




Safe & Secure Systems & Software Symposium (S5)

Dayton, OH | 09, 10, and 11 June 2015


As of 1600EDT, 28 May 2015

Day 1	Agenda – Tuesday, 09 June
0730-0800	Check-in
0800-0805	Welcome and Administrative Remarks
0805-0845	 Keynote: Big Picture for Autonomy Research in DoD <i>Dr. Bob Grabowski, Senior Robotics Engineer, MITRE</i>
0845-0905	Topic Area Overview & Motivation <i>Matt Clark, AFRL</i>
0905-0940	Tools for Formally Reasoning about Autonomous Systems <i>Lucas Wagner, Rockwell Collins</i>
0940-1015	The Problem-Derived, World-Situated Machine Model <i>Tony Aiello, Dependable Computing</i>
1015-1045	BREAK ☕ (30 min)
1045-1120	Requirement Analysis using SpeAR <i>Aaron Fifarek, AFRL // LinQuest Corporation</i>
1120-1155	Incremental Life-Cycle Assurance of Cyber-Physical Systems <i>Dr. Julien Delange, Carnegie Mellon Software Engineering Institute(SEI)</i>
1155-1255	LUNCH 🍴🍷 (on your own)
1255-1330	Utilizing Assume Guarantee Contracts to Construct Verifiable Simulink Model Blocks <i>Jon Hoffman, AFRL</i>
1330-1405	A Composable Assurance Argument Architecture for Systems of Systems <i>Dr. Benjamin Rodes, Dependable Computing</i>
1405-1440	On Example Models and Challenges Ahead for the Evaluation of Complex Cyber-Physical Systems with State of the Art Formal Methods V&V <i>Christopher Elliott, Lockheed Martin Skunk Works</i>
1440-1510	BREAK ☕ (30 min)
1510-1545	A Brief Discussion of Areas Related to "Certifiable Trust" of Human-Automation Systems <i>Dr. Laura Humphrey, AFRL</i>
1545-1620	Design and Verification for Autonomous Systems Interacting with Human Operators <i>Dr. Lu Feng, University of Pennsylvania</i>
1620-1655	Assistive Planning in Complex, Dynamic Environments: a Probabilistic Approach <i>Dr. Peter Trautman, Galois Inc.</i>
1655-1700	Closing Remarks



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Day 2	Agenda – Wednesday, 10 June
0730-0800	Sign-in at Registration Desk
0800-0805	Welcome and Administrative Remarks
0805-0845	 Keynote: Intelligent Autonomous Unmanned Aerial Systems (UAS) <i>Dr. Kristin Yvonne Rozier, Assistant Professor, University of Cincinnati</i>
0845-0920	A Run time Monitoring Framework for Safe Coordination of Unmanned Aerial Vehicles <i>Dr. Nicola Bezzo, University of Pennsylvania</i>
0920-0955	Hybrid Systems Analysis of Periodic Control Systems using Continuization <i>Dr. Stanley Bak, AFRL</i>
0955-1025	BREAK ☕ (30 min)
1025-1100	Run Time Assurance for Complex Autonomy <i>Dr. John Schierman, Barron Associates Inc.</i>
1100-1135	Step Simulation/Over approximation-based Verification of Nonlinear Deterministic Hybrid System with Inputs <i>Dr. Ratnesh Kumar, Iowa State University</i>
1135-1210	Verification and Validation of Adaptive Control Systems for Quadrotor UAVs Towards Trusted Autonomy <i>Dr. Xiaodong Frank Zhang, Wright State University</i>
1210-1310	LUNCH 🍴🍷 (on your own)
1310-1345	On-Line Monitoring for Temporal Logic Robustness <i>Dr. Georgios Fainekos, Arizona State University</i>
1345-1420	Engineering High-Assurance Software for Distributed Adaptive Real-Time Systems <i>Dr. Sagar Chaki, Carnegie Mellon Software Engineering Institute(SEI)</i>
1420-1455	A Timed Approximation based Compositional Approach towards Formally Verified Aircraft Control Protocols <i>Dr. Pavithra Prabhakar, Kansas State University</i>
1455-1525	BREAK ☕ (30 min)
1525-1600	Application and Evaluation of Formal Methods Tools Applied to a 6U CubeSat Attitude Control System <i>Kerianne Gross, AFRL</i>
1600-1635	Performance Evaluation for Autonomous Behavior-based Multirobot Missions <i>Dr. Damian Lyons, Fordham University</i>
1635-1710	Safety Critical Software and Systems Research at General Electric <i>Michael Durling, General Electric Global Research</i>
1710-1715	Closing Remarks



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Day 3		Agenda – Thursday, 11 June	
0730-0800	Sign-in at Registration Desk		
0800-0805	Welcome and Administrative Remarks 	<u>BREAKOUT:</u> Moderator: Dr. Stanley Bak (AFRL) Location: Salon C & D Challenges for Formal System Design and Analysis using Hybrid Automata Tools 	
0805-0840	A Cost-Effective Simulation Testbed for Unmanned Aerial Vehicle Network Cyber Attack Analysis <i>Dr. Weiqing Sun, University of Toledo</i>		
0840-0915	Credible Autocoding for Verification of Autonomous Systems <i>Juan Pablo Afman, Surentez</i>		
0915-0950	TOIF - Extending Static Code Analysis Coverage <i>Dr. Ben Calloni, Lockheed Martin</i>		
0950-1020	BREAK ☕ (30 min)		
1020-1055	Formal Verification for Software-Controlled Power Electronics <i>Omar Beg, University of Texas at Arlington (UTA)</i>		
1055-1130	Real-World Contracts <i>Dr. Ashlie Benjamin Hocking, Dependable Computing</i>		
1130-1205	Joint Common Architecture (JCA) Demonstration - Architecture Centric Virtual Integration Process (ACVIP) Shadow Effort <i>Alex Boydston, US Army Aviation & Missile Research Development & Engineering Center</i>		
1205-1305	LUNCH 🍴🕒 (on your own)		
1305-1340	Avionics Weapon Systems Cybersecurity Risk Management Framework Assessment & Authorization Update <i>Harrell Van Norman, Air Force Life Cycle Management Center (AFLCMC)</i>		
1340-1415	Rapid Modular Software Integration <i>Adam Grimm, KIHOMAC</i>		
1415-1450	Software Structural Coverage Analysis for Safety-Critical Code - Who Cares? <i>Shan Bhattacharya, LDRA</i>		
1450-1525	Architectural Security Analysis for Mixed Hardware and Software Systems <i>Dr. John (Jack) Goetz, WW Technology Group</i>		
1525-1525	Closing Remarks		