



# Sixth Annual Workshop

April 12-13, 2012

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

## Workshop Program - Thursday Morning, April 12

8:00	Workshop Registration
8:30	Welcome, introductions and workshop overview <i>Frank van Graas, COUNT Director</i>
9:00	Overview of 2011-2012 Navigation Related Research at The Ohio State University ElectroScience Laboratory, <i>Inder "Jiti" Gupta</i> Poster Presentations by OSU ESL (45 minutes) GPS Receiver Tracking Loop Design for Antenna Arrays on Spinning Platforms - Andrew O'Brien Data Acquisition System & Software Defined Receiver for Navigation Research at OSU-ESL - Andrew Kintz Beam Pointing in Rotorcraft Mounted GPS receivers - Jay Chuang Fixed Beam Adaptive Antennas for GNSS receivers - Jiti Gupta Combining Multiple FRPA for AJ Functionality in GPS Receivers - Teh-Hong Lee A Compact Dual-Band (L1/L2) GPS Antenna Array Design - Ming Chen L-Band Antenna Array for GNSS Receivers - Kamalesh Sainath
10:30	Overview of 2011-2012 Navigation Related Research at Miami University, <i>Jade Morton</i> Poster Presentations by Miami University (45 minutes) An Improved Scintillation Event Trigger for HAARP GNSS Receiver Array – Steve Taylor, Yu Jiao GPS Carrier Phase Detrending Methods Performance Evaluations and Their Impact on Amplitude and Phase Scintillation Correlations - Fei Niu Spectral Analysis of Ionosphere Scintillation Signals – Jun Wang GPS L5 Scintillation at HAARP - Ryan Wolfarth and Senlin Peng USRP2 for GNSS Recording and Playback - Mark Stratis, Ruihui Di, Senlin Peng, and Ryan Wolfarth UWB-OFDM Software-Defined Radar for Navigation - Brian Jameson Ground and Space based GPS measurements of Ionosphere during August 2010 Solar Storm - Hu Wang Miami RedBlade in 2012 ION's Autonomous Snowplow Competition - Chad Sobota, Bob Cole, Mark Stratis, Mark Carroll, Steve Taylor, Ryan Wolfarth Miami Metro Bus Tracking System - Jacob Peters, Chris Kuhn, Yechen Qiao, Mallory Kaufman, Michael Allen Single Frequency GPS Receiver TEC Estimation - Harrison Bourne
12:00	Lunch

## Workshop Program – Thursday Afternoon, April 12

---

13:30

Presentation by Honeywell, Inc.

---

14:00

Overview of 2011-2012 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)

Investigation of Traveling Ionospheric Disturbances Induced by Underground Nuclear Explosion and Earthquake using GPS Observations: Case Study – Jihye Park

A New Approach to Digital Bridge Surface Model Generation with LiDAR Data – Hui Ju

Exploring the Kinect Sensor for Indoor Navigation – Andrew Zaydak

Using the Quaternion Approach in Ensemble Filter for GPS/IMU Integration – Xiankun Wang

Extracting Landslide Features from Airborne LiDAR – Omar Mora

Least Squares-Based Collaborative Navigation Algorithms for Collaborative Navigation – Jong Ki Lee

Determination of Imaging and Navigation Sensor Inter-relationship for Mobile Platforms – 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

---

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 – Friday Morning, April 13

---

8:00

*Coffee*

---

8:30

Overview of 2011-2012 Navigation Related Research at the Air Force Institute of Technology, *John Raquet*

Poster Presentations by AFIT (45 minutes)

Laser-Based Navigation for Automated Aerial Refueling (Curro/Pestak)

Ground Vehicle Navigation using Magnetic Field Variation (Shockley)

GNSS Signal Decomposition and Feature Tracking (Haker)

Indoor Autonomous UAV Development (Dean)

Enhanced Image Aided Navigation Algorithm with Automatic Calibration and Affine Distortion Prediction (Jurado/Fisher)

Integration of Cold Atom Inertial Sensors with Other Sensors (Canciani)

Autonomous and Cooperative Navigation with UAVs

Navigation Using Gravity Gravimetry (Welker)

---

10:00

Overview of 2011-2012 Navigation Related Research at Ohio University Avionics Engineering Center, *Wouter Pelgrum*

Poster Presentations by Ohio-AEC(45 minutes)

Performance of Rubidium Oscillators in Laboratory and Flight Environments – Samantha Craig

GPS PVT Aiding Using an Atomic Frequency Reference – Sabrina Ugazio

Rubidium Ensemble Algorithms and Performance – Matt Smearcheck

Enhanced Distance Measuring Equipment Carrier Phase Tracking – Kuangmin Li

Quadrotor Sensor Integration – Shih-Wei Yen

Integration of 3D and 2D Imaging Data for Assured Navigation in Unknown Environments – Evan Dill

Autonomous Snowplow – Sam Craig, Ryan Kollar, Pengfei Duan, Kuangmin Li

A Simulation Environment for an Integrated Alerting and Notification Function – Pengfei Duan

Tele-Robotics and Surveillance for UAS using R.O.S. – Adam Naab-Levi and Paul Stocklin

GPS Carrier Phase Monitors – Rakesh Kashyap

---

11:30

Discussions and Concluding Remarks

---

Point of Contact: Dr. Charles Toth, The Ohio State University, Phone: 614-292-7681  
toth@cfm.ohio-state.edu