# ATR CONFERENCE JANUARY 14 - 17, 2016

EMBRY-RIDDLE
Aeronautical University
SCHOLARLY COMMONS



## A<sup>3</sup>iR Con 2016 GSIS Symposium

The Embry-Riddle Aeronautical University (Prescott Campus) College of Security and Intelligence has created a three-session symposium to discuss the current and future status of unmanned aerial systems (UAS). Embry-Riddle's Global Security and Intelligence Studies (GSIS) program features a unique blend of academic and professional studies designed to equip students with the knowledge and skills necessary to become future leaders in the intelligence, security and law enforcement communities. Friday's GSIS symposium sessions are: UAS Today, UAS Tomorrow, and UAS Collaboration & Research Opportunities.

UAS Today will discuss the current state-of-the-art technology that promotes the proliferation and expansion of UAS, as well as the burgeoning counter-UAS industry that threatens to alter the course of UAS development.

UAS Tomorrow will examine potential legal, regulatory, and technological aspects that will likely influence the future of UAS. The first two panel sessions features experts from both the public and private sector who will present ideas and concepts about diverse aspects of UAS. The audience will then have an opportunity to engage in a rich discussion about where the industry stands today and where it is headed tomorrow.

In the final session, UAS Collaboration & Research Opportunities, presenters will share their research on different aspects of UAS and will provide an opportunity for members of the audience to ask questions and develop ideas that can lead to future collaboration and research.

I hope that you will enjoy the scope of the expertise gathered at this A<sup>3</sup>iR Con 2016 Symposium.

Ty Groh, Symposium Chair Associate Professor, Global Security & Intelligence Studies



#### **THURSDAY, JANUARY 14**

10:00 a.m. -7:00 p.m. Early Registration/Help Desk/Exhibitor Set up San Marcos Ballroom Foyer

Noon -1:00 p.m. Lunch for Early Arrivals (RSVP required) San Marcos Ballroom A

1:30 p.m. -3:00 p.m. Leadership Research San Tan Ballroom

Co-Chairs: Tim Holt, ERAU-WW; Linda Pittenger, ERAU-WW

• "The Recipe for Hiring and Engaging Superior Performers: Ingredients for Success"

Linda Pittenger, ERAU-WW (#1254)

3:00 p.m. -3:30 p.m. Break San Marcos Ballroom Foyer

3:30 p.m. -5:00 p.m. Early Bird Research Roundtable and Discussion San Tan Ballroom

Chair: Jacqueline Luedtke, ERAU-PC

*Note: Discussants will be listed in the final conference proceedings.* 

5:00 p.m. -7:00 p.m. Industry-sponsored Opening Reception (appetizers) Pergola Patio / San Marcos Foyer

Exhibitor and Sponsor Partners Posters/Visual Displays (ticketed and cash bar)

Host: ERAU Corporate Relations, Lou Seno

Chair: Merrie Heath, ERAU-PC

7:00 p.m. Dinner on Your Own Chandler Historic District

#### **Key Legend:**

San Marcos WiFi Password: SanMarcosGR1 ERAU-PC, Embry-Riddle Aeronautical University, Prescott ERAU-DB, Embry-Riddle Aeronautical University, Daytona Beach ERAU-WW, Embry-Riddle Aeronautical University – Worldwide

FRIDAY, J	<b>ANUARY 15</b>
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7:00 a.m. -8:00 a.m. Exhibitor Set up (option) San Marcos Ballroom Foyer

7:30 a.m. -8:00 a.m. Volunteer and Staff Logistics Meeting San Marcos Ballroom Foyer

Chair: Dawn Marcuse, ERAU-PC

8:00 a.m. -9:00 a.m. Continental Breakfast San Marcos Ballroom Foyer

8:00 a.m. -7:00 p.m. Registration and Help Desk San Marcos Ballroom Foyer

9:00 a.m.-10:00 a.m. A<sup>3</sup>iR Con 2016 Opening Address/Welcome San Marcos Ballroom B

Opening: Brent Bowen, A<sup>3</sup>iR Con Convener & Founder, ERAU-PC

Welcome: Frank Ayers, Chancellor, ERAU-PC

Moderator: Mary Niemczyk, Arizona State University Chair: Gen. Thomas Browning, *A*<sup>3</sup>*iR Con* Founding Chair • *Keynote Address – Ryan Hartman, Insitu* [9:10 a.m. -9:30 a.m.]

