DARcorporation
Design • Analysis • Research

January 2021

Announcements

DARcorporation Celebrates 30 Years of Engineering Excellence!

Thirty years ago, Design, Analysis and Research Corporation (DARcorporation) was incorporated by Dr. Jan Roskam and Willem Anemaat. In April 1991, we moved into an office and employed two full time engineers and three KU student interns. The company's primary purpose was to develop and market the Advanced Aircraft Analysis (AAA) software on the Apollo UNIX system (now part of Hewlett Packard) and publish a series of aircraft design and analysis textbooks by Dr. Roskam. Early development of AAA included adding Sun, Silicon Graphics, IBM RS6000 and HP to our computing platforms. In 1994, AAA was ported to PC/Windows platform and we completely rewrote the software. Today, AAA is installed in 58 countries and is a valued aircraft design and analysis tool for industry, government and academia all over the world.

In 2004, Willem (President) and MaryJo Anemaat (Vice President) purchased DARcorporation and Jan Roskam became an advisor/consultant, continuing today, even after formally retiring in 2019.

Today, DARcorporation employs over 20 full time engineers and continues to support KU aerospace students with internships. In 2019, we moved into a 17,000 ft^2 facility that includes a 5,000 ft^2 shop for aircraft, drone and wind turbine prototyping and manufacturing, a 510 ft^2 avionics lab and a 3,700 ft^2 testing lab that includes a 466 ft^2 anechoic chamber for acoustic testing.

In addition to the Advanced Aircraft Analysis (AAA) continuing development, we also distribute four other software programs for the aircraft industry and offer consulting services that include aircraft, propeller/ducted fan and wind turbine design and analysis, flight testing, wind tunnel testing, prototyping & manufacturing, wind tunnel models, test stands and 3-D printing.

Through the years, DARcorporation engineers have strived to advance the aerospace industry with innovative research and testing. There are many plans in place to add new services and expansion to our facilities. We are excited to see what the next 30 years will bring.

Two AFWERX Agility Prime STTR Research Contracts Awarded

- Design, Analysis and Research Corporation (DARcorporation) and the University of Kansas Garrison Flight Research Center received an AFWERX Agility Prime STTR contract, sponsored by the Air Force Research Laboratory (AFRL), for a Model and Mode Agnostic AI Controller for VTOL Aircraft.

- Design, Analysis and Research Corporation (DARcorporation) and the Auburn University Vehicle Systems, Dynamics, and Design Laboratory received an AFWERX Agility Prime STTR contract, sponsored by the Air Force Research Laboratory (AFRL), for a Dual-Use UAM e-VTOL Aircraft – Design, Analysis and Testing Capabilities.

Featured Services

Propeller Overlap Testing
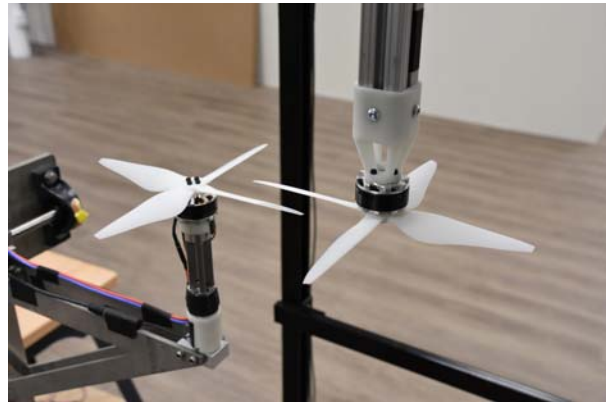
The purpose of the propeller overlap testing is to analyze the effect of a propeller on another that is in the wake of the upstream propeller. Both propeller installations are instrumented. The test setup allows trade studies on offsets both along the air flow direction and perpendicular to the air flow direction.

New CNC Router

DARcorporation recently purchased a 4-axis CNC router with a cut area of 97"×55"×8". It will be used to machine prototype propellers, composite molds and aluminum parts. It greatly enhances our prototype manufacturing capabilities and shortens lead time.


Software Updates

Coming soon: FlightStream 2020.2 has many new features and enhancements. The new version allows for fully unsteady flow simulations including 6DOF motion, store separation, ducted rotors and multi-rotor-wing interactions. New periodic symmetry feature supports fast propeller/rotor performance analysis.

Additional new features include:

- Turbulent trips for artificial boundary layer transition
- Base-flow modeling of separated flows and blunt wing airfoils
- Periodic Symmetry: fast propeller/rotor performance analysis
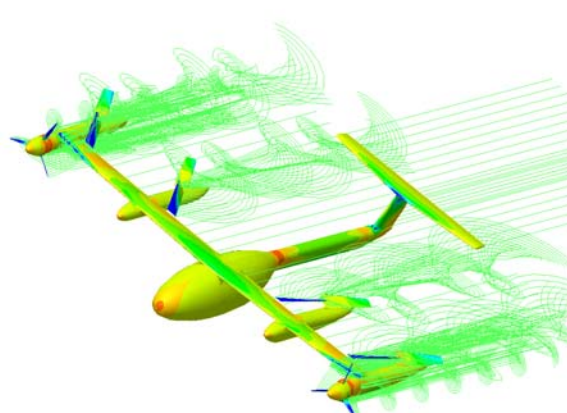
- Proximity feature to enable realistic control surface geometry simulations & motion
- Custom cross-section-based geometry file format
- Unite tool: create water-tight meshes in FlightStream from lofted OML surfaces
- Surface and volume probe points to support FEA extraction of surface pressure

Current FlightStream customers will be contacted with instructions to update when this service release is available.