



Resilience Week 2016 Track Plan

Tuesday, August 16

Time	Resilience Models and Measures [<i>Aspen</i>] <i>Chairs:</i> Marco Carvalho, FIT; Annarita Giani, GE; Michael Atighetchi, BBN	Avoiding Skynet—Humans Interacting with Autonomy [<i>Redwood</i>] <i>Chairs:</i> David Scheidt, Julie Marble, JHU APL	Resilient Infrastructure [<i>Cypress</i>] <i>Chairs:</i> David Alderson, NPS; Cherrie Black, INL
7:00	Registration [<i>Atrium</i>]		
8:00	Symposium Opening Plenary [<i>Regency Ballroom</i>] LtGen (ret) Hernandez, Army Cyber Institute		
8:20	Welcome and Announcements [<i>Regency Ballroom</i>]		
8:30	Keynote: Matt Bishop, University of California-Davis	Denise Nicholson, Soartech	Welcome: David Alderson and Cherrie Black Intro to CIRI: David Nicol, CIRI PI, University of Illinois – Urbana-Champagne Keynote: Bob Kolasky, DHS, NPPD-IP
9:00		Bill Lawless, Icloud	
9:30	Keynote: Greg Shannon, Office of Science and Technology Policy	Keynote: Kris Kearns, Air Force Research Laboratory	CIRI Panel: Needs and Objectives for Resiliency in Critical Infrastructure Moderator: Mark Petri, Director CIRI <ul style="list-style-type: none"> • Jeff Binder, CIRI Acting Director • Charles Rath, Resilient Solutions 21, CIRI External Advisory Board • Chick Macal, Argonne National Laboratory • Steve Flynn, Northeastern University
10:30	Morning Break [<i>Atrium</i>]		
11:00	Ehab Al-Shaer, UNCC	<i>The Human Should be Part of the Control Loop?</i> , R. Robinson, ARL	CIRI Panel: Risk Assessment Moderator: Chick Macal, Argonne National Laboratory <ul style="list-style-type: none"> • Santanu Chaudhuri, University of Illinois • Ryan Hruska, Idaho National Laboratory • David Brannegan, Argonne National Laboratory • Jay Kesan, University of Illinois
11:30	Jason Syversen, Siege Technologies	<i>Resilient Autonomous Systems: Challenges and Solutions</i> , G. Matthews, UCF	
12:00	Hosted Lunch with Plenary [<i>Regency Ballroom</i>] Dominique Luzeaux, Deputy Director of the Joint Directorate for Networks, Infrastructure and Information Systems, EMA/DIRISI		
1:30	Keynote: Osama A. Mohammed, Florida International University	Jennifer McKneely, JHU/APL	Student Competition: Lightning Talks <ul style="list-style-type: none"> • <i>Human in the Loop Design and Optimization for Resilient Infrastructure Networks</i>, A. Ulsan • <i>Urban flooding forecast for Phoenix roadways under increasing precipitation</i>, Y. Kim • <i>Automated extraction of dynamic parameters of infrastructure by video motion magnification and unsupervised machine learning</i>, C. Dorn • <i>A Networks Perspective of Air Traffic Delays</i>, K. Gopalakrishnan, • <i>Toward Mission-centric Vulnerability Analysis for Critical Systems: Methodology and Approach</i>, G. Bakirtzis • <i>Algorithm for Probabilistic Modeling of Interdependent Critical Infrastructure Systems</i>, C. Johansen • <i>Stress-Strain Capacity Analysis for Robust Infrastructure Service during Post Disaster Recovery</i>, J. Choi • <i>Vulnerability of Urban Water Systems to Climate Change and Mitigating the Potential for Cascading Failures</i>, E. Bondank • <i>Interdiction Analysis of a Coupled Electricity and Gas Network</i>, B. Hua • <i>Simulating Failure for Student Success</i>, L. McBurnett • <i>Bridging sociotechnical networks for critical infrastructure resilience: South Korean Case Study</i>, D. Eisenberg • <i>Resilience Assessment for Socio-technical System of On-farm Carcass Burial Pits</i>, W. Oh
2:00		Howard Chizeck, University of Washington	
2:30	Craig Rieger, INL		
3:00	Xinming Ou, USF	Keynote: David Bruemmer, 5D Robotics	
3:30	Reception and Poster Session [<i>Atrium</i>]		
6:00	Adjourn for Day		



