NEWS RELEASE

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VABS 4.0 Improves Simulation of Composite Helicopter, Air Mobility Blades and Other Slender Structures

New Capabilities for Calculating Strength and Safety of Cross Sections under Given Loads

West Lafayette, Indiana (USA) - AnalySwift, LLC, a provider of efficient high-fidelity modeling software for composites and other advanced materials, announced today the official release of the newest version of its popular blade modeling software, VABS.

Originally developed to address the challenge of quickly and accurately modeling complex helicopter rotor blades, the VABS software rapidly found applications helping engineers in a wide variety of industries. Also used today for wind turbines, urban air mobility, landing gear, industrial tubes, and golf clubs, VABS provides engineers an even better understanding of the products they are designing or analyzing.

"We are excited for the new doors this opens for both current and new users," said Allan Wood, president & CEO, AnalySwift. "VABS continues to deliver on its ability help blade engineers arrive at the best solution more quickly for helicopters, urban air mobility, wind turbines, and more."

"Perhaps the most significant improvement of VABS 4.0 from previous versions is that users can now use VABS to evaluate the strength and safety of a cross section under given loads," said Dr. Wenbin Yu, CTO AnalySwift.

The tool can now perform the following capabilities, in addition to existing ones critical to modeling slender shapes made from composites:

New Capabilities of VABS 4.0

- Compute pointwise distributions of failure indexes and strength ratios over the cross section under given load.
- Compute the safety margin of the cross section under a given load.
- Output the nodal stress/strain values according to the original numbering of the finite element nodes.
- Output the complete set of engineering properties commonly used in conventional beam analysis including extension stiffness (EA), torsional stiffness (GJ), principal bending stiffnesses (EI22; EI33), principal shear stiffnesses (GA22; GA33), tension center, shear center, principal inertia axis, principal bending axis, and principal shear

axis.

The Challenge of Engineering Composite Blades

Representing real composite blades and other slender structures in a computer model would typically require billions of degrees of freedom to accurately capture all the engineering properties, overwhelming available computing resources.

Realizing these challenges in the aerospace industry 30 years ago, the US Army began funding development of a software technology called VABS to model composite helicopter rotor blades. The software matured over time to compute all the properties of composite rotor blades efficiently and accurately by modeling the very complex blades using simple engineering beam theories. Using VABS, engineers gained the ability to confidently evaluate the performance of existing composite blades, as well as design blades for desired behavior, naturally setting the stage to move beyond aerospace to tackle problems in other industries, including renewable energy and more.

VABS is a general-purpose cross-sectional analysis tool for predicting structural properties and 3D stresses/strains/failure status of slender composite structures, including helicopter, eVTOL/UAM, and wind turbine rotor blades, propellers, landing gear, wing sections, golf clubs, beams, poles, columns, tubes, and many more. VABS provides the best composite beam theory, which can handle arbitrary sections and calculates the most accurate beam properties and layer-wise 3D stresses/strains/failure status.

About AnalySwift
AnalySwift, LLC is a provider of composite simulation software, which enables an unprecedented combination of efficiency and accuracy, including multiphysics structural analysis and micromechanics modeling. Drawing on cutting edge university technology, AnalySwift's powerful solutions provide customers a competitive advantage through drastic reductions in engineering time, virtual testing earlier in the design process, and handling of more complex composite structures. The company's technologies deliver the accuracy of detailed 3D FEA at the efficiency of simple engineering models, cutting analysis time by orders of magnitude. SwiftComp is licensed from Purdue Research Foundation. VABS is licensed from Utah State University, Georgia Institute of Technology, and Purdue University. Find out more at analyswift.com.

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