

Innovative Models for STEM Workforce Development in Critical Technologies: Cross- disciplinary, Cross-sectoral Solutions

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Keynote Remarks

Shari Liss

*Vice President, Global Workforce Development & Initiatives
SEMI and SEMI Foundation*

Shari Liss, a seasoned professional with over 25 years in workforce development and tech education, is currently the driving force as Vice President of Global Workforce Development and Initiatives at SEMI. In this role, she focuses on leading impactful workforce development programs and initiatives for the microelectronics industry that span over 3200 global companies.

Under Shari's dynamic leadership, SEMI has successfully launched numerous national and global workforce development initiatives. She has secured significant funding to drive programs that enhance industry image and focus on attracting people from all different backgrounds and experiences to the sector.

With a profound commitment to shaping the future of tech education, Shari's current role at SEMI exemplifies her dedication to addressing critical workforce needs and fostering cross-sector partnerships that bridge industry, academia, community-based organizations, and the workforce.

Panel I: Preparing the Future Workforce: Proven Models for STEM Education and Training

Kiana Aran

*Associate professor
University of California at San Diego*

Prof. Kiana Aran is an Associate Professor of Bioengineering and Medicine at the University of California, San Diego. She is also a founder of multiple biotechnology companies with one successful exit. Prof. Aran received her B.S. in Electrical Engineering from the City University of New York and her Ph.D. in Biomedical Engineering from Rutgers University. She then continued her postdoctoral studies in bioengineering at the University of California, Berkeley, and was a recipient of the National Institutes of Health postdoctoral training fellowship at the Buck Institute for Aging Research in 2015. Her contributions have earned numerous prestigious awards. Including the inaugural Sony and Nature Award for Top Women in Technology in 2025. In 2024, she was named a Senior Member of the National Academy of Inventors, Rutgers medal of excellence for distinguished Engineer and Distinguished Engineer of the Year by the San Diego Society of Engineers. Past accolades include the Nature Research Award (2021), the NSF CAREER Award, the Scientist's Top 10 Innovation, and the Athena Pinnacle Award (2020). Her research was featured in Nature Biomedical Engineering's Most Read Papers and Nature's Behind the Paper Top 10 List (2019). She also received the CONNECT Most Innovative Product Award and San Diego Venture Group's Coolest Companies Award (2019).

Kumar Garg

President

Renaissance Philanthropy

Kumar Garg is the President at Renaissance Philanthropy. Kumar has helped to shape the science and tech landscape for almost two decades. Working with Eric Schmidt, he helped design and launch moonshot initiatives in education, provided early support to game-changing ideas and pioneers, and built ongoing multi-donor and multi-sector

collaboratives. Prior to that, he helped set budget and policy priorities for the Obama Administration as part of the White House Office of Science and Technology Policy, and drove progress on topics ranging from education and workforce issues, biotechnology, entrepreneurship, space, advanced manufacturing, broadband, nanotechnology, behavioral sciences, digital media, incentive prizes, and broader innovation policy.

In particular, he led the Obama Administration's efforts to bolster science, technology, engineering and math (STEM) education, including development of major budget and policy initiatives in the State of the Union to train 100,000 excellent STEM teachers and bring computer science to all K-12 students, development of the Educate to Innovate campaign with over \$1 billion in in-kind and philanthropic investment, and creation of iconic

events such as the White House Science Fair. Prior to his time in government, Kumar worked on behalf of parents and children seeking educational reform as an education lawyer and advocate.

Kumar received a B.A. from Dartmouth College and a law degree from Yale Law School.

Craig Hayward

Vice Chancellor of AI Strategy and Digital Transformation

California Community Colleges Chancellor's Office

Craig Hayward is a strategic advisor to the Chancellor, providing expertise on research and data design. His focus is on reimagining and expanding critical statewide data and research infrastructure. Hayward also leads statewide professional development to strengthen data visualization, evidence-based design and high-impact strategies to advance student access and success with equity.

