

KEYNOTE SPEAKERS

Monday, October 12, 2026

Eric Davis

DARPA



The Perpetual Maginot Line: Planning for Adaptation in Multidomain Operations

Eric Davis, Ph.D., joined DARPA in February 2024 as a program manager in the Strategic Technology Office. His research interests include artificial intelligence, cognitive science, human-machine teaming, and data science. Prior to DARPA, Davis was the principal scientist of artificial intelligence, machine learning, and human-machine teaming at Galois, where he led programs that focused on the creation of cognitive architectures to allow next-generation artificially intelligent systems to team with humans in real-world environments. Prior to Galois, Davis was a professor and director of the Trustworthy Data Engineering Laboratory at Iowa State University and the University of Miami, where he was named a Frontiers of Engineering Education faculty member by the National Academy of Engineering. He received his Ph.D. in Computer Science from the University of Illinois at Urbana-Champaign and B.S. in Computer Science from The College of William and Mary.

Tuesday, October 13, 2026

Laurence Mixon

Army CPE ISW



Operationalizing AI Across the Intelligence Spectrum Warfare Portfolio

Mr. Laurence Mixon is the Acting Deputy Capability Program Executive for Intelligence and Spectrum Warfare (DCPE ISW) at Aberdeen Proving Ground, Maryland, where he leads eight Project Managers developing and integrating sensor technologies. He previously served as Special Assistant to the PEO for IEW&S, providing intelligence technical expertise across Army intelligence and cyber acquisition programs. Mixon retired in 2016 after 30 years as an Army Intelligence Officer. His assignments included command of the 501st MI Battalion in Iraq, and his final post was G3 for U.S. Army Intelligence and Security Command. He then joined the Defense Intelligence Senior Level. He holds degrees from West Point, the University of Virginia, and the U.S. Air War College, and his decorations include the Distinguished Service Medal and Bronze Star.

MONDAY, OCTOBER 12TH

10:10 - 11:25 AM

Pramod Varshney

Syracuse University



Byzantine-Resilient Inference and Cognitive Resource Allocation in Networked Sensing Systems

This two-part talk first examines Byzantine attacks on distributed inference networks, where malicious sensors falsify data sent to a Fusion Center. We review how vulnerable these networks are, how attacks can be mitigated, and a game-theoretic view of the network versus its attackers. The second part presents a constrained deep reinforcement learning framework that helps a cognitive radar balance its time between tracking multiple targets and scanning. We close with future research directions.

Yalin Sagduyu

Nexcepta



Adversarial Machine Learning and Security in Contested and Distributed Multi-Domain Operations

Machine learning is transforming networked and distributed systems, but their reliance on shared information creates new attack surfaces. This talk examines adversarial machine learning threats, in which attackers manipulate data, model inputs, learning processes, or model parameters to mislead AI systems or degrade their performance. It covers vulnerabilities and defenses in networked and distributed systems, including coordinated attacks across data and system domains, with the goal of building more secure, resilient AI for contested multi-domain environments.

MONDAY, OCTOBER 12TH

12:40 - 1:55 PM

Qinru Qiu

Syracuse University



Toward Adaptive RF Sensing on Constrained Platforms

Contested multi-domain operations need RF sensing that recognizes novel signals, adapts as the electromagnetic environment shifts, and runs on SWaP-constrained platforms such as UAVs. This talk presents preliminary work toward that goal: an RF foundation model with zero-shot classification of unseen signals, a continual learning toolbox that adds new signal classes after deployment without catastrophic forgetting, and a potential energy-efficient implementation on neuromorphic hardware. Together, they outline an end-to-end pipeline from pretraining to on-device adaptation.

Ufuk Topcu

UT Austin



Resilient Coordination in Multi-Agent Systems in Adversarial Environments

This talk examines resilient coordination in multi-agent systems facing manipulated sensing, disrupted communication, and compromised agents. It addresses three challenges: protecting against corrupted information through decentralized inference, data-poisoning analysis, and strategic sensing; sharing information effectively under intermittent communication; and scaling coordination to large teams without prohibitive computation or communication costs. Examples from UAV teams, autonomous vehicles, transportation networks, and swarms illustrate how resilient collective behavior depends on how teams acquire, trust, share, and use information.

