

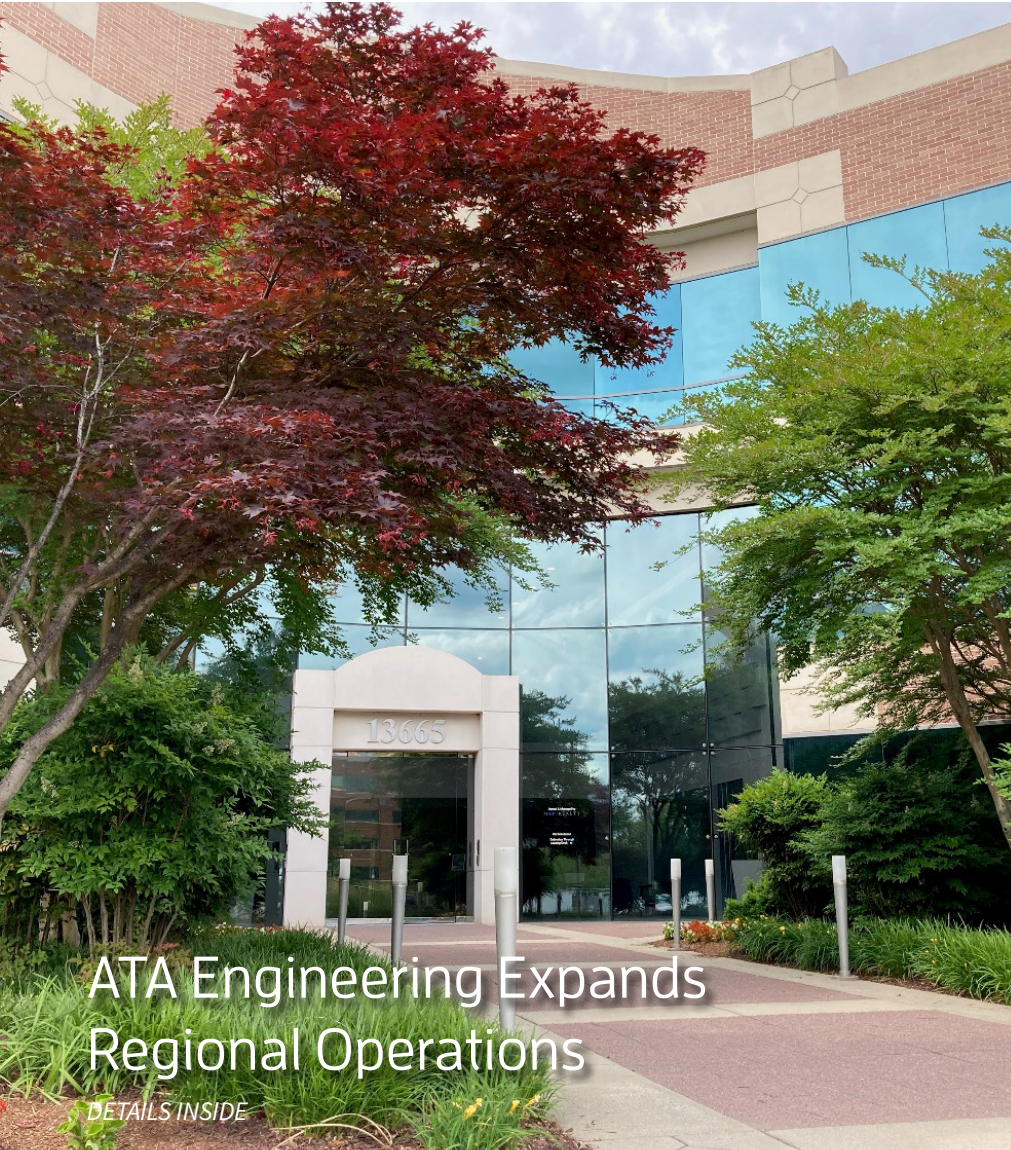
# ATA news

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ISSUE 23



SPRING 2021



## ATA Engineering Expands Regional Operations

DETAILS INSIDE

## Siemens Releases Femap 2021.2

Simcenter Femap 2021.2 has just been released, continuing the biannual schedule of feature releases each spring and fall. [Visit the Support Center](#) today to download the software and generate new license files.

