Artificial Intelligence for Manufacturing

Workshop

May 27–28, 2026

Gaithersburg, Maryland

Organized by Yan Lu & Rachael Sexton
Engineering Laboratory, NIST

- **Use Cases**
- **Challenges & Barriers**
- **Standards & Meas. Sci.**

yan.lu@nist.gov | rachael.sexton@nist.gov

Opening Remarks

WELCOME

8:30-8:40am, May 27, 2026

Dr. Joannie Chin

Director, Engineering Laboratory

National Institute of Standards and Technology

Workshop Agenda

Day 1 — May 27, 2026
Heritage Room & Lecture Rooms A & D

7:30 – 8:30	Registration
8:30 – 12:10	Morning Plenary
12:10 – 13:30	Lunch Break
13:30 – 15:10	Breakout Sessions 1 & 2
15:10 – 15:30	Coffee Break
15:30 – 17:10	Breakout Sessions 3 & 4
17:10 – 17:30	Day 1 Wrap-up
18:00	No-host Social Dogfish Head, Gaithersburg

Day 2 — May 28, 2026
Heritage Room

8:10 – 8:15	Day 2 Opening
8:15 – 8:30	NIST ITL AI Program
8:30 – 9:10	Day 1 Breakout Session Reports
9:10 – 10:40	Breakout Session 5 AI for Manufacturing Standards
10:40 – 11:00	Coffee Break
11:00 – 12:15	Breakout Session 6 Human-Machine
12:15 – 12:30	Workshop Wrap-up

Plenary Session

May 27, Heritage Room

8:50 – 9:20 AM

Dr. Mohsen Seifi

Vice President, Global Advanced Manufacturing & Critical/Emerging Technologies

ASTM International

Beyond the Model: The Standards That Make AI Work in Manufacturing

Leads ASTM's advanced manufacturing initiatives in Additive Manufacturing, Robotics, and AI. Principal Investigator for ASTM's $15M NIST-awarded Standardization Center of Excellence (ASCET CoE). Author of 60+ peer-reviewed publications with 6,500+ citations and 200+ invited lectures worldwide.

9:20 – 9:50 AM

Dr. Jay Lee

Clark Distinguished Chair Professor & Director, Industrial AI Center

University of Maryland

Trends, Advances, and Challenges of Industrial Physical AI in Smart Manufacturing

Internationally recognized leader in Industrial AI. Leads the Data Foundry (100+ real-world industrial datasets) and the AI Factory initiative. Chairs ASTM F50 AI in Manufacturing Committee. WEF Global Future Council member; Senior Advisor to McKinsey; Fellow of ASME, SME, PHM Society. Author of Industrial AI (Springer, 2020).

Plenary Session

May 27, Heritage Room

9:50 – 10:20 AM

Andre Wegner

CEO

Authentise

From Engineering Context to Governed Action: Agentic AI for Reliable Manufacturing Workflows

CEO of Authentise, a leading provider of data-driven workflow management software for additive manufacturing. Chair of Digital Manufacturing at Singularity University, Silicon Valley. His work on AI-assisted engineering collaboration, reverse engineering, compliance checking, and workflow orchestration has been featured in BBC News, MIT Technology Review, and Bloomberg.

10:40 – 11:10 AM

Riccardo Mariani

Vice President, Industry Safety

NVIDIA

Functional Safety for Physical AI

Leads NVIDIA's Halos physical AI safety initiative, overseeing safety strategies, architectures, and products for autonomous driving, robotics, and healthcare. Convenor and Project Leader for ISO/IEC TS 22440 (AI Safety) and IEC 61508 for functional safety — a recognized global authority on safe AI deployment.

AI for Manufacturing: Cross-Sector Perspectives on Progress, Barriers, and Priorities

11:10-12:10pm
Moderated by Paul Witherell

Brandon Ribic

Technology Director

America Makes

Leads strategic R&D and curates the national AM Technology Roadmap. Drives standardization with ANSI. Prior work at Rolls-Royce on nickel superalloy AM. Ph.D., Materials Science, Penn State.

Jonathan Wise

Chief Technology Architect

CESMII / ACE Technologies

CTA at CESMII — the smart manufacturing Manufacturing USA institute — and CTO at ACE Technologies, advising manufacturers and technology providers on Industry 4.0 transformations.

Penny Chen

Principal Technology Strategist

Yokogawa U.S.

ISA Fellow with 14 years of ISA membership. Ph.D. Electrical Engineering, Northwestern University. Leads technology strategy at Yokogawa's U.S. Technology Center.

Alex Rudin

Autonomy Policy & Strategy Group Lead

MITRE

Engineer and technology strategist at MITRE. M.Eng. in Mechanical & Aerospace Engineering with concentration in Cyber-Physical Systems.