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Wednesday, August 17

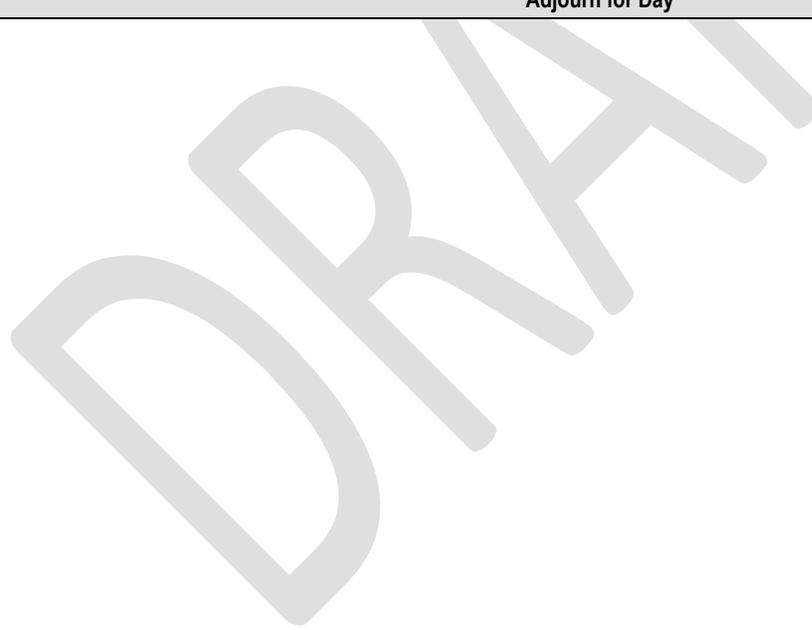
Time	Cyber [Rosewood] Chairs: Marco Carvalho, FIT; Annarita Giani, GE; Michael Atighetchi, BBN	Control [Redwood] Chairs: Frank Ferrese, NAVSEA; David Scheidt, JHUAPL	Cognitive - Communications [Aspen] Chairs: Roger Lew, UI; James Sterbenz, HU; Krishna Kant, Temple; Nathan Lau, VT	Resilient Infrastructure [Cypress] Chairs: David Alderson, NPS; Cherrie Black, INL
7:30	Registration [Atrium]			
8:20	Announcements [Regency Ballroom]			
8:30	Keynote: Trung Tran, DARPA [Regency Ballroom]			CIRI Projects Moderator: David Nicol, CIRI PI <ul style="list-style-type: none"> • 0830 Resilience Governance, Steve Flynn, NEU • 0845 Measuring Business and Economic Resilience in Disasters, Adam Rose, USC • 0900 Scenario-Based Flood Risk Mapping, Himanshu Grover, Univ. of Washington • 0915 Advancing Resiliency in Critical Power and Industrial Controls Infrastructure, Mark Herral, Texas Tech • 0930 Resilience in the Manufacturing Sector through Digital Threading, Bill King, Univ. of Illinois • 0945 Analyzing the Cyber-insurance market as a Market-Based Solution for Cyber Resiliency, Sachin Shetty, Tennessee State Univ.
	Cyber for Power Sector	Control for Power Sector	Cognitive Interface Papers	
9:30	Vulnerabilities in Two-Area Automatic Generation Control Systems under Cyberattack, S. Biswas, Temple U	*Testbed-based Performance Evaluation of Attack-Resilient Control for AGC, A. Ashok, PNNL	A Graphic Form with Emergent Properties for Monitoring Renewable Generation Stations, G. Jamieson, UT	
10:00	*Survivability Analysis and Recovery Support for Smart Grids, S. Sarves, MST	Improving Transmission System Resilience Using an Automation Controller and Distributed Resources, P. Penkey, UI	System-Task Analytical Framework for Monitor Assessment, N. Lau, VT	
10:30	Morning Break [Atrium]			
	Cyber Deception	Control for Power Sector	Cognitive Modeling	An Overview of the NIST Center of Excellence for Risk-Based Community Resilience Planning, Paolo Gardoni, NIST Center for Risk-Based Community Resilience Planning,
11:00	Dynamic Application Rotation Environment for Moving Target Defense, M. Thompson, ANL	Energy saving in Microgrid with Tree Configurations Using Nash Bargaining Solution, Q. Ren, Temple	Social Network Analysis for Assessing Research Team Collaboration and Implementation Capacity, J. Helbing, UI	
11:30	Enabling Defensive Deception in Distributed System Environments, N. Soule, BBN	Measurement Sensitivity Analysis of Information Embedded Power Systems using ABCD Matrices, T. Lakins, Drexel	State Modeling to Identify Critical Situations, S. Landry, Purdue	
12:00	Hosted Lunch with Plenary and Honorary General Chair: Massoud Amin, Director of TLI, University of Minnesota [Regency Ballroom]			
1:30	Keynote: Nitin Vaidya, University of Illinois Urbana-Champaign [Regency Ballroom]			RRAP Discussion
2:00				<ul style="list-style-type: none"> • Dan Genua, DHS • Will McNamara, DHS • Russ Bowman, Coast Guard Academy
	Asymmetric Cyber Resilience	Attack Detection/Verification	Communications Resilience	RRAP – Next Gen Panel Discussion Chair: Cherrie Black <ul style="list-style-type: none"> • Dan Genua, DHS • Will McNamara, DHS • Panelists: TBD
2:30	Chris Oeman, PNNL	Detecting PLC Control Corruption via On-Device Runtime Verification, L. Garcia, Rutgers	Internet Resilience in Ashburn, Virginia, M. Thompson, ANL	
3:00		Recovery after Attacks of Deception on Networked Control Systems, K. Kiriakidis, US Naval	Evaluation of Anomaly Detection Techniques for SCADA Communication Resilience, S. Shirazi, Lancaster	
3:30	Afternoon Break [Atrium]			
	Cyber Operations/Defense	Disturbance Rejection and Cyber Resilience		