Alex K. Jones

Syracuse University



Multimodal AI on the Tactical Edge

Multimodal foundation models can integrate imagery, RF, acoustic, and other sensor data, but deploying them at the tactical edge strains computation, memory bandwidth, energy, and security. A compiler-driven approach places computation on the best-suited resource across heterogeneous edge hardware while optimizing SWaP. We develop processing-in-memory techniques that turn DRAM into a computational accelerator, explore partitioning transformer workloads across conventional and in-memory accelerators, and extend trusted execution across processors and memory for secure multi-tenant operation.

MONDAY, OCTOBER 12TH

2:10 - 3:25 PM

Ben Luke

Lockheed Martin



From Noise to Insight: AI-Powered Solutions for Today's Sensor Processing Challenges

Modern sensor processing brings together classic techniques and emerging AI methods, creating both formidable challenges and powerful opportunities. For sensor processing to continue to mature at the speed of relevance, novel research and innovative solutions are essential. This presentation spotlights critical hurdles in next-generation sensor processing and identifies critical foundational research areas and the AI-driven opportunities.

Chad Parvis

Epoch Geo



Predict, Constrain, Explain: Hybrid AI Across Sea, Air, and Space

Multi-domain operations require tracking entities through sparse, delayed, or deceptive observations. Learned models generate hypotheses hard to audit, while symbolic rules become brittle in changing environments. This talk presents a hybrid architecture, drawing on maritime, aviation, and space tracking, in which learned predictions are tested against neurosymbolic constraints and a metacognitive layer flags unreliable custody. Its core contribution is a reusable assurance pattern: predict, assert, test, arbitrate, and explain, with human-authorization gates for consequential recommendations.

Paulo Shakarian

Syracuse University



Metacognitive ISR Fusion

Converging traditionally separate domains is thought to be key to success in multidomain warfare. This talk examines intelligence fusion across domains, using artificial metacognition, an AI system's ability to introspect, to fuse models trained under different conditions for different modalities, including AIS, LIDAR, and optical. Applications include ATR, object detection, and maritime vessel location prediction. Methods combine symbolic approaches, such as abductive inference, with machine learning, including VLMs. Supported by DARPA, ARO, and ONR.

MONDAY, OCTOBER 12TH

4:00 - 4:50 PM

Ian Perera

IHMC



Cognitive Modeling for Rapid Multi-Domain Decision Making

Applying AI to decision making in real-life situations requires learning to provide responsive decisions with limited data. But even beyond the passive approach of assuming a small amount of data with the adversary as the “environment,” a more promising approach explores how we acquire the data we need, and in which situations, and against which adversaries, that data is relevant. We present work on cognitive approaches for answering these questions, and discuss the scaffolding needed to provide cognitive approaches with the requisite data and context to be able to quickly provide insight into dynamic situations.

Walid Saad

Virginia Tech



The Road to Connected Physical Artificial Intelligence (AI): A Confluence of AI, Neuroscience, and Wireless Networking

Today's AI tools, including large language models, still struggle when embedded in physical systems such as robots, drones, and vehicles. Success requires handling unseen scenarios, respecting physical laws, and providing connectivity at scale. This talk introduces AGI-native wireless systems, an architecture combining digital twins, neuroscience, and AI around perception, world models, and action planning. We present a test-time scaling law and active inference approach helping agents generalize beyond training, semantic communication for scalable 6G connectivity, and a world model based on Kahneman's “thinking fast and slow” principle that improves reasoning and vehicular link scheduling. We conclude with future opportunities, including telecom operators becoming intelligence providers.

TUESDAY, OCTOBER 13TH

10:10 - 11:25 AM

M. Cenk Gursoy

Syracuse University



Learning-Enabled UAV Autonomy in Congested and Contested Environments: Toward Resilient Physical AI

UAVs increasingly operate in congested, contested environments where adversaries jam links, corrupt sensors, and exploit predictable behavior. This talk first presents jamming-resilient UAV path planning for IoT data collection, where deep reinforcement learning with adversary-aware training restores mission success to near jammer-free levels. We then extend this work to multi-UAV integrated sensing and communication, using cooperative multi-agent reinforcement learning that scales zero-shot to larger teams, with attacker-aware training improving resilience against learned attackers. We close with open problems.

