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Vertical Flight Society Announces Winner of 2024 Alfred Gessow Best Paper Award

Selected from 21 Finalists for Best Paper from Forum 80

Fairfax, Virginia — The Vertical Flight Society (VFS) announces today the winner of the Society's prestigious Alfred Gessow Award for the best overall technical paper presented at the 80th Annual Forum and Technology Display. This year's winning paper is from the Safety Session entitled, [Scenario-Based Helicopter Flight Simulation of Accident-Prone Vortex Ring State \(VRS\) Encounters](#), by Eleni Sotiropoulos-Georgiopoulos of the Georgia Institute of Technology (Georgia Tech).

Sotiropoulos-Georgiopoulos graduated with a Master of Science in Aerospace Engineering from ISAE-SUPAERO and Georgia Tech in 2022. She is currently pursuing a PhD at the Georgia Tech Aerospace Systems Design Laboratory (ASDL), focusing on the use of flight simulators for vortex ring state accident prevention. Her research is conducted at the FAA William J. Hughes Technical Center's Cockpit Simulation Facility/Vertical Flight Aviation Simulation Technologies Laboratory, experimenting with their six helicopter and electric vertical takeoff and landing (eVTOL) flight simulators. The work presented in her paper was performed in partnership with Loft Dynamics, Georgia Tech, the Vuichard Recovery Aviation Safety Foundation and Sophrodyne Aerospace, and incorporated input from Airbus Helicopters, Robinson Helicopter, ONERA—The French Aerospace Laboratory, and the European Union Aviation Safety Agency (EASA). Sotiropoulos-Georgiopoulos will present the winning Alfred Gessow paper at the 50th Annual European Rotorcraft Forum (ERF), taking place Sept. 10–12, 2024, in Marseille, France.

The best paper selection process, which began in October 2023, was very rigorous. Out of some 350 abstracts received, the Society's 22 technical committees selected the best abstracts, with 274 papers published. During the Forum, the session and technical committee chairs then selected the best papers from each of the technical committees to be considered for the Gessow Award. Then the Society's Deputy Technical Directors for Aeromechanics, Vehicle Design, Vehicle Integrity, System Integration, Systems Engineering, Operations and Product Support winnowed that number down to six finalists. Following that, the VFS Technical Director and a committee of technical experts reviewed and ranked the papers, and in that ranking, determined that the selected Gessow paper was the best of the best.

All of the best papers are available for purchase in the Vertical Flight Library & Online Store (www.vtol.org/library). The full list of all the Forum 80 best papers (with links):

- **Acoustics:** [Frequency Domain gappy-POD for Rotor Acoustic Measurement Optimization](#), by Charles E. Tinney, Yingjun Zhao-Dubac, John Valdez, Applied Research Technologies
- **Advanced Vertical Flight:** [Nonlinear Flight Dynamics Modeling of an Air-Launched Tailsitter UAS](#), by Reuben-Wayne Stewart, Jack Dooher and Moble Benedict, Texas A&M University
- **Aerodynamics:** [Comprehensive Aerodynamic Analysis of PIV Measurements in the NFAC 80- by 120-ft Test Section Towards Understanding HVAB Hovering Rotor Characteristics](#), by Manikandan Ramasamy, US Army CCDC AvMC; and James T. Heineck, Gloria K. Yamauchi, Edward T. Schairer and Thomas R. Norman, NASA Ames Research Center
- **Aircraft Design (best overall in Vehicle Design disciplines):** [Dragonfly Rotor Optimization using Machine Learning Applied to an OVERFLOW Generated Airfoil Database](#), by Jason Cornelius, NASA Ames Research Center; and Sven Schmitz, Pennsylvania State University
- **Autonomy and UAS:** [VTOL UAS Auto-Recovery Using a Tested Long-Term Motion Prediction](#)

[Method to Define the Deck Environment](#), by Bernard Ferrier, Syntek Technologies Inc.; B. Watson, UK Royal Navy; and M. R. Belmont, J. T. Christmas, University of Exeter