 Opening Honorary Introductions [9:30 a.m. -10:00 a.m.]
 Sy Liebergot, Apollo 13 EECOM; Nancy Graham, Former Director of ICAO's Air Navigation Bureau; Hon. Robert Sumwalt, National Transportation Safety Board Member; James Malecha, Federal Aviation Administration; Hon. Earl Weener, National Transportation Safety Board Member; Suzanne Kearns, University Aviation

Association President

Program Chair: David Worrells, ERAU-WW, briefing on concurrent sessions

10:00 a.m. -10:30 a.m. Break San Marcos Ballroom Foyer

#### 10:30 a.m. -noon A<sup>3</sup>iR Con 2016 Lead-off Concurrent Sessions

GSIS Symposium: UAS Today San Tan Ballroom

Chair: Ty Groh, ERAU-PC; Co-Chair: Stewart Schreckengast, Purdue University Welcome: Philip Jones, Dean, College of Security & Intelligence, ERAU-PC Panelists: James Malecha, Federal Aviation Administration; Nancy Graham, Former Director of ICAO's Air Navigation Bureau (UAS Integration in Regulated Airspace); PJ Springer, Air University; Greg Vert, CSI Cyber Expert/Link and Information Security, ERAU-PC

Business & Corporate Aviation

San Marcos Ballroom B

Chair: Lou Seno, ERAU-Corporate Relations

Panelists: Cameron (Cam) Gowans, Vice President of Sales, North America-West, Embraer Executive Jets; Anthony Kioussis, President, Asset Insight, Inc.; Al Qualey, President Emeritus & Senior Advisor, First Source Bank, South Bend, IN; Donald Haloburdo, Director of Flight Operations, Jet Aviation, Teterboro, NJ; Shawn Dinning, Managing Director/Co-Owner, Dallas Jet International

Noon -2:00 p.m.

Undergraduate Research Symposium & Lunch

San Marcos Ballroom A/B

Moderator: Scott Burgess, ERAU-WW

Undergraduate Poster Competition

San Marcos Ballroom A/B

Co-Chairs: Kelly George, ERAU-WW; Aaron Clevenger, ERAU-DB; Anne Boettcher, ERAU-PC

For a complete listing of poster titles and authors, see p. 11.

\*Note: Posters will remain on display for the Graduate/Faculty/ Industry Poster Session on January 15, 5:00-7:00 p.m.

Research & Industry Outreach (RIO)

San Marcos Ballroom A/B

Chair: Linda Weiland, ERAU-WW

Closing remarks: Scott Burgess and David Worrells, ERAU-WW

1:00 p.m. -2:00 p.m.

Apollo EECOM: Journey of a Lifetime - Sy Liebergot

La Ventana Ballroom

2:00 p.m. -3:30 p.m.

#### **Concurrent Panel Sessions**

GSIS Symposium: UAS Tomorrow

San Tan Ballroom

Chair: Ty Groh, ERAU-PC

Panelists: Steven Pennington, United States Air Force, Director of Bases, Ranges and Airspace; Tom Foley, CSI, ERAU-PC; Radhakrishna Sampigethaya, College of Engineering, Software Engineering, ERAU-PC; Kurt Barnhart, Associate Dean of Research and Engagement, Kansas State University; Treggon Owens, Aerial MOB

Commercial Space Industry Snapshot

Palo Verde

Chair: Sarah Nilsson, ERAU-PC

Panelists: Sonya McMullen, ERAU-WW; Nihad Daidzic, AAR Aerospace Consulting, Minnesota State University – Mankato

#### Presenters:

- "Small Catapult-Assisted Horizontal-Launch Reusable RBCC SSTO Spaceplane for Economical Short-Duration LEO Access" *Nihad Daidzic, Minnesota State University-Mankato* (#1209)
- "2015 Commercial Space Industry Snapshot as Seen Through the Eyes of the International Symposium for Personal and Commercial Spaceflight (ISPCS)" Sarah Nilsson, ERAU-PC (#1258)

