Basic Research Innovation and Collaboration Center (BRICC)
4075 Wilson Blvd., Suite 350 – Liberty Room
Arlington, VA 22203

Agenda Day 1 – January 27, 2016

Time	Title	Speaker
7:30-8:00	**Registration**	
8:00-8:30	Introduction to the Program	Frederica Darema
8:30-10:00	**Air Vehicle Structural Health Monitoring – Environment Cognizant** ➢ Advanced Simulation, Optimization, and Health Monitoring of Large Scale Structural Systems o *PI: Yuri Bazilevs (UCSD), and Team* ➢ Dynamic Data-Driven Methods for Self-Aware Aerospace Vehicles o *PI: Karen Willcox (MIT), and Team* ➢ Progressive Fault Identification and Prognosis in Aircraft Structure Based on Dynamic Data Driven Adaptive Sensing and Simulation o *Shiyu Zhou (U. Wisconsin)*	
10:00-10:15	**BREAK**	
10:15-11:15	➢ Robust Data-Driven Aero-elastic Flight Envelope Tailoring o *Balachandran,* University of Maryland ➢ Dynamic Data-driven Prediction, Measurement Adaptation, and Active Control of Combustion Instabilities in Aircraft Gas Turbine Engines o *Asok Poy, PennState*	
11:15-12:15	➢ An Integrated Approach to the Space Situational Awareness Problem o *PI: Suman Chakravorty (TAMU) , and Team* ➢ Cloud Computing Based Robust Space Situational Awareness o *Raktim Bhattacharya, TexasA&M*	
12:15-12:45	**LUNCH (Pick-up Lunches)**	
12:45-3:00	**Spatial Situational Awareness (UAV Swarms + Ground Systems Coordination)** ➢ EAGER- Real-time Discovery and Timely Event Detection from Dynamic and Multi-Modal Data Streams o Schaar, UCLA ➢ Dynamic Data-Driven Motion Planning and Control for Pervasive Situational Awareness Application Systems o *PI: Sertac Karaman (MIT), and Team* ➢ An Adaptive Distributed Approach to DDAS for Surveillance Missions with UAV Swarms o *Gupta, U of NotreDame*	

	➢ EAGER- Adaptive Ensemble-Based Uncertainty Prediction for Satellite Collision Avoidance ○ *Ridley, University of Michigan Ann Arbor* ➢ EAGER- Management of Dynamic Big Sensory Data ○ *Cai, Georgia State University* ➢ EAGER- Generative Statistical Modeling for Dynamic and Distributed Data ○ *Li(Jia), Pennsylvania State Univ*
3:00-3:15	**BREAK**
3:15-4:15	**(UAV Swarms + Ground Systems Coordination)** ➢ Dynamic Data Driven Adaptation via Embedded Software Agents for Border Control Scenario ○ *PI: Shashi Phoha (Penn State), and Team* ➢ Multiscale Analysis of Multimodal Imagery for Cooperative Sensing ○ *PIs: Erik Blasch, Guna Seetharaman, RI Directorate, AFRL* ➢ Energy-Aware Time Change Detection using Synthetic Aperture Radar on High-Performance Heterogeneous Architectures: A DDDAS Approach ○ *Ranka, UofFlorida*
4:15-5:00	➢ EAGER- Subspace Learning From Binary Sensing ○ *Chi, Ohio State University* ➢ Cloud-Based Preception and Control of Sensor Nets and Robot Swarms ○ *Geoffrey Fox*
5:00-6:00	Discussion of all Projects Discussed in Day 1
6:00	**MEETING ADJOURNED FOR THE DAY**

Agenda Day 2 – January 28, 2016		
Time	**Title**	**Speaker**
7:30-10:00	➢ Dynamic Data Driven Information Fusion For Situational Awareness o *Biao Chen, Syracuse University* ➢ Collaborative Image Processing in Vehicle Ensembles via Probabilistic Graphical Models and a Self-optimizing Support System o *Jose Martinez, Cornell U.* ➢ Dynamic Modality Switching Aided Object Tracking using an Adaptive Sensor o *Matthew Hoffman, RIT* ➢ Software for Data Streaming Analytics and its Application to Safer Flight Systems o *Varela, RPI* ➢ DDDAMS-based Urban Surveillance and Crowd Control via Aerostats & UAVs and UGVs o *PI: Young-Jun Son (University of Arizona), and Team*	
10:00-10:15	**BREAK**	
10:15-12:15	**Energy Efficiencies**	
	➢ (YIP) DDDAMS-based Real-time Assessment and Control of Electric-Microgrids o *PI: Nurcin Celik (University of Miami)* ➢ EAGER- A Scalable Framework for Data-Driven real-Time Event Detection in Power Systems o *Dominguez-Garcia, UIUC* ➢ EAGER- A Hierarchical Approach to Dynamic Big Data Analysis in Power Infrastructure Security o *Mohsenian-Rad, UCRiverside* ➢ EAGER- Data-Driven Operation and Maintenance of Wind Energy Systems under Uncertainty o *Perez, Texas State University - San Marcos* ➢ EAGER- Collaborative Research: Dynamically Data-driven Morphing of Reduced Order Models and the Prediction of Transients o *Sapsis, Massachusetts Institute of Technology* ➢ EAGER- Machine Intelligence for Dynamic Data-Driven Morphing of Nodal Demand in Smart Energy Systems o *Tsoukalas, Purdue U.* ➢ EAGER- Power Aware Data Driven Distributed Simulation on Micro-Cluster Platforms o Fujimoto	
12:15-1:00	**LUNCH**	
1:00-3:00	**Space Weather and Atmospheric Events – Modeling/Observations**	
	➢ Fluid SLAM and the Robotic Reconstruction of Localized Atmospheric Phenomena o *PI: Sai Ravela (MIT)* ➢ Retrospective Cost Model Refinement and State Estimation for Space Weather Modeling and Prediction o Dennis Bernstein, UMich ➢ Dynamic Data-Driven UAV Network for Plume Characterization o *PI: Kamran* Mohseni (U. of Florida) ➢ EAGER- Transforming Wildfire Detection and Growth Forecasting with Smart	

