



# Press Release

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## Vertical Flight Society Announces Winner of 2021 Alfred Gessow Best Paper Award

**Fairfax, Virginia** — The Vertical Flight Society (VFS) announced today the winner of the Society's prestigious Alfred Gessow Award for the best technical paper at the 77th Annual Forum and Technology Display. **This year's winning paper is from the Aerodynamics session entitled, "Does Scatter Matter? Improved Understanding of UH-60A Wind Tunnel Rotor Measurements Using Data-Driven Clustering and CREATE™-AV Helios,"** by Dr. Manikandan Ramasamy and Mr. Rohit Jain of the US Army Combat Capability Development Command (DEVCOM), Aviation & Missile Center (AvMC); and Mr. Thomas R. Norman, NASA Ames Research Center. Dr. Manikandan Ramasamy is a senior research scientist at the US Army DEVCOM AvMC at Moffett Field, California. He has been working with the Army for the past 13 years. His interests are in measurements and data analysis, in general, and anything that improves the understanding rotor characteristics. He acquired his PhD from the University of Maryland in 2004. It and all of the best papers are available for purchase in the Vertical Flight Library & Online Store ([www.vtol.org/library](http://www.vtol.org/library)).

The selection process, which began in October 2020, was very rigorous. Out of 285 abstracts received, Forum 77 committee chairs selected 252 papers for publication. During the Forum, the session and technical committee chairs selected the best papers from each of the 21 technical papers for final consideration. Then the Society's Deputy Technical Directors for Aeromechanics, Vehicle Design, Vehicle Integrity, System Integration, Systems Engineering, and Operations and Product Support winnowed that number down to seven 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 paper was the best of the best.

This year's Forum 77 was held virtually from May 10-14, 2021. Next year, the Society's 78th Annual Forum & Technology Display will be held May 10-12, 2022, and is planned to be an in-person event in Fort Worth, Texas, USA.

Dr. Ramasamy will receive complimentary registration to the 2021 European Rotorcraft Forum (ERF), which will take place virtually from Sept. 6-8, 2021, where he will present his paper. The award is named after the renowned helicopter pioneer, researcher, author, professor and founder of the vertical lift research center at the University of Maryland now named for him.

The full list of all Forum 77 best papers (with links):

- **Acoustics:** [Acoustics Analysis of a Quiet Helicopter for Air Taxi Operations](#) by Sicheng (Kevin) Li and Seongkyu Lee, University of California, Davis
- **Advanced Vertical Flight:** [Structural Design and Aeromechanical Analysis of a Next-Generation Mars Hexacopter Rotor](#) by Cheng Chi, Ravi Lumba and Anubhav Datta, University of Maryland

