



# Seventh Annual Information Meeting

April 9-10, 2013

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

## Workshop Program - Tuesday Morning, April 9

8:00	Workshop Registration
8:30	Welcome, introductions and workshop overview <i>Frank van Graas, COUNT Director</i>
9:00	Overview of Navigation Related Research at The Ohio State University ElectroScience Laboratory, <i>Inder "Jiti" Gupta</i> Poster Presentations by OSU ESL (45 minutes) Wideband, Compact GNSS Patch Antenna with Minimal Code and Carrier Phase Bias - Kamalesh Sainath, Inder J. Gupta Airborne Antenna Array Calibration with Signals of Opportunity - Andrew Kintz, Inder J. Gupta Antenna Induced Biases in GNSS Receiver Measurements - Ying Chieh (Jay) Chuang, Inder J. Gupta On-the-Fly estimation of antenna induced Biases in SFAP Based GNSS Antenna Arrays - Ying Chieh (Jay) Chuang, Inder J. Gupta Echoic Flow For Autonomous Path Planning and Collision Avoidance - Graeme E. Smith, Gang Li, Saif al-Saif, Ruochen Yang, Chris J. Baker FIR Filter to Isolate Iridium Communication and GPS L1 band Signals - Inder J. Gupta, Jay Chuang Data Acquisition System & Software Defined GNSS Receiver for Navigation Research at OSU-ESL - Andrew J. O'Brien, Matthew Buchanan, Andrew Kintz, Inder J. Gupta Studies of GNSS Reflectometry for Altimetry and Wind Speed Sensing - Joel Johnson, Andrew J. O'Brien, Jeonghwan Park
10:30	Overview of Navigation Related Research at Miami University, <i>Jade Morton</i> Poster Presentations by Miami University (45 minutes) The New Miami RedBlade: An Autonomous Snowplow and Lawnmower - Robert Cole, Mark Carroll, Chad Sabota, Richard Marcus Adaptive SAR Imaging of Indoor Environments Using Software-Defined UWB OFDM Sensor - Brian Jameson Single Frequency GPS Receiver Ionosphere Error Correction - Harrison Bourne Ionosphere Scintillation Receivers Performances Comparison - Steve Taylor High Latitude Ionosphere Scintillation Characterization - Yu (Joy) Jiao Performance Analysis of USRP N210 Based GPS Multi-Constellation Signal Recording and Playback Systems - Ruihui (Ray) Di Ionosphere Scintillation Induced Carrier Frequency Spectral Distributions at High Latitude and Equatorial Areas - Jun Wang

---

Poster Presentations by Miami University (continued)

Vector Loop Tracking of GNSS Signals in Challenging Environments - Senling Peng

Stereo Vision for Obstacle Identification and Ranging - Rachel Grady, Elizabeth Ahles

GPS Signal Observables Detrending Methods for Ionosphere Scintillation Studies - Fei Niu

---

12:00

Presentation by Honeywell, Inc.

---

12:30

*Lunch*

---

**Workshop Program – Tuesday Afternoon, April 9**

---

14:00 Overview of Navigation Related Research at The Ohio State University  
Satellite Positioning and Inertial Navigation Laboratory, *Dorota A. Grejner-Brzezinska*

Poster Presentations by OSU SPIN (45 minutes)

Ionospheric Observations of Underground Nuclear Explosions (UNE) using GPS and the Very Large Array - Jihye Park

Navigation in GPS Denied Environments Using a Collaborative Navigation Approach - Andrew Zaydak

Extracting Landslide Features from Airborne LiDAR - Omar Mora

GPS Popsiclelization and Coordinate Accuracy - Justin Crawford

Underwater Mapping and Navigation: Applications of 3D Feature Extraction Algorithms to 3D Sonar Datasets - Nikki Markiel

GPS/IMU Navigation Simulator to Support Automotive Safety - Siavash Hosseiny

The Effect of Tropospheric Delay Modeling on the Determination of GPS-Derived Ellipsoidal Height in Permanent GNSS Networks using OPUS-Projects - Mehmet Ali Ugur, Terri Richardson

Performance Evaluation of a Matlab-based Multi-sensor Integrated System - Peng-Yu Chen

---

15:30

Presentation by The MITRE Corporation

---

16:00

Presentation by Rockwell Collins

---

16:30

Presentation by Northrop Grumman Corporation

---

17:00

*Break*

---

18:00

*COUNT-Hosted Banquet*

---

## Workshop Program – Wednesday Morning, April 10

---

8:00

*Coffee*

---

8:30

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

Poster Presentations by AFIT (45 minutes)

Geolocation Using Differential Received Signal Strength – Amanda King

Error Characterization of Extended Kalman Filter Based Image-Aided Navigation – Daniel Marietta

GPS Electronic Warfare Trainer – Tom Pestak, Capt Levene, Jared Kresge

Image Recognition from Aerial Perspectives using Passively Generated 3-D Models and Inertial Guidance Information – Capt Daniel Alix

Pseudolite Architecture and Performance Analysis for the FAA's NextGen Airspace – Dr. Dave Jacques

Vision-Aided Navigation in a Structured Environment – Capt Jim Dean

AFIT Noise Radar Network for Indoor Navigation – 2<sup>nd</sup> Lt Russell Wilson

Control of Multiple Unmanned Air Vehicles – Dr. Dave Jacques

---

10:00

Overview of Navigation Related Research at Ohio University Avionics Engineering Center, *Wouter Pelgrum*

Poster Presentations by Ohio-AEC (45 minutes)

Rubidium Frequency Reference Error Modeling in Flight Environments – Samantha Craig

Robust DME Carrier Phase Tracking Under Flight Dynamics – Kuangmin Li

Processing of GPS Station Data for Earthquake Prediction Algorithms – Ryan Kollar

GPS Orbit and Clock Error Distributions, 2005 to 2011 – Curtis Cohenour

Autonomous Laser-Guided Snowplow – Samantha Craig, Ryan Kollar, Adam Naab-Levy, Pengfei Duan, Kuangmin Li

Minerva Sensor Interface – Adam Naab-Levy

Preliminary Flight Test Results of Integrated Imaging/Inertial – Evan Dill, Santi Vilardaga

Measurement-Based ADS-B System for Detection of Off-Nominal Intruder Operations – Pengfei Duan

Advanced Flight Display Concepts for NextGen Operations – Pengfei Duan, Tony Adami

---

11:30

Discussions and Concluding Remarks

---

Point of Contact: Dr. Inder J. Gupta, The Ohio State University, ElectroScience Laboratory, 1320 Kinnear Rd., Columbus, OH 43212, (614) 292-5951, [gupta.11@osu.edu](mailto:gupta.11@osu.edu)