

DDDAS2026 – Agenda

Venue: Rutgers University – Busch Campus

DAY-1 – Wednesday, November 4, 2026

Registration: starts 8am – throughout the conference duration

TUTORIALS

8:30am-12:00pm	Tutorials Sessions 8:30am-10:15am TUTORIAL-1: <i>Topological Data Analysis: Theory and Applications to Machine Learning; Digital Twins</i>, by Paul Schrader (AF Research Labs) and Andreas Savakis (Rochester Institute of Technology)
10:15am-10:30am	Break 10:30am-12:00noon TUTORIAL-2: <i>AI for Critical Infrastructure: From Learning to Adaptive and Agentic Systems</i>, by Miltos Alamaniotis, UT San Antonio
12noon -1:30pm	Lunch Break

CONFERENCE MAIN TRACKS

1:30pm-2:00pm	DDDAS2024 Opening Remarks - Erik Blasch, Frederica Darema, Dimitris Metaxas
2:00pm-2:45pm	Keynote-Session-1 (Session-Chair: Frederica Darema) <i>From Aerospace Structures to Hypersonics: The Evolving Role of DDDAS in Aerospace Engineering</i> Speaker: <i>Artem Korobenko</i> (University of Calgary, Canada)

Paper Presentations:

2:45pm-3:45pm	DDDAS-Session-1: <i>Materials Systems – I</i> (Session-Chair: TBA) - Title: <i>Data-Driven Framework for Hydroslamming</i> Authors: Christina Nikiforidou, Samuel Lee, Kenneth Kiger, James H. Duncan, MiaoYu, and Balakumar Balachandran Affiliation: University of Maryland, College Park - Title: <i>Damage Classification for 3D Point Cloud Data via 3D Data Analysis and Vision Foundation Model-based 2D Projections</i> Authors: Evan Perez (Student), Kalelo Dukuray, Erika Ardiles-Cruz, Jie Wei Affiliation: City College of New York - Title: <i>Physics-Informed Thermal Field Reconstruction for Melt-Pool Monitoring in Laser Powder Bed Fusion</i> Authors: Petros Spiliopoulos (Student), Sandipan Mishra, and Fotis Kopsaftopoulos Affiliation: Rensselaer Polytechnic Institute
3:45pm-4:00pm	Break
4:00pm-4:45pm	Keynote-Session-2 (Session-Chair: Dimitris Metaxas) <i>A Look at the Stars: Exploiting Non-cooperative LEO Satellites for Navigation</i> Speaker: <i>Andrew Hong</i> (DHS)

4:45pm-6:15pm

DDDAS-Session-2: *Materials Systems – II*

- **Title:** [A Traction Boundary Value Problem Approach to the Self-Sensing Inverse Problem](#)
Authors: Saranya Ravva, Levi Li, and Tyler Tallman ()
Affiliation: Purdue University
- **Title:** [GAMMA: A Physics-Guided Algorithm for Generalized Anisotropic Multi-Modal Analysis of Ultrasonic Guided Waves](#)
Authors: Charlie Tran, Michael MacIsaac, Amanda Beck, Woohyun Eum, Ghatu Subhash, and Joel B. Harley
Affiliation: University of Florida
- **Title:** [Vision-Based Sensing of Base and Object Vibration in Additive Manufacturing](#)
Authors: Xing Quan Wang (Student), Zixiao Wei, Chinedum E. Okwudire, and Grace X. G
Affiliation: University of California, Berkeley
- **Title:** [Integrated Multimodal AI System for Retrieval-Augmented Reasoning, Object Sensing, and Damage Analysis](#)
Authors: Kalelo Dukuray, Israel Pina, Evan Perez, Erika Ardiles-Cruz, and Jie Wei
Affiliation: City College of New York
- **Title:** [Time Series Foundation Models and Stochastic Functional Time Series Models for Dynamic Data-Driven Inference under Varying Operating States](#)
Authors: Christos V. Stamopoulos, Shinan Huang, and Fotis Kopsaftopoulos
Affiliation: Rensselaer Polytechnic Institute