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4:00	<i>Progressive Recovery of Interdependent Services in Enterprise Data Centers</i> , I. El-Shekeil, Temple	<i>Vulnerability of Fixed-Time Control of Signalized Intersections to Cyber-Tampering</i> , A. Ghafouri, Vanderbilt		<p>Invited Panel: Owner / Operators Addressing Risk & Resilience Moderators: John Walsh, FEMA & Cherrie Black, INL Panelists:</p> <ul style="list-style-type: none"> • Michael Carano, ChicagoFIRST • Ralph Chiczewski City of Chicago, Dept. of Water • Reed Dring, Stickney Water, Metropolitan Water Reclamation District of Greater Chicago • Cheryl Maletich, Commonwealth Edison Company • Alicia Tate-Nadeau, Chicago Office of Emergency Mgmt & Communications
4:30	<i>Adapting Level of Detail in User Interfaces for Cybersecurity Operations</i> , C. Inibhunu, Uncharted S	<i>An H-infinity Approach to Stealth-resilient Control Design</i> , S. Bopardikar, UTRC		
5:00	<i>A Decision Engine for Configuration of Proactive Defenses - Challenges and Concepts</i> , M. Atighetchi, BBN	<i>Performance Evaluation of Secure Industrial Control System Design: A Railway Control System Case Study</i> , X. Koutsoukos, Vanderbilt		
5:30	Adjourn Meetings			
6:00	Networking Reception at TopGolf, 3211 Odyssey Ct			
7:30	Adjourn for Day			

