Press Release

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The Vertical Flight Society Announces the Winners of the 35th Annual Student Design Competition and the Request for Proposals for the 36th Annual Competition

FAIRFAX, VA — *The Vertical Flight Society* today announces the winners of the 35th Annual Student Design Competition: the team comprised of the **University of Maryland and Nanjing University of Aeronautics and Astronautics took top honors in the graduate category**, while the **University of Maryland's undergraduate team took first place in the undergraduate competition.** The **US Army Research Laboratory** (ARL) sponsored the competition this year with a total of $13,000 in prize money.

Each year, the competition challenges students to design a vertical takeoff and landing (VTOL) aircraft that meets specified requirements, providing a practical exercise for engineering students at colleges and universities to promote student interest in VTOL engineering and technology.

Academic teams from around the world submitted entries in this year's Student Design Competition, with a total of 10 proposals from four different countries. The top-winning entries from the 35th Student Design Competition are available at www.vtol.org/sdc, along with previous winners.

The 2017-2018 Student Design Competition was for "*A Reconfigurable VTOL Aircraft*," which challenged students to design a "Group 3" size unmanned VTOL aircraft to achieve high-speed (relative to current helicopters) forward flight and efficient hover through the use of novel reconfigurable propulsive and lifting devices. The aircraft had to have superior performance over a comparable-sized aircraft that did not have reconfigurable systems.

The winning teams for the graduate category are as follows:

Place	University (Graduate)	City, Country	Design Team
1st & Best FLIGHTLAB Bonus Model	University of Maryland and Nanjing University of Aeronautics & Astronautics	College Park, Maryland, USA and Nanjing, China	Metaltail
2nd	Georgia Institute of Technology	Atlanta, Georgia, USA	Knightflyer

The collaborative team of University of Maryland and Nanjing University of Aeronautics and Astronautics — the winning entry in the graduate category — named their design the "*Metaltail*" for the Tyrian Metaltail hummingbirds found in the montane forests of Ecuador that have the agility to hover precisely in place in complex and dynamic environments. The team's design was an autonomous coaxial-proprotor swing-wing tailsitter that, like these high-altitude hummingbirds, leveraged visual sensory information and adjustable wing geometry to maneuver in megacity environments. It used lightweight turboshaft engines and a highly aerodynamic design to push the forward flight envelope at this scale. The *Metaltail* team also won the optional bonus portion of the competition for development of a FLIGHTLAB model of their vehicle.

The winning teams for the undergraduate category are as follows:

Place	University (Undergraduate)	City, Country	Design Team
1st	University of Maryland	College Park, Maryland, USA	Kwatee
2nd	Georgia Institute of Technology	Atlanta, Georgia, USA	HELLUVACOPTER
3rd	Pennsylvania State University	State College, Pennsylvania, USA	TOCHO
Best New Entry	Birla Institute of Technology & Science	Pilani, India	DRUTA – The Rapid Eagle

The University of Maryland's "*Kwatee*" was the winning undergraduate design. The *Kwatee* design was a coaxial proprotor tail-sitter configuration utilizing a novel variable incidence box wing and bidirectional ducted fans. Two flight modes gave the *Kwatee* the capability for navigating in megacity environments and forward flight with a 426 km/h (230 knot) maximum dash speed and extended range of 354 km (440 miles), with a prolonged endurance of 4.1 hours.

Each of the winning teams is awarded a cash stipend, while a member of each of the first-place winning teams is invited to the 75th Annual Forum & Technology Display — being held May 13-16, 2019 in Philadelphia, Pennsylvania USA — to present the details of their designs. The presenters receive a travel stipend and complimentary registration to the Annual Forum, the vertical flight industry's principal professional technical event, which promotes vertical flight technology advancement.

The Annual Student Design Competition sponsorship rotates between Airbus, Leonardo Helicopters, The Boeing Company, Bell and Sikorsky Aircraft, with the US Army Research Lab joining the sponsorship rotation this past year.

The 2018-2019 Request for Proposal (RFP) for the 36th Student Design Competition, sponsored by Airbus, is also now available at www.vtol.org/sdc. This new RFP is for an "*Extreme Altitude Mountain Rescue Vehicle.*" Student teams are challenged to design a vehicle to perform emergency medical services up to the highest mountain peaks on the planet.

In addition, Altair Engineering is sponsoring a weight optimization optional bonus task with an additional $1,000 each in prize money available for a winning graduate and undergraduate team.

The Vertical Flight Society encourages universities from around the world to form teams and take part in this exciting and challenging competition, which is conducted to attract the best and brightest engineering students to the vertical flight industry.

The Vertical Flight Society is the world's premier vertical flight technical society. Since it was founded as the American Helicopter Society in 1943, the Society has been a major force in the advancement of vertical flight. VFS is the global resource for information on vertical flight technology. For more than 75 years, it has provided global leadership for scientific, technical, educational and legislative initiatives that advance the state of the art of vertical flight.

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