



Paper Presentations

“Session Time, Paper Titles, and Authors”

NAECON 2010 July 14 – July 16 2010

Intelligent Aerospace Systems & Biomedical Sensors

Location



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Tutorials (*Fees Included with Conference Registration*)

Day 1 – Wednesday, July 14, 2010

<u>Time</u>	<u>Event</u>	<u>Location</u>
7:15am-8:00am	Registration/Continental Collage	Hallway
8:30am-8:30am	Introduction <i>R.L. Ewing, H.S. Abdel-Aty-Zohdy, B.L. Frantom</i>	Ballroom

8:30am-11:30am

<u>Session</u>	<u>Title</u>	<u>Location</u>
I	Collaborative & Cognitive Processing	Kitty Hawk
CC01	<i>Trust Model for Semantic Sensor and Social Networks: A Preliminary Report,</i> Pramod Anantharam	Wright State University
CC02	<i>A Concept for Reducing Workload in a High-Volume Layered Sensing Collaborative Environment by Employing Sensor,</i> SAIC, John Hudson	
CC03	<i>Biomimetic Learning, Not Learning Biomimetics: A survey of developmental learning,</i> Alan Jennings	University of Dayton,
CC04	<i>Secure and Adaptive Infrastructure for Large-Scale Sensing Applications,</i> Bradford R. Lilly	University of Toledo,
CC05	<i>Review of Trust Research from an Interdisciplinary Perspective - Psychology, Sociology, Economics, and Cyberspace,</i> Virginia Tech, Simin Hall	
CC06	<i>Teaching an Undergraduate Electromechanical Course,</i> University of Cincinnati, Massoud Rabiee	
CC07	<i>Formal Verification of Layered Sensing Architectures,</i> Edaptive, Benjamin Tyler	
CC08	<i>Modeling Method for Weapon Launch Acceptability Region,</i> Pusan National University, Kun Su Yoon	

9:00am-11:30am

<u>Session</u>	<u>Title</u>	<u>Location</u>
III	Radar Signal & Image Processing	Ballroom
RI01	<i>Automated Image Segmentation for Synthetic Aperture Radar Feature Extraction,</i> Julie Jackson	Air Force Institute of Technology,
RI02	<i>Effects of Polarization on Wide-angle SAR Classification Performance,</i> Kerry Dungan	The Ohio State University,
RI03	<i>WiMAX Ambiguity Function for PCL Systems,</i> Jose Gutierrez	Air Force Institute of Technology,
RI04	<i>Robust Wideband Beamforming,</i> Tennessee Tech University, Zhen Hu	
RI05	<i>Direction Finding Using a Nonuniformly-Spaced Array of Arbitrary Antennas,</i> Geoffrey Akers	Air Force Institute of Technology,
RI06	<i>Fundamental Component Identification and Replacement Technique Applied for Noncoherent Sampling Data,</i> Iowa State University, Minshin Wu	
RI07	<i>A Comparative Analysis of Ground-UAV Platform Geometries for Radar Imaging,</i> Atindra Mitra	Air Force Research Laboratory,
RI08	<i>Collision-Avoidance Radar for Bicyclist and Runners,</i> Scientific Systems Company, Atindra Mitra	

8:30am-11:30am

<u>Session</u>	<u>Title</u>	<u>Location</u>
XII	NAECON Grand Challenge & Open Discussion	Discovery

Chairs: Joanne DeGroat & Erik Blasch

Two teams for the National Aerospace and Electronics Conference (NAECON) Grand Challenge will present their research. The NAECON Grand Challenge Problem is entitled the “SMARTVEST for K9s”.

Judging will be done by both the audience and invited judges. (So Please attend!)

8:30am-10:30am

<u>Session</u>	<u>Title</u>	<u>Location</u>
VII	Adaptive RF and Space Based Communications	Armstrong
AS01	<i>Lineshapes for optical pumped cesium lasers</i> , Air Force Institute of Technology, Charles Fox	
AS02	<i>A 3.1-10.6 GHz CMOS Mixer with a 1.6 GHz IF Bandwidth for Frequency Hopping OFDM Applications</i> , The Ohio State University, Fei Gong	
AS03	<i>Interference Avoidance via Adaptive Wavelet Packet Modulation in Wireless Communication Systems</i>	
AS04	<i>Formalization of Confidence Levels in Verification Efforts</i> , Optimal Synthesis Inc., Hui-Ling Lu	
AS05	<i>Reliable Low Voltage FPGA Operation</i> , The Ohio State University, Austin Salyers	
AS05	<i>Wakeup Receiver Aided Communication Terminals for Aerospace Applications</i> , University of Washington, Jianlei Shi	

