NEWS RELEASE

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Air Force to help fund AnalySwift, Weber State Project Aimed to Improve Advanced Air Mobility

Contract funds effort to extend cutting-edge helicopter blade simulation software to the composite blades used in the rapidly expanding Advanced Air Mobility (AM) market

West Lafayette, Indiana (USA) – If you mentioned "flying cars" a few years ago in conversation, you'd likely conjure farfetched images from science fiction. Today, this concept is closer than further from becoming a reality thanks, in part, to the US Air Force's recently launched Agility Prime, a new traditional program seeking to accelerate the commercial market for advanced air mobility vehicles (i.e., "flying cars").

These vehicles, often referred to as OEMs by the Air Force, include Advanced Air Mobility (AAM), Urban Air Mobility (UAM), Electric Vertical Takeoff and Landing (eVTOL), and more. With varied applications, including urban transportation, cargo transportation and product delivery, medical evacuation, firefighting, disaster relief, security, and search and rescue, these vehicles have uses far beyond defense.

AAM vehicles have several defining features, one of which is they all hover on rotor blades. However, despite great strides in understanding and modeling rotor blades for larger vehicles, such as helicopters, blades for these smaller vehicles are part of an emerging market with unique features and characteristics of their own.

Helping address this challenge, AnalySwift, LLC, is partnering with Weber State University (Weber State), Brigham Young University (BYU), Utah Advanced Materials and Manufacturing Initiative (UAMMI), and Hexcel. The contract is funded through the Air Force's Small Business Technology Transfer (STTR) program, which funds small businesses partnered with research institutions to conduct cutting-edge research and development relevant to the agency.

Specifically, the contract with US Air Force's AFWERX program is to develop a framework for the design of composite rotor blades used in Advanced Air Mobility vehicles. While blades made from composite materials offer many advantages to traditional materials in terms of weight and performance, they are complex and difficult to model. Such blades can be made of dozens of separate layers of advanced composite materials, creating challenges when conducting design and analysis. For instance, representing these blades in a computer model could require billions of degrees of freedom to accurately capture all the engineering properties, overwhelming even high-end computing resources.

Realizing these challenges for helicopter rotor blades over 30 years ago, the US Army began funding development of an engineering software technology called VABS. Through sorting