Diversity & Its Impact on an Industry-wide Employment Shortage Palomino

Co-Chairs: Katherine Moran, ERAU-WW; Linda Weiland, ERAU-WW
Panelists: Suzanne Kearns, University Aviation Association President; Julius Keller,
Ph.D. Student and Graduate Assistant-Purdue University; Jackie Luedtke, Associate
Professor, College of Aviation, ERAU-PC; John Buyer, Director of Flight Training
United Airlines

The Evolution and Future of the Aircraft Maintenance Industry

La Ventana Ballroom

Chair: Patti Clark, ERAU-WW

Panelists: Brigadier General (Ret.) Art Cameron III, Lockheed Martin, F-35 Site Director/Luke AFB; Bobby G. Martin, Honeywell Aerospace, Program Director for USAF Platforms-F22/F-35; David S. Worrells, ERAU-WW; Kent H. Anderson, ERAU-WW Presenter:

• "Hindrances to SMS Implementation in Aviation Maintenance Organizations" Daniel Siao, Middle Tennessee State University (#1243)

Virtual Poster Presentations

Chandler Theater

Moderator: Scott Burgess, ERAU-WW

Co-Chairs: Kelly George, ERAU-WW; Aaron Clevenger, ERAU-DB; Anne Boettcher, ERAU-PC For a complete listing of poster titles and authors, see p. 12.

3:30 p.m. -3:45 p.m.

Break

San Marcos Ballroom Foyer

#### 3:45 p.m. -5:00 p.m.

#### **Concurrent Sessions**

GSIS Symposium: UAS Collaboration & Research Opportunities

San Tan Ballroom

Chair: Ty Groh, ERAU-PC

Panelist: Bryce Dickey, ERAU-PC

Presenters:

- "Human-Computer-Interface for Geo-Fencing in Small Unmanned Aircraft Systems" *David Thirtyacre*, *ERAU-WW* (#1238)
- "Adaptation of Forward Military Airspace Management Systems for Civilian UAS Emergency Services Operations" *John Griffith, ERAU-WW* (#1236)
- "UAS Cyber-related Vulnerabilities and Their Mitigation" *Greg Vert, ERAU-PC; Radhakrishna Sampigethay, ERAU-PC*

Integration and Development of Virtual Reality/Simulation

Chandler Theatre

Moderators: Katherine Moran, ERAU-WW; Scott Burgess, ERAU-WW Panelists: Dan Machiarella, Dean, College of Aviation, ERAU-DB; Grant Patterson, Information Technology, ERAU-WW; Bob Ferris, VirTra Systems; Ray Bedard, Founder, True Course Simulations

Upset Recovery and Energy Management

La Ventana Ballroom

Chair: Bill Korner, President & CEO, Flight Research, Inc.

Presenters:

- "Upset Recovery" Bill Korner, Flight Research, Inc.
- "Energy Management" Juan Merkt, ERAU-PC

Training and Education

Palomino

Chair: Suzanne Kearns, University Aviation Association President Presenters:

• "Factors Affecting the Effectiveness of Simulation on Flight Training" *Jennah Perry & Jonathan Gallimore ERAU-PC* (#1242)

- "Pilot Study: Secondary Aviation/Aerospace Education Organization Design Survey" Susan Archer, ERAU-WW (#1233)
- "Degree Program Capstones: Applicability and Effectiveness" *Kent Anderson*, *ERAU-WW* (#1223)
- "Aviation Management Education Study (AMES): Two Years in Review" *Jason Newcomer & Matthew Earnhardt, ERAU-WW* (#1218)

4:45 p.m. -5:00 p.m.

*Graduate/Faculty/Industry Poster Set Up* 

San Marcos Ballroom A/B

5:00 p.m. -7:00 p.m.

*Reception with appetizers (ticketed and cash bar)* 

San Marcos Ballroom A/B

Undergraduate/Graduate/Faculty/ Industry Poster "Show and Tell"

Moderator: Scott Burgess, ERAU-WW

Graduate/Faculty/Industry Poster Competition

Co-Chairs: Katherine Moran, ERAU-WW; Scott Burgess, ERAU-WW

For a complete listing of poster titles and authors, please see program p. 13.

