



Eleventh Annual Information Meeting

April 4-5, 2017

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

Tuesday Morning, April 4

7:30	Meeting Registration and Continental Breakfast
8:00	Welcome, introductions and meeting overview <i>Frank van Graas, COUNT Director</i>
8:15	Government Presentation: Scott Sands, NASA Glenn Research Center
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) Adaptive Antenna Electronics for All GNSS Receivers -- Justin Kuric Situational Awareness Using GNSS Adaptive Antennas -- Nicole Tchorowski Subarray Processing for Passive Radar Localization -- Jamie H. Huang Using Terrestrial Navigation Signals for Passive Radar Tracking of Aircraft -- Vaclav Navrátil Development of a Next Generation GNSS Bistatic Radar Receiver -- Eric Loria Investigation of Advanced Spaceborne GNSS-R Techniques Using the SMAP Satellite -- Matt Buchanan Field Tests of a Ground-Based GPS Beacon Signal to an Orbiting GNSS Remote Sensing Instrument -- Andrew O'Brien TDS-1 Coherent Returns over Sea Ice and Land Surfaces -- Jeonghwan Park
11:45	<i>Lunch</i>

Tuesday Afternoon, April 4

13:00	Presentation by Prof. Wolfgang Förstner, University of Bonn
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13:30	Overview of Navigation Related Research at The Ohio State University Satellite Positioning and Inertial Navigation Laboratory, <i>Dorota Grejner-Brzezinska, Charles Toth</i>
	Poster Presentations by OSU SPIN (45 minutes)
	Georeferencing UAS Imagery via coregistration with online Earth image databases – Robert Nevins
	Map-based precise localization for autonomous vehicles – Yunming Shao
	Neural Network-aided MEMS IMU and UWB positioning fusion – Vaclav Navrátil, Haowei Xu, Zoltan Koppanyi
	INS/Image integrated collaborative positioning for indoor environment – Lin Zhang
	Lidar and photogrammetry point cloud fusion for improved 3D mapping and navigation – Yuan Yang
	Framework for extensive simulations of indoor multi robot exploration – Zoltan Koppanyi
	Testing and evaluation of collaborative SLAM with crowd-sourced data – Siqi Li
	Positioning, navigation, and timing in the Polar Regions: precise navigation in the Arctic – Nathan Ovans
	Ground deformation measurements and their applications in earthquake inversion and drought monitoring – Lei Wang
	Monitoring building dynamics during the Haiti Earthquake using high resolution satellite stereo images -- Mao Li, Alexandria Julius, Rongjun Qin

15:00	Overview of Navigation Related Research at Colorado/Miami University, <i>Jade Morton</i>
	Poster Presentations by Colorado/Miami University (45 minutes)
	A Machine Learning Algorithm for Ionospheric Scintillation Detection -- Yu Jiao, Jack Hall, Jade Morton
	Physics-Based Data-Consistent Multi-Frequency Scintillation Simulator --Yu Jiao, Dongyang Xu, Charles Rino, Charles Carrano, Jade Morton
	Equatorial and High Latitude Scintillation Signal Frequency Error Distributions -- Ian Collett, Brian Breitsch, Dongyang Xu, Jade Morton
	Adaptive Positioning Algorithms During Ionospheric Scintillation -- Greg Myer, Jade Morton, Brian Schipper
	GNSS Receiver Signal Processing Under Challenging Conditions -- Rong Yang, Dongyang Xu, Bo Han, Jade Morton, K. V. Lin, E. K. Poh
	Two dimensional self-location algorithm using an Ultra Wide-Band Software Defined Radar System and Targets of Opportunity -- Brandon Baucher, Banghong Liang, Li Liu, Isaiah Qualls, Dmitriy Garmatyuk
	Triple Frequency TEC Estimation and 3D Ionosphere Imaging -- Brian Breitsch, Jade Morton
	Mountain-Top Radio Occultation Experiment and Recent Results -- Jade Morton, Harrison Bourne, Bo Han, Steve Taylor, Dongyang Xu, Rong Yang, Frank van Graas, Neeraj Pujara
	GNSS Receiver Array As Ionosphere Radar -- Jun Wang, Jade Morton

Tuesday Afternoon, April 4 – Continued

- 16:30 Overview of Navigation Related Research at Ohio University Avionics Engineering Center, *Maarten Uijt de Haag*
- Poster Presentations by Ohio University (45 minutes)
- Evaluation of Energy State Prediction and Predictive Alerting Methods under Sensor Uncertainty -- James Engelmann, Chad Mourning
- Flight-Test Evaluation of Small Form-Factor LiDAR and Radar Sensors for sUAS Detect-and-Avoid Applications -- Adam Schultz, Camron Schumann
- Navigating Small-UAS in Tunnels for Maintenance Operations -- Akshay Bharadwaj
- Autonomous Flight, Path Planning and Collisions Avoidance in a Structured Indoor Environment -- Adam Schultz
- UAS Swarm Navigation using GPS, Baro-altimeter, Inertial and Ranging Radios -- Joel Huff and Maarten Kastelein
- UAS in the NAS: Establishing Equivalency in Safety and Training through a Fault Tree Analysis Approach -- Jessica Belzer
- Low Frequency Time Synchronization using NIST WWVB -- Kevin Croissant
- Design of a CubeSat Mission for Interconstellation Bias Estimation -- Sabrina Ugazio
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- 18:30 *COUNT-Hosted Banquet*
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Wednesday Morning, April 5

7:30	<i>Continental Breakfast</i>
8:30	Government Presentation: Dr. Jeffrey M. Hebert, AFRL
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)
	Enhanced Cost Minimization Algorithm for Control Architectures -- Laura Lucas
	Real Time Automated Aerial Refueling using Synthetic Stereo Vision Imagery -- 2nd Lt Nicholas Seydel, 2nd Lt Zachary Paulson, & 2nd Lt Christopher Parsons
	Neural Network and Filter Integration for Navigation -- Capt Joe Curro
	The Smartcables Architecture for Plug and Play Sensor Fusion -- Daniel Marietta
	Self Building World Models for Navigation -- 1st Lt Michael Malec
	Autonomy and Cooperative Unmanned Aerial Systems Research -- Dr. Dave Jacques
	Aerial Visual-Inertial Odometry Performance Evaluation -- Daniel Carson
11:30	Discussions and Concluding Remarks

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