# STIDS 2016 Invited Talk:
# Importance of Semantic Ontologies in Information Fusion

**Dr. Erik Blasch**

## Abstract

The use of semantic technologies has essential implications for information fusion systems solutions. An emerging development in high-level information fusion (HLIF) is the importance of the user for mission management, command and control, as well as process refinement. The ability of the user to be part of the systems solution supports low-level information fusion (LLIF) functions of object, situation, and impact assessment. Future technology designs will require coordinating the LLIF physics-based big data measurements with the HLIF human-derived information content. A semantic ontology is necessary for physics-based and human-derived information fusion (PHIF). The fusion of measurements and content should augment contextual understanding, refine uncertainty estimates, and provide robust decision support. This talk will provide trends in high-level information fusion, address developments in an uncertainty ontology, and provide examples of PHIF. Examples include unmanned aerial vehicle (UAV), multi-intelligence, and space situation awareness.

## Biography: Dr. Erik Blasch

Dr. Erik Blasch is a principal scientist at the the United States Air Force Research Laboratory (AFRL) in the Information Directorate at Rome, NY, USA. From 2009-2012, he was an exchange scientist to Defence Research and Development Canada (DRDC) at Valcartier, Quebec. From 2000-2009, Dr. Blasch was the Information Fusion Evaluation Tech Lead for the AFRL Sensors Directorate - COMprehensive Performance Assessment of Sensor Exploitation (COMPASE) Center supporting design evaluations in Dayton, OH. Dr. Blasch has been an Adjunct Electrical Engineering Professor at Wright State University teaching signal processing, target tracking, and information fusion.

He is a member of the International Society of Information Fusion (ISIF) Evaluation of Technologies for Uncertainty Reasoning Working Group (ETURWG) Automatic Target Recognition Working Group (ATRWG), and the Dynamic Data Driven Applications System (DDDAS) community. He served as a member of IEEE Aerospace and Electronics Systems Society (AESS) Board of Governors (BoG), was a founding member of the International Society of Information Fusion (ISIF) (www.isif.org), and the 2007 ISIF President. Recently, he was the Chairman for the AIAA/IEEE AESS Digital Avionics Systems Confernce focusing on the future for Unmanned Aerical Vehicle (UAV) traffic management (UTM).

He has focused on information fusion, target tracking, pattern recognition, and robitcs research compiling 600+ scientific papers and book chapters. He holds 10 patents, presented over 30 tutorials, and is an associate editor of three academic journals. He was a recipent of the Military Sensing Symposium Ledaership in Data Fusion Award, Fellow of SPIE, Associate Fellow of AIAA, and a senior member of IEEE.