Undergraduate Poster Display and Competition Results

Co-Chairs: Kelly George, ERAU-WW; Aaron Clevenger, ERAU-DB; Anne Boettcher,

ERAU-PC

Graduate/Faculty Poster Display and Competition Results

Co-Chairs: Katherine Moran, ERAU-WW; Scott Burgess, ERAU-WW

7:00 p.m.

Dinner on Your Own

Chandler Historic District

#### **SATURDAY, JANUARY 16**

7:00 a.m. -8:00 a.m.

Continental Breakfast

San Marcos Ballroom Foyer & A

7:00 a.m. -5:00 p.m.

Registration and Help Desk

San Marcos Ballroom Foyer

8:00 a.m. -9:15 a.m.

#### **Concurrent Sessions**

Leadership/Innovation/Aerospace Technology/Applications

La Ventana Ballroom

Chair: Ed Knab, ERAU-WW

Panelists: Tim Holt, ERAU-WW; Kees Rietsema, ERAU-WW; Eric Anderson, Graduate Student, ERAU-PC

**Presenters:** 

- "Perception of Safety Culture for Air Traffic Controllers in Korea" Seock J. Hong, Kang-Seok Lee, University of North Texas (#1246)
- "In Pursuit of Aviation Professionalism: Assessing Aviation Professionalism" Hussain Alhallaf, Florida Institute of Technology (#1234)

Unmanned Aerial Systems Certification

San Tan Ballroom

Chair: Stewart Schreckengast, Purdue University

Panelists: James Malecha, Federal Aviation Administration; Nancy Graham, Former Director of ICAO's Air Navigation Bureau; Kurt Barnhart, Kansas State University; Jimmy Clem, President/CEO, Unmanned Aerial Consulting; Steven Pennington, USAF; Sarah Nilsson, ERAU-PC

#### Presenter:

• "A Survey of sUAS Operator's FAA Regulation Knowledge" *David Thirtyacre*, *ERAU-WW* (#1211)

Aviation Management and Operations

San Marcos Ballroom B

Chair: Hon. Robert Sumwalt, National Transportation Safety Board Presenters:

- "Analysis of Factors Related to True Airspeed (TAS) Calculation Utilizing the Handicap Procedure for the 2015 Women's Air Race Classic" *Erica Diels and Claire Schindler, ERAU-PC* (#1229)
- "Determining the Runway Point-of-No-Return for Landing Roll Go-Around in Transport Category Airplanes" *Nihad Daidzic, Minnesota State University-Mankato* (#1210)
- "Increasing General Aviation Safety through Data Analysis GA ASIAS" Shawn Pruchinicki and Philip Smith, Ohio State University (#1248)
- "The Results of Non-Compliance with Checklist Use and Control Checks in the BED Runway Overrun Crash" *Hon. Robert Sumwalt, National Transportation Safety Board* (#1257)

9:15 a.m.-9:30 a.m.

Break

San Marcos Ballroom Foyer

9:30 a.m. -10:45 a.m.

#### **Concurrent Sessions**

*State of the Helicopter Industry* 

San Tan Ballroom

Chair: Dawn Groh, ERAU-PC

Panelists: Robert Rappoport, Production Test Pilot and Instructor- MD Helicopters; David Small, Regional Aviation Manager- Air Methods Corp, Native Air AX; Scott Burgess, ERAU-WW; Terence Miyauchi, AZDPS; James Linehan, Phoenix Police Department

Human Factors: Human Error and Cockpit Automation

San Marcos Ballroom B

Co-Chairs: Clint Balog, ERAU-WW; Erin Bowen, ERAU-PC Panelist: Hon. Earl Weener, National Transportation Safety Board Presenters:

- "Cognitive Processes and Challenges During Surprise on the Flight Deck" *Shawn Pruchinicki*, *Ohio State University* (#1251)
- "The Effect of a Midpoint Marking on Pilot Decision Making While Landing" *Brian Dillman, Rachel Borsa, Lucero Duran & Julius Keller, Purdue University* (#1240)
- "Accident-Precipitating Factors for Crashes in Turbine-Powered General Aviation Aircraft" Douglas Boyd, University of Texas Health Science Center at Houston & Alan Stolzer ERAU-DB (#1212)
- "Exploring Pilots' Experiences of Integrating Technologically Advanced Aircraft Within General Aviation" *Calvin Nobles ERAU-WW* (#1208)

