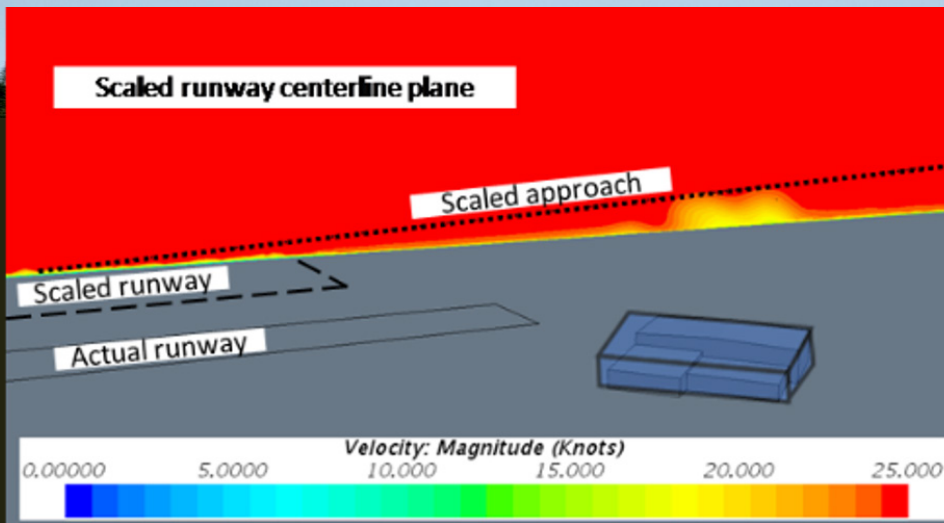


SOFTWARE newsletter

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Featured Case Study: CFD Analysis of Hangar Wake Effects

DETAILS INSIDE

Introducing Vibrata 5.3.0

We're excited to announce the release of Vibrata 5.3.0. This update delivers a significant infrastructure modernization while introducing valuable new features and important bug fixes. We strongly recommend that all users upgrade to this latest version.

Among the highlights, Vibrata now offers full support for dark themes, providing a more comfortable experience in lower-light environments. It also adds support for Nastran OP2 files created using the OMODES case control, which lets users select specific modes and generate smaller OP2 files than the previous effective mass threshold approach alone. On the stability side, this release corrects an issue where a newly created VRA5 file could become corrupt if Vibrata closed unexpectedly, and it resolves a GUI crash that would occur during loading of certain OP2 files containing rigid body modes when all the frequencies are exactly zero.

Vibrata 5.3.0 requires MATLAB Runtime R2025b and supports MATLAB versions R2023b through R2026a (note that it does not support MATLAB 2024a due to a known issue in MATLAB).

Download the latest release from [ATA Vibrata Downloads](#). For questions, support, or to report issues, please contact vibrata@ata-e.com.

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Featured Case Study:

CFD Analysis of Proposed Hangar Wake Effects to Support Safe Airport Operations

When new structures are planned near active runways, an understanding of their impact on local airflow is essential for safe aircraft operations. ATA used Siemens Simcenter STAR-CCM+ to evaluate how a proposed helicopter hangar would affect aircraft approaching a nearby runway, providing airport stakeholders with the engineering insight needed to make informed planning decisions.

The project combined steady Reynolds-averaged Navier-Stokes (RANS) simulations with high-fidelity transient computational fluid dynamics (CFD) analyses to characterize the hangar's aerodynamic wake. Initial steady-state simulations identified the most critical wind directions, and transient simulations captured the unsteady flow behavior and revealed significant instantaneous wind fluctuations that could affect aircraft during landing.

Using the resulting flow-field data, ATA engineers quantified changes in headwinds, crosswinds, downwash, wind shear, and turbulent velocity fluctuations along the aircraft approach path. A dimensionless scaling analysis was also performed to evaluate the proposed hangar design against the existing structure, demonstrating that the larger building would generate a stronger wake and increase the likelihood of aircraft encountering disturbed airflows.

The study provided airport authorities with quantitative data to evaluate the feasibility of the proposed hangar and supported recommendations for operational precautions, including Notices to Airmen (NOTAMs), for specific wind conditions. Leveraging the advanced meshing, turbulence modeling, and transient simulation capabilities of STAR-CCM+, ATA delivered a defensible technical assessment that translated complex CFD results into practical guidance for aviation safety and infrastructure planning.

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

OCT 19 [Introduction to Femap](#)

SIMCENTER NASTRAN WITH FEMAP

AUG 10 [Introduction to Finite Element Analysis with Femap for Pre/Post](#)

SEP 14 [Introduction to Dynamic Analysis with Femap for Pre/Post](#)

OCT 05 [Advanced Dynamic Analysis with Femap for Pre/Post](#)

SIMCENTER NASTRAN WITH SIMCENTER 3D

AUG 10 [Introduction to Finite Element Analysis with Simcenter 3D for Pre/Post](#)

SEP 14 [Introduction to Dynamic Analysis with Simcenter 3D for Pre/Post](#)

SEP 21 [Response Dynamics](#)

OCT 05 [Advanced Dynamic Analysis with Simcenter 3D for Pre/Post](#)

UPCOMING EVENTS

Connect with ATA Engineering at these upcoming industry events.

JUL 28 [Modeling of Propellant Slosh Using Nastran Incompressible Fluid](#)

AUG 4-6 [Fundamentals of Environmental Vibration Test Master Class](#)

Registration details coming soon:

AUG 05 STAR-CCM+ and Simcenter X Licensing

AUG 12 Corvid HPC Overview

AUG 13 Simcenter X

AUG 18 NX Fibersim

TBD **Femap Symposia:** In late August/early September, ATA will host our annual Femap Symposia where you can learn about new Femap features, practical simulation techniques, and real-world engineering applications.