	Sensing o *Coen, NCAR* ➢ EAGER- Dynamic Data-Driven Random Sampling and Consensus for Large-Scale Learning Algorithms o *Giannakis, University of Minnesota* ➢ EAGER- Novel Approaches for Optimization, Control, and Learning in Distributed Multi-Agent Networks o *Yin(Wotoo), UCLA*
3:15-3:30	**BREAK**
3:30-4:30	**Sensing &Tracking**
	➢ Optimized Routing of Intelligent, Mobile Sensors for Dynamic, Data-Driven Sampling o *PI: Derek* Paley (UMD) ➢ A Distributed Dynamic Data Driven Applications System (DDDAS) for Multi-Threat Tracking o *Schizas, UTArlington*
4:30-5:15	**Materials Modeling**
	➢ Dynamic, Data-Driven Modeling of Nanoparticle Self Assembly Processes o *Y. Ding (TAMU),and Team* ➢ EAGER- A New Scalable Paradigm for Optimal resource Allocation in Dynamic Data Systems via Multi-Scale and Multi-Fidelity Simulation and Optimization o *Xu(Jie), George Mason U.*
5:15-6:00	Discussion of all Projects Discussed in Day 2
6:00	**MEETING ADJOURNED FOR THE DAY**

Agenda Day 3 – January 29, 2016		
Time	**Title**	**Speaker**
8:00-10:00	➢ Dynamic Integration of Motion and Neural Data to Capture Human Behavior o *PI: Dimitri Metaxas (Rutgers U), and Team inadvertently* ➢ Stateless Networking: Principles, Architectures, and Codes o *Wornell, MIT* ➢ Stateless Networking: Principles, Architectures, and Codes, o *Parrilo, MIT* ➢ Universal Laws and Architectures o John *Doyle, CalTech*	
10:00-10:15	**BREAK**	
10:15-12:15	➢ Using Trajectory Sensor Data Stream Cleaning to Ensure the Survivability of Mobile Wireless Sensor Networks in Cyberspace o *PI: Niki Pissinou, Florida International University* ➢ Adaptive Stream Mining: A Novel Dynamic Computing Paradigm for Knowledge Extraction o *PI: Shuvra Bhattacharyya (U. Of Maryland) and Team* ➢ Data-Adaptable Modeling and Optimization for Runtime Adaptable Systems o *Roman Lycesky* ➢ *Cloud support for Surveillance* o *Alex Aved, AFR:/RI*	
12:15-1:00	**LUNCH (Pick-up Lunches) Discussion of all Projects Discussed in Morning of Day 3**	
1:00-2:00	**Systems Software CyberSecurity**	
	➢ Data-Driven and Real-Time Verification for Industrial Control System Security o *Kevin Jin (Illinois Institute of Technology)* ➢ DDDAS-based Resilient Cyberspace (DRCS) o *PI: Salim Hariri (University of Arizona. Tucson), and Team*	
2:00-3:00	**Systems Software**	
	➢ Performance Analysis and Diagnosis of Cloud-based DDDAS Applications o *Mohammad Khan, UConn* ➢ (YIP) From Sensor Data to High-value Information: ultra-low-energy platforms for deriving inferences from complex embedded signals o *Naveen Verma (Princeton U.)*	
3:00-3:15	**BREAK**	
	Systems Software (cont'd)	

3:15-4:45	➢ Amorphous Polyhedral Model for Stochastic Control of Autonomous UAVs o *PI: Sanjay* Rajopadhye (Colorado State) ➢ Architecture and Programming Models for High Performance Interactive Computation o *PI: XiaoMing Li and Guang Gao* (U of Delaware) ; Jack Dennis and Arvind (MIT) ➢ Hybrid Systems Modeling and Middleware-enabled DDDAS for Next-generation US Air Force Systems o *PI: Aniruddha Gokhale (Vanderbilt U.), and Team*
4:45-6:00	**Discussion of all Projects – Collaborations, Directions in the Program**
6:00	**MEETING ADJOURNED**