



# 2023 Autonomous VTOL Technical Meeting & Electric VTOL Symposium



Mesa, Arizona, USA | January 24-26, 2023 | [www.vtol.org/autonomous](http://www.vtol.org/autonomous)

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**Monday, January 23, 2023: Badge Pick-up Desk Hours 1:00 pm–5:00pm (Canyon Foyer)**

8:00 am – 5:00 pm: **Short Course on Electric VTOL Design**, Dr. James Wang (Canyon Ballroom F-G)

**Tuesday, January 24, 2023: Badge Pick-up Desk Hours 7:00 am–5:00pm (Canyon Foyer)**

**Tuesday-Thursday: Exhibits (Canyon Ballroom C-E-H)**

**Plenary Presentations (Canyon Ballroom A-B-D)**

**Government Keynotes: Moderated by Mike Hirschberg, VFS**

7:50–8:00	<b>Welcome: Mike Hirschberg</b> , Executive Director, Vertical Flight Society
8:00–8:30	<b>Dr. Parimal “PK” Kopardekar</b> Director of the NASA Aeronautics Research Institute (NARI), National Aeronautics and Space Administration (NASA)
8:30–9:00	<b>Lirio Liu</b> Executive Director, Aircraft Certification Service (AIR-1), Federal Aviation Administration (FAA)
9:00–9:30	<b>Dr. Michael B. Leahy, Jr.</b> Director of the Tactical Technology Office (TTO), Defense Advanced Research Projects Agency (DARPA)
9:30–10:00	<b>LTC Olin Walters</b> , US Army Product Manager for Future Tactical UAS (FTUAS), Program Executive Office (PEO) Aviation, US Army

**10:00–10:45 am Refreshment Break: Exhibits (Canyon C-E-H)**

**Industry Keynotes: Moderated by Mike Hirschberg, VFS**

10:45–11:15	<b>Lisa Peterson</b> Market Development, AURA Network Systems
11:15–11:45	<b>Ramy Mourad</b> Director of UAM Engineering, Boeing
11:45–12:15	<b>Stéphane Fymat</b> VP/GM of UAM/UAS, Honeywell Aerospace

**12:15–1:45 pm Lunch (Canyon C-E-H, Arroyo, Agua Fria & Courtyard)**

**Electric VTOL Leaders: Moderated by Ken Swartz, Aeromedia**

1:45–1:50	<b>Reconvene: Mike Hirschberg</b> , Vertical Flight Society, Executive Director
1:50–2:10	<b>Adam Goldstein</b> CEO, Archer Aviation *
2:10–2:30	<b>Dr. Eric Allison</b> Head of Product, Joby Aviation *
2:30–2:50	<b>Dr. Valerie Manning</b> Chief Commercial Officer, Overair
2:50–3:10	<b>Rob Scholl</b> President & CEO, Textron eAviation
3:10–3:30	<b>Tyler Painter</b> Chief Financial Officer, Wisk Aero *

**3:30–4:00 pm Refreshment Break: Exhibits (Canyon C-E-H)**

**Autonomous VTOL Leaders: Moderated by Garrett Reim, Aviation Week**

4:00–4:20	<b>Dr. Joerg Mueller</b> Head of Urban Air Mobility, Airbus
4:20–4:40	<b>Ben Ivers</b> Director of Autonomous Systems, Global Safety & Regulatory Affairs, Boeing
4:40–5:00	<b>Lyle Chamberlain</b> CTO, Near Earth Autonomy
5:00–5:20	<b>Jasmine Kent</b> CTO, Dufour Aerospace
5:20–5:30	<b>Wrap-up: Colton Marchesseault</b> (Boeing) VFS Arizona Chapter President

**5:30–7:00 pm Reception (Canyon C-E-H and Courtyard)**

\* sponsor

*A special thanks to the VFS Arizona Chapter for their essential support of this event:  
Technical Chair: **Bryan Chu** (Boeing), Chapter President: **Colton Marchesseault** (Boeing),  
Chapter Vice-President: **Chris Slipher** (Boeing) and Chapter Secretary **Tonja Reinert** (Boeing)*