Hayward most recently served as associate vice chancellor of analytics and innovation at the Kern Community College District. He has also served in roles at Bakersfield College, Irvine Valley College, Cabrillo College, Mendocino College and the Rancho Santiago Community College District. Hayward earned a bachelor's degree in journalism from Boston University and his PhD in psychology from the University of California, Irvine.

Nafiz Karabudak

Corporate Science & technology Manager

Lockheed Martin Corporation

Nafiz Karabudak is Corporate Science & Technology Manager for Lockheed Martin Corporation. He is responsible for Strategic Engagement and Establishing Partnerships with Universities, Academia R&D Centers/Consortia and University-Industry-Government collaboration in Advancing Science & Technology through Collaborative Research Programs, Engagement with Government S&T Customers for Pursuing Contract Research & Development Programs, Fostering STEM, and Building Innovation Pillars.

Previously, Mr. Karabudak served as Lockheed Martin Corporate Technology R&D Manager for External Global Partnerships and Corporate Manager responsible for Small Business Technology including SBIR/STTR Programs. Mr. Karabudak has a proven track record in Advanced Technology R&D, Engineering and Program Management, International Offset Programs Development and Management with extensive in-country experience in Europe, Asia, and Australia.

Panel II: Preparing Today's Workforce for Tomorrow's Technologies

Lisa Rotenstein

Assistant Professor

University of California at San Francisco

Dr. Lisa Rotenstein is a primary care physician, researcher, and operational leader. She is an Associate Professor of Medicine, Medical Director of Ambulatory Quality and Safety, and Primary Care Physician at the University of California, San Francisco, Health. She additionally serves as the Director of the Physicians Foundation Center for Physician Experience and Practice Excellence. In her current roles, she oversees ambulatory quality and safety for the UCSF Health System and leads research aimed at finding actionable solutions to enhance the physician experience. Previously, she served as an Assistant Professor of Medicine and Medical Director of Population Health at Brigham and Women's Hospital, where she oversaw ambulatory quality and integrated behavioral health for BWH's 150,000 patients across sixteen practices. Dr. Rotenstein's research focuses on enhancing outpatient care delivery, the clinician experience, and the intersection of the electronic health record with these issues. Her research and writing have been published in JAMA, JAMA Internal Medicine, The New England Journal of Medicine, The Harvard Business Review, and more. She has presented her work to the National Academy of Medicine, Department of Health and Human Services leadership, and at Grand Rounds presentations across the United States. Dr. Rotenstein was named a 2021 STAT Wunderkind, a 2022 Modern Healthcare Top 25 Emerging Leader, and the 2022 Society of General Internal Medicine New England Region Investigator of the Year. She is a graduate of Harvard Medical School, Harvard Business School, and the Harvard School of Public Health.

Sajan Saini

*Education Director, Initiative for Knowledge and Innovation
Massachusetts Institute of Technology*

Dr. Sajan Saini is the Education Director for the Initiative for Knowledge and Innovation at MIT, where he oversees manufacturing education for engineer and technician training in integrated photonics and semiconductor resource efficiency (affiliated with the AIM Photonics Institute and FUTUR-IC program). He is a lecturer, writer, and research scientist with over twenty years of experience in integrated photonics, science communications, and writing. He was formerly a professor of physics with CUNY, and has taught on scientific writing and graphic novel literature at Princeton University. He is the author of two book chapters and his writings have appeared in Harper's Magazine, TED-Ed science videos, and Marvel Comics.