10:30am-11:30am

<u>Session</u>	<u>Title</u>	<u>Location</u>
IX	Reconfigurable Computing	Armstrong
RC01	<i>An Integer-Based Unsharp Mask Algorithm for Infrared Imagery</i> , UDRI, Benjamin Fortener	
RC02	<i>Image Compression Emphasizing Pixel Size Objects in Midwave Infrared Persistent Surveillance Systems</i> , UDRI, Patrick Hytla	
RC03	<i>A Model for Flash Analog-to-Digital Converters with Bit-Extended Error Table Linearization</i> , University of Dayton, Christopher McGuinness	
RC04	<i>Automatic VHDL Generation Software Tool for Parameterized FPGA Based FFT Architectures</i> , University of Toledo, Todd Schmuland	

11:30am–2:00pm Luncheon Ballroom Keynote Speaker: Morley Stone, Ph.D. Chief Scientist , 711 th Human Performance Wing Plenary Speaker: Robert W. McMillan, Ph.D ST, Senior Research Scientist, US Army Space and Missile Defense Command

2:00pm-5:00pm

<u>Session</u>	<u>Title</u>	<u>Location</u>
	Coherent Imaging & Materials Seminar/Workshop-	Ballroom
	<ul style="list-style-type: none">◦ Ferromagnetic Devices & Novel RF Materials – (Dr. Vince Harris)◦ THz Impulse Radar for Medical Imaging, and its successful transition to the UCLA Medical School (Dr. Elliot Brown)◦ THz Technology development occurring at the new THz Sensors Lab<ul style="list-style-type: none">◦ IDCAST-Imaging Techniques (Dr. Gilbert Pacey)◦ Software Defined Reconfigurable Radar – DEMO & Presentation (Optimal synthesis Inc)	
	▶ Panel Discussion Topic – Millimeter Wave Radar & Image Fusion Posters – (In Back of Room)	

<u>Time</u>	<u>Event</u>	<u>Location</u>
7:30am-8:30am	Registration/Continental Collage	Hallway

8:30am-11:30am	Tutorial & Panel Discussion	Amphitheatre
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Title: Technology Readiness Assessment (TRA): Milestone Decisions, Critical Technology Elements (CTEs) And Technology Readiness Levels (TRLs)

Speakers: Keith Jones, PhD and Mark Longbrake

9:00am-11:30am

<u>Session</u>	<u>Title</u>	<u>Location</u>
II	Novel Devices	Kitty Hawk

ND01 Energy Pooling Kinetics in Diode Pumped Alkali Lasers, Air Force Institute of Technology, Ericka Acosta

ND02 Novel Electrofluidic Reflective Modulation, University of Cincinnati, E. Kreit

ND03 Universal Retroreflectors, University of Cincinnati, Phillip Schultz

ND04 Low power flip-flops with low leakage current, Islamic Azad University, Milad Kaboli

ND05 A Low Voltage High Frequency Four Quadrant Analogue Multiplier, Islamic Azad University, Milad Kaboli

9:00am-10:00am

<u>Session</u>	<u>Title</u>	<u>Location</u>
VI	Biomedical Sensing	Armstrong

BS01 SMART HOMES: DESIGN OF A FORMAL LANGUAGE FOR REPRESENTING BODY POSITIONS, Wright State University, Nicholas A. Bourbakis

BS02 THE DESIGN OF A WHMS SPECIAL PURPOSE PROCESSOR FOR SPEEDING UP BODY SIGNAL PROCESSING, Wright State University, Nicholas A. Bourbakis

BS03 Network Calibration of Embedded Sensors, Case Western University, Chris Papachristou

9:00am-11:30am

<u>Session</u>	<u>Title</u>	<u>Location</u>
III	Radar Signal & Image Processing	Wright/Earhart

RI09 GPU-enabled High Performance Feature Modeling for ATR Applications, Louisiana Tech University, Sumeet Dua

RI10 SUMATRA: Supervised Modeling of ATR Algorithms, Scientific Systems Company, Ranga Narayanaswami

RI11 Multitarget Tracking Performance Analysis Using the Non-Credibility Index in the Nonlinear Estimation Framework, Air Force Research Laboratory, Erik Blasch

