

DENT 2023

DIGITAL ENGINEERING IN NUCLEAR TECHNOLOGY

AGENDA

Wednesday, September 20, 2023
 Duke Energy Hall
 Hunt Library 2nd floor

7:30 am	Registration and Coffee (Hunt Library 2 nd floor)	
Time	Topic	Lead
8:00 am	Welcome	NCSU Administration
8:15 am	Introductions by Co-hosts	Abhinav Gupta, NCSU Craig Stover, EPRI
8:45 am – 9:45 am	Plenary Keynotes	John Korsedal, <i>GEH Nuclear Energy</i> Norm Kunkel, <i>Duke Energy</i> Justin Garza, <i>Zachry Construction</i>
9:45 am – 10:15 am	Break	
10:15 am – 11:30 am	Session 1: Advanced Construction Tannis Liviniuk (Trillium Advisory Group) and Hasan Charkas (EPRI) <ul style="list-style-type: none"> ➤ Vision of a Digitally Enabled eVinci™ Microreactor using Digital Twin-----Scott Sidener, <i>WEC</i> ➤ Artificial Intelligence and Augmented Reality Driven Digital Engineering for High Precision Construction-----Abhinav Gupta, <i>NCSU</i> ➤ Digital Engineering and Advanced Construction at the National Reactor Innovation Center: The Digital Thread’s Impact in Nuclear Lifecycle Optimization-----Phil Schoonover and Nick Crowder, <i>INL</i> 	
11:30 am – 12:45 pm	Lunch Break	
12:45 pm – 2:00 pm	Session 2: Advanced Manufacturing Marc Albert (EPRI) and David Malley (NAMRC) <ul style="list-style-type: none"> ➤ Digital Transformation – The Journey in-----Karine King, <i>Accuris Goldfire</i> ➤ Towards a Virtual Reactor-----Emilio Baglietto, <i>Siemens</i> ➤ Securing the Future of the Nuclear Industry-----Hilary Lane, <i>NEI</i> 	
2:00 pm – 2:15 pm	Break	
2:15 pm – 3:30 pm	Session 3: Autonomous Operations Sacit Cetiner (MIT) and Ronlad Boring (INL) <ul style="list-style-type: none"> ➤ Role of Human in a Highly Automated System-----Ron Boring, <i>INL</i> ➤ Industry Expectations on Autonomous Operations-----Bruce Geer, <i>EPRI</i> ➤ Remote Facility Operation-----Dan Stout, <i>USNC</i> 	
3:30 pm – 3:45 pm	Break	
3:45 pm – 5:00 pm	Session 4: Licensing and Regulatory Aspects Lee Grezeck (Duke Energy) and Sujit Samaddar (USNRC) <ul style="list-style-type: none"> ➤ Licensing and Regulatory activities in pace with Digital Innovations-----Sujit Samaddar, <i>USNRC</i> ➤ Research Activities in Support of Digital Engineering in Nuclear Technologies-----John McKirgan, <i>USNRC</i> ➤ Digital Applications in a Regulated industry-----Grzeck Lee, <i>Duke Energy</i> ➤ Disruptive, Innovative and Emerging Technologies and the Canadian Nuclear Safety Commission-----Kevin Lee, <i>CNSC</i> 	
5:00 pm – 7:00 pm	Reception – Hunt Library Skyline Reading Room (5 th floor)	

AGENDA

Thursday, September 21, 2023

Time	Topic	Lead
8:30 am – 12:00 pm	Breakout Sessions	
	<p>Session 1: Advanced Construction (Duke Energy Hall) Tannis Liviniuk (Trillium Advisory Group) and Hasan Charkas (EPRI)</p> <ul style="list-style-type: none"> ➤ Digitalizing construction – from non-nuclear projects to nuclear projects-----Kai Zhang, <i>Bechtel</i> ➤ Improving Construction Processes through Performance Modeling and Simulation Using Visual Sensing and BIM-----Kevin Han, <i>NCSU</i> ➤ Imagining Construction’s Future for Advanced Reactors-----Bret Moushon, <i>Gafcon</i> ➤ The Pathway to Complete Digital Twins in Construction: Where are We Now and Where are We Going?-----Robert Cox, <i>UNCC</i> ➤ Digital Twins in Construction: Connecting the Physical & Digital Worlds-----Lucas Reames, <i>Trimble</i> 	
	<p>Session 2: Advanced Manufacturing (4th floor; room 4105) Marc Albert (EPRI) and David Malley (NAMRC)</p> <ul style="list-style-type: none"> ➤ Delivering New Nuclear through Digital Innovation-----Chris Folmar, <i>BWXT</i> ➤ Plug-and-Play Digital Twin Platform For Net Zero Manufacturing-----Noel Padagaonkar, <i>Nuclear AMRC</i> ➤ Unlocking Knowledge: The Goldfire Cognitive Search Advantage-----Karine King & Tom Baker, <i>Accuris Goldfire</i> ➤ Smart Manufacturing Using Digital Twins-----Emilio Baglietto, <i>Siemens</i> ➤ Adaptive Feedback Welding: Automating the Welding Process -----Jon Tatman, <i>EPRI</i> ➤ Verification, Validation and Uncertainty Quantification of Machine Learned models---Ian Davis, <i>ASME VVUQ Committee</i> 	
	<p>Session 3: Autonomous Operations (4th floor; room 4101) Sacit Cetiner (MIT) and Ronlad Boring (INL)</p> <ul style="list-style-type: none"> ➤ DOE Advanced Sensors and Instrumentation (ASI) Program Controls Workshop Summary-----Ahmad Al Rashdan, <i>INL</i> ➤ Advancements in Nuclear Plant Operations using Digital Solutions – Core Control, Decommissioning and Plant Modernization-----Heshan Gunawardane, <i>Framatome</i> ➤ Cyber and Physical Security Concerns Related to Increased Automation and/or Remote Operations-----James Hazel, <i>TerraPower</i> ➤ Prognostic Health Management (PHM) as Enabling Technology for Autonomous Operations-----Pradeep Ramuhalli, <i>ORNL</i> ➤ Toward Autonomous Operations of Advanced Reactors through Digital Twin Technology-----Eric Helm, <i>MetroscopeE</i> 	
	<p>Session 4: Licensing and Regulatory Aspects (4th floor; room 4107) Lee Grezeck (Duke Energy) and Sujit Samaddar (USNRC)</p> <ul style="list-style-type: none"> ➤ Artificial Intelligence Preparedness-----Luis Betancort, <i>USNRC</i> ➤ NRC Activities in Advanced Manufacturing Technology-----David Rudland, <i>USNRC</i> ➤ NRC Research Activities for Digital Twins-----John Matrachisia, <i>USNRC</i> ➤ NRC Research Activities for Digital Twins-----Thomas Scarborough, <i>USNRC</i> ➤ Application of Digital Platforms in Advanced Construction-----Madhumita Sircar, <i>USNRC</i> ➤ Application of Digitization in Regulated Inspection Activities -----Christopher Welch, <i>USNRC</i> 	
12:00 pm – 1:00 pm	Lunch Break (Duke Energy Hall)	
1:00 pm – 3:00 pm	Summary of breakout session outcomes and open discussion (Duke Energy Hall)	
3:00 pm – 5:00 pm	Tour of Pulstar Reactor	
5:00 pm	ADJOURN	