Mark Threeton

*Professor
Pennsylvania State University*

Dr. Mark D. Threeton is a Professor of Learning and Performance Systems within the Workforce Education and Development (WF ED) Program at The Pennsylvania State University. He holds several high-level administrative roles within the Learning and Performance Systems (LPS) Department, including serving as the Executive Director of the Professional Development Center for Career and Technical Education (CTE), the Director of the UBC Outreach Professional Development Alliance, and the Director of the National Occupational Competency Testing Institute (NOCTI) Center at Penn State. Over the past decade, he has successfully secured over 15-million dollars of external funding in support of Penn State's Land-Grant Mission. In addition, he consults, teaches, and conducts research in the areas of STEM teaching and learning, experiential learning, training and development, and safety and health. His research has been published widely in scholarly research journals and books. He holds extensive credentials across education and training. He holds a baccalaureate degree in Technology Education from Pittsburg State University, a M.S. in Higher Education Personnel Administration from Kansas State University, and a Ph.D. from The Pennsylvania State University in Workforce Education and Development.

Emma Yourd

*Senior Education and Workforce Development (EWD) Partnership Manager
ARM Institute*

Emma Yourd Senior Education and Workforce Development Partnership Manager

Emma Yourd is the ARM Institute's Senior Education and Workforce Development (EWD) Partnership Manager. In this role, Emma leads grant opportunity identification at federal, state, and local levels, along with philanthropic outreach, as well as local, regional, and national workforce partnership discussions. She leads the ARM Institute's Education and Workforce Advisory Committee (EWAC), which provides strategic direction and input to the EWD team's roadmap, with the goal of building impactful programs across the ARM Institute ecosystem.

Emma joined the ARM Institute in 2022 from the Forbes Funds, a philanthropic foundation in Pittsburgh, where she managed a grant portfolio focused on co-creating capacity building solutions for Allegheny County nonprofits to help them maximize their impact. Prior to this work, she worked for federal contractors in Washington, D.C., developing strategy for multimillion dollar proposals and projects for the US Agency for International Development and the Department of State. Her career has always been driven by working in collaboration with under-resourced communities to address systemic issues by thinking strategically and maximizing the impact of funding dollars.

In addition to her role at the ARM Institute, Emma currently serves as a School Board Director for the City of Pittsburgh Public Schools. Emma holds a Masters in Public Administration from the University of Pittsburgh and a BA in Economics from Smith College.

Panel III: STEM Workforce as a Strategic Asset: National Security and Technological Competitiveness

Divyansh Kaushik

Vice President

Beacon Global Strategies

Dr. Divyansh Kaushik is Vice President at Beacon Global Strategies, where he advises technology companies and startups on national security issues related to AI, semiconductors, and emerging technologies. Dr. Kaushik has testified before the U.S. Congress on U.S.-China AI competition and accelerating AI infrastructure to maintain U.S. technological leadership. He frequently provides expert commentary on AI and national security in major outlets, including the Washington Post, Wall Street Journal, Boston Globe, Reuters, and Bloomberg, often addressing the growing threat posed by China's technological ambitions.

Cara LaPointe

Director of Analysis

CSET, Georgetown

Cara LaPointe is the Director of Analysis at Georgetown's Center for Security and Emerging Technology (CSET). She previously served as the Director of Strategic Assessment for the Department of the Navy (DON), where she conducted independent, data-driven assessments and led the Naval Strategic Studies Group. Prior to the DON, she worked at the Johns Hopkins Applied Physics Lab where she was the Co-Director of the Johns Hopkins Institute for Assured Autonomy, leading multi-disciplinary research to ensure that artificial intelligence (AI)-enabled autonomous systems are safe, secure, and ethical contributors to society. Earlier at the Georgetown University Beeck Center for Social Impact and Innovation, Cara drove the development of the Blockchain Ethical Design Framework.

She spent over two decades as a naval officer serving in diverse operational, technical, and acquisition roles at sea and ashore. Cara holds a Ph.D. in oceanographic and mechanical engineering jointly from the Massachusetts Institute of Technology (MIT) and the Woods Hole Oceanographic Institution, a Naval Engineer's degree and an M.S. in ocean systems management from MIT, an M.Phil. in international development from the University of Oxford, and a B.S. in ocean engineering from the U.S. Naval Academy.