Breakout Session 1 | Agentic AI for Manufacturing

13:30 – 15:10, May 27
Moderated by Yan Lu
Lecture Room A

Kentaro Yoshimura

Principal Researcher

Hitachi, Ltd.

25+ years in software engineering and embedded control systems. Leads R&D of AI-enabled engineering and safety systems. Explores AI agents for fault diagnosis and safety-critical reliability. Ph.D. in Information Science.

Christoph Legat

Professor

TH Augsburg, Germany

Leader in Industrial AI — agentic, trustworthy, explainable AI for manufacturing. Author of 100+ publications. Key contributor to AI standardization and qualification frameworks. Co-founder and start-up advisor.

Hyunbo Cho

Professor

POSTECH

Faculty since 1994. Directs the Industrial Data Engineering & Analytics (IDEA) Lab. Research in smart manufacturing, industrial data analytics, and AI-driven supply chain optimization. Ph.D., Texas A&M.

Clint Nicely

Principal Mechanical Engineer

Raytheon / RTX

Principal Mechanical Engineer and Structural Analyst at Raytheon. Chair of RTX MATMSTN knowledge-sharing network spanning Raytheon, Pratt & Whitney, and Collins Aerospace. Industry leader in Isogeometric Analysis.

James Zhang

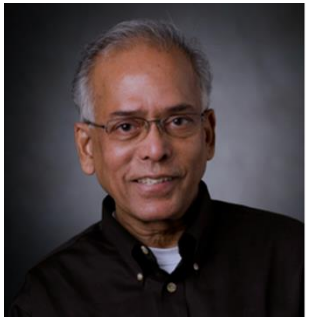
Co-founder & Chief Product Officer

OpsMate AI

Building the AI-augmented factory problem-solving platform. Leads AI skilled worker product strategy — trustworthy, task-specific agents for frontline knowledge capture and continuous improvement. Formerly PTC, SAP, Fujitsu.

Breakout Session 2 | Industrial Foundation Models: Data and Application Challenges

1:30-3:10pm, May 27
Moderated by Mehdi Dadfarnia and Michael Dawson
Lecture Room D



Soundar Kumara

Penn State University

Allen, E., and Allen, M., Pearce Professor of Industrial and Manufacturing Engineering at Penn State, with an affiliate appointment in the School of Information Sciences and Technology. He serves as the Director of the Center for the Applications of AI & ML to Industry (AIMI) at Penn State. He is among the pioneers to apply artificial intelligence to manufacturing, Dr. Kumara is a Fellow of IISE, CIRP, ASME, AAAS, & SME.

Amir Kashani

Stanley Black & Decker

Director of Digital Strategy at Stanley Black & Decker. Amir leads AI Strategy and Product Development for industrial software platforms spanning energy, automotive, and inventory management. His focus: embedding AI into physical products and manufacturing systems while tackling the real-world challenges of governance, security, and human-AI teaming.

Qing (Cindy) Chang

University of Virginia

Professor in the Department of Mechanical and Aerospace Engineering at the University of Virginia. Her research focuses on modeling, analysis, and control of dynamic manufacturing systems to advance sustainability, efficiency, and resilience. She develops AI-enabled approaches that leverage system-level properties to support smarter decision-making, adaptive control, and human-robot collaboration.

Patricia Delafuente

NVIDIA

Senior Solution Architect on NVIDIA's Public Sector team, where she partners closely with federal agencies and federally funded research and development centers to address complex national challenges. Her work focuses on agentic AI and model fine-tuning, with research interests in applying and customizing transformer-based models for intelligent document processing, and fraud/misinformation detection.

Breakout Session 3 | Physical AI in Manufacturing

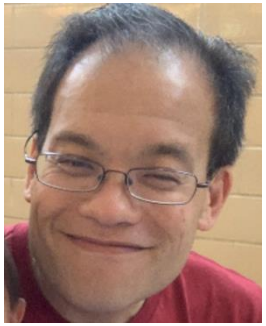
15:30 – 17:10 May 27
Moderated by Mycha Sharp, Lecture Room A

Michael Brundage

Mechanical & Industrial Engineer

UMD ARLIS

Leads human systems integration and supply chain research at ARLIS. Former NIST industrial engineer; led Knowledge Extraction for Manufacturing and Model-Based Enterprise programs. 55+ publications; 2021 DOC Bronze Medal; SME Outstanding Young Manufacturing Engineer.



Nicholas Propes

Senior Staff Data Scientist

Seagate

30+ years in AI and Machine Learning. Ph.D. Electrical Engineering, Georgia Tech — intelligent control systems. Focuses on trustworthy AI/ML, domain knowledge integration, and AI-assisted design exploration with synthetic data and surrogate modeling.

Naichen Shi

Assistant Professor, Industrial Eng. & Mechanical Eng.