The highlight of this release is new support for convergent modeling, which allows users to import/export, edit, and mesh geometry composed of triangular facets alongside more traditional Parasolid boundary (B-Rep) geometry. The ability to mesh faceted geometry in Femap is possible thanks to the new Body Mesher Technology, which leverages remeshing capabilities from STAR-CCM+ to generate high-quality meshes on complex surfaces that would be challenging and tedious to mesh with traditional workflows.

In addition to automatic geometry cleanup, the Body Mesher Technology allows Femap to mesh STL facets of topology-optimized shapes. It also enables the new Mesh on Mesh command, which can be used to remesh selected elements to improve mesh quality and/or modify mesh density.

Femap 2021.2 provides a variety of other additions and enhancements, from new options in the Mesh Control Explorer and for JT Visualization File export to expanded solver support. Learn more about this release and watch video highlights from Siemens Digital Industries Software in [ATA's recap of Femap 2021.2](#).



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# ATA Engineering Expands Regional Operations

ATA is excited to announce office additions and expansions in Albuquerque, New Mexico, Washington, D.C., and Denver, Colorado. These improvements demonstrate ATA's recent achievements, continuous growth, and long-term commitment to providing exceptional local support to our customers across the country.

At over 10,000 sq. ft., ATA's new facility in the metro Washington, D.C., area provides space for over one dozen additional engineers. It also features dedicated classroom and event spaces, as well as an electronics lab to support future robotics and material testing programs. [Learn more about ATA's Eastern Region Operations expansion.](#)

ATA has maintained a presence in New Mexico since the company's founding in 2000. The opening of our first local permanent office space, located in the Uptown area of Albuquerque, will enable ATA to increase the company's regional presence in support of the growing aerospace, defense, and energy sectors, and to provide continued engineering support to the national laboratories located in the state. [Discover more about ATA's New Mexico Operations.](#)



# Calendar of Events

## UPCOMING TRAINING CLASSES

ATA provides comprehensive training in the use of Femap, Simcenter 3D (formerly NX CAE), and Simcenter Nastran (formerly NX Nastran). Upcoming training classes are shown below. Please visit [our website](#) to sign up for these classes or request a custom class.

### FEMAP

**JUL 19** [Introduction to Femap](#)

### SIMCENTER NASTRAN WITH FEMAP

**AUG 09** [Introduction to Finite Element Analysis](#)

**SEP 20** [Multi-Step Nonlinear with Solutions 401 and 402](#)

**OCT 04** [Introduction to Dynamic Analysis](#)

**OCT 25** [Advanced Dynamic Analysis](#)

### SIMCENTER NASTRAN WITH SIMCENTER 3D

**AUG 09** [Introduction to Finite Element Analysis](#)

**SEP 13** [Response Dynamics](#)

**SEP 20** [Multi-Step Nonlinear with Solutions 401 and 402](#)

**OCT 04** [Introduction to Dynamic Analysis](#)

**OCT 25** [Advanced Dynamic Analysis](#)

## UPCOMING SEMINARS AND WEBINARS

**JUN 23** [Leveraging System Simulation to Accelerate Development of Urban Air Mobility and Distributed-Electric Aircraft](#)

See how system simulation with Simcenter Amesim empowers your team to evaluate innovative concepts at any point in your design cycle.

**JUN 29** [Simplifying Advanced Dynamic Analysis with Femap and Vibrata](#)

Discover how the powerful features and capabilities within ATA's Vibrata offer complete control for advanced dynamic analyses.

**JUL 28** [Modeling Advanced Materials with Simcenter 3D Materials Engineering, Part 2](#)

Learn how to reduce project risks while making the most of new materials and techniques.

ATA also provides a host of [free training resources](#) including tutorials, videos, and whitepapers.

