



Ninth Annual Information Meeting

April 7-8, 2015

Pfahl Executive Education Building, The Ohio State University, Columbus, OH

Workshop Program - Tuesday Morning, April 7

7:30	Workshop Registration and Continental Breakfast
8:00	Welcome, introductions and workshop overview <i>Frank van Graas, COUNT Director</i>
8:15	Government Presentation: Dr. Mikel Miller, Senior Scientist for PNT Technologies, Air Force Research Laboratory
8:45	Presentation by Honeywell, Inc.
9:15	Presentation by Northrop Grumman Corporation
9:45	<i>Break</i>
10:15	Overview of Navigation Related Research at The Ohio State University ElectroScience Laboratory, <i>Inder "Jiti" Gupta</i>
	Poster Presentations by OSU ESL (45 minutes)
	Experimental Verification of On-the-fly Antenna Induced Bias Estimation Technique for GNSS Receivers --Ying Chieh "Jay" Chuang, Andrew O'Brien and Inder "Jiti" Gupta
	Verification of an Optimal Adaptive Filtering Algorithm for GNSS Antenna Arrays -- Matthew Buchanan, Jay Chuang, Andrew O'Brien and Jiti Gupta
	Demonstration of the Direct Mapping Method for Locating Multiple Emitters -- Andrew L. Kintz and Inder "Jiti" Gupta
	A New Approach to Resolving Emitter Locations in the Presence of Antenna Manifold Mismatch -- Andrew L. Kintz and Inder "Jiti" Gupta
	A Study of the EM Bias for GNSS-R Altimetry -- Jeonghwan Park, Joel T. Johnson, and Stephen T. Lowe
	Accuracies of Mixed Measurement Type Combinations for Passive Location Estimation -- Huimin "Jamie" Huang, Christopher J. Baker and Graeme E. Smith
	Echoic Flow for Cognitive Guidance and Navigation -- Saif A. Alsaif, Graeme E. Smith and Christopher J. Baker
	2-D shape perception and discrimination inspired by human echolocation -- Xuelian Yu, Christopher J. Baker, Graeme E. Smith
11:45	<i>Lunch</i>

Workshop Program – Tuesday Afternoon, April 7

13:00	Government Presentation: Federal Aviation Administration Navigation Programs
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13:30	Overview of Navigation Related Research at The Ohio State University Satellite Positioning and Inertial Navigation Laboratory, <i>Charles Toth</i>
	Poster Presentations by OSU SPIN (45 minutes)
	Comparison of Various UAS Trajectory Reconstruction Methods -- Grzegorz Jozkow
	Stereo-Inertial Odometry using Nonlinear Optimization -- Jianzhu Huai
	Impact of Ionospheric Scintillation on Long Baseline RTK at Low Latitudes -- Jihye Park
	Performance Analysis of Geophysical Database Referenced Navigation -- Jisun Lee
	Evaluation of Active and Passive Sensor Derived Point Clouds for UAS Applications -- Julia Hoffman
	Aircraft Trajectory Recovery from LiDAR Data -- Kai Dierenbach
	Object Tracking from Moving Platforms -- Siavash HosseinyAlamdary
	Navigation using Ultra Wideband Technology in GPS Compromised Environments -- Steven Ostrowski

15:00	Overview of Navigation Related Research at Miami University, <i>Jade Morton</i>
	Poster Presentations by Miami University (45 minutes)
	Comparison of Gradient-Based GPS TEC Estimation with Arecibo and Jicamarca Incoherent Scatter Radar -- Harrison Bourne
	USRP X300 As Multi-GNSS Software Radio Front Ends -- Steve Taylor
	Sudden Carrier Phase Reversals During Ionospheric Scintillation Deep Amplitude Fading -- Dongyang Xu
	Ionospheric Scintillation Characteristics Across GPS Bands -- Yu Jiao
	Ionosphere Irregularity Drift Velocity Estimations Using Carrier Phase Fluctuations Observed from A Closely Spaced GNSS Receiver Array -- Jun Wang
	Common Volume GNSS Scintillation Observation from LEO Satellites and Ground-Based Receivers -- Brian Breitsch
	Robust GNSS Tracking Using Adaptive Multi-Frequency Carrier Aiding -- Hang Yin
	Reconfigurable Software-Defined RF System for Simultaneous Sensing, Communications and Positioning -- Ian Duffy, Michael Horwitz, Chase Lebio, Patrick Stanisa, Cooper Dieterle, Matthew Hughes and Patryk Giza

Workshop Program – Tuesday Afternoon, April 7 - Continued

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- 16:30 Overview of Navigation Related Research at Ohio University Avionics Engineering Center, *Maarten Uijt de Haag*
- Poster Presentations by Ohio University (45 minutes)
- UAV System Safety Assessment -- Jessica Belzer
 - Aircraft Antenna Group Delay Characterization -- Anurag Raghuvanshi
 - High Gain Dish Antenna Design for GNSS Signal Monitoring -- Natasha Norris
 - eDME Data Broadcast with Forward Error Correction and Cyclic Redundancy Checks -- Adam Naab-Levy
 - Aircraft Energy State Awareness and Automation Continuity – Pengfei Duan, Matthew Miltner
 - GPS/Optical/IMU Integration for Indoor UAV Navigation and Mapping -- Evan Dill, Adam Schultz and Russell Gilabert
 - Navigating Small-size UAS in Under-canopy Forest Environments -- Adam Schultz, Russel Gilabert, Akshay Bharadwaj
 - Relative Navigation and Collision Avoidance for UAS – Maarten Kastelein, Pengfei Duan, Arun Vydhanathan
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- 18:30 *COUNT-Hosted Banquet*
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Workshop Program – Wednesday Morning, April 8

7:30	<i>Continental Breakfast</i>
8:00	Government Presentation: National Geodetic Survey
8:30	Presentation by Lockheed Martin
9:00	Presentation by Rockwell Collins, Inc.
9:30	<i>Break</i>
10:00	Overview of Navigation Related Research at the Air Force Institute of Technology, <i>John Raquet</i> Poster Presentations by AFIT (45 minutes) SPIDER, SCORPION, and FLY: Estimation and Simulation Frameworks for Navigation -- Mark Smearcheck Vision, IMU, and Partial GPS for Urban Navigation -- Lt Johnathan Rohde Automated Aerial Refueling: Precise Relative Navigation from Stereo Vision -- Lt Kyle Werner Worldwide Magnetic Field-Based Navigation for Aircraft -- Capt Aaron Canciani Lidar Navigation for Aircraft -- Capt Matthew Leines UAS Research at the ANT Center -- Dr. David Jacques Tightly Coupled Star Tracker/IMU Integration -- Maj Scott Pierce
11:30	Discussions and Concluding Remarks

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