VP Technical Operations Report
BoG Meeting
14-15 April 2011

Theodora Saunders

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VP Technical Operations Report

Technical Panel	Chair/Co-Chair
Gyro and Accelerometer	Randall K. Curey (Chair)
Radar Systems	Michael C. Wicks (Chair)
Space Systems	Cosimo Stallo (Chair) Marina Ruggieri (Vice Chair)
Target Tracking Systems (New)	Hody Lambert
Aerospace Systems Integration Engineering	Barry Greenberg (Chair)
Aerospace Control & Guidance Systems	Gary Balas (Chair)
SAR and IED Detection	Mark Yeary
Aerospace Workforce (New)	Russell Lefevre (Chair) Theodora Saunders (Vice Chair)
Standards (New)	Rich Hochberg (Chair)
Cyberspace / Cyber Security Panel	Fred Wright (Chair)
UAV Panel	George Dean

http://www.ieee-aess.org/main/index.php/technical-committies

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GYRO AND ACCELEROMETER PANEL

- **Chair:**
  - Randall K. Curey
- **TP is comprised by 2 TCs** *(Gyro and Accelerometer)*
- TP 2011 Focus on IMU related standards
  - P1780 is the main focus of the panel at this time.
    - *P1780, "Standard Specification Format Guide and Test Procedure for Inertial Measurement Units (IMUs)."*
  - Std 1554, "Recommended Practice for Inertial Sensor Test Equipment, Instrumentation, Data Acquisition, and Analysis" was reaffirmed 31 March 2011
  - Several other standards were reaffirmed in 2010

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SAR and IED Detection

- **Chair:**
  - Mark Yeary

- **TP focus**
  - Develop SAR/ISAR algorithms and radar hardware for automatic Improvised Explosive Device (IED) detection
  - Collaborations with academia, industry, and Government
  - Recent TP efforts/focus
    - Development of innovative algorithms and hardware
      - "Shoebox Wideband Ka-Band Radar" for IED detection
      - Working to find other applications for the Shoebox radar
        - » *Refinements are needed to allow the radar to have a smaller footprint. Other applications, such as rainfall measurements, are also being explored*

The TP will make a presentation at the 2011 RadarCon

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Standards TP *(In Development)*

- **Proposed Chair:**
  - Richard C. Hochberg
- **Status** *(from last meeting)***:**
  - Very busy; no commitments from potential chair
    - *Offered to collaborate and leverage IEEE Sys Council similar activities; Interested in the SE standards*

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Standards TP *(In Development)*

- **Standards TP** *....continuation*
  - **Status *(Current Status)***
    - **Provided a Draft SOO**
      - Identify AES relevant standards
        - » With inputs from the AES FOI SMEs and other TPs
      - Establish a team of interested collaborators to
        - » Review existing standards
        - » Identify potential applicability issues (gaps, relevant content, other)
        - » Suggest updates; Implement updates
        - » Develop a training packages?
    - Discussions to follow
    - **Additional potential collaborations discussed**
      - ESA

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Cyber Security TP *(In Development)*

- **Chair:**
  - G.A. (Fred) Wright
  - TP is still in the formative stages
    - Perspective members have commented on the by-laws
    - Objectives of IEEE TP involvement in cyber conferences have be outlined and TP objectives for "training" activities in cyberspace have been discussed
    - Plans for future TP periodic meetings have be established

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IEEE AES Sponsored
Senior Design Project Status

- **AES approved $10K for two projects**

  - We received a nice "Thank You" letter from UNH for our sponsorship (*I will scan and forward to Judy for distribution and perhaps on the systems magazine with a story*)

  - **University Of Connecticut**
    - **Project -** Distributed Sensor Communications Aboard an Aircraft
    - **Department** - Electrical and Computer Engineering
    - **Faculty Coordinator:** Dr. John Chandy, Assoc. Dept. Head
    - **Status** – Money Received; project will start in Fall 2011

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IEEE AES Sponsored
Senior Design Project Status

- **University Of New Haven**
  - **Project -** Remote Piloting of an Unmanned Aerial Vehicle
  - Department - Electrical Computer Engineering &Computer Science
  - **Faculty Coordinator** - Dr. Christopher Martinez
  - **Status** - Money Received; Project on going
- Concept of the project has change a little bit in terms of scope
  - **It is now a large scale multi-disciplinary project**
- Project is being used as a vehicle/pilot to transform the sequence of the senior design courses
  - Using System Life Cycle Phases

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UAV Project Details

The goal of the UAV project is to develop a quadrotor vehicle (Figure 1) that can be controlled wireless (this project will use WiFi) from a remote PC. The UAV will have an attach video camera that sends streaming video back to a remote PC. The remote PC will have a pilot that is able to view the streaming video and fly the UAV. The pilot will be limited to simple movement such as attitude adjustment and forward/backward/turn motions. The UAV will not be able to do dramatic acrobat movements.

Figure 1 Quadrotor UAV

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Other Collaboration Activities

- AES /IEEE Sys Council
  - **SE Effectiveness Study Enhancement**
  - Established interface with Stevens Institute to
    - Review and provide inputs to the BKCASE-SEBoK0.25
      - » **Completed 12/13/ 2010**
    - Review of a Graduate Reference Curriculum for Systems Engineering (GRCSE) with our member societies
      - » **Provided review inputs 03/07/2011**

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- Proposed changes
  - **Name change**
    - From TPs to TCs (Technical Committees)
      - Positive response from TP chairs
        - » May not be practical to implement
  - **TP Web Page Enhancements**
    - **TP Operating Plan**
      - Draft document in development
    - **TP Formation and Sustainment Process Flow**
      - Draft process flow in development
  - **Budget Allocation for TPs**
    - Allocated

Theo Saunders moved that the Technical Panels develop a Charter and a Technical Operating Plan, to be consistent with the AESS Constitution and Bylaws. 2nd George Dean