

# Technical Operations

**AESS Board of Governors Meeting**

**May 12-13, 2017**

**Seattle, WA**

**Walt Downing**

**VP Technical Operations, AESS**



# Technical Operations Mission & Vision (Unchanged)

- **Mission Statement** - AESS Technical Operations will form technical panels in the Society's fields of interest to stimulate technological advances and member engagement in technical networking, standards development, publications, conferences, chapter meetings, and other professional development activities.
- **Vision Statement** – Organize and conduct the world's best technical activities in the Society's fields of interest.

# Strategic Analysis (Unchanged)

- What is our **current status**?
  - Strengths and Opportunities
    - Some strong legacy panels
    - Some emerging panels with promising futures
    - Conferences seeking more member involvement/engagement
    - Members seeking training and professional development
    - Chapters seeking speakers and workshops
    - Students seeking experiential training (i.e. projects)
  - Challenges
    - Some panels are in limbo or are relatively inactive
    - Some lack of alignment with other AESS activities
    - Some technical panels and conferences only loosely affiliated with AESS
    - Time demands on volunteers
    - Weak connections with students and young professionals

# Strategic Objectives

1. Develop and implement a technical panel review process
2. Expand technical panel participation in all AESS sponsored conferences (Coordinating with VP, Conferences)
3. Promote collaboration between technical panels and chapters (Need committee member to work with Chapter Coordinator)
4. Promote synergy and collaboration with AESS Educational Activities to expand distinguished lecturer coverage and develop continuing professional development activities for all AESS fields of interest (Coordinating with VP, Education)
5. Prepare guidance in the form of best practices and recognize outstanding technical panels
6. Increase AESS member participation in all technical panels

# Initiatives

## Strategic Objective 1

Develop and implement a technical panel review process

### Initiatives:

- Develop matrices identifying alignment of technical panels with AES conferences, distinguished lecturers, IEEE standards, etc.
- Perform gap analysis on these matrices to identify opportunities to increase alignment
- **Filling the gaps**

# Highlights

## Strategic Objective 1 - Metrics/Scorecard

| Technical Panels                | Aerospace Control & Guidance Systems | Aerospace Systems Integration Engineering | Avionics Systems | Cyber Security  | Gyro and Accelerometer   | *Proposed* Navigation Systems | Radar Systems   | Space Systems    | Target Tracking Systems | Unmanned Aerospace Vehicles |
|---------------------------------|--------------------------------------|---|------------------|-----------------|--|-------------------------------|---|------------------|-------------------------|-----------------------------|
| Chair                           | Brian Lee                            | Koti Tatipamula                           | Paul Kostek      | Kathleen Kramer | Randall Curey  | Michael Braasch               | Braham Himed  | Cosimo Stallo    | David Crouse            | Vince Socci                 |
| Vice Chair or Co-Chair          | ? Jeb Orr (Sec.)                     | Dante Bolatti                             |                  |                 | Reese Sturdevant   |                               | Raviraj Adve  | Marina Ruggieri  |                         | Phillip Hall                |
| Number of Members               |                                      |   |                  |                 |  |                               | 30-45   |                  |                         |                             |
| Number of Committees            | 5                                    | "4-7"                                     | 5                | None Currently  | 2  |                               | 7   | 3 "Areas"        | 4                       | Ad Hoc                      |
| IEEE Standards                  |                                      |   |                  |                 | Sensors - 292, 293, 517, 528, 529, 647, 671, 813, 836, 952, 1293, 1431, 1554, Systems - 1559, & 1780 |                               | Terminology - 521 & 686<br>Ultrawideband Radar - 1672 |                  |                         |                             |
| Meetings per Year               | Semi-annual                          | 2+  | 2+               | 2+              | 6 meetings/yr.   |                               | 4+  | 2+               | 2+                      | 2+                          |
| Conference Participation        |                                      |   | DASC & ICNS      | DASC & ICCST    |  | PLANS                         | Multiple  | Aerospace & RAST |                         |                             |
| Responsibility for AES Awards   |                                      |   |                  |                 |  |                               | Nathanson & White                                     | Resnik           |                         |                             |
| Distinguished Lecturer Coverage | 4                                    | 9   | 3                | 1               | 1  | 3                             | 12  | 6                | 11                      | 5                           |

# Initiatives

## Strategic Objective 2

Expand technical panel participation in all AESS sponsored conferences  
(Coordinating with VP, Conferences)

### Initiatives:

- Utilize gap analysis to identify conferences that lack AESS member participation
- Identify cognizant technical panel for each conference and encourage increased participation
- Encourage all technical panels to participate in at least one AESS conference per year