6 :15-6 :30

Break

6:30pm

Reception/Dinner Begins

7:15:30pm–8:00pm

Keynote-Session-3 - (Session-Chair: Erik Blasch)

[A Look at the Stars: Exploiting Non-cooperative LEO Satellites for Navigation](#)

Speaker: [Zak Kassas](#) (Ohio State University, Columbus)

8:05am-8:15am	Opening Comments (Erik Blasch)
8:15am-9:00am	Keynote-Session-4 (Session-Chair: Erik Blasch) <i>Computing Through Uncertainty: From Dynamical Systems to Autonomous Decisions</i> Speaker: <i>Puneet Singla</i> (Pennsylvania State University)
9:00am-10:00am	DDDAS-Session-3: Environmental Systems (Session-Chair:) • Title: <i>An AI-Based OSSE Framework to Evaluate Learned Physical Consistency: A Multi-Model Study Using FourCastNet, Aurora, Prithvi WxC, and GraphCast</i> Authors: Yash Diggikar and Milton Halem Affiliation: University of Maryland, Baltimore County • Title: <i>A Computationally Efficient Adaptive Sampling Framework for Localized TDA of Earthworks in a DDDAS Framework</i> Authors: Mohsen Gol Zardian, A Q M Zohuruzzaman, Weicong Feng, Austin R.J. Downe, Jie Wei, Sadik Khan, Paul T. Schrader, Erik Blasch, Erika Ardiles-Cruz, Jason Bakos, and Jasim Imran Affiliation: University of South Carolina • Title: <i>On the Transferability of Agricultural Weed Detection Under Cross-Field Distribution Shift</i> Authors: Nikhilesh Prabhakar, Pranuthi Tenali, Athresh Karanam, Wilfredo Abudeye Fernandez, Shekhar Borah, Erik Blasch, Prabha Sundaravadivel and Sriraam Natarajan Affiliation: The University of Texas at Dallas
10:00am-10:15am	Break
10:15am-11:15am	DDDAS-Session-4: <i>Space Situational Awareness - I</i> (Session-Chair:) • Title: <i>IRIS-EM: A Physics-Consistent Multi-Modal Simulation Framework for Synthetic Battlefield Data Generation</i> Authors: Brannndon Jones, Kane Miller, Amir Shirkhodaie, Eric Grigorian, and Josh Gaston Affiliation: Tennessee State University • Title: <i>A Dynamic Data Driven Approach for LEO Satellite Selection-Enabled Ephemeris Generation</i> Authors: Samer Hayek, Sharbel Kozhaya, Joe Saroufim, and Zaher M. Kassas Affiliation: Ohio State University • Title: <i>Physics-ML fusion algorithm for predicting motion of an unknown, non-cooperative, and torque-free tumbling space object under long-term occlusion with experimental validation</i> Authors: Rabiul Hasan Kabir (Student) and Xiaoli Bai Affiliation: Rutgers University
11:15am-12:30pm	DDDAS-Session-5: <i>Space Situational Awareness - II</i> (Session-Chair: TBA) • Title: <i>Sensor Sensitivity in Self-Progressive Learning Flight Awareness</i> Authors: Tanay Topac and Fu-Kuo Chang Affiliation: Stanford University • Title: <i>Beyond Attacker-Defender Ratios in Counter-Swarm Defense</i> Authors: Diego Ortiz Barbosa, Eya Badal Abdisho, Oliver Chang, Luis Burbano, Zengxiang Lei, Eunhan Ka, Satish Ukkusuri, Leilani H. Gilpin, and Alvaro A Cardenas Affiliation: University of California Santa Cruz • Title: <i>Simulation-Augmented Curriculum Hierarchical Reinforcement Learning for UAV Navigation: A DDDAS-Oriented Architecture</i>