Northwestern University

Leads the Integrative Artificial Intelligence Lab at Northwestern. Joint appointment in IEMS and Mechanical Engineering. Ph.D. from University of Michigan. Focuses on novel AI and statistical methods for Digital Twins and smart manufacturing.

Filip Aronshtein

Co-founder & CEO

Dirac

Building the first automated, model-based production planning platform to make America's factories dynamic, adaptive, and context-aware. Background in Electrical Engineering and Robotics; former hardware development at Northrop Grumman.

Breakout Session 4 | Human-AI Teaming for Manufacturing

15:30 – 17:10pm, May 27
Moderated by Rachael Sexton Lecture Room D

Aoi Minamoto

AI Systems & Controls Engineer

Toyota / AImoji LLC

IEEE Senior Member and founder of AImoji LLC. Focuses on industrial AI systems, manufacturing semantic infrastructure, Human-AI Teaming, and AI-ready operational standardization. Experience at Panasonic Energy and Toyota Battery Manufacturing across PLC, HMI, and MES environments.

Jamie Gorman

Professor, Human Systems Engineering

Arizona State University

Director of the Center for Human, AI, and Robot Teaming (CHART) at ASU. Ph.D. in Psychology, NMSU. Studies adaptation, influence, and effectiveness in human and AI teams across medical, military, space, and industrial environments. Associate Editor, Human Factors.

Isabelle Shuggi

Principal Human Factors Scientist

SAIC

Leads research on human-AI teaming in biometric identity workflows at SAIC's Identity & Data Sciences Lab. Background in systems engineering and cognitive neuroscience. Developed a human-AI teaming framework for biometric system design and assessment.

SK Khurana

Founder & CEO

Addiguru

25+ years in computational materials science. Commercialized technologies at Intralox and EWI; co-founded a medical device startup before founding Addiguru. 15+ publications, 8 patents. MBA & MS, Ohio State; BTech, IIT.

Session 5: AI for Manufacturing Standards — Panelists

9:10-10:40am, May 28,
Moderated by Yan Lu
Heritage Room

Rudy Belliardi

Secretary, IEC TC65

Standardization Consultant

Industrial automation expert and Secretary of IEC TC65. Active in networking, interoperability, and smart manufacturing standardization.

Arturo Casasa

Principal Advisor, AI Strategy

TMAC / Univ. of Houston

25+ years in operational excellence and emerging technology deployment. Designs ROI-driven AI roadmaps to modernize supply chains for small and mid-size manufacturers.

Richard Huff

Director, Industry Consortia

ASTM International

Leads ASTM AM Center of Excellence partnerships. Former Applications Director at GE Additive; 20-year Caterpillar veteran in materials processing and AM standards. M.S. Mechanical Engineering.

Anthony Downs

Project Lead, Group leader

NIST

Leads the Agility Performance of Robotic Systems project at NIST. Transitions robotics test metrics into IEEE R&AS Standards Working Groups. DOC Gold Medal Award recipient.

Russell Waddell

Community Lead

Tulip Interfaces / MTConnect

Long-term MTConnect Institute leader driving shop-floor communication standards. Community Lead at Tulip Interfaces and co-host of the industrial podcast Behind the Ops.

Session 6 | Human-Machine Teaming Standards Roadmap

11:00am-12:15am, May 28,
Moderated by Peter Denno
Heritage Room

Arturo Casasa

Principal Advisor, AI Strategy & Development

TMAC / Univ. of Houston

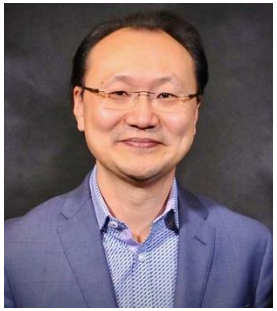
25+ years in operational excellence and emerging technology deployment. Designs ROI-driven AI implementation roadmaps to modernize supply chains for small and mid-size manufacturers across Texas.

Aoi Minamoto

AI Systems & Controls Engineer

Toyota / AImoji LLC

IEEE Senior Member. Focuses on industrial AI systems, manufacturing semantic infrastructure, and AI-ready operational standardization. Leads manufacturing terminology standardization across PLC, HMI, and MES environments.



Kyoung-Yun Kim

Professor, Industrial & Systems Engineering

Wayne State University

Directs the Computational Intelligence & Design Informatics Lab. Research in design science, smart manufacturing, and semantic assembly design. $10M+ in federal and industry funding; Fellow of the Society of Design and Process Science.

Nobuhiro Hosokawa

Technical Master & Quality Eng. Manager

IBM Research-Tokyo

Specializes in international software metrics, defect engineering, and AI quality assurance frameworks at IBM Research. Secretary for the ISO/IEC JTC 1 AI Workshop Series — shapes global AI governance standards.