# Tips and Tricks

## STAR-CCM+: REPLACE PARTS IN PARAMETRIC STUDIES

Geometric features can be easily swapped within the mesh pipeline between simulations using the Replace Part operation. For example, an investigation comparing various automobile aerodynamic wing geometries can be performed easily. The Replace Part operation can be placed in the mesh pipeline such that all mesh operations are consistent between several different simulations interrogating the performance of different wings. Solver settings and boundary conditions are carried through to the new simulation and applied on the new geometry. The STAR-CCM+ user only needs to select the new replacement part in the Replace Part node before reexecuting the Operation Pipeline. Efficiency can be further increased by specifying the name of the replacement part with a global parameter and using Project Manager to dictate the new part parameter value.

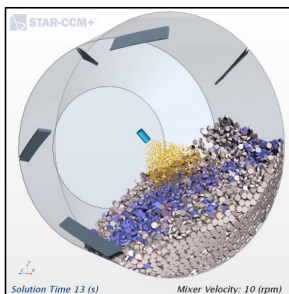
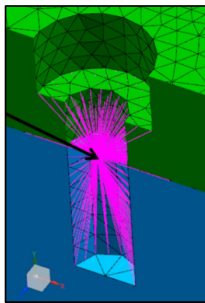
## NX, SIMCENTER 3D, AND FEMAP: ON-CONTEXT HELP

Pressing the F1 key in NX, Simcenter 3D, and Femap launches context-sensitive documentation based on the active command or active user-interface pane. Opening to the applicable help page allows users to quickly learn more about how commands work and what the available options do.

# New Resources

## [On-Demand Webinar: Modeling Bolted Joints in Femap and Simcenter Nastran](#)

This webinar shares the best practices associated with simplified fastener representations, with a focus on approximations using rigid and beam or spring elements, which still provide realistic stiffness representations and can even enable robust strength assessment of each bolted joint.

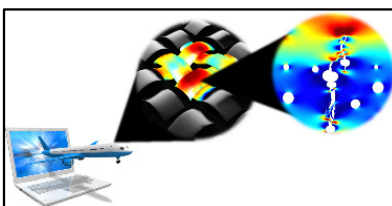


## [On-Demand Webinar: Improving Operations – Coupling DEM and CFD to Optimize Particulate Flows with STAR-CCM+](#)

The discrete element method (DEM) provides accurate prediction of solid particle flow, particle accumulation and blockage, segregation by particle size, and surface wear in solid material handling and processing equipment, and it is also able to predict energy consumption from running the process or machinery. This webinar considers applications where DEM and CFD can be coupled to solve problems that involve both fluid and granular phases together.

## [Simcenter 3D: Modeling Advanced Materials, Part 1](#)

This webinar showcases a new technology that provides essential material modeling capabilities at multiple scales. Whether you are dealing with high-temperature composite materials, 3D-printed parts, woven textiles, or porous materials, Simcenter 3D Materials Engineering can help you characterize your materials and use these material models efficiently within Simcenter 3D.



# Recent News

## ATA Engineering Receives Motiv Space Systems' Outstanding Partner Award

Over a five-year period starting in 2015, more than twenty ATA engineers supported the development of the Mars Perseverance robotic arm and Mastcam-Z lens assembly with structural analysis and test support. [Learn more](#) about how ATA supported Motiv and the design of these critical components.

## ATA Releases IMAT 7.7.0 and Vibrata 3.4.1

[IMAT 7.7.0](#) simplifies transforming FEMs or mode shapes into different coordinate systems and adds a new capability for evaluating forces and loads about a location in a selected section cut. DMI matrices are now retained in the original matrix size to facilitate further calculations.