**Don't miss our upcoming events:**

- Handling Qualities Technical Meeting, Feb. 7-8, 2023, Huntsville, Alabama: [www.vtol.org/handling](http://www.vtol.org/handling)
- 2nd Annual Hydrogen-Aero Symposium, Mar. 28-30, 2023, Long Beach, California: [www.vtol.org/h2symposium](http://www.vtol.org/h2symposium)
- 79th Annual Forum & Technology Display, May 16-18, 2023, West Palm Beach, Florida: [www.vtol.org/forum](http://www.vtol.org/forum)
- 17th Annual Electric Aircraft Symposium, July 22-23, 2023, Oshkosh, Wisconsin: [www.vtol.org/eas](http://www.vtol.org/eas)

**Wednesday, January 25, 2023: Badge Pick-up Desk Hours 7:00 am–5:00pm (Canyon Foyer)**

<b>Track:</b>	<b>Autonomous VTOL Technical Meeting (Canyon Ballroom FG)</b>	<b>Track:</b>	<b>Electric VTOL Symposium (Canyon Ballroom ABD)</b>
<b>8:00–9:30</b>	<b>Titans of Autonomy Invited Speakers I</b> <i>Moderator: Bryan Chu, Boeing Co.</i>	<b>8:00–9:30</b>	<b>eVTOL Aircraft</b> <i>Session Chair: Nicolas Zart, VFS</i>
8:00–8:30	<b>Francis Govers III</b> , Bell	8:00–8:30	<b>Willi Tacke</b> , Founder, eFlight Journal
8:30–9:00	<b>Igor Cherepinsky / Barbara Lindauer</b> , Sikorsky, a Lockheed Martin Co.	8:30–8:50	<b>Omer Bar-Yohay</b> , CEO, AutoFlight *
9:00–9:30	<b>Tad McGeer</b> , Aerovel	8:50–9:10	<b>Manal Habib</b> , CEO, MightyFly
		9:10–9:30	<b>Nobuo Kishi</b> , CTO, SkyDrive *
<b>9:30–10:00 am Refreshment Break: Exhibits (Canyon C-E-H)</b>			
<b>10:00–12:00</b>	<b>Session 1: GN&amp;C</b> <i>Session Chair: Bryan Chu, Boeing Co.</i>	<b>10:00–11:00</b>	<b>Perspectives</b> <i>Session Chair: Ken Swartz, Aeromedia</i>
10:00–10:30	<b>Systems of Drones for Caves and Lava Tube Exploration</b> , Sergey Shkarayev, S. Ponder, R. Schreiner, N. Blanchard, E. Asphaug, J. Thangavelautham, University of Arizona	10:00–10:20	<b>Eric Anderson</b> , Global Director of Engineering, Carlisle IT *
10:30–11:00	<b>Radar Based Non-Cooperative Detect and Avoid Flight Test Overview</b> , Larry Surace, Honeywell	10:20–10:40	<b>Sergio Cecutta</b> , Partner, SMG Consulting
11:00–11:30	<b>Robust Autonomous Landing of a Quadcopter on a Mobile Vehicle Using Infrared Beacons</b> , Adam Garlow, S. Kemp, K. Skinner, E. Kamienski, A. Debate, J. Fernandez, J. Dotterweich, A. Mazumdar, J. Rogers, Georgia Tech	10:40–11:00	<b>Yanik Doyon</b> , VP Business Development & Sales, Flight Avionics, North America, Thales *
11:30–12:00	<b>Analysis of Short-Range LiDAR Perception Characteristics under Supervised Autonomous Helicopter Flight Operations</b> , Marc Alexander, National Research Council of Canada	<b>11:00–12:00</b>	<b>Personal eVTOL</b> <i>Session Chair: Garrett Reim, Aviation Week</i>
		11:00–11:20	<b>Ken Karklin</b> , CEO, Opener
		11:20–11:40	<b>Matt Chasen</b> , CEO, LIFT Aircraft
		11:40–12:00	<b>Chen Rosen</b> , CTO, AIR
<b>12:00–1:00 pm Lunch (Canyon C-E-H, Arroyo, Agua Fria &amp; Courtyard)</b>			
<b>1:00–2:00</b>	<b>Session 1: GN&amp;C (cont.)</b> <i>Session Chair: Bryan Chu, Boeing Co.</i>	<b>1:00–2:00</b>	<b>Hydrogen Panel</b> <i>Moderator: Danielle McLean, HY-SKY</i>
