for interactively and parametrically changing the shape and of a finite element model. Its unique approach enables rapid shape variations on the finite element mesh without sacrificing mesh quality, or changing node id's and element id's. HyperMorph can be used to dynamically create shape variables which can be used for subsequent design optimization studies.

Batch Meshing
The BatchMesher™ module in HyperMesh is the fastest way to automatically generate high-quality finite element meshes for large assemblies.

By minimizing manual meshing tasks, this automeshing technology provides more time for value-added engineering simulation activities. BatchMesher provides user-specified control over meshing criteria and geometry clean-up parameters as well as the ability to output to customized model file formats.

CAD Interoperability

HyperMesh includes direct readers to popular native CAD file formats. Moreover, HyperMesh has robust tools to clean-up (mend) imported CAD geometry that contain surfaces with gaps, overlaps and misalignments which hinder high-quality mesh generation. By eliminating misalignments and holes, and suppressing the boundaries between adjacent surfaces users can mesh across larger, more logical regions of the model significantly increasing meshing speed and quality. Boundary conditions can also be applied to these surfaces for future mapping to underlying element data.

- CATIA V4/V5
- PRO-ENGINEER
- UNIGRAPHICS
- ACIS
- IGES
- PARASOLID
- STEP
- JT Precise

Customize HyperMesh to Fit Your Environment

Customize your modeling experience through an easy-to-use interface containing drag-and-drop toolbars, configurable pull-down menus and keyboard-controlled shortcuts.

Custom Utilities: Create custom applications that are fully integrated within the HyperMesh interface.

Solver Input Translators: Users can extend HyperMesh's interface support by adding input translators to read different analysis data decks.

Solver Export Templates: Export templates allow the HyperMesh database to be exported to user-defined formats for proprietary and specialized solvers.

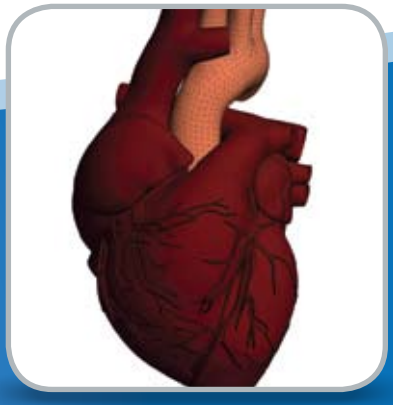
CAE Solver Interfacing

HyperMesh provides direct import and export support to the industry's most popular solvers. Along with fully supported solvers, HyperMesh provides a completely tailored environment (user profile) for each supported solver. It also provides the flexibility to support additional solvers through a unique and straightforward interfacing language.

- OptiStruct®
- RADIOSS™
- MotionSolve®
- ABAQUS
- NASTRAN
- ANSYS
- MOLDFLOW
- LS-DYNA
- PAMCRASH
- PERMAS
- MADYMO
- MARC
- FLUENT
- Star-CD

Batch Meshing for Automated Rapid Model Generation

Easily Handles Large Models and Assemblies



Flexible Modeling Tools for all Industries and Use Cases

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