Consumer Perceptions in Aviation

La Ventana Ballroom

Co-Chairs: Scott Winter & Madison Hart, Florida Institute of Technology Presenters:

- "Deconstructing Legacy- Is Low-Cost the Business Model of the Future?" Astrid Zajdband ERAU-WW (#1244)
- "Effect of Passenger Weight Under-Estimations on Regional Aircraft Performance for the Most Obese States in America" *Douglas Boyd, University of Texas Health Science Center at Houston* (#1220)
- "From Customer Service to Self Service: The Decline of Passenger Satisfaction" Timothy Holt, ERAU-WW (#1241)
- "Impact Factors for the National Annual Airline Quality Rating and A<sup>3</sup>iR Con" Brent Bowen, Vrushali Suvarna, Hunter Watson, ERAU-PC (#1260)

10:45 a.m. -11:00 a.m.

Break

San Marcos Ballroom Foyer

11:00 a.m. -12:15 p.m.

#### **Concurrent Sessions**

Emergency Response

La Ventana Ballroom

Co-Chairs: MK Gorman, ERAU-WW; John Griffith, ERAU-WW Panelists: Hon. Robert Sumwalt, National Transportation Safety Board; Jim Linehan, ERAU-PC; Heather Strouse, Capital Aviation Consulting; Deputy Chief Beth Hendel, Phoenix, Fire Department

Presenter:

• "Lesson from the Ashes: How the NTSB Feels Emergency Response Can Be Improved" *Hon. Robert Sumwalt, National Transportation Safety Board* 

Innovations in Aviation Technologies

San Marcos Ballroom B

Co-Chairs: Vahid Motevalli, Tennessee Technical University; Bruce Conway, ERAU-WW Presenters:

- "Relative Material Loss: A Methodology for Assessing Island Airport Steel Marine Bulkheads" *Robert Ernsting, ERAU-WW; Constantine Koursaris, ERAU-WW* (#1261)
- "Wingsuit Materials Research The Effect of Currently Used Materials on Wingsuit Aerodynamics" *Timothy Sestak, ERAU-PC* (#1227)
- "Validating the Knowledge, Skills, and Abilities Composite Measure: An Aviation Industry Pilot Study Presentation" *Aaron Glassman, Jason Newcomer, Matthew Earnhardt, ERAU-WW* (#1217)
- "Class 1 EFB Deployment in a Fractional Ownership Pilot Population" *Kyle Tekaucic & Shawn Pruchinicki, Ohio State University* (#1249)

Critical Issues San Tan Ballroom

Chair: Doug Drury, University of South Australia Presenters:

- "Are We Facing a Pilot Shortage?" *Timothy Clifton, ERAU-PC* (#1255)
- "A Study on the Localization of Airport Self Bag Drop-off system in Korea" *Kangseok Lee, Hanseo University* (#1231)
- "Air Transport Pilot Supply and Demand: Current State and Effects of Recent Legislation" *Michael McGee, ERAU-WW* (#1219)
- "Cross-Sectional Assessment of Safety Culture Perceptions and Safety Behavior in Collegiate Aviation Programs in the United States" *Micah Walala & Julius Keller Purdue University* (#1213)

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12:15 p.m.-1:00 p.m. Light Lunch (RSVP at Registration Desk) San Marcos Ballroom Foyer & A

1:00 p.m.-2:00 p.m. Critical Issues San Tan Ballroom

Co-Chairs: Jimmy Clem, CEO Unmanned Aerial Consulting; Dan Macchiarella,

Dean, College of Aviation, ERAU-DB

**Presenters:** 

• "System Safety Modeling of Alternative Geofencing Configurations for Small UAS" *James Luxhoj, Luxhoj Consulting and Research LLC* (#1221)

• "Cyber Security and Privacy of Air Traffic Systems" *Radhakrishna Sampigethay*, *ERAU-PC* (#1230)

• "Wireless, Inductive, Self-Charging Electric Unmanned Aerial Systems" *Jeffrey*Austen, Rabie Belkacemi, Hicham Chaoui, Robert Craven, Satish Mahajan & Vahid
Motevalli, Tennessee Technological University (#1253)

