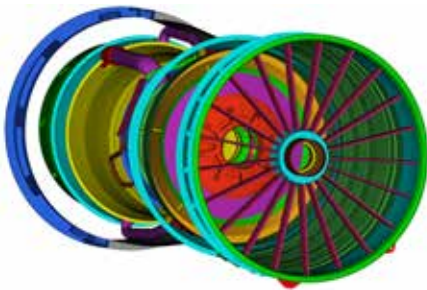
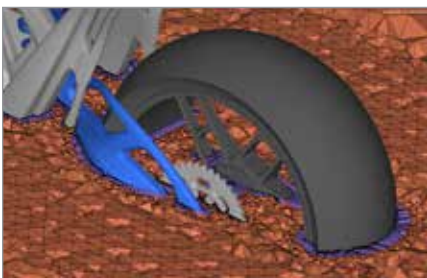


## Product Highlights

- Strong shell and solid meshing algorithms, either fully automatic or with detailed manual control
- Excellent CAD interoperability
- Comprehensive composites modeling support
- Complete interfaces to the industry's most popular solvers
- Robust connector technology for model assembly
- Extensive customization capabilities for import, export and automation



High-fidelity Model Generation for all Industries and Use Cases



High-performance CFD Meshing

# Altair® HyperMesh®

## The Fastest, Solver Neutral CAE Environment for High Fidelity Modeling

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

Streamlines the modeling process and provides a suite of tools to model even the most complex geometries.

#### One Integrated CAE Environment

Modern, configurable, and easy-to-use graphical user interface provides seamless data exchange for pre- and post-processing.

#### Advanced 3D Model Visualization

3D visualization of all element types (1D, 2D and 3D elements) within an FEA model eases model checking and visual verification.

#### 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.

#### Composites Modeling

Ply and laminate entities facilitate composites modeling in terms of individual layer shapes and their stacking sequence. CATIA CPD and Fibersim readers extract composite data and map it onto FE meshes automatically. Plies and ply angles can be visualized in 3D for easier model verification.

#### 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.

### Meshing Capabilities

HyperMesh presents 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.

#### High Fidelity Meshing

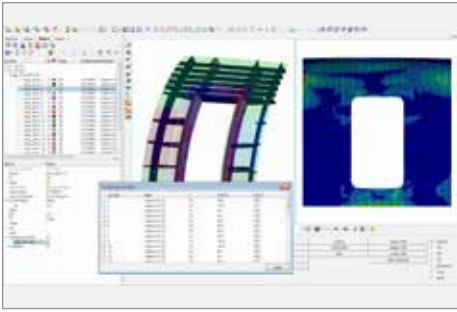
- Surface meshing
- Solid map hexa meshing
- Tetra meshing
- CFD meshing
- Acoustic cavity meshing
- Shrink wrap meshing
- SPH meshing

#### Surface Meshing

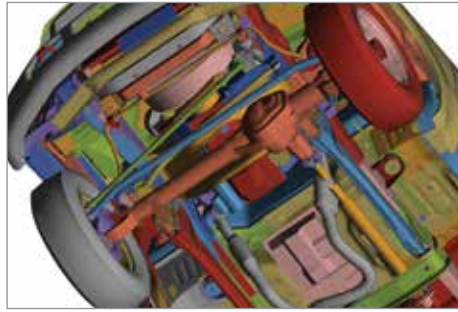
The surface meshing module in HyperMesh contains a robust engine for mesh generation that provides unparalleled flexibility and functionality. This includes the ability to interactively adjust a variety of mesh parameters, optimize a mesh based on a set of user-defined quality criteria, and create a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

#### Solid Meshing

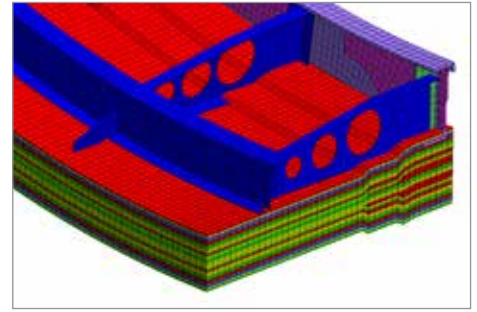
Using solid geometry, HyperMesh can utilize both standard and advanced procedures to connect, separate or split solid models for tetra-meshing or hexa-meshing. Partitioning these models is fast and easy when combined with HyperMesh's powerful visualization features for solids. This allows less time spent preparing geometries for solid meshing. The solid-meshing module quickly generates high quality meshes for multiple volumes.



Modern and Efficient CAE Modeling Environment



Easily Handles Large Models and Assemblies



Fast Composite Modeling Process and Sophisticated Layer Visualization

### 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.

### 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 and element ID's. HyperMorph can be used to dynamically create shape variables for subsequent design optimization studies.

### 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. This significantly increases 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
- Tribon
- IGES
- PARASOLID
- STEP
- JT Precise
- SolidWorks

### 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. Additionally, HyperMesh provides a completely tailored environment for each supported solver.

- Adams
- Abaqus
- Actran
- AcuSolve
- ANSYS
- CFD++
- Femfat
- Fluent
- LS-DYNA
- Madymo
- Marc
- HyperMath
- Moldflow
- Moldex3D
- MotionSolve
- Nastran
- nCode
- PERMAS
- PAM-CRASH
- RADIOSS
- OptiStruct
- Samcef
- Simpact
- StarCD



Flexible Modeling Tools for all Industries and Use Cases



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