- **Aerodynamics** (tied for best overall in Aeromechanics disciplines): [Does Scatter Matter? Improved Understanding of UH-60A Wind Tunnel Rotor Measurements Using Data-Driven Clustering and CREATE™-AV Helios](#) by Manikandan Ramasamy and Rohit Jain, US Army DEVCOM AvMC; and Thomas R. Norman, NASA Ames Research Center
- **Aircraft Design**: [Multidisciplinary Trim Analysis Using Improved Optimization, Image Analysis, and Machine Learning Algorithms](#) by Thomas A. Herrmann, Roberto Celi and James D. Baeder, University of Maryland
- **Avionics & Systems** (and best overall in Systems Integration disciplines): [Deep Learning Based Obstacle Awareness from Airborne Optical Sensors](#) by Manogna Ammalladene-Venkata, Omkar Halbe and Christian Seidel, Airbus Helicopters; and Christine Groitl and Christoph Stahl, Airbus Defense & Space
- **Crash Safety** (best overall in Vehicle Integrity disciplines): [Contribution to Improvement of Helicopter Ditching Capability Achieved within the SARAH European Research Project](#) by Séverin Halbout, Airbus Helicopters; Benjamin Bouscasse, Ecole Centrale de Nantes; Yoann Jus, BV Solutions M&O; and Angélique Jullien and Harish Karekyathanahalli Prakash, Altair
- **Crew Stations & Human Factors**: [Investigation and Evaluation of a Multimodal Pilot Assistance System for Helicopter Operations](#) by Tanja Martini, Phillipp Mevenkamp, Nikolas Peinecke and Michael Jones, German Aerospace Center (DLR); and Jürgen Schmidt, Airbus Helicopters
- **Dynamics**: [Aeroelastic Loads and Stability of Swept-Tip Hingeless Tiltrotors Toward 400-knots Flutter-Free Cruise](#) by Seyhan Gul and Anubhav Datta, University of Maryland
- **Electric VTOL (Provisional) Technical Committee** (best overall in Vehicle Design disciplines): [Development of "Aria," a Compact, Ultra-Quiet Personal Electric Helicopter](#) by David Coleman\*, Atanu Halder, Farid Saemi, Carl Runco, Hunter Denton, Bochan Lee and Moble Benedict, Texas A&M University; Vishaal Subramanian, Crystal Instruments; Eric Greenwood, Pennsylvania State University; and Vinod Lakshminaryan, NASA Ames Research Center
- **Handling Qualities** (tied for best overall in Aeromechanics disciplines): [High-Speed Rotorcraft Pitch Axis Response Type Investigation](#) by Tom Berger, US DEVCOM AvMC; Mark B. Tischler, Tischler Aeronautics; and Joseph F. Horn, Pennsylvania State University
- **Health and Usage Monitoring Systems** (best overall in Systems Engineering disciplines): [Probabilistic Damage Estimation for Rotorcraft Condition-Based Maintenance](#) by Dakota Musso and Jonathan Rogers, Georgia Institute of Technology
- **Manufacturing Tech. & Processing**: [Variational Tolerance Analysis \(VTA\) — Design and Manufacturing Optimization using Statistical Simulation](#) by Andrew Lavoie, Sikorsky, a Lockheed Martin Co.
- **Modeling & Simulation**: [Real Time System Identification Methods for Estimation of Slight Length on the Load Stabilization System \(LSS\)](#) by Christina M. Ivler, University of Portland; and Derek Sikora, Vita Inclinata Technologies
- **Operations**: [A Retrospective & Historical Analysis of Vertical Lift Infrastructure Accidents for the Purpose of Operational Risk Identification and Accident Prevention](#) by Rex J. Alexander, Five-Alpha LLC; Raymond A. Syms, HeliExperts International LLC; Cliff Johnson, FAA William J. Hughes Technical Center; and John Roberts, US DOT Transportation Safety Institute
- **Product Support Systems Technology**: [The 525 Interactive Electronic Maintenance Manual Linking Advanced Avionics and Wiring to Fault Isolation](#) by Mike Gralish, Bell
- **Propulsion**: [Distributed Electric Propulsion and Flight Control Concept to Meet EASA SC-VTOL-01 10<sup>-9</sup> Catastrophic Failure Criteria](#) by Patrick R. Darmstadt, Ephraim Chen, Allan Beiderman, Sheevangi Pathak, Andrew Arkebauer and Caitlin Dillard, The Boeing Co.; and Mihir P. Mistry, Anduril Industries, Inc.
- **Safety**: [Hazard Analysis Failure Modes, Effects, and Criticality Analysis for NASA Revolutionary Vertical Lift Technology Concept Vehicles](#) by Allan Beiderman, Patrick R. Darmstadt and Caitlin Dillard, The Boeing Co.; and Chris Silva, NASA Ames Research Center

- **Structures & Materials:** [Surface Tolerant Adhesives for Bonded Airframe Structures](#) by Majid Sharifi, Huntsman Corporation; Ian W. Brown, AVX Aircraft Co.; Gyaneshwar Tandon, University of Dayton; and Delaney Jordan, US Army DEVCOM, AvMC
- **Systems Engineering Tools & Processes:** [Approach to Architecture Development Assuming a Modular Open Systems Approach \(MOSA\) for a Family of Systems \(FoS\) Acquisition](#) by Thomas DuBois, Michael Orlovsky, John Kisor and Robert Matthews, L3Harris
- **Test & Evaluation** (best overall in Operations & Product Support disciplines): [Combining Simultaneous Density and Velocity Measurements of Rotor Blade Tip Vortices under Cyclic Pitch Conditions](#) by Johannes N. Braukmann, Andreas Goerttler, C. Christian Wolf, Clemens Schwarz and Markus Raffel, German Aerospace Center (DLR)
- **Unmanned VTOL:** [Deterministic Reconfiguration of Flight Control Systems for Multirotor UAV Package Delivery](#) by Anthony Gong, US Army DEVCOM, AvMC; Mark B. Tischler, Tischler Aeronautics; and Ronald A. Hess, University of California, Davis

In addition, the **History Committee** recognized [Floyd Carlson: The Legacy and Contributions of One of America's Greatest Rotary Wing Test Pilots](#) by Paul J. Fardink as the winner of the Bernard Lindenbaum Best Historical Paper.

Founded in 1943 as the American Helicopter Society, the Vertical Flight Society today is the international organization that advocates, promotes and supports global vertical flight technology and professional development. For 78 years, the Society has provided global leadership for the advancement of vertical flight.

***The Vertical Flight Society***

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