- **Avionics and Systems (best overall in Systems Integration disciplines):** [The Canadian Vertical Lift Autonomy Demonstration Project - High Level Concepts for the Development of Autonomy](#), by Derek Gowanlock, Sion Jennings, Kris Ellis, Arthur Gubbels, Bryan Carrothers and Perry Comeau, National Research Council of Canada
- **Crash Safety:** [Development and Demonstration of a Critical Rotorcraft Safety System: Advanced Helicopter Seating System](#), by Tyrone Minton, The Protective Group; Marv Richards, SAFE, A Point Blank Company; and John Crocco, US Army DEVCOM AvMC
- **Crew Stations & Human Factors:** [Development and Flight Demonstration of An Active Seat Mount System for Aircrew Whole-Body Vibration Mitigation on NRC Bell-412 Helicopter](#), by Yong Chen, Amin Fereidooni and Viresh Wickramasinghe, National Research Council Canada
- **Dynamics:** [Aeromechanics Investigation of a Dual-Wing Lift Compounded Slowed Mach Scale Rotor](#), by Vivek Uppoor, Mrinalgouda Patil and Inderjit Chopra, University of Maryland
- **Electric VTOL:** [Impact of Detailed SFC on Hybrid-Electric VTOL Sizing](#), by Matt Arace and Anubhav Datta, University of Maryland
- **Handling Qualities (best overall in Aeromechanics disciplines):** [Piloted Simulation Evaluation of MTEs for the Assessment of Low-Level Handling Qualities](#), by Tim Jusko, German Aerospace Center (DLR); and Tom Berger, US Army DEVCOM AvMC
- **Health and Usage Management Systems:** [Criticality Determination of HUMS Applications for Life-Adjustment](#), Matt Harrigan, Sikorsky, a Lockheed Martin Company
- **Manufacturing Tech. & Processing (best overall in Vehicle Integrity disciplines):** [Multi-Physics Modeling and Optimization Towards a Digital Twin of Quenching Processes of Large-Scale Metallic Structures](#), by Jim Lua, Kalyan Shrestha and Anand Karuppiah, Global Engineering and Materials Inc.; Jinhui Yan, University of Illinois; and Joshua Piccoli and Nam D. Phan, US Naval Air Warfare Center
- **Modeling & Simulation:** [Vortex Ring State Prediction Using a Mid-fidelity Comprehensive Approach](#), by Alessandro Cocco, University of Maryland; and Federico Gentile, Matteo Dall'Ora, Giuseppe Quaranta, Politecnico di Milano
- **Operations (best overall in Operations & Product Support disciplines):** [Low Noise Helicopter Operations Recommendations to Improve Helicopter Acceptance](#), by Julien Caillet, Pierre Dieumegard and Frédéric Guntzer, Airbus Helicopters; and Elise Ruaud, ONERA
- **Propulsion:** [Dynamics of a Variable Speed Hybrid Electric Helicopter Propulsion System](#), by Hans DeSmidt and Zhisheng Ai, University of Tennessee
- **Safety (Alfred Gessow best paper and best overall in Systems Engineering disciplines):** [Scenario-Based Helicopter Flight Simulation of Accident-Prone Vortex Ring State \(VRS\) Encounters](#), by Eleni Sotiropoulos-Georgiopoulos, Alexia Payan and Dimitri Mavris, Georgia Institute of Technology; and Charles Johnson, Federal Aviation Administration
- **Structures & Materials:** [Fatigue Simulation Method based on the Calculation of the J-Integral in the Cohesive Zone Delamination Model](#), by Gennadiy Nikishkov, Yuri Nikishkov, Guillaume Seon and Andrew Makeev, University of Texas at Arlington; and Peter Matthews, US Army DEVCOM AvMC
- **Systems Engineering Tools & Processes:** [Updates in Development to the Digital Thread and CFD Modeling Framework for Robust Rotorcraft Design](#), by Daniel Bernier, Stanrich Fernandes, Ritu Eshcol, Ryan Willmot, Michael Alexander, Lindsey Dusablon, Stephanie Keomany, Dustin Coleman, Donald Lamb, Rebecca Cotton, Dana Halline and Shyam Neerarambam, Sikorsky, A Lockheed Martin Company
- **Test & Evaluation:** [Wind Tunnel Testing of X2™ Technology Spinning Coaxial Hubs with Aspirated Inlets - Comparison Between Two Wind Tunnel Models and with CFD](#), by Dylan Dziuba, Peter Lorber, Benjamin Hein, Brian Wallace, Jeewoong Kim, Antonio Rivera, Colin Bunting, Shawn Sandor, Byung-Young Min and Patrick O. Bowles, Sikorsky, A Lockheed Martin Company

In addition, the **History Committee** recognized [The Dirigible Helicopter: Korean-American Inventor Young Ha Koun's Ambitious attempt to Make Aircraft Survivable in the Event of Loss of Control](#), by C. Sundiata

Cowels, Future iNCITE!, as the winner of the Bernard Lindenbaum Best Historical Paper.

Forum 80 was held May 7–9, 2024, in Montréal, Québec, Canada. Forum 81 will be held May 20–22, 2025, in Virginia Beach, Virginia.

Founded in 1943 as the American Helicopter Society, the Vertical Flight Society today is the international professional organization that advocates, promotes and supports vertical flight technology. For more than 80 years, the Society has provided global leadership for the advancement of vertical flight.

VFS is @VTOLsociety on social media: [Facebook](#), [Instagram](#), [LinkedIn](#), [Mastodon](#), [Threads](#), [Twitter](#), [Vimeo](#) and [YouTube](#), and also has @ElectricVTOL channels on [Facebook](#), [Mastodon](#) and [Twitter](#).

The Vertical Flight Society

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