

CAE Model/Geometry Preparation

SpaceClaim provides CAE analysts the fastest tools possible to get geometry ready for simulation. Whether de-features CAD geometry, creating new concepts from scratch, or optimizing existing models, SpaceClaim removes the geometry bottleneck and lets engineers focus on the physics. By putting simulation users in control of geometry, CAE can drive product development by optimizing models before CAD and validating results post-CAD.

Challenge

Traditional CAD tools, designed for manufacturing documentation, are not optimized for CAE experts. Before SpaceClaim, CAE users were forced to use CAD tools designed for CAD specialists or ask the CAD specialists to create or simplify models themselves. The result: wasted time and energy. All too often engineers would perform simulation until after the detailed models were complete, causing expensive last-minute change orders.

Solution

SpaceClaim's unique user interface and modeling technology enables analysts to easily create (or modify) geometry without the complexity of traditional CAD. When working with existing CAD models, simulation users de-feature and simplify geometry with automated, easy-to-learn tools. SpaceClaim is ideal for engineers who don't have time for CAD but want to get fast answers using 3D.

Advantages

SpaceClaim enables simulation experts to:

- Open native CAD models from all major systems including Pro/ENGINEER, CATIA, SolidWorks, Inventor, and NX
- Quickly repair poor geometry quality created by old legacy CAD systems and surface modelers
- Optimize CAD models for input to all major CAE products including ANSYS, COMSOL, Simulia, Algor, and Nastran
- Remove manufacturing detail (holes, rounds, chamfers, etc.) without needing to understand the original CAD models
- Make geometry modifications in minutes that could take hours in the original CAD authoring package
- Easily prepare CAD models for meshing and analysis
- Confidently work in 3D without climbing the learning curve of CAD

Benefits

- Support and enable simulation-driven design initiatives
- Empower CAE analysts to work in 3D while keeping the CAD team focused on detailed design
- Optimize the value stream between detailed design and CAE work groups
- Increase early phase CAE capacity to address innovation initiatives
- Eliminate waste and get higher-quality products to market faster
- Strong ROI, very fast pay back
- Save days or weeks by removing CAD bottleneck in CAE workflow

Case Study

[Emhart Glass Research Center – Reduce the “Heat” on Bottle Creation with SpaceClaim](#)

Case Study Excerpt:

“I don’t need rounds or sharp edges. So when preparing models, I had to get rid of sliver faces, gaps, and other model elements prior to analysis. With SpaceClaim, I can prepare models in less than 30 minutes, enabling me to quickly perform basic volume extraction and de-featuring, regardless of the size of the model. The days of deleting a model and starting all over are gone. I’ve gained back at least 50 percent of my time with SpaceClaim and am now able to focus on analysis and delivering the optimal design changes to new concepts.”

Pierre Ngankeu, Senior Mechanical Engineer

Emhart Glass