



# AHS International Technical Meeting

## 7th VTOL Unmanned Aircraft Systems Preliminary Program



Sponsored by the AHS Arizona Chapter  
January 24-26, 2017  
Sheraton Mesa Hotel Wrigleyville West  
Mesa, Arizona

<u>No.</u>	<u>Title</u>	<u>Authors</u>	<u>Affiliation</u>
<b>Opening General Session</b>			
<b>Tues. January 24, 2017 8:00 am - 12:00 noon</b>			
	Welcome	Ram JanakiRam, AHS VTOL UAS Meeting Technical Chair	The Boeing Company
O1	Challenges in Unmanned (Helicopter) Aviation – Lessons Learned in the Development of the MQ-8C RDC	Bob Ernst, PMA-266 Chief Engineer	Naval Air Systems Command (NAVAIR)
O2	Army S&T Activities Leading to Future UAS Capabilities: A Vision to the Future	Layne Merritt, Chief Engineer	U.S. Army Aviation Development Directorate
O3	Regulations that Allow Growth & Safe Integration of UAS: How do we Get There?	James A. Viola, FAA Flight Standards Service Division Manager (AFS-800)	Federal Aviation Administration, Gen Aviation & Commercial Division
O4	NATO STANAG Airworthiness Code Development for small VTOL Unmanned Aircraft Systems	George "Leo" Flynn, Chief Engineer	U.S. Army Aviation Engineering Directorate
O5	VTUAV Autonomous Operations and Collaboration in the Maritime Domain	Daniel Redman, Advanced Unmanned Systems, ASW Mission Lead	Northrop Grumman Corporation, Aerospace Systems
O6	Autonomy for Aircraft: Current Portfolio, Future Needs.	Barbara Lindauer, Government Business Development Director	Sikorsky Aircraft, a Lockheed Martin Company
O7	OPA: An Alternative Development Method for UAV Hardware & Software	Roger Hehr, Experimental Test Pilot	The Boeing Company
O8	Path Planning for UAV Collision Avoidance	Srikanth Saripalli, Director, Unmanned Systems Lab	Texas A&M University
<b>Session A: VTOL UAV Operations</b>			
<b>Tues. January 24, 2017 1:00 PM - 5:00 PM</b>			
A1	A Functional Safety Management Approach for Certification of Small VTOL sUAS	Daniel P. Schrage	Georgia Institute of Technology
A2	A Foresight of Utilizing Unmanned Logistical VTOL Aircrafts	Yu Ito	Yamato Holdings Co., Ltd.
A3	A Multi-Modality Mobility Concept for a Small Package Delivery UAV	Larry A. Young	NASA Ames Research Center
A4	Runway Independent High Speed Unmanned: CarterCopter Jet VTOL UAS	Jay Carter, Jr., Jeffrey R. Lewis	Carter Aviation Technologies, LLC
A5	Fire Scout Operations in Parametric Like Roll Ship Conditions	Bernard Ferrier	NAVAIR Dynamics Interface Lab (SETA)



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<b>Session B: UAV Aerodynamics</b>			
<b>Wed. January 25, 2017 8:00 AM - 12:00 PM</b>			
B1	Basic Understanding of Airfoil Characteristics at Low Reynolds Numbers	Justin Winslow, Hikaru Otsuka, Bharath Govindarajan, Inderjit Chopra	University of Maryland
B2	Flow Analysis of Flapping Wing from Rotorcraft Perspective	Camli Badrya, Bharath Govindarajan, James D. Baeder	University of Maryland
B3	Performance and Sizing Tool for Quadrotor-Biplane-Tailsitter UAS	Marius Strom, James D. Baeder	University of Maryland
<b>Session C: VTOL UAV Flight Control &amp; Navigation</b>			
<b>Wed. January 25, 2017 1:00 PM - 5:00 PM</b>			
C1	Automatic Landing on a Moving Platform Using Deep Neural Network Estimation	Toshinobu Watanabe, Eric N. Johnson	Georgia Institute of Technology
C2	Turbulence Modeling of a Small Quadrotor UAS Using System Identification from Flight Data	Ondrej Juhasz, Mark J. S. Lopez, Marcos G. Berrios, Tom Berger Mark B. Tischler	San Jose State University and U.S. Army Aviation Development Directorate
C3	Adaptive Pure Pursuit Based Autonomous Landing of Quadrotors	Alvika Gautam, P.B. Sujit, Srikanth Saripalli	Arizona State University
C4	Landing Path Generation Algorithm for Autonomous Shipboard Recovery of Rotorcraft	Junfeng Yang, Joseph F. Horn	Pennsylvania State University
C5	Obstacle Detection Algorithms in Thermal Infrared Images for Collision Avoidance	Adrian Carrio, Srikanth Saripalli, Pascual Campoy	Arizona State University
<b>Session D: Micro Air Vehicles</b>			
<b>Thurs. January 26, 2017 8:00 AM - 12:00 PM</b>			
D1	Visual Odometry Onboard a Micro Air Vehicle Using Snapdragon Flight	Cyrus Vorwald, Eric Solomon, Vikram Hrishikeshavan, Inderjit Chopra	University of Maryland
D2	Controllability Analysis of a Quadrotor in Hover using Empirical Gramians	Vikram Hrishikeshavan, Elena Shrestha, Inderjit Chopra, J. Sean Humbert	University of Maryland and University of Colorado
D3	Development of MAV-scale Quad-Cyclocopter Capable of Aerial and Terrestrial Locomotion	Elena Shrestha, Benjamin Williams, Vikram Hrishikeshavan, Inderjit Chopra	University of Maryland
D4	System Identification of a Meso-Scale Cyclocopter	Carl Runco, David Coleman, Moble Benedict	Texas A&M University
D5	Maneuverability and Disturbance Rejection Analysis of a Hover-Capable Robotic Hummingbird	David Coleman, Moble Benedict	Texas A&M University
D6	Flight Performance of a Package Delivery Quadrotor Biplane	Brandyn Phillips, Vikram Hrishikeshavan, Derrick Yeo, Inderjit Chopra, Omri Rand	University of Maryland and Israel Institute of Technology