# Highlights

## Strategic Objective 2 - Metrics/Scorecard (Preliminary)

| Sponsored/Cosponsored Conferences                    | Financial Cosponsors | Next Conference                             | Last Held                               | AESS Attendees |      | AESS Technical Panel            |
|--|----------------------|---|---|----------------|------|---------------------------------|
|  |                      |   |   | 2016           | 2015 |                                 |
| IEEE Aerospace Conference                            |                      | March 4-11, 2017<br>Big Sky, MT             | March 5-12, 2016<br>Big Sky, MT         |                |      | Space Systems                   |
| Navigation, and Surveillance Conference (ICNS)       | AIAA DATC            | April 18-20, 2017<br>Herndon, VA            | April 21-23, 2015<br>Herndon, VA        |                |      | Avionics Systems                |
| IEEE International Radar Conference (RadarCon)       |                      | May 8-12, 2017<br>Seattle, WA               | May 1-6, 2016<br>Philadelphia, PA       | 133            |      | Radar Systems                   |
| European Navigation Conference (ENC)                 | Multiple             | May 9-12, 2017<br>Lausanne, Switzerland     |   |                |      |                                 |
| Metrology for AeroSpace (MetroAeroSpace)             | IEEE IM Society      | June 21-23, 2017<br>Padua, Italy            | June 22-23, 2016<br>Florence, Italy     |                |      |                                 |
| IEEE AUTOTESTCON                                     | IEEE IM Society      | September 9-15, 2017<br>Schaumburg, IL      | September 12-15, 2016<br>Anaheim, CA    |                |      | Board of Directors              |
| IEEE/AIAA Digital Avionics Systems Conference (DASC) | AIAA DATC            | September 16-21, 2017<br>St. Petersburg, FL | September 25-30, 2016<br>Sacramento, CA | 14             |      | Avionics Systems                |
| Position Location and Navigation Symposium (PLANS)   | ION                  | April 23-26, 2018<br>Monterey, CA           | April 11-14, 2016<br>Savannah, GA       | 19             |      | *Proposed<br>Navigation Systems |

- Aerospace Control and Guidance Systems Panel is separate 501.c.3 that conducts semiannual meetings with technical sessions and short courses that are not affiliated with IEEE.
- Gyro and Accelerometer Panel meets for two days every two months to develop sensors and systems standards.
- Radar Panel and Space Panel are actively engaged with several meetings and conference in their fields of interest
- Aerospace Systems Integration Engineering Panel is engaged with IEEE Systems Council and conferences
- Cybersecurity Panel and UAV Panel are engaged with other IEEE and Professional Society conferences.



# Initiatives

## Strategic Objective 3

Promote collaboration between technical panels and chapters  
(Need committee member to work with Chapter Coordinator)

### Initiatives:

- Identify technical panel members and their local IEEE sections
- Develop matrix of technical panel membership vs. IEEE sections for regional coverage
- Analyze matrix to identify regions that have critical mass and ensure that there are local AESS chapters in these regions to promote further collaboration
- Survey local AESS chapters to identify which AESS fields of interest, if any, are predominant among their members
- Use this information to inform and encourage member participation in relevant technical panels

# Initiatives

## Strategic Objective 4

Promote synergy and collaboration with AESS Educational Activities to expand distinguished lecturer coverage and develop continuing professional development activities for all AESS fields of interest

(Coordinating with VP, Education)

### Initiatives:

- Utilize gap analysis to identify needs for distinguished lecturers in specific fields of interest
- Utilize AESS chapter fields of interest and local experts to identify new distinguished lecturer candidates
- Explore concept of short courses proposed by educational activities to increase collaboration