1:00–1:30	<b>Area Inursion Detection of Rotorcraft Unmanned Air Systems via the RADAR Electromagnetic Spectrum Perception Modality</b> , Marc Alexander, National Research Council of Canada		<ul style="list-style-type: none"> <li>• <b>Elizabeth Collins</b>, Research Engineer, NREL</li> <li>• <b>John Piasecki</b>, CEO, Piasecki Aircraft Corporation</li> <li>• <b>Dr. Alex Ivanenko</b>, GM Rotorcraft and New Segments, ZeroAvia</li> </ul>
1:30–2:00	<b>Teleoperations for Light Aircraft (Presentation Only)</b> , Hector Xu, Rotor Technologies, Inc.		
<b>2:00–3:00</b>	<b>Session 2 Modeling &amp; Simulation</b> <i>Session Chair: Parker Schnepf, Boeing Co.</i>	<b>2:00–3:00</b>	<b>Workforce Panel</b> <i>Moderator: Danielle McLean, HY-SKY</i>
2:00–2:30	<b>Automated UAV Launch and Recovery Regardless the Ship Platform or State of the Seaway by Quiescent Period Prediction</b> , Bernard Ferrier, Hoffman Engineering; R. Taylor, UK Royal Navy; M.R. Belmont, J.T. Christmas, University of Exeter		<ul style="list-style-type: none"> <li>• <b>Dr. Maryam Khoshlahjeh</b>, Senior Manager, Propellers, Archer Aviation</li> <li>• <b>Matthew Land</b>, Public Policy &amp; Government Relations, Eve Air Mobility</li> <li>• <b>Mike Hirschberg</b>, Executive Director, VFS</li> <li>• <b>Sharon Rossmark</b>, CEO, Women &amp; Drones</li> </ul>
2:30–3:00	<b>Determining the Acoustic Far-field for Multirotor Aircraft</b> , Keon Wong Hur, D, Zachos, K. Brentner, E. Greenwood, Pennsylvania State University		
<b>3:00–3:30 pm Refreshment Break: Exhibits (Canyon C-E-H)</b>			
<b>3:30–5:30</b>	<b>Session 2: Modeling &amp; Simulation (cont.)</b> <i>Session Chair: Parker Schnepf, Boeing Co.</i>	<b>3:30–4:30</b>	<b>Training Engineers and Pilots</b> <i>Session Chair: Mike Hirschberg, VFS</i>
3:30–4:00	<b>Aerodynamic and Aeroacoustic Analysis of a Hovering Quadrotor Biplane Tailsitter</b> , Dilhara Jayasundara, James Baeder, University of Maryland	3:30–3:50	<b>Dr. Mahendra Bhagwat</b> , Vertical Lift Research Centers of Excellence (VLRCOE) Pgm Mgr, US Army DEVCOM
4:00–4:30	<b>Predicted Performance Effects of Blade Elasticity on Testing of Rotors for MARS</b> , Stephen Wright, W. Koning, N. Perez Perez, H. Cummings, W. Johnson, NASA Ames Research Center	3:50–4:10	<b>Dr. Mike Canada</b> , Associate Professor of UAS, Embry-Riddle Aeronautical University
4:30–5:00	<b>Application of CFD-Trained Neural Networks on the Rotorcraft Airfoil Design Process</b> , Nicholas Paternostro, K. Marepally, A. Anand, B. Lee, J. Baeder, University of Maryland	4:10–4:30	<b>Patrick Coulter</b> , Director, Business Development for Commercial Training, FlightSafety
		<b>4:00–5:00</b>	<b>Working Groups</b> <i>Session Chair: Nicolas Zart</i>
		4:30–5:00	<ul style="list-style-type: none"> <li>• <b>Andy Mearns</b>, VFS TVF Working Group 1, Opener</li> <li>• <b>Seren Weber</b>, VFS TVF Working Group 2-3, University of Hawaii</li> <li>• <b>Johnny Doo</b>, VFS TVF Working Group 4, International Vehicle Research, Inc.</li> </ul>
5:00–5:30	<b>eVTOL Vehicles Enabled by Deflected Slipstream with CoFlow Jet Active Flow Control (Presentation Only)</b> , Gecheng Zha, University of Miami	5:00–5:30	<b>Jim Murphy</b> , System Architect, AAM Mission Integration Office, NASA