• "The Impact of Sleepiness and Sleep Constructs on Pilot Performance" *Peter Dittmer, Utah Sleep Center & Aviation Research Lab* (#1256)

Roundtable Discussions and Research for the Future

La Ventana Ballroom

Chair: Mary Fink

*Note: Presenters will be published in the final proceedings.* 

2:00 p.m. – 4:00 p.m. WINGS Seminar: Unmanned Aircraft Systems (UAS) San Marcos Ballroom B

in the National Airspace System (NAS) - Overview of

Regulations

(& A Overflow)

Co-Chairs: Sarah Nilsson, ERAU-PC; Brian Roggow, ERAU-PC

Presenters: Tina Buskirk, FAASTeam Program Manager, Scottsdale Flight Standards

District Office; James Malecha, Federal Aviation Administration

4:00 p.m. – 6:00 p.m. Preparation for A<sup>3</sup>iR Con Communiqué

(RSVP at Registration Desk)

La Ventana Ballroom

Chair: Mary Fink

6:00 p.m. Dinner on Your Own Chandler Historic District

**SUNDAY, JANUARY 17** 

9:00 a.m.-11:00 a.m. Working Breakfast: Debriefing & Planning

(RSVP at Registration Desk)

La Ventana Ballroom

11:00 a.m.-5:00 p.m. On Your Own Cultural Excursions Greater Phoenix Area

5:00 p.m. Dinner on Your Own Chandler Historic District

**MONDAY, JANUARY 18** 

Departure Day Pre-scheduled Shuttles Depart for Sky Harbor Airport (on your own)

#### A<sup>3</sup>iR CONFERENCE UNDERGRADUATE RESEARCH SYMPOSIUM Presented by ERAU Worldwide Moderator: Scott Burgess, ERAU-WW

#### **Undergraduate Poster Competition – Live Session**

Co-Chairs: Kelly George, ERAU-WW; Aaron Clevenger, ERAU-DB; Anne Boettcher, ERAU-PC

