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**C-UAS – Center for Unmanned Aircraft Systems**  
**INDUSTRY ADVISORY BOARD MEETING**  
National Science Foundation (NSF) • Industry / University Cooperative Research Center  
8 August - 9 August, 2017 • NOAA, College Park, Maryland

**A G E N D A**

**Tuesday, 8 August 2017 – NOAA Auditorium**

- 7:30 AM Registration*
- 8:00 AM Welcome and Meeting Objectives, **Tim McLain**, Director, C-UAS
- 8:10 AM Introductions
- 8:20 AM Break and Social Time*
- 8:50 AM C-UAS Overview and Meeting Details, **Tim McLain**, Director, C-UAS
- 9:15 AM LIFE Form Process Review & NSF Questionnaire, **Eric Sundstrom**, NSF Assessment Coordinator
- 9:35 AM CU Project Proposals, Eric Frew, Site Director
- 9:35 AM CU17-01 Robust Communication Services in Complex Environments, **Eric Frew**
- 9:40 AM CU17-02 sUAS Communications and Navigation in the NASA UTM, **Brian Argrow & Dale Lawrence**
- 9:45 AM CU17-03 Active Collaborative Sensing, Learning and Planning with Humans in UAS, **Nisar Ahmed**
- 9:50 AM (New) CU17-05 Small UAS Turbulence and Gust Measurement and Model, **Dale Lawrence, John Farnsworth, Brian Argrow, & Sean Humbert**
- 9:55 AM LIFE Forms*
- 10:00 AM CU17-04 User-Adaptive Assurances for Enhancing Trust, **Eric Frew, Nisar Ahmed, Dale Lawrence, & Brian Argrow**
- 10:05 AM (New) CU17-05 Verification & Validation of Autonomous Systems: Systematic Quantification of Failure Risks, **Eric Frew & Sriram Sankaranarayanan**
- 10:10 AM (New) CU17-06 Robust Fault Detection and Mitigation for Small UAS, **Dale Lawrence, Eric Frew, & Nisar Ahmed**
- 10:15 AM (New) CU17-07 Cycloidal Propellers for Seamless Transition Between Vertical and Forward Flight, **John Farnsworth**
- 10:20 AM (New) CU17-08 Path Following and Advanced Maneuvers for Small Fixed-wing UAS in Wind, **Dale Lawrence & Eric Frew**
- 10:25 AM Interactive Session (Proposal Discussion Time) and LIFE Forms*
- 11:15 AM UM New Project Proposals, Ella Atkins, Site Director
- 11:15 AM (New) UM17-01 Very Flexible UAS for Aeroelastic Data Collection and Control Development, **Carlos Cesnik**
- 11:20 AM (New) UM17-02 Emergency Flight Planning with IoT and Onboard Sensor Data used in Decision Making, **Ella Atkins**
- 11:25 AM (New) UM17-03 Exploring Vulnerabilities in Multi-UAV Systems for Swarm Defence: A Control-Theoretic Approach, **Dimitra Panagou**
- 11:30 AM (New) UM17-04 Simulation of Individual and Swarms of UAS through Realistic Atmospheric Conditions, **Karthik Duraisamy**
- 11:35 AM (New) UM17-05 Electronic Geofencing Guidance and Control with UAS Traffic Management (UTM), **Ella Atkins**
- 11:40 AM Interactive Session (Proposal Discussion Time) and LIFE Forms*
- 12:30 PM *LUNCH*