* Best Papers





Resilience Week 2016 Track Plan

Thursday, August 18

Time	Cyber Resilience Track [Cypress] Chairs: Frank Ferrese, NAVSEA; Marco Carvalho, FIT	Research and Efforts in the Human Dimension [Aspen] Chairs: Phil Bennett, SNL; Ron Boring, INL; Roger Lew, UI; Nathan Lau, VT	Resilient Infrastructure Chairs: John Hummel, Paul Lewis, Frederic D. Petit, ANL	
			Track 1 [Redwood]	Track 2 [Rosewood]
8:00	Registration [Atrium]			
8:20	Announcements [Regency Ballroom]			
8:30	<p>Keynote: Barbara Ciaramitaro, Walsh College</p>	<p>Track Overview: Phil Bennett, SNL, Ron Boring, INL</p> <ul style="list-style-type: none"> • <i>A Brief Survey of Methods to Analyze Human Decisions for Infrastructure Resilience Applications</i>, M. North, ANL • <i>Resiliency is a Wicked Problem</i>, P. Sydelko, ANL • <i>Integrating narrative into engineering decision making</i>, C. Mackenzie, Ames NL • <i>Striving to achieve resilience across social, environmental, and technical systems: Research and analyses at Oak Ridge National Laboratory</i>, A. Wolfe, ORNL • <i>Applying Organizational Change Theory to Increase Cyber Resilience</i>, M. Mylrea, PNNL • <i>Using a Dynamic Modeling Approach to Understanding Resilience</i>, I. Martinez-Moyano, ANL 	<p>Lightning Talks: Cyber-Physical</p> <ul style="list-style-type: none"> • <i>Cyber Physical Regional Resilience</i>, Stanchfield, MITRE • <i>Enhancing Power Grid Cybersecurity to Improve Critical Electric Infrastructure Resilience</i>, Qi, ANL • <i>Cyber-Physical Models for Critical Infrastructure Security Analysis</i>, Weaver, UIUC • <i>ICS-CAPE : Industrial Control Systems – Cyber Attacks and their Physical Effects</i>, Klett, INL • <i>The Initiative for Resiliency in Energy through Vehicles</i>, Powers, NASEO 	<p>Lightning Talks: Restoration/Recovery</p> <ul style="list-style-type: none"> • <i>A Node Split-Recovery Model for Congestion Evolution Process on Road</i>, Ukkusuri, Purdue • <i>Remote Sensing Decision Support System for Optimal Access Restoration in Post Disaster Environments</i>, Aros-Vera, RPI/RIT • <i>Probabilistic Risk Analysis of Hurricane Impacts at Distribution Network Resolution</i>, Backhaus, LANL • <i>Repair, Rebuild, or Replace? Protecting Aging Infrastructure From Hazards</i>, Alderson, NPS • <i>Energy Infrastructure Interdependency Training to Enhance System Operator Situational Awareness and Improve Restoration Response</i>, Kavicky, ANL
9:30	<p>Keynote: Alexander Dolpp, Mercedes-Benz Research & Development</p>	<p>Lightning Talks: Regional/Community/Human Resilience</p> <ul style="list-style-type: none"> • <i>A Conceptual Socio-Hydrological Model of Community Resilience to Flood-Risk</i>, Yu, Purdue • <i>Leapfrogging: Use of community sustainability initiatives to inform community resilience efforts</i>, Schneider, RIT • <i>Human Resilience and Development in Coupled Social, Ecological, and Technical Systems: An Integral Approach to Critical Infrastructure</i>, Thomas, ASU • <i>Critical Infrastructure Dependencies & Community Resilience</i>, Hruska, INL • <i>The Perils of Efficiency: Impacts of an Unplanned Closure of the Soo Locks</i>, Gordon, DHS • <i>Framework for State Energy Resilience</i>, Finster, ANL 	<p>Lightning Talks: Resilience Perspectives</p> <ul style="list-style-type: none"> • <i>Multi-Asset Protection and Resilience Assessment</i>, Petit, ANL • <i>Quantifying the resilience of infrastructure systems</i>, Baroud, Vanderbilt • <i>Resilience and Risk: Views from 2016 NATO Workshops</i>, Linkov, USACE • <i>Initial holistic capability for assessing resilience of space infrastructure</i>, Aamir, SNL • <i>Perspectives on Next Generation Critical Infrastructure</i>, Thomas, ORNL 	
10:30	Morning Break [Atrium]			
11:00	<p>Keynote: Kevin Staggs, Honeywell CSTC</p>	<ul style="list-style-type: none"> • <i>Real-time data collection through wearable devices to quantify attributes related to health and performance in extreme conditions</i>, G. Emmanuel Aviña, SNL • <i>Human-Machine Interface Research at the Los Alamos National Laboratory Engineering</i> 	<p>Lightning Talks: Climate/Heat/Water</p> <ul style="list-style-type: none"> • <i>Measuring the adaptation gap: A framework for evaluating climate hazards and opportunities in urban areas</i>, Coffee, CRC • <i>Climate Change and the Wastewater Sector</i>, Finster, ANL 	<p>Lightning Talks: Interdependence / Interconnectedness</p> <ul style="list-style-type: none"> • <i>SimDependency: A Dependency Mapping and Consequence Tool</i>, Thompson, ANL • <i>Interconnectedness and Interdependencies of Critical</i>