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

Tips and Tricks

FEMAP/NASTRAN: AVOIDING A PCOMP FAILURE THEORY PITFALL

When PCOMP laminate properties are used in Nastran, a common source of frustration is receiving a fatal error when enabling composite failure theories such as Hoffman, Hill, or Tsai-Wu, even though the model runs successfully when the failure theory is set to "None." In many cases, the issue is not with the laminate layup itself but with missing material allowables. One frequently overlooked requirement is the bond shear allowable, which Nastran uses when evaluating composite failure criteria. Without this value, the solver may reject the PCOMP definition and terminate before analysis begins. Adding the bond shear allowable can resolve the error and enable the calculation of both laminate stresses and failure indices. This solution serves as a good reminder that composite failure analysis often requires additional material strength inputs beyond the basic orthotropic stiffness properties used for linear stress analysis.

STAR-CCM+: EXPORTING TRANSIENT CFD DATA FROM STAR-CCM+ TO MATLAB

Many engineers assume that they need a custom script or third-party utility to extract transient pressure data from a STAR-CCM+ .trn file for postprocessing in MATLAB. However, STAR-CCM+ includes a built-in workflow that can automatically generate MATLAB-compatible .mat files. By importing the .trn file as a CAE model and using the Data Set Functions tool to create a surface time-history dataset, users can extract pressure time histories directly from imported surfaces. Once the dataset is configured and activated, STAR-CCM+ automatically processes the data and writes the results to a .mat file in the simulation's function_data directory. The same workflow can also be extended to generate Fourier transform datasets for frequency-domain analysis, eliminating the need for manual data conversion and streamlining the path from CFD results to MATLAB postprocessing.

New Resources

[Laser Vibrometer for Vibration Measurement and Modal Analysis](#)

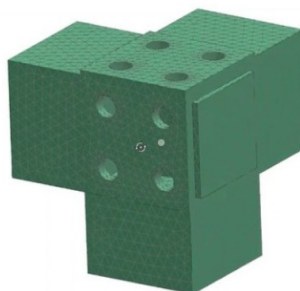
Learn how scanning laser Doppler vibrometers (SLDV) enable highly accurate, noncontact vibration measurements for aerospace, automotive, and naval applications. In this tutorial, ATA engineers explain the fundamentals of laser vibrometry, demonstrate operational modal analysis workflows, and show how to extract and validate modal parameters using Siemens Testlab and Testlab Neo.

[Saving Time with Assembly FEMs in Simcenter 3D](#)

Discover how assembly FEMs in Simcenter 3D can help streamline finite element modeling workflows, especially when you are working with repetitive structures or multiple instances of the same part. In this discussion, ATA experts explain the fundamentals of assembly FEMs, demonstrate techniques to accelerate meshing, and share best practices for maintaining consistent node and element numbering. Learn how to improve efficiency, reduce redundant effort, and get more value from your Simcenter 3D simulations.

[Simcenter X Advanced Onboarding Guide](#)

Accelerate your adoption of Simcenter X with this comprehensive advanced onboarding guide. Designed for engineers and simulation professionals, the guide covers software installation, cloud-based licensing, token management, data management, authentication, and best practices for working with Simcenter 3D, Simcenter STAR-CCM+, Amesim, HEEDS, and Femap. Whether you are new to the platform or looking to optimize your workflows, this resource will help you get up and running quickly while maximizing the value of your Simcenter X environment.



Recent News

Siemens Realize LIVE

Members of ATA's Software VAR team recently attended Siemens Realize LIVE Americas 2026 in Detroit, Siemens' premier user conference for engineering and digital transformation professionals. This year's event highlighted the growing role of AI, digital twins, and the integration of Altair technologies into the Siemens portfolio. ATA connected with customers, Siemens product teams, and industry partners while gathering insights into upcoming developments across products. We look forward to sharing what we learned and helping our customers take advantage of these emerging capabilities.



ATA Recognized Among Southern California's Top Aerospace & Defense Companies

ATA Engineering was recently featured by Business by LA Times Studios as one of the Top 50 Aerospace & Defense Companies in Southern California. ATA is honored to be recognized among the region's leading aerospace and defense organizations, and ATA remains committed to delivering engineering analysis, test, and software solutions that help customers solve complex technical challenges to achieve mission success.

Read the full story [here](#).



Why choose ATA?

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

With nearly five 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 are 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.



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Featured Instructor

Miles Hatem



Miles Hatem is a senior project engineer in ATA's Herndon, Virginia, office. While he is well versed in linear and dynamic analysis, his expertise is in nonlinear analysis involving plastically deforming metallic materials through contact with other bodies. Miles' most commonly used tools include Simcenter 3D, Simcenter Nastran, and Femap. In addition to project work, he supports ATA's customer hotline.

He has worked on projects for the entertainment and defense industries but has spent the majority of his career on aerospace projects. These projects have involved design and analysis of communication satellites, science instrument packages on Mars rovers, orbital-class liquid-fueled engines, and many others. Additionally, he has analyzed high-performance solid rocket motor systems, composite radio antenna reflectors, and composite aircraft structures. He also shares his experience by teaching ATA's class on SOL401/402 nonlinear Nastran solution sequences. Mr. Hatem has both a Bachelor and Master of Science degree from Purdue University, specifically from the school of Aeronautics and Astronautics.

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PLATINUM EXPERT

SIEMENS

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