	Authors: Adebayo Braimah, Garrett Katz, Simon Khan, Erik Blasch, and Jian Li Affiliation: Stony Brook University • Title: Topological Data Analysis for Trust and Reputation Assessment in UAV Swarm Behavior Authors: Ryan J. Dorestal, Thomas Maher, and Paul T. Schrader Affiliation: John Jay University
12:30pm -1:30pm	Lunch Break
1:30pm-3:00pm	DDDAS-Session-6: <i>Foundational Methods - I</i> (Session-Chair: TBA) • Title: Complexity Bounds and Approaches to Learning Projected Gradient Descent Solver Iterates Authors: Anjian Li and Ryne Beeson Affiliation: Princeton University • Title: Semantic Heterogeneous-Agent Reinforcement Learning Systems Authors: Mohammad Abdi, Francesca Meneghello, Nathaniel D. Bastian, and Francesco Restuccia Affiliation: Northeastern University • Title: Bayesian Evidence Accumulation for Graph-Based Learning in Dynamic Data-Driven Applications Systems Authors: Moises Ponce, Sarah Harkins Dayton, Ioannis Schizas, and Vasileios Maroulas Affiliation: University of Tennessee • Title: The Blind-Spot Problem in Nonstationary Gaussian Bandits: Monitoring versus Discovery Authors: Michael N. Katehakis and Sheldon M. Ross Affiliation: Rutgers University • Title: SPRAP: Speculative Parallel Boundary Matrix Reduction for Persistent Homology on FPGAs Authors: Jack Bonfiglio, Paul Schrader, Erik Blasch, and Francesco Restuccia Affiliation: Northeastern University
3:00pm-3:15pm	Break
3:15pm-4:15pm	DDDAS-Session-7: <i>Digital Twins Systems</i> (Session-Chair: TBA) • Title: PortTwin: An AI-Based Dynamic Digital Twin for Predictive Safety and Operational Resilience in Container Ports Authors: Gaurav Sharma, Milton Halem, and Yaacov Yesha Affiliation: University of Maryland, Baltimore County • Title: Lightweight Digital Twins for Space Systems Authors: Josue Luna Olague, Andres Enriquez Fernandez, Luis Rodolfo Garcia Carrillo, Erik Blasch, John Bird, and Angel Flores-Abad Affiliation: University of Texas at El Paso • Title: Deep Learning-based Surrogate Model of a Space Robotic System for Instant Prediction of Dynamic Behavior Authors: Omar Al-Thehabey, Waite Wiseman Affiliation: University of Cincinnati, Ohio
4:15pm-6:00pm	DDDAS-Session-8: <i>Security-Reliability Systems</i> (Session-Chair: TBA) • Title: Manifold-Constrained Anomaly Detection in Streaming Poisson Sensor Data: A DDDAS Framework for Mobile Radiological Search Authors: Derian Mowen and Miltiadis Alamaniotis Affiliation: University of Texas at San Antonio • Title: Event-Based Learning Methodology (EBLM): A Dynamic Data-Driven Application Systems Framework for Human-AI Workflow Assistance Authors: Abdullah Alsaheal and Nurcin Celik Affiliation: University of Miami • Title: A Dynamic Data-Driven Framework for Continuous Authorization in HPC Workflows

Authors: Abhimanyu Chawla, Mahmoud Abdelgawad, and Indrakshi Ray

Affiliation: Colorado State University

- **Title:** [Dynamic Data-Driven Cyber Defense for Industrial Control Systems Using P4-Based Cross-Layer Telemetry](#)

Authors: Haden Fowler, Reuben Samson Raj and Dong Jin

Affiliation: University of Arkansas

- **Title:** [Optimizing Age of Information and Reconstruction Error for Asymmetric Broadcast Networks via Probabilistic Preemption](#)

Authors: Kareem Olama, Sunjung Kang, and Christopher G. Brinton

Affiliation: Purdue University

- **Title:** [Reliable Fusion of Conflicting Experts](#)

Authors: Pranuthi Tenali, Sahil Sidheekh, Saurabh Mathur, Vijayalakshmi Saravanan, Erik Blasch, Kristian Kersting, and Sriraam Natarajan

Affiliation: University of Texas at Dallas

6:00pm-6:15pm

6:15pm

6:45pm-8:15pm

Break

EVENING EVENT(Buffet-Dinner)

Keynote-Session-5 (Session-Chair: Frederica Darema)

[An update on Quantum-Centric Supercomputing](#)