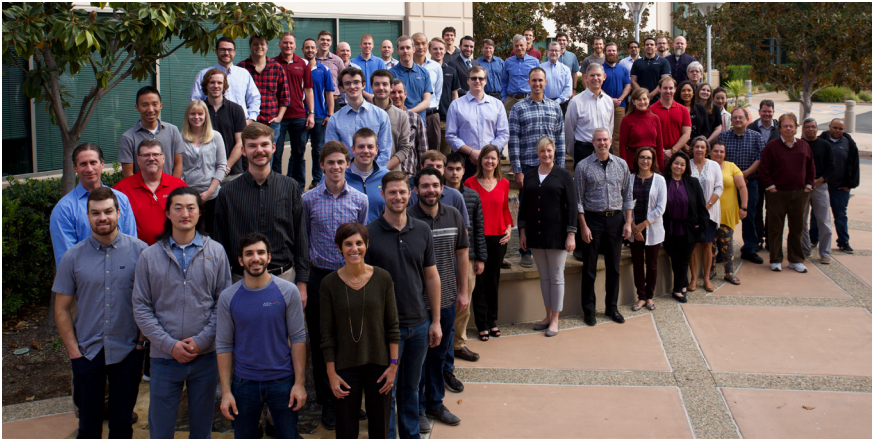
[Vibrata 3.4.1](#) adds support for sine force limiting. In addition, memory usage has been optimized to allow for the processing of larger OP2s, and excitation inputs can be edited as of Vibrata 3.4.0.

## Looking Ahead to Simcenter 3D 2021.2

NX recently introduced Structure Designer to speed up and automate tasks associated with modeling of frame structures. The upcoming release of NX 1980 and Simcenter 3D 2021.2 will take this one step further with [automated beam modeling](#). Users can now prepare geometry and create 1D beam models in seconds. Simcenter 3D 2021.2 also introduces [multiple tabbed windows](#), which allow users to view idealized parts, FEMs, and assembly FEMs simultaneously.

## Realize Live, Now On Demand

If you missed or would like to review sessions from Realize Live, select content is available on demand through June 25, 2021. [Review the agenda](#) today.



# Why choose **ATA**?

ATA Engineering is a nationwide provider of innovative, high-value, test- and analysis-driven mechanical engineering design solutions.

With more than four decades of experience working with our customers to solve the most challenging design, test, and analysis problems, we have gained a reputation for excellence in the engineering community.

Our work on a wide range of products across a broad spread of industries has been recognized with numerous technical and service awards for excellence. This expertise and support is a key part of the added value we offer to all customers who purchase Siemens products from us, whether you are an independent contractor or a large engineering team. To provide best-in-class support to our VAR software customers, we have established a formal hotline system that provides on-demand support to resolve technical issues encountered by our customers in their implementation of the tools.

The hotline is staffed by experienced engineers, all of whom use these applications on a regular basis. ATA is also the Siemens preferred training provider and official developer of courseware for all Simcenter Nastran training.

## ATA Technical Support

Need technical assistance? Call our hotline staffed by engineers at **877-282-4223**, or [visit us online](#). Even if you're not a current ATA customer, try us out for free.

## Free Software Trials

[Contact us](#) for more information about free trials/demos of Femap and Simcenter Nastran, NX CAD and CAM, Simcenter 3D, Simcenter STAR-CCM+, Teamcenter, and Solid Edge.



ATA Engineering, Inc., is recognized as a Smart Expert Partner with validated expertise in Femap, Simcenter 3D, and STAR-CCM+.

## Featured Instructor

Patrick Archambeau



Mr. Archambeau is a senior technical advisor in ATA's Lakewood, CO office, with over twenty years of experience using Nastran, Femap, Simcenter 3D, and their predecessors to solve engineering design and analysis problems. His expertise is in the structural analysis of metallic and composite structures under static and dynamic loading environments. His primary focus is on aerospace structures, including launch vehicles, satellites, rovers, and crewed space vehicles. He has also supported projects in many other areas, such as military, heavy industry, themed entertainment, and consumer products.

In addition to teaching the Intro to Dynamics with Nastran and other introductory Nastran courses, Mr. Archambeau has also served on the CAE hotline, responding to customer questions on Femap, Simcenter 3D, and Nastran.

Mr. Archambeau received his bachelor of science degree in mechanical engineering from Michigan Technological University and his master of science degree in aerospace engineering from the University of Michigan.

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