

*Dynamics for Spaceclaim is a fully integrated add-in that extends the functionality of SpaceClaim with motion dynamics for multibody systems with joints, frictional contacts and analysis, driven by the physics engine AgX Dynamics. With Luxion KeyShot present, Dynamics for Spaceclaim can feed KeyShot with simulation data for the production of photo-realistic physics-based images and videos.*

*-Dynamics for SpaceClaim brings life to your 3D-models.*

## FEATURES

- ✓ Motion dynamics for jointed multibody systems.
- ✓ Joints are automatically detected from CAD geometry.
- ✓ Dynamic contacts with dry and viscous friction.
- ✓ Contacts are automatically detected in realtime from CAD geometry.
- ✓ Highly parallelized with the fastest high precision solvers in the market.
- ✓ Easy to learn and use. Get started in 15 minutes!

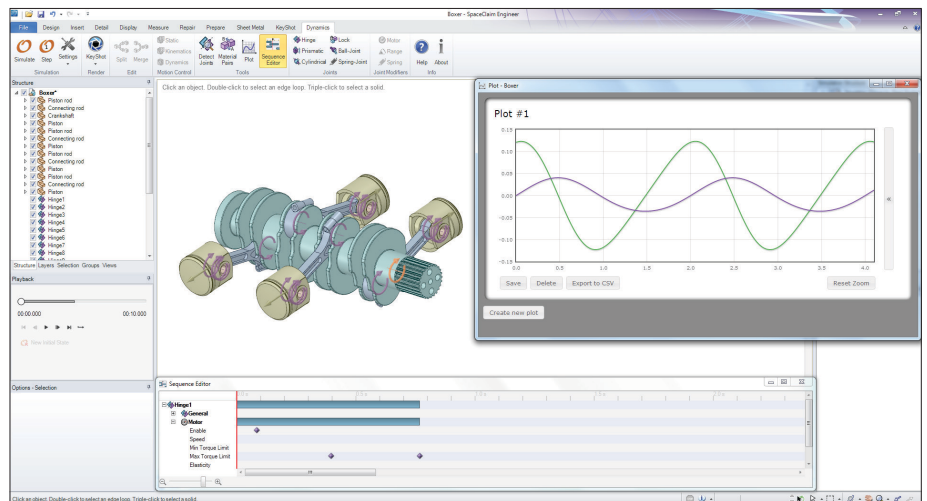
## BENEFITS INCLUDE

- ✓ Lower your production cost.
- ✓ Get your products to the market faster.
- ✓ Render sales material.
- ✓ Allows you to simulate your concepts faster.

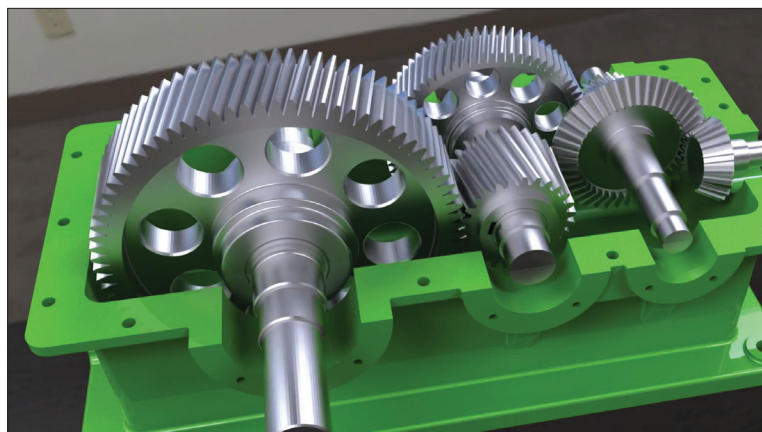
## BACKGROUND

Algoryx Simulation provides market leading industry grade physics simulation technologies to the global simulator market. Algoryx' physics engine AgX Dynamics enables human-in-the-loop realtime simulation of vehicles, ships, cranes and many other mechanical systems.

The underlying technologies are novel, based on more than 20 original peer reviewed scientific publications. For the first time, such technology has now been integrated with 3D CAD, providing engineers and designers with a tool where they can easily modify geometries and evaluate their designs in seconds using simulations with incomparable speed.



**Plot the performance of your models and control the motion with the sequence editor.**



**Gearbox with full contact dynamics between cogs rendered in KeyShot.**

## USE AREAS

- ✓ Prototyping and concept development for engineers.
- ✓ Industrial design.
- ✓ Product visualization, bid and sales modeling.
- ✓ Animation.
- ✓ Optimization of mechanical and geometric design.
- ✓ Automotive, machine, maritime, robotics, medical. Wherever there are moving parts!
- ✓ Powerful capabilities that clean up imported geometry and simplify models for analysis.