**Thursday, January 26, 2023: Badge Pick-up Desk Hours 7:00 am–2:00 pm (Canyon Foyer)**

<b>Track:</b>	<b>Autonomous VTOL Technical Meeting (Canyon Ballroom FG)</b>	<b>Track:</b>	<b>Electric VTOL Symposium (Canyon Ballroom ABD)</b>
<b>8:00–9:30</b>	<b>Titans of Autonomy Invited Speakers II</b> <i>Moderator: Bryan Chu, Boeing Co.</i>	<b>8:00–9:30</b>	<b>Manufacturing</b> <i>Session Chair: Mike Hirschberg, VFS</i>
8:00–8:30	<b>Sebastian Scherer</b> , Near Earth Autonomy / Carnegie Mellon University	8:00-8:20	<b>Alan Davis</b> , CEO, i5 Services
8:30–9:00	<b>Wenlong Zhang</b> , Arizona State University, Robotics and Intelligent Systems Laboratory (RISE)	8:20-8:40	<b>DeWayne Howell</b> , Sr Applications Engineer & Project Manager, Toray Advanced Composites *
9:00–9:30		8:40-9:00	<b>Andy Bridge</b> , Director, Business Development, Additive Engineering Solutions *
		9:00-9:15	<b>Imad Atallah</b> , Director, Strategic Marketing, Hexcel *
		9:15-9:30	<b>Dr. Thomas Hays</b> , Principal Engineer, RE:Build Manufacturing *
<b>9:30-10:00 am Refreshment Break: Exhibits (Canyon C-E-H)</b>			
<b>10:00–12:00</b>	<b>Session 3 : Configuration Design</b> <i>Session Chair: Ariel Louie, Boeing Co.</i>	<b>10:00–11:00</b>	<b>Standards</b> <i>Session Chair: Elan Head, The Air Current</i>
10:00–10:30	<b>Simultaneous Optimization of Conceptual Design and Flight Trajectory of a Lift + Cruise eVTOL UAV</b> , Shugo Kaneko, J.R.R.A. Martins, University of Michigan	10:00-10:20	<b>Jonathan Archer</b> , Manager, Aero Standards Business Development & Outreach, SAE International
10:30–11:00	<b>Advanced Optimization Framework of eVTOL Aircraft including Geometry Consideration</b> , Byron Yoocho Chang, S.H. Park; Y.J. Kim, C.H. Ahn, W.S. Cha, M.H. Hwang, S.J. Shin, Seoul National University	10:20-10:40	<b>Tom Gunnarson</b> , Lead of Regulatory Affairs, Wisk, ASTM International
11:00–11:30	<b>How Simple is Simple? Measuring Learning Trajectories in Emerging VTOL Aircraft</b> , Samantha Emerson, L. Waggenspack, C. Rizzardo, M.C. Osman, K. Halverson, Aptima Inc., S. Ellis, D. Haley, USAF Agility Prime, E. Combs, JBSA-Lackland	10:40-11:00	<b>Dave Dunning</b> , Director, Global Innovation & Policy, GAMA
11:30-12:00	<b>Designing a Coaxial Quadrotor for Urban Air Mobility</b> , Jason Cornelius, NASA Ames Research Center	<b>11:00–12:00</b>	<b>Certification</b> <i>Session Chair: Elan Head, The Air Current</i>
		11:00-11:20	<b>Dr. Mike Romanowski</b> , Head of Government Relations, Archer Aviation
		11:20-11:40	<b>Dave Webber</b> , AAM Flight Test Liaison, FAA
		11:40-12:00	<b>Robert Bassey</b> , Airports Design/Construction Engr, FAA