RI12 Optimization of Image Fusion Using Genetic Algorithms and the Discrete Wavelet Transform, Salient Frame, North Carolina Agricultural and Technical State University, Chante Lacewell

RI13 Extraction Using Support Vector Regression and Motion Features, Louisiana Tech University, Xian Du

RI14 Multi-Resolution Unmanned Aerial Vehicle Video Stabilization, Wright State University, Wu Yang

RI15 Ground Target Track Bias Estimation Using Opportunistic Road Information, Sigtem Technology, Inc. Chun Yang

10:00am-11:30am

<u>Session</u>	<u>Title</u>	<u>Location</u>
XI	Bio-Inspired UAVs	Armstrong

BIU01 Real-time Vehicle Detection, Tracking, and Recognition, Tennessee State University, Fenghui Yao

BIU02 Sensor-based allocation for path planning and area coverage, Air Force Research Laboratory, Erik Blasch

8:30am-11:30am

<u>Session</u>	<u>Title</u>	<u>Location</u>
X	Aerodynamic Control Systems, Power & Smart Sensors	Lindbergh/Patterson
APS01	<i>ChipScale Power Converter</i> , University of Toledo, Krishna Shenai	
APS02	<i>Performance Evaluation of Silicon and Gallium Nitride Power FETs for DC/DC Power Converter Applications</i> , University of Toledo, Krishna Shenai	
APS03	<i>Reliability of Wide Bandgap Semiconductor Power Switching Devices</i> , University of Toledo, Krishna Shenai	
APS04	<i>Effect of Voltage Scaling on Soft Error Protection Methods for SRAMs</i> , Case Western University, Vuriy Shiyanovskii	
APS05	<i>Linearity testing of Analog to Digital Converters(ADC) using imprecise sinusoidal excitations</i> , Iowa State University, Bharath Vasani	
APS06	<i>Metamaterials for Microwave Frequencies</i> , University of Dayton, Mark Patterson	
APS07	<i>Automatic Loop Shaping of QFT Robust Controllers with Multi-Objective Specifications via Nonlinear Quadratic</i> , Case Western University, M. Garcia-Sanz	
APS08	<i>High-Level Control Methods for Autonomous Systems</i> , Harbin Institute of Technology, Zhesheng Jiang	
APS09	<i>Radar Target Discrimination Using Neural Networks</i> , Sejong University, Joon-Ho Lee	

11:45am–1:45pm Luncheon

Ballroom

Keynote Speaker: Steven C. Suddarth, Ph.D. Director of the Configurable Space Microsystems
Plenary Speaker: Erik P. Blasch, Ph.D. Defence R&D Canada at Valcartier , Air Force Research Laboratory

1:45pm-2:15pm Invited Speaker- Michael V. OL, PhD. Air Force Research Laboratory Ballroom

2:30pm-5:30pm

<u>Session</u>	<u>Title</u>	<u>Location</u>
Tec^Edge	Student Research Presentations	Kitty Hawk

2:30pm-5:30pm

<u>Session</u>	<u>Title</u>	<u>Location</u>
XI	Bio-Inspired Systems and Biomedical Applications	Lindbergh/Patterson
BIB01	<i>Spiking Neural Network E-NOSE Classifier on a 0.5 um CMOS Tiny-Chip</i> , Oakland University, Hoda Abdel-Aty-Zohdy	
BIB02	<i>XML Defined Custom Microprocessors using Rapid Hardware Definition Language</i> , Oakland University, Jacob Allen	
BIB03	<i>Towards Biomimetic Stereo Vision</i> , USC, Benjamin L. Raskob	
BIB04	<i>Hyper-Fuzzy Modeling and Control for Bio-Inspired Radar Processing</i> , Oakland University, O.M. Salim	
BIB05	<i>Differential Elasticity for Network Resilience</i> , Oakland University, Nancy Alrajji	
BIB06	<i>An Inexpensive Accelerometer-Based Sleep-Apnea Screening Technique</i> , Oakland University, C. Bucklin	
BIB07	<i>Applications of nanomaterials in bioengineering and biomedicine</i> , Oakland University, Chaudry Rasul	
BIB08	<i>Ionic Liquids and Their Applications as Orthogonal Gas Sensing Materials for EQCM Sensor Array</i> , Oakland University, Xiangqun Zeng	
BIB09	<i>Study Cell-Substrate Interactions using Label Free Sensor Technology</i> , Oakland University, Xiangqun Zeng	
BIB10	<i>Recombinant Antibody (scFv) and Their Applications in Biosensor Development</i> , Oakland University, Xiangqun Zeng	

