

**2nd Annual International Conference
on Digital Twin and Parallel Intelligence****FINAL PROGRAM****WEDNESDAY, OCTOBER 26**

- 9:00 - 10:00 Tutorial: Making Twins Work: Vartan Piroumian**
- 10:00 - 10:20 BREAK**
- 10:20 - 11:15 MAIN PLENARY WELCOME AND INTRODUCTIONS Reza Zekavat**
- KEYNOTE: Digital Radio Intelligent Forest Twin (DRIFT), Ali Abedi (U of Maine)**
- 11:30 - 12:30 LUNCH**
- 12:30 - 14:10 SMART CITY DIGITAL TWINS WORKSHOP TALKS**
- 12:30: Digital Twin-based Framework for Development of Schools as Smart & Connected Community Resilience Hubs**
- 12:40: Human and Building Digital Twins for Virtual Reality-Based Building Emergency Training**
- 12:55: Physics-Based, AI-Enabled, Fair Digital Twins for Urban Systems**
- 13:10: Meta-Worlds for Smart Cities: Evaluating Vulnerable Road Users' Behavior With Virtual Reality Simulators**
- 13:25: Smart Curb Digital Twin: Inventorying Curb Environments using Computer Vision and Street Imagery**
- 13:40: Data-Driven Models Integrate Human Mobility Into Design of Equitable and Resilient Infrastructure**
- 13:55: A Digital Twin City Model for Capturing Walkability Distress of Elderly Adults**
- 14:10: Smart City Digital Twins Panel I**
- 14:30: BREAK**

WEDNESDAY, OCTOBER 26

Smart City Digital Twins Workshop Talks Continued

14:45: National Science Foundation CISE/CNS: Cyber-Physical Systems (CPS)

15:15: Partnership For Inclusive Innovation

15:35: Environmental Justice as a Process Twin: A Major Challenge and the New Frontier

15:50: Synthetic Infrastructure as Interdependent Systems and Cascading Failures

16:05: The importance of IoT for Digital Twins - Smart Cities and Factories of the Future

16:20: Functional Requirements Enabling Levels of Predictive Maintenance Automation and Autonomy

16:35: Optimizing Traffic Controllers Along the MLK Smart Corridor Using Reinforcement Learning and Digital Twin

16:50: Smart City Digital Twins Panel II

17:15: BREAK

18:00: MJ O'CONNOR'S AT THE WESTIN BOSTON, SEAPORT DISTRICT, 425 Summer Street (for those who RSVP'd)

THANK YOU TO OUR PATRONS



THURSDAY, OCTOBER 27

**9:00: PLENARY: TPC Review, Best Paper Award Announcement
IEEE CRFID/RAIN Alliance Announcement of Competition Winners**

**9:30: KEYNOTE: Microelectronic Design and Production Digital Twin (MD&T),
Grace Bochenek (U of Central Florida)**

10:30: BREAK

MAIN SESSION 1

11:00: A Digital Smart City for Emerging Mobility Systems

**11:20: A New Perspective on Digital Twins: Imparting Intelligence and Agency to
Entities**

**11:40: Smart Predictive Maintenance Enabled by Digital Twins and Smart Big Data:
A New Framework**

12:00: LUNCH

MAIN SESSION 2

13:00: A Case Study of Digital Twin for Greenhouse Horticulture Production Flow

**13:20: Parallel Enabled and Stability-Aware Self Optimizing Control With Globalized
Constrained Nelder-Mead Optimization Algorithm**

**13:40: Modeling Methodology and In-Field Measurement Setup to Develop Empiric
Weather Models for Solid-State LiDAR Sensors**

14:00: An Efficient Digital Twin for Wildfire Spread Modelling

15:00: BREAK

15:15: Industry Invited Speaker: Mikie Bradford, Dassault Systems

16:00: Poster Session

17:00: BREAK

18:00: *Networking Dinner, Pastoral, 345 Congress Street (only for those that RSVP'd)*

ORGANIZING COMMITTEE

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FRIDAY, OCTOBER 28

9:00 Plenary Introduction and IEEE Council on RFID Status and Future Initiatives

9:15 Panel on Digital Twin Standards

10:15 Break

10:30 Opening Remarks, Christopher R. Anderson, US Naval Academy

10:40 Digital Spectrum Twinning for Next-Generation Spectrum Management and Metering. Gregory D. Durgin and Michael A. Varner, Georgia Tech; Neal Patwari, Washington University St. Louis; Sneha Kasera and Jacobus van der Merwe, University of Utah

11:00 Indoor Radio Map Construction and Location Estimation with a Deep Gaussian Process Approach. Shiwen Mao, University of Auburn

11:20 Spectrum Coexistence of Wireless Broadband and Terrestrial 5G Networks Over 12 GHz Band: Opportunities, Challenges, and Interference Characterization. Ta Seen Reaz Niloy, Nathan H. Stephenson, Zoheb Hassan, Vijay K. Shah, Eric Burger, Carl Dietrich, Jeffrey H. Reed, Virginia Tech

11:40 Chain Branch Leaf-Gateway, a Strategy for Dynamic Clustering and Optimal Coverage of Communication for Automated Mobility. Sabine Belmekki, Dominique Gruyer, Charles Tatkeu, U of Gustav Eiffel

12:00 Enhanced RF Modeling Accuracy Using Simple Minimum Mean-Squared Error Correction Factors. Michael A. Varner, Frost Mitchell, Jie Wang, Kirk Webb, Gregory D. Durgin, Georgia Tech

12:20 - 13:30 LUNCH

13:30 - 14:15: DST Keynote, Kaveh Pahlavans

14:30 BREAK

15:00 DST Metasurface Tutorial: An Introduction to Digital Twins for Meta-Surface Empowered Wireless Networks. Majid Moradikia and Seyed (Reza) Zekavat, Worcester Polytechnic Institute (WPI)