

# A<sup>3</sup>iR conference

January 14-17, 2016

## **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 Ashley and John Lewandowski*, mentor: *Michael Fabian*, Embry-Riddle Aeronautical University, Prescott, AZ.
4. "Integration of Unmanned Aircraft Systems (UAS) into the Nation Airspace System (NAS)" *Wilson Ragle*, mentor: *John Robbins*, Embry-Riddle Aeronautical University, Daytona, 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, 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, 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, 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, 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 Buchanan, 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.

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

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**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
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**A<sup>3</sup>iR CONFERENCE GRADUATE/FACULTY/INDUSTRY POSTER SESSION**  
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**Poster Competition – Live Session**

Co-Chairs: Kat 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. “Drawing the Lines: How Small Unmanned Aerial Vehicles (UAVs) are Impacting and Improving National Infrastructure Inspection Capabilities” *Jill Brown – ERAU-WW*
4. “Opinions Aviation Consumers Have on Problematic Airport Security Situations” *Jacob Mickevicius, Kasey Friedenreich, Rian Mehta, Adam Hruszczyk, and Stephen Rice, Florida Institute of Technology*
5. “Consumer Willingness to Fly Onboard Aircraft with Armed Pilots” *Kasey Friedenreich, Jacob Mickevicius, Rian Mehta, Sherisse Pierre, and Stephen Rice, Florida Institute of Technology*
6. “The Effects Advertising has on Passenger Opinions towards Advancements in Aviation Technology” *Kasey Friedenreich, Jacob Mickevicius, Rian Mehta, Morgan Eudy, and Stephen Rice, Florida Institute of Technology*
7. “We Have the Technology: Creating Effective Pilots by Coupling Simulation with Ground School” *Jonathan Gallimore and Jennah Perry, ERAU-PC*
8. “Analysis of Causal Human Factors of In-flight Loss of Control for Commercial Fixed-wing Aircraft” *Seline Ng'eno, Florida Institute of Technology*
9. “Fatal Accident Risk Analysis of General Aviation Operations” *Thomas Glista, Florida Institute of Technology*
10. “The Impact of Sleepiness and Sleep Constructs on Pilot Performance” *Peter Dittmer, Utah Sleep Center & Aviation Research Lab*
11. “Causal Factors of Crash Accidents at Non-Towered Airports” *Christian Salmon, Western New England University*