Day 2 – Thursday, July 15, 2010

2:30pm-4:00pm

<u>Session</u>	<u>Title</u>	<u>Location</u>
III	Radar Signal & Image Processing	Ballroom

- RI16 *Precise Image Registration and Occlusion Labeling*, The Ohio State University, Vinod Khare
RI17 *In-flight Camera Platform Calibration of the Multi-head Camera System*, The Ohio State University, Young-Jin Lee
RI18 *Ontology Alignment using Relative Entropy for Semantic Uncertainty Analysis*, Air Force Research Laboratory, Erik Blasch
RI19 *A Limited Comparative Study of Dimension Reduction Techniques on CAESAR*, Air Force Research Laboratory, Scott Clouse

4:00pm-5:30pm

<u>Session</u>	<u>Title</u>	<u>Location</u>
IV	Compressive Sensing	Ballroom

- CS01 *Wavelet-Modulated Pulse for Compressive Sensing in SAR*, The Ohio State University, Da Xu
CS02 *BYPASS and PARALLEL Modes for JPEG2000 Compression of Natural Imagery*, University of Dayton, Eric Balster
CS03 *Sensorless Temperature Measurement Based on ADC Input Noise Measurement*, Iowa State University, Minshun Wu
CS04 *Sensor Fusion for Persistent Surveillance*, SAIC, Derek Lewis

2:30pm-5:30pm

<u>Session</u>	<u>Title</u>	<u>Location</u>
	POSTER SESSION	Armstrong

- PS01 *Find and Follow*, Wright State University, Lydia Bachochin
PS02 *Academic Leadership Pipeline Students Computing and Analysis Project*, Tec^Edge, Rhonda Vickery
PS03 *Graphical and Statistical Communication Patterns of Automated Conversational Agents in Collaborative Computer-Mediated Communication Systems*, Air Force Research Laboratory, John P. McIntire
PS04-10 *Additional Tec^Edge Posters*

6:30pm-10:00pm Banquet	Ballroom
Keynote Speaker: Deborah (Desch) Anderson “The Dayton NCR WWII Codebreakers”	

Day 3 – Friday, July 16, 2010

9:00pm-12:30pm

<u>Session</u>	<u>Title</u>	<u>Location</u>
VI	Smart Antenna	Wright/Earhart
SA01	<i>Improvement of Exhaustive Search Based Maximum-Likelihood DOA Estimation</i> , Sejong University, Joon-Ho Lee	
SA02	<i>Smart Electronic Phase Control for Phased Array Antennas</i> , University of Cincinnati, Altan M. Ferendeci	
SA03	<i>MEMS Applications for Reconfigurable Antennas for Wireless Data Sensing</i> , Jackson State University Abdelnasser Eldek	
SA04	<i>Closed-Loop Smart Antenna Systems With Controllable Metamaterial Lattice Interaction</i> , Air Force Research Laboratory, Atindra Mitra	

9:00pm-12:30pm

<u>Session</u>	<u>Title</u>	<u>Location</u>
X	Computational Modeling	Lindbergh/Patterson
CM01	<i>Performance Improvement of Backpropagation Algorithm by Fuzzy Delta-Bar-Delta Method</i> , Honam University, Hyun Kwan	
CM02	<i>Application of Newton Method to Natural Frequency Estimation</i> , Sejong University, Joon-Ho Lee	
CM03	<i>Directional Wide Band Time Reversal Digital Beam forming FIR filter design using Bore-sight Calibration Data</i> , Air Force Research Laboratory, David Lin	
CM04	<i>Turbo Sparse Reconstruction via Bernoulli-Laplace and Ising Priors</i> , The Ohio State University, Subhijit Som	
CM05	<i>FAST ALGEBRAIC METHODS IN COMPUTATIONAL ELECTROMAGNETICS</i> , BerrieHill Corp, Tri Van	
CM06	<i>Effects of Radio Frequency Interference on an 802.11a Wireless Ad-Hoc Network</i> , Air Force Research Laboratory, Joseph Natarian	
CM07	<i>A Graphical Framework for Constructing and Executing Computational Networks</i> , Consortium Research Fellows Program, Christopher Hall	