<b>12:00-1:00 pm Lunch (Canyon C-E-H, Arroyo, Agua Fria &amp; Courtyard)</b>			
<b>1:00–2:00</b>	<b>Session 3 : Configuration Design (cont.)</b> <i>Session Chair: Ariel Louie, Boeing Co.</i>	<b>1:00–2:00</b>	<b>Batteries &amp; Powertrains</b> <i>Session Chair: Nicolas Zart, VFS</i>
1:00–1:30	<b>An Engineering Study of Retrofitting a Piston Engine Powered Helicopter with Hydrogen Fuel Cells</b> , Auraluck Pichitkul, J. Tiandum, L.N. Sankar, S. Tantrairatn, Suranaree University	1:00-1:20	<b>Krista Tweed</b> , Applications Engineer, Hottinger Brüel & Kjær (HBK)
1:30–2:00	<b>Novel Tilting-Ducted-Fan Aerial Vehicle Configurations</b> , Larry Young, NASA Ames Research Center	1:20-1:40	<b>JP Park</b> , Chief Strategy Officer and Co-Founder, Mobius
<b>2:00–3:00</b>	<b>Session 4: Operations</b> <i>Session Chairs: Xenji Sarabia, Boeing Co.</i>	1:40-2:00	<b>Dr. Ionel Stefan</b> , CTO, Amprius
2:00–2:30	<b>Large-scale Multidisciplinary Design Optimization of the NASA Lift-plus-cruise Concept using Novel Aircraft Design Framework</b> , Marius Ruh, D. Sarojini, A. Fletcher, I. Asher, J.T. Hwang, University of California San Diego	<b>2:00–3:00</b>	<b>Motors</b> <i>Session Chair: Nicolas Zart, VFS</i>
2:30-3:00	<b>Qualifying the Economic Impact of Future Optionally Piloted Rotorcraft</b> , Robert Scott, US Army Combat Capabilities Development Command	2:00-2:20	<b>Jay Boschert</b> , VP Strategic Campaigns, Rolls-Royce North America
		2:20-2:40	<b>Dr. Karun Malhotra</b> , Director, Aster *
		2:40-3:00	<b>Dr. Sara Roggia</b> , Head of Controls & Protections, magniX
<b>3:00–3:30 pm Refreshment Break: Exhibits (Canyon C-E-H)</b>			
<b>3:30–5:00</b>	<b>Session 4: Operations (cont.)</b> <i>Session Chair: Xenji Sarabia, Boeing Co.</i>	<b>3:30–4:30</b>	<b>Cargo</b> <i>Session Chair: Ken Swartz, Aeromedia</i>
3:30–4:00	<b>Multi-functional Drone Landing Gear and Docking Station for Robust Perching and Autonomous Charging</b> , Joshua Fernandez, A. Porter, A. Garlow, J. Rogers, J. Dotterweich, A. Mazumdar, Georgia Institute of Technology	3:30-3:50	<b>Jordan Thompson</b> , Director Business Development, Talyn Air
4:00–4:30	<b>Significance of Electric Motor Thermal Modeling for Aircraft Design</b> , Farid Saemi, M. Benedict, Texas A&M University	3:50-4:10	<b>Dave Merrill</b> , CEO, Elroy Air
4:30–5:00		4:10-4:30	<b>Martin Peryea</b> , CEO, Jaunt Air Mobility
5:00–5:30		<b>4:30–5:30</b>	<b>Military</b> <i>Session Chair: Ken Swartz, Aeromedia</i>
		4:30-4:50	<b>Lt Col John “Wasp” Tekell</b> , USAF, Agility Prime Lead, AFWERX
		4:50-5:10	<b>Don Shaw</b> , CEO, RotorX
		5:10-4:30	<b>Clark Dutterer</b> , CTO & VP, Business Development, SURVICE Engineering *