## WHY USE IT?

### **The general SpaceClaim user**

To get full leverage from 3D CAD, motion simulation is one of the most obvious extensions to just working with static geometry. Today, motion simulation is often available as an add-in to most 3D CAD systems, and in some cases, this is even integrated by default. Physics-driven animation is often the most efficient way to bring CAD models to motion, and much simpler than any other kinematic method.

### **The industrial designer**

Industrial design today is not at all just about shape, but very much also about function. With Dynamics for SpaceClaim the designer can work out new functional principles, test them, and also visualize them in live simulations and rendered videos. This allows the designer to do much of this work inside the same tool, SpaceClaim, used by both the engineers and the sales and marketing people.

### **The mechanical engineer - Concept Development**

Early in the design process of mechanical systems, Dynamics for SpaceClaim will allow the engineer to evaluate different design concepts. Here, simulation performance is crucial, since the design process often is an iterative and rather creative process. The engineer must be able to test strongly varying designs without spending precious time neither on modeling nor waiting for the simulation to finish.

### **The mechanical engineer - Analysis and Optimization**

Further into the development, the design results in a prototype that must be analyzed and optimized. The engineer can avoid detect unintended collisions between mechanical components, determine required motor strength depending on e.g. requirements on timing and loads. The plot tool can be used to follow mot variables of the simulation, and data can also be exported to third party tools for further analysis.

### **The sales engineer**

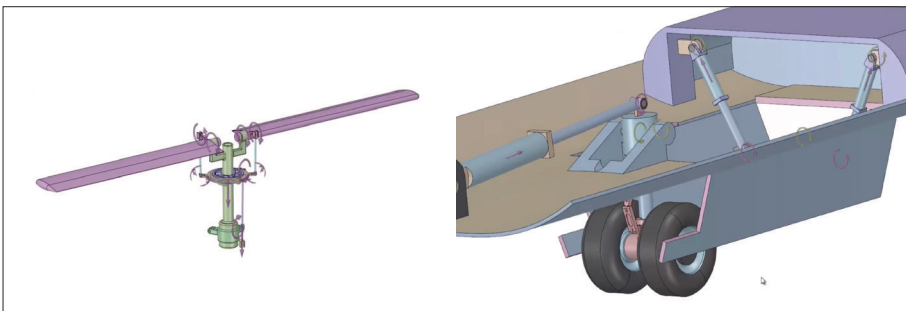
Pretty much every engineer needs to sell their work in one way or another, e.g. to clients, to colleagues, or to a manager - and maybe to themselves! Simulations in Dynamics for Spaceclaim can be viewed directly inside SpaceClaim, but also exported to Luxion Keyshot with a click of a button. Simulations can thus be used to produce product videos for marketing, bids, or simply as a pitch to a client.

## **FITS INTO YOUR EXISTING DESIGN PROCESS**

- ✓ Work with popular common formats: ACIS, STEP, IGES, ECAD, Rhinoceros, SketchUp, CGR, DWG, DXF, STL, OBJ, XAML, VRML, and 3D PDF (requires Adobe Acrobat 9 Pro Extended).
- ✓ Works with many leading CAD, CAE, and CAM tools (e.g., SpaceClaim works seamlessly with ANSYS Workbench and GAMBIT, ALGOR, CFdesign, VisualCAM/ VisualMILL; many SpaceClaim customers use COMSOL).

## **OPTIONAL MODULES**

- ✓ Luxion KeyShot photorealistic rendering and animation.
- ✓ AgX runtime environment and exporter for Dynamics for SpaceClaim.



**Motion simulation of a helicopter rotor and a landing gear of an air plane.**

## **SYSTEM REQUIREMENTS:**

SpaceClaim 2014. Operating Systems: Microsoft Windows XP with Service Pack 2; Microsoft Windows Vista, Windows 7. Video Card: Requires Full Direct X 9c, February 2007 edition or greater; hardware support, 64MB or graphics memory or higher; Shader 3.0 hardware support, 32 bits per pixel, 1024x768 minimum resolution; latest graphics driver  
CPU: Pentium 4 2.0 GHZ or Athlon 2000+ or faster; 32-bit (x86) or 64-bit (x64) processor  
RAM: Minimum: 512MB RAM (32-bit); 1Gb RAM (64-bit)

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MULTIPHYSICS AND 3D SIMULATION