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			Track 1 [Redwood]	Track 2 [Rosewood]
		<ul style="list-style-type: none"> Institute, D. Mascareñas, LANL Digital Cancer Surveillance, G. Tourassi, ORNL An Overview of the Ames Lab Simulation, Modeling and Decision Science Program, K. Bryden, Ames NL 	<ul style="list-style-type: none"> Toward a More Resilient Wastewater Treatment Infrastructure and Operations, Urgun-Demitras, ANL The Vulnerability of Interdependent Urban Infrastructure Systems to Extreme Heat, Clark, ASU Climate Change and Infrastructure Adaptation, Wall, ANL Power Grid Resilience, Qui, ANL 	<ul style="list-style-type: none"> Infrastructures: Implications for Resilience in the U.S. Economy, Chopra, UI Interdependent Critical Infrastructure (CI) Sector Analysis for the Emergency Management Mission, Flanigan, JHU/APL Strategic Solutions for High-Density and Interdependency Visualization, Edsall, INL Critical Infrastructure Dependency Analysis: DHS Infrastructure Dependencies, T. Klett, INL Front-Line Resilience Perspectives: The Electric Grid, Finster, ANL
12:00	Hosted Lunch with Plenary Speaker: Brian Pierce, Director DARPA, I ² O [Regency Ballroom]			
1:30	Keynote: Annabelle Lee, EPRI	<ul style="list-style-type: none"> Mark Rice, PNNL Ron Boring, INL 	Track Summary and Roundtable: Future Planning Facilitators: David Alderson and Cherrie Black	
2:30	Panel: Cyber Resilience R&D Perspectives Moderator: Marco Carvalho, FIT	<ul style="list-style-type: none"> Operator Performance: An Overlooked Contributor to Grid Resilience, L. Burnham, SNL Incorporating Human Readiness Levels at Sandia National Laboratories, J. See, SNL Human dimensions of infrastructure interdependency and resilience, D. Graziano, ANL Computational Modeling of Visual Search Behavior, H. Yoon, ORNL 		
3:00		Track Summary and Roundtable Introduction: Phil Bennett, Ron Boring		
3:30	Afternoon Break [Atrium]			
4:00	Keynote: Cynthia Hsu, NRECA	Roundtable Discussion		
5:00	Adjourn Conference			