Griffin Kearney

MyDefence



From Intelligent RF Systems to Intelligent Networks: RF Foundation Models for Contested, Distributed Decision Making

Despite fast-moving drone and counter-drone threats, most RF systems are still engineered one at a time on timelines of months or years. This talk examines how RF foundation models, pretrained on broad spectrum data, may enable two shifts: faster innovation, with adaptation by fine-tuning at software speed, and system modularity, with a shared latent space letting platforms fuse weak observations. It also addresses open challenges, including adversarial robustness, shared vulnerabilities, and edge constraints.

Junzhe Zhang

Syracuse University



Approximate Causal Reinforcement Learning

Reinforcement learning's guarantees assume no unmeasured confounding. When hidden factors shaped past decisions, an agent can recommend a policy that scores well offline but fails on deployment. This talk presents Approximate Causal Reinforcement Learning, a framework that asks what can still be guaranteed when causal effects cannot be identified exactly. It proceeds in three stages: bounding policy values from confounded data in discrete spaces, extending to continuous states and actions, and meta-reinforcement learning across related tasks.

TUESDAY, OCTOBER 13TH

12:40 - 1:55 PM

Matthew Corbett

West Point / ACI



Beyond Model Confidence: Temporal Validity, Supersession, and Criterion-Level Accountability in AI-Enabled Targeting

AI-enabled targeting is often framed as a model problem, but research at the Army Cyber Institute and West Point suggests it is fundamentally a decision problem. Before evidence reaches an analyst or commander, it passes through pipelines, fusion processes, and classification boundaries where information is discarded, merged, or superseded, so inherited assumptions can appear as facts. In degraded command-and-control environments, model confidence scores reveal little about evidence quality, age, or provenance. This talk argues for instrumenting the evidence path through knowledge graphs that track temporal validity and supersession, attributed source evidence, and pipeline-wide uncertainty provenance. The goal is not perfect certainty but more transparent, defensible targeting decisions.

Senem Velipasalar

Syracuse University



Reliable Vision-Language Systems and Reasoning for Multi-Domain Decisions

Vision-language models (VLMs) let operators query sensor data in plain language, but contested operations degrade sensing and invite manipulation. We present three lines of work. First, we examine VLMs' failure to bind roles, such as which vehicle is chasing which, an exploitable weakness, and outline REBIND, which locates its source. WAPP uses language prompts to improve water segmentation under difficult conditions for flood monitoring. CobraVPS improves visual program synthesis without fine-tuning, producing auditable traces for human-agent teaming.

TUESDAY, OCTOBER 13TH

2:10 - 3:00 PM

Carlos Enrique Caicedo Bastidas Syracuse University



Modeling RF Spectrum Consumption for Sharing, Deconfliction, and EMSO

The RF spectrum is finite and increasingly contested, pushing civilian and military users toward dynamic spectrum access and sharing. Spectrum consumption models (SCMs), defined by IEEE Std 1900.5.2, provide a machine-readable way to describe a system's spectrum use and interference tolerance, making compatibility computations tractable. This talk presents results applying SCMs to spectrum deconfliction, including the design of a coordination system for a Radio Dynamic Zone, examines SCMs and AI/ML in Electromagnetic Spectrum Operations, and outlines future directions.

Peter A. Beling

UVA



Systems Engineering Adaptive AI for Contested Multi-Domain Decision Making

Contested multi-domain operations increasingly depend on learning-enabled capabilities across sensing, communications, electronic warfare, and decision-making functions. Yet these capabilities must be engineered for missions and program lifecycles that will outlast the machine-learning technologies used to build them. This talk presents abstract learning systems theory, a foundation for engineering such capabilities independently of specific algorithms, architectures, or training paradigms. By representing learning through abstract relations among data, knowledge, objectives, environments, and behavior, the theory can support requirements, architecture, integration, test and evaluation, assurance, and adaptation while letting underlying AI implementations evolve. This separation matters most in contested environments, where sensing, communications, assets, adversary behavior, and objectives may all change. The result treats AI not as algorithms inserted into a fixed architecture, but as learning behavior engineered across a system's lifecycle.