Bindu Nair

Associate Director, Basic Energy Sciences, Office of Science

U.S. Department of Energy

Dr. Bindu R. Nair is the Associate Director of Science for Basic Energy Sciences. In this role, she oversees the Department's investment in the fundamental research to understand, predict, and ultimately control matter at the electronic, atomic, and molecular levels. She is also responsible for the planning, construction, and operation of major scientific user facilities that serve researchers across the wide variety of fields supported by Basic Energy Sciences (BES). Prior to her appointment at the Department of Energy, Dr. Nair spent much of her career at the Department of Defense where she most recently served as the Director of Basic Research in the Office of the Under Secretary of Defense for Research and Engineering. In this role, Dr. Nair was responsible for overseeing a \$2.75 billion portfolio in fundamental re-search spanning physics, material sciences, chemistry, biology, engineering, computer science, mathematics, environmental science, aerospace science, and more. In addition to growing the DoD's basic research portfolio, she also took policy leadership for the Department in a variety of issues including fundamental research policy, research security, interagency fundamental research coordination, and STEM programming. She served and led multiple interagency working groups on these topics.

Earlier in her career, she served in other roles overseeing science and technology investments within the Office of the Secretary of Defense and the Department of the Army in environmental technologies, bio-assist technologies, human machine teaming, social behavioral modeling, and power/energy sciences.

She has worked in the Department of Defense laboratory system at the Natick Soldier Research, Development and Engineering Center (Natick, MA) as well as in private industry at Foster Miller (Waltham, MA). Her research expertise is in the field of Material Science and Engineering including nanomaterials, polymers, and organic electronic materials, and she has taught graduate level courses in Polymer Synthesis. She has published primarily in membrane and materials development fields and holds patents in fuel cell technologies. Dr. Nair holds a B.Sc. from the University of Florida and a Ph.D. from the Massachusetts Institute of Technology in Materials Science and Engineering.

Alexander Walan

Managing Director

Anduril Labs

Dr. Alexander "Xander" Walan is the Managing Director, Anduril Labs for Anduril Industries. In his role he leads a team of solution engineers that work new, novel, & disruptive tech with applications to the DoD's toughest challenges. He plays a critical role in shaping future Anduril products and works to identify key Science & Technology opportunities and applications. Previous Xander served

as the chief engineer for Anduril's Barracuda family of launched effects.

Prior to Anduril, Dr. Walan was a program manager for Defense Advanced Research Project Agency (DARPA) where his focus areas included technology development and demonstration of advanced aircraft, maritime, cross domain vehicles, hypersonic defense, and autonomy enabled systems. Projects that he started or led include the CRANE X-65 experimental aircraft, the heavy lift seaplane Liberty Lifter program, the autonomous surface vessel Sea-Hunter, the stratospheric lighter-than-air ALTA program and two missile defense efforts, Glide-Breaker and MAD-FIRES.

Dr. Walan served over 20 years in the Air Force as a program manager and engineer. During his Air Force career, he served in a variety of positions as an engineer: including as scientific intelligence analyst specializing in foreign fighter aircraft, a mission planning engineering for the B-2, F-117, F-22, a program manager at the Air Force Research Lab overseeing a broad technology portfolio of over 70 projects and he led for the F-35 Joint Program Office Joint Reprogramming Enterprise. In addition, he served in the Office of the Assistant Secretary of the Air Force for Acquisition special programs and the National Air and Space Intelligence Center. In 2009 he served as the Chief Engineer for Joint Task Force PALADIN (Afghanistan) working to defeat improvised explosive devices & earlier served with the United Nations in Liberia as a Military Observer (UNMIL Liberia) in support of the peace treaty that ended the Liberian Civil war.

Dr. Walan holds a B.S in Aerospace Engineering--University of Minnesota, a M.B.A--University of Massachusetts, a M.S. in Aeronautical Engineering--Air Force Institute of Technology, and a Doctorate in System Engineering -- George Washington University.