Speaker: [Seelam Seetharami](#) (IBM Thomas J. Watson Research Center)

8:15am-8:35am	Opening Comments
8:30am-9:15am	Keynote-Session-6 (Session-Chair: TBA) <i>Decision dynamics for agents in contested spaces with real-time sensing of evolving interaction</i> <i>Speaker: Naomi Ehrich Leonard</i> (Princeton University)
9:15am-10:30am	DDDAS-Session-9: Power Systems, Infrastructure-Security (Session Chair: TBA) • Title: Evaluating Grid Resilience in the Era of Ever-Increasing Data Centers Authors: Yuhan Du (Student), Erika Ardiles-Cruze, and Javad Mohammadi Affiliation: University of Texas at Austin, • Title: Analytical Bounds for Resilient Shared Autonomous Electric Vehicle Fleet Planning: Bridging Passenger Service Quality and Vehicle-to-Grid Optimization Authors: Jake Robbennolt (Student), Stephen D. Boyles, and Javad Mohammadi Affiliation: University of Texas at Austin • Title: Turning Voltage Sensitivity into Safe Action: Reweighted Offline Volt/VAR Control from Routine Logs Authors: Jingyi Yuan, Hamad Alduaij, and Yang Weng Affiliation: Arizona State University • Title: Proof-of-ENF: Physical Attestation for Sybil-Resistant Consensus in Lightweight IoT Blockchains Authors: Mohsen Hatami, Hozefa Lakadawala, Jordan Madden, Xiaohua Li, Erika Ardiles-Cruz, Erik Blasch, and Yu Chen Affiliation: Binghamton University
10:30am-10:45am	Break
10:45am-11:30am	DDDAS-Session-10: Computer Vision Systems (Session-Chair: TBA) • Title: A Data-Driven Approach for Optical Reference-Guided Optimization of Millimeter-Wave Imaging Authors: Lhamo Dorje, Jordan Madden, Soamar Homs, Yu Chen, and Xiaohua Li Affiliation: Binghamton University • Title: pointRender: A Pointcloud-Friendly Render for View-based Point Cloud Classification Authors: Weicong Feng, Jie Wei, and Erika Ardiles-Cruz Affiliation: City College of New York
11:30am-12:15pm	DDDAS-Session-11: Health Systems (Session-Chair: TBA) • Title: DDDAS Architecture for Non-Classical Decision Dynamics Authors: Alok Chaturvedi, Qinqin Zhou, Ritika Chaturvedi, and Shiyang Sima Affiliation: Purdue University • Title: Dynamic Structural Causal Modeling for Sleep Authors: Ranveer Singh, Saurabh Mathur, Pranuthi Tenali, Arun Badi, and Sriraam Natarajan Affiliation: The University of Texas at Dallas
12:15pm-1:00pm	Lunch Break (Catered Lunch)

1:00pm-2:15pm

Session-12: Session – Foundational Methods- II(Session-Chair: TBA)

- **Title: [A Systematic Evaluation of Adversarial Robustness in Semantic Communication](#)**
Authors: Jordan Madden, Lhamo Dorje, Yu Chen, and Xiaohua Li
Affiliation: Binghamton University
- **Title: [Polynomial Chaos Expansion Based Nonlinear Filtering of Stochastic Processes](#)**
Authors: David Bordenkircher and Ruixin Niu
Affiliation: Virginia Commonwealth University
- **Title: [Radar-based Multi-Task Learning of Physical Characteristics to Establish New UAV Prototypes](#)**
Authors: Sean Kearney and Sevgi Z. Gurbuz
Affiliation: North Carolina State University
- **Title: [Machine Learning Accelerated Uncertainty Quantification in Astrodynamics using Structured State Space Sequence Models](#)**
Authors: Hunter Quebedeaux and Tarek A. Elgohary
Affiliation: University of Central Florida
- **Title: [Use of Information Filter to Bolster Non-Exquisite Sensing Capacity](#)**
Authors: Jackson Artis and Gregory Falco
Affiliation: Cornell University

2:15pm-2:30

Break

2:30pm-3:00pm

Student-Papers Awards / Closing Discussion