- 1. "Impacts of Limited Field of View on UAVs" *Taylor Larson and Andrew Henderson, mentor: John Schaefer, Westminster College, Salt Lake City, UT.*
- 2. "Complacency: The Rise of Demise of Drones" *Elliot Low and Lincoln Taylor, mentor: John Schaefer, Westminster College, Salt Lake City, UT.*
- 3. "SHARP UAS Supersonic High Atmosphere Remotely Piloted Unmanned Aerial System" *Ryan Ashey and John Lewandowski, mentor: Michael Fabian, Embry-Riddle Aeronautical University, Prescott, AZ.*
- 4. "Integration of Unmanned Aircraft Systems (UAS) into the National Airspace System (NAS)" Wilson Ragle, mentor: John Robbins, Embry-Riddle Aeronautical University, Daytona Beach, FL.
- 5. "Oil for Terror: The Effectiveness of Western Intervention on ISIS' Oil Smuggling Capabilities" *Rae Heuer, mentor: Elisabeth Murray, Embry-Riddle Aeronautical University, Daytona Beach, FL.*
- 6. "Society of Women Engineers NASA Human Exploration Rover Challenge" Jessica Chow, Cristina Clawson, Estelle Fortes, Lisa Garside, Blaise Golden, Zachary Henney, Robin Loch, Keegan McCarthy, Chloe McClellan, Sarah Pearson, Johnnie Perry, Mo Sabliny, Josh Schoenherr, Jessica Turcios, Raeann VanSickle, Joshua Warshaw, Shayla Watson, and Samantha Wyeth, mentor: Brenda Haven, Embry-Riddle Aeronautical University, Prescott, AZ.
- 7. "Autonomous Satellite Recovery Vehicle (Rocket-Deployed Quad-Rotor)" *Devonte Grantham, Francisco Pastrana, and Shane Williams, mentors: Janet Marnane and Hong Liu, Embry-Riddle Aeronautical University, Daytona Beach, FL.*
- 8. "Suborbital Spaceflight: A Student Team's Plan to Send a Rocket to Space" *Bryce Chanes, Catherine Ayotte, and Nicole Shriver, mentor: Julio Benavides, Embry-Riddle Aeronautical University, Prescott, AZ.*
- 9. "Changes in Performance Parameters of Solid Rocket Motors as They Increase in Size" *Julia Levitt, Richard Reksoatmodjo, Rebecca Tobin, Raeann VanSickle, Bryce Smoldon, Christopher Sample, Tyler Gulden, and Laura Pelletier, mentor: Brenda Haven, Embry-Riddle Aeronautical University, Prescott, AZ.*
- 10. "Eagle Space Flight Team: Electrical Team" Brandon Klefman, Ryan Claus, Anthony Islas, Trupti Mahendrakar, Christian Moncada, Trishen Patel and Sarah Pearson, mentor: Dennis Kodimer, Embry-Riddle Aeronautical University, Prescott, AZ.
- 11. "High-Powered Rocket: Legacy" Michelle Machado, Sage Bauer, Andrew Delarosa, David Gomez Herrera, David Wright, Neil Nunan, Wesley Goldner-Carver, Akash Joseph, Isaac Perry, Kyle Hosler, Ben Eastman, Jonathan Winters, Michael Blair, Clark Anderson, Jaron Wong, Cristopher Ricario, Miles Howard, and Austin Leonard, mentor: Julio Benavides, Embry-Riddle Aeronautical University, Prescott, AZ.
- 12. "Engineering of Weather Balloon" Sergei Bilardi and William Griffin, mentor: John Hughes, Embry-Riddle Aeronautical University, Daytona Beach, FL.
- 13. "The Analysis of Atmospheric Sensory Data Obtained from a Weather Balloon System" *Erik Parker and Kari Slotten, mentor: John Hughes, Embry-Riddle Aeronautical University, Daytona Beach, FL.*
- 14. A Tale of a Flash Flood: WRF Modeling of Hurricane Norbert Record Rainfall and Flooding in Arizona" *Jennie Halverson and Dante Tabarracci, mentor: Dorothea Ivanova, Embry-Riddle Aeronautical University, Prescott, AZ.*
- 15. "Anti-Ice: Thermally Heated or Hydrophobic Materials?" *Abanob Mourkus, mentor: Jacqueline Luedtke, Embry-Riddle Aeronautical University, Prescott, AZ.*
- 16. "A Comeback for the Combi Carrier" *Lucas Mackey, mentor: Cindy Greenman, Embry-Riddle Aeronautical University, Prescott, AZ.*
- 17. "Computational Modeling of Boundary Layer Control and Drag Reduction" Brian Cowley, Seab Akana, Lucas

- Peterson, Dakota Burklund, and Duke Millett, mentor: Wallace Morris, Embry-Riddle Aeronautical University Prescott, AZ.
- 18. "Creating a Multi-Factor Index to Model Within the US Airline Industry" *Michelle Bennett, Catie Willard, and Madeline Kuhn, mentors: Jacqueline Luedtke and Brent Bowen, Embry-Riddle Aeronautical University, Prescott, AZ.*
- 19. A Concept Model for Assessing Frequent Flyer Survey Data" Catie Willard and Michelle Bennett, mentors: Erin Bowen and Brent Bowen, Embry-Riddle Aeronautical University, Prescott, AZ.
- 20. "A Qualitative Analysis of the Current Air Traffic Control Safety Climate" *Emilio L. Navarrete, mentors: Jonathan M. Gallimore and Jennah Perry, Embry-Riddle Aeronautical University, Prescott, AZ.*
- 21. "Are Children on Airplanes Safe Using Restraint Systems Designed for Adults?" *Amy Walker, mentor: Jonathan Gallimore, Embry-Riddle Aeronautical University, Prescott, AZ.*
- 22. "The Effects of Pilot Shortage on the Industry" *Timothy Clifton, mentor: Jacqueline Luedtke, Embry-Riddle Aeronautical University, Prescott, AZ.*
- 23. "Flight Training Benefits for Veterans, Past Present and Future: an Examination of the Government's Involvement with the Development and Revision of GI Bill Flight Training" *Luke Feenstra, mentor: Jacqueline Luedtke, Embry-Riddle Aeronautical University, Prescott, AZ.*
- 24. "Investigation of Contra-Rotating Propulsion on Human-Powered Aircraft" Mark Van Bergen, Kevin Horn, Michael Chastain, Ryan Burns, and Chris Jacobs, mentor: Gary Yale, Embry-Riddle Aeronautical University, Prescott, AZ.
- 25. "Eagle Aero Sport Embry-Riddle Student-Built Aircraft" *Jeffrey Harjehausen, Isaac Hein, Samuel Wolf, Christopher Mitchell, Kyle Wimmer, Geoffrey Winship, Michael Norville, Ryan Bishop, Erin Mann, and John Wright, mentor: Brian Davis, Embry-Riddle Aeronautical University, Prescott, AZ.*
- 26. "Team Eagle Wingsuit Research Results" Benjamin Salisbury, Glen Borland, Brian Cowley, Jason Lathbury, Joseph Gomez, Chris Reed, and Matthew Demi Vis, mentor: Timothy Sestak, Embry-Riddle Aeronautical University Prescott, AZ.
- 27. "Ultralight Turbine-less Jet Engine" *Tre Buchanen, Isaac Anderson, and Stephen Woodard, mentors: Brenda Haven and Shigeo Hayashibara, Embry-Riddle Aeronautical University, Prescott, AZ.*
- 28. "Nova Track A Hyperloop Competition Project" *Max Starkel, Eli Olson, Jacobus Smit, Amy Walker, Alexandra Indritz, Dakota Burklund, and Trenton Post, mentor: Sam Siewert, Embry-Riddle Aeronautical University, Prescott, AZ.*