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- 1:30 PM VT Project Proposals, Craig Woolsey and Kevin Kochersberger, Site Directors
- 1:30 PM VT17-01 UAV/UGV Cooperative Classification for Online UGV Route Planning and Localization, **Kevin Kochersberger**
- 1:35 PM VT17-02 Agile Control for Inspection, **Matt Hebdon, Pratap Tokekar, Mayur Patil, Craig Woolsey**
- 1:40 PM VT17-03 Security Aware Control Algorithms, **Mazen Farhood**
- 1:45 PM (New) VT17-04 Autonomy Test & Evaluation, Verification & Validation (ATEVV): An Exploratory Case Study of Motion Planning and Control, **Mazen Farhood & Craig Woolsey**
- 1:50 PM (New) VT17-05 Synthesis of Formally Specified, Configurable Hardware Monitors for Flight Control Software, **Cameron Patterson & Mazen Farhood**
- 1:55 PM (New) VT17-06 Intelligent Visual Tracking System for Small UAS, **Kevin Kochersberger & Craig Woolsey**
- 2:00 PM Joint BYU-VT17-01 Small Aircraft Flight Encounters (SAFE) Database and Algorithms, **Craig Woolsey, Karl Warnick, & Randy Beard**
- 2:05 PM *Interactive Session (Proposal Discussion Time) and LIFE Forms*
- 2:55 PM BYU Project Proposals, Randy Beard, Site Director
- 2:55 PM BYU17-01 Robust Target Tracking, **Randy Beard & Mike Goodrich**
- 3:00 PM BYU17-02 Navigation in Cluttered Terrain with Intermittent GPS, **Tim McLain & Randy Beard**
- 3:05 PM (New) BYU17-03 Aerodynamic Performance of Multiple Interacting Rotors and Lifting Surfaces, **Andrew Ning**
- 3:10 PM BYU17-04 s-UAV-based Infrastructure Monitoring, **John Hedengren & Kevin Franke**
- 3:15 PM *LIFE Forms*
- 3:20 PM BYU17-05 Robust Moving Target Handoff in GPS Denied Environments, **Randy Beard & Mike Jensen**
- 3:25 PM BYU17-06 Optimization of Heterogeneous Group of Vehicles for Achieving Multiple Mission Level Objectives, **Cammy Peterson & Andrew Ning**
- 3:30 PM (New) BYU17-07 Electronically Steered Arrays (ESAs) for Onboard UAS Satellite Communications, **Karl Warnick**
- 3:35 PM (New) Joint BYU-CU17-02 Multiple Aircraft Sensing System (MASS), **Randy Beard & Eric Frew**
- 3:40 PM BYU17-08 Probabilistic Programming for Perceptually Driven Autonomous Agents, **David Wingate**
- 3:45 PM (New) BYU17-09 Counter UAS-Mitigation of Unauthorized Unmanned Air Systems, **Karl Warnick & Randy Beard**
- 3:50 PM *Interactive Session (Proposal Discussion Time) and LIFE Forms*
- 4:40 PM Initial Project Voting
- 5:00 PM Graduate Student Poster Session (*breakout room 1602*)  
Guest & New Member Workshop (*auditorium*)
- 6:00 PM Adjourn

## A G E N D A

### Wednesday, 9 August 2017 – NOAA Auditorium

*7:30 AM Social Time*

8:00 AM Welcome and agenda overview, **Tim McLain** -- Scheduling of next IAB meeting

8:10 AM NSF Questionnaires, **Eric Sundstrom**, NSF Assessment Coordinator

8:30 AM Georgia Tech/Penn State Discussion, **Tim McLain**, Director, C-UAS

8:40 AM Membership, Funding, and Budget Update, **Site Directors**

*9:20 AM BREAK*

9:30 AM Center Operations Discussion, **Derek Kingston**, IAB Chair

10:00 AM Project Reviews (Members and Guests), *breakout room 1602*  
Faculty Meeting, *main auditorium*

*12:00 PM BREAK- Grab Box Lunches*

12:30 PM Member Presentations, *breakout room 1602* (Lunch Continued)

*1:00 PM BREAK*

1:15 PM IAB Project Final Voting – Qualtrics survey, *breakout room 1602*

1:40 PM Final Results Shown

1:50 PM Closing remarks, **Tim McLain**

*2:00 PM Adjourn*