



Twelfth Annual Information Meeting

April 3-4, 2018

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

Tuesday Morning, April 3

7:30	Meeting Registration and Continental Breakfast
8:00	Welcome, introductions and meeting overview <i>Inder J. Gupta, COUNT Director</i>
8:15	Government Presentation: Dr. John Burke, DARPA
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 (OSU-ESL), <i>Andrew O'Brien</i>
	Poster Presentations by OSU-ESL (45 minutes)
	SMI Implementation of Adaptive Weighting Algorithms in GNSS Receiver Antenna Arrays -- Justin Kuric
	Development of a Next Generation GNSS Bistatic Radar Receiver – Andrew O'Brien
	Antenna Array for Spaceborne GNSS Receiver and Reflectometer Applications – Erda Wen
	Developing a Test Bench for NASA's Next Generation GNSS Bistatic Radar Receiver Instrument – Ryan Linnabary
	Techniques in GNSS Reflectometry Remote Sensing of Global Near-Surface Soil Moisture – Mohammad Al-Khalidi
	Detection and Processing of Coherent GNSS Reflections Observed from Space – Eric Loria
	Observation of Polarimetric GNSS Reflections using the SMAP Satellite – Matt Buchanan
	A Software Simulation Toolkit for Adaptive Remote Sensing – Jakob DeLong
11:45	<i>Lunch</i>

Tuesday Afternoon, April 3

13:15

Overview of Navigation Related Research at University of Colorado, *Jade Morton*

Poster Presentations by University of Colorado (45 minutes)

Simulation and Tracking Algorithm Evaluation for Receivers on LEO Satellite Traversing Equatorial Plasma Bubbles – Dongyang Xu

Adaptive Inter-Frequency Aiding for Multi-Frequency GNSS Receivers – Rong Yang

Machine Learning Algorithm for Ionospheric Activities Detection and Classification – Leo Liu

On the Cause and Symptoms of Carrier Phase Discontinuities Using Triple Frequency GPS Measurements – Brian Breitsch

Navigation Message Bit Error Rate Characterization During Scintillation -- Dongyang Xu

GNSS Reflectometry Simulator for Ocean Wind Speed Retrieval – Ian Collett

Airborne GNSS Radio Occultation Signal Processing – Yang Wang

Machine Learning Algorithm for GNSS-R Ocean Wind Speed Retrieval – Leo Liu

14:45

Overview of Navigation Related Research at The Ohio State University SPIN Laboratory (OSU-SPIN), *Charles Toth*

Poster Presentations by OSU-SPIN (45 minutes)

Comparison of Various WiFi Fingerprinting Methods for Indoor Localization – Yuan Yang

Autonomous Vehicle Navigation based on Visual Clues and Image Matching – Zoltan Koppanyi

Accuracy Assessment of Image-Based Semantic Mapping for Navigation – Yilong Han

Analyzing 3D Point Clouds, Generated by various Cameras, to Support Autonomous Vehicle Navigation – Gabriela Lenzano

Creating Semantic 3D Maps for Seamless Indoor-Outdoor Navigation – Dorota Iwaszczuk

Monocular SLAM – A Comparative Analysis – Xupei Zhang

Power Line Inspection: Multi-sensor Data Synchronization for UAS – Xiayou Chen

Tuesday Afternoon, April 3 – Continued

16:15 Overview of Navigation Related Research at Ohio University Avionics Engineering Center, *Frank van Grass*

Poster Presentations by Ohio University (45 minutes)

CubeSat for Inter-Constellation Time Offset Determination – Kevin Croissant
Microsecond Timing with WWVB-Disciplined Rubidium Oscillator – Kevin Croissant
Antenna Group Delay Impact on Aircraft Ionospheric Monitors – Anurag Raghuvanshi
GPS C/A Code Self Interference – Jessica Belzer
Assessing Indoor Environments with sUAS through Real-Time Virtual Reality – Jessie Robinson
Comparison of Methods to Perform Predictive Alerting of Energy for Aerial Vehicles – James Engelmann
Flight Management Methods to Support Autonomy for Exploration of Unknown Indoor Environment – Adam Schultz
Relative and Absolute Navigation of a Swarm of Small UAS in GPS-challenged Environments – Joel Huff
Surveillance Broadcast sUAS Payload for Low-altitude Fleet Operations – Andrew Videmsek

18:30 *COUNT-Hosted Banquet*

Wednesday Morning, April 4

7:30

Continental Breakfast

8:30

Government Presentation: Dr. Joanna Hinks, AFRL Space Vehicles Directorate

9:00

Presentation by Rockwell Collins, Inc.

9:30

Overview of Navigation Related Research at the Air Force Institute of Technology (AFIT) , *John Raquet*

Poster Presentations by AFIT (45 minutes)

Bandwidth Reduction via Structure from Motion on Remote Imaging Systems --2nd Lt Christian Arnold

Making Maps Appear like Aerial Imagery – Capt Jedediah Berhold

Non-GNSS Pedestrian Smartphone Navigation using Barometric Elevation and Digital Map-matching – Capt Daniel Broyles

Matching Simulated Boom Occlusion Data to Truth Data for Automated Aerial Refueling – 1st Lt William Dallmann

Online Sensor Model Validation and Estimation Framework for All-Source Navigation Applications – Maj Juan Jurado

Leveraging Scorpion for High Fidelity Alt Nav Simulation – Jared Kresge

Military Application of Aerial Photogrammetry Mapping Assisted by SUAVs – Maj Kijun Lee, ROKA

Applying Deep Learning to Visual Odometry – Capt Kaleb Nelson

GNSS Waveform Prototyping Platform (GWPP) for Advanced Signals Research – Pranav Patel

11:00

Discussions and Concluding Remarks

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