# Highlights

## Strategic Objective 4 - Metrics/Scorecard (Preliminary)

|                            | Aerospace Control & Guidance Systems | Aerospace Systems Integration Engineering | Avionics Systems | Cyber Security | Gyro and Accelerometer | *Proposed* Navigation Systems | Radar Systems | Space Systems | Target Tracking Systems | Unmanned Aerospace Vehicles |
|----------------------------|--------------------------------------|---|------------------|----------------|------------------------|-------------------------------|---------------|---------------|-------------------------|-----------------------------|
| <b>Maruthi Akella</b>      |                                      |   |                  |                |                        |                               |               | X             |                         | X                           |
| Yaakov Bar-Shalom          |                                      | X   |                  |                |                        |                               |               |               | X                       |                             |
| Erik Blasch                | X                                    | X   |                  |                |                        |                               |               |               | X                       |                             |
| Eli Brookner               |                                      |   |                  |                |                        |                               | X             |               | X                       |                             |
| Larry Chasteen             |                                      | X   | X                |                |                        |                               | X             |               |                         |                             |
| Fred Daum                  |                                      | X   |                  |                |                        |                               | X             |               | X                       |                             |
| Mark Davis                 |                                      |   |                  |                |                        |                               | X             |               | X                       |                             |
| <b>Walt Downing</b>        |                                      |   | X                |                |                        | X                             |               | X             |                         | X                           |
| Giuseppe Fabrizio          |                                      | X   |                  |                |                        |                               | X             |               | X                       |                             |
| Alfonso Farina             |                                      |   |                  |                |                        |                               | X             |               | X                       |                             |
| Maria Sabrina Greco        |                                      |   |                  |                |                        |                               | X             |               | X                       |                             |
| Hugh Griffiths             |                                      |   |                  |                |                        |                               | X             |               | X                       |                             |
| <b>Phillip Hall</b>        |                                      |   |                  |                |                        |                               |               |               |                         | X                           |
| <b>Lorenzo LoMonte</b>     |                                      |   |                  |                |                        |                               | X             |               |                         |                             |
| Wolfgang Koch              | X                                    | X   |                  |                |                        |                               | X             |               | X                       |                             |
| <b>Kathleen Kramer</b>     |                                      |   |                  | X              |                        | X                             |               |               |                         |                             |
| Surendra Pal               | X                                    | X   |                  |                |                        |                               |               | X             |                         |                             |
| <b>Zihua Qu</b>            |                                      |   |                  |                |                        |                               |               |               |                         | X                           |
| Bob Rassa                  |                                      | X   |                  |                |                        |                               |               |               |                         |                             |
| <b>Avid Roman-Gonzalez</b> |                                      |   |                  |                |                        |                               |               | X             |                         |                             |
| George Schmidt             | X                                    | X   | X                |                | X                      | X                             |               |               |                         | X                           |
| <b>Michael Wicks</b>       |                                      |   |                  |                |                        |                               | X             | X             |                         |                             |
| <b>Peter Willett</b>       |                                      |   |                  |                |                        |                               | X             |               | X                       |                             |
| <b>Ji Wu</b>               |                                      |   |                  |                |                        |                               |               | X             |                         |                             |

# Initiatives

## Strategic Objective 5

Prepare guidance in the form of best practices and recognize outstanding technical panels

### Initiatives:

- Collect information for each technical panel
- Identify best practices
- Share ideas among technical panels

### Highlights:

#### Outstanding Technical Panel of the Year Awards:

2016 – Unmanned Aerial Vehicles (Proposed)

2015 – Gyro and Accelerometer

2104 – Aerospace Control and Guidance Systems

2013 – Radar Systems

# Initiatives

## Strategic Objective 6

Increase AESS member participation in all technical panels

### Initiatives:

- Utilize AESS chapter fields of interest and local experts to identify and engage emerging leaders
- Inform and invite AESS members to participate in AESS activities through improved communication efforts including letters, email, AESS website, QEB and social media

# Highlights

## Strategic Objective 6 - Metrics/Scorecard

### Status

- Updating AESS website with current information
- Preparing articles for QEB
- Increasing participation in social media activities
- Collaborating more effectively with student branches
  - Having chapter meetings at local universities
  - Sponsoring student projects
- Engaging with UTSA IEEE-HKN chapter to create opportunities to increase student involvement in AESS
  - AESS undergraduate student representative is active in this chapter
  - AESS VP, Technical Operations invited to become industrial advisor
    - Meeting with the chapter officers periodically
    - Serving as a mentor for students in the chapter

# Financial Assessment

- How do the initiatives impact the AESS “financially” ?
  - Account for the AESS resources required to implement initiatives
  - Recommend what future investments should be made and why?
  - Formulate motions required to bring up to the board
- Student projects and especially competitions or challenges seem to be an effective means of engaging students in professional society activities (**Formula SAE**, ASCE Concrete Canoe, ASME Design Competitions, Collegiate Cyber Defense Competition, etc.)
  - **Thanks for the Trinity University student project funding**
- 2015 UAV/UAS student project was an interesting initiative
  - **Possibly worth consideration for future funding**
- **Other Resources**
  - Volunteer time is the most critical scarce resource, not money
  - Coordinating the activities of multiple volunteers is challenging and existing communication methods and collaboration tools are relatively inefficient or ineffective

# Technical Operations – Summary

## ■ **Member Placement**

- Get members into TP's

## ■ **Chapters**

- TP speakers for Chapter meetings

## ■ **Conferences**

- Encourage TP's to plan and organize conferences

## ■ **Education**

- Identify DL's in all AESS Fields of Interest

## ■ **Standards**

- Get TP's engaged with IEEE-SA activities

## ■ **Awards**

- Develop TP Awards

## ■ **Communications**

- Publicize TP activities

## ■ **TP Development**

- Identify new and emerging fields of interest

## ■ **Student Branches**

- Increase student engagement