#### A<sup>3</sup>iR CONFERENCE VIRTUAL POSTER SESSION Presented by ERAU Worldwide Moderator: Scott Burgess, ERAU-WW

#### Poster Competition - Virtual Session

Co-Chairs: Kelly George, ERAU-WW; Aaron Clevenger, ERAU-DB; Anne Boettcher, ERAU-WW

- 1. "Designing Windowless Aircraft: Better for Manufacturing, but Will Passengers Fly?" *Robin Provilij, mentor: Scott R. Winter, Florida Institute of Technology, Melbourne, FL.*
- 2. "American Aviation Consumers' Willingness to Fly While the Pilot Monitoring Performs Non-Flight Activities during Cruise Flight" *Brian Warsaw, mentor: Scott R. Winter, Florida Institute of Technology, Melbourne, FL.*
- 3. "American Public Opinion on Willingness to Fly with the Presence of Unmanned Aerial Vehicles in the National Airspace" *Ibou Seck and Gajapriya Tamilselvan, mentor: Scott R. Winter, Florida Institute of Technology, Melbourne, FL.*
- 4. "Controlling Remote Machines: A Small Unmanned Aircraft Systems Training Guide for National Airspace System Integration" *Eric G. Agundez, ERAU-WW, mentor Gloria Wilson, ERAU-WW*

# A<sup>3</sup>iR CONFERENCE GRADUATE/FACULTY/INDUSTRY POSTER SESSION Presented by ERAU Worldwide Moderator: Scott Burgess, ERAU-WW

#### **Poster Competition – Live Session**

Co-Chairs: Katherine Moran, ERAU-WW; Scott Burgess, ERAU-WW

- 1. "Role of Aerodynamic Surface in Lift Adjustment of a Hybrid Buoyant Aircraft" *Anwar ul Haque Mr, International Islamic University Malaysia*
- 2. "Quadcopter Swarm Arena" Joshua Teramae, Shane Stebler, Logan Turco, Michael Nisip, Sigfried Hache, and Zakaria Daud, ERAU-DB
- 3. "Opinions Aviation Consumers Have on Problematic Airport Security Situations" *Jacob Mickevicius, Kasey Friedenreich, Rian Mehta, Adam Hruszczyk, and Stephen Rice, Florida Institute of Technology*
- 4. "Consumer Willingness to Fly Onboard Aircraft with Armed Pilots" *Kasey Friedenreich, Jacob Mickevicius, Rian Mehta, Sherisse Pierre, and Stephen Rice, Florida Institute of Technology*
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**Presenters:** Most sessions are 90 minutes long and have four presenters. Presentations should be approximately 15 minutes long. Question & Answer time will be held at the end of the last presentation in each session. Presentation materials will be collected electronically on-site (white papers, etc.) and will be published in Scholarly Commons post-conference. Presentations may also be emailed to praircon@erau.edu.

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