



Seminar



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Experimental, Theoretical, and Phenomenological Investigations in Initial Orbit Determination

Effective Space Situational Awareness (SSA) necessitates characterization of all assets interacting with the space environment. A particularly pernicious problem in SSA is the detection, tracking, and prioritization of un-catalogued space objects. For optical sensors, such space object detections often manifest as a streak on the focal plane. Immediately a detection, the user is faced with initiating orbit determination activities, prioritizing follow-up sensor tasking, acquiring additional observations, and initiating the characterization process. This talk endeavors to describe activities addressing these SSA challenges at Georgia Tech.

First, data collection activities, including the RECONnaissance of Space Objects (RECONSO) cubesat (UNP-8 Phase B selectee) and the Georgia Tech Space Object Research Telescope (GT-SORT) will be described. Next, the too-short-arc initial orbit determination problem is examined using admissible regions. Methods to detect very dim streaks, incorporate measurement uncertainty, and probabilistically classify and characterize streaks are also presented. Finally, non-traditional sensing phenomena are investigated to identify novel SSA data sources.

Friday, March 13, 2015
2:00 – 3:00 pm
DLC Bechtel Collaboratory

SHORT BIO OF MARCUS HOLZINGER

Marcus Holzinger received his BS and MS in at the University of Washington, and his PhD at the University of Colorado at Boulder. He has been an Assistant Professor in the School of Aerospace Engineering at the Georgia Institute of Technology since 2012, where his group focuses on Space Situational Awareness, reachability theory, spacecraft GNC, and distributed formation / constellation GNC research. Dr. Holzinger has previously held industry positions at Northrop Grumman in Redondo Beach, CA and Aerojet in Redmond, WA.