

# IGSC26 National Labs/Industry/Academia Partnership Workshop

## Speaker 1: Jalal Mapar



Jalal Mapar, retired as a member of the Senior Executive Service (SES) at DHS Science and Technology (DHS S&T) Directorate in Dec 2023. At DHS S&T he served as the Sr. Advisor for Emerging Technologies and focused on the identification and impact of emerging technologies and threats in the Homeland Security Enterprise. He represented DHS at several NSTC/OSTP subcommittees (QIS, MLAI, FACE, NSET), co-chaired (with NSF and AFRL) strategy/policy working groups for the OSTP SCQIS and established formal DHS partnerships with NSF to collaborate on AIML and with NASA HQ in Quantum technologies. He was the S&T key advisor on quantum technologies, and has been a frequent organizer, moderator, and speaker on emerging technologies at venues such as Quantum Tech US and Europe.

He served as the first Director of the Resilient Systems Division (RSD) at DHS S&T where he directed R&D investments in critical infrastructure resilience and cyber physical systems, novel sensors, advanced modeling and simulation, decision aid and risk-based modeling, predictive analytics, and disaster management agility. From 2005 to 2012 Mr. Mapar was a Program Manager at S&T and established new technology initiatives and transitioned them into product offerings to improve safety and security of the first responder community. These included the first DHS program for indoor location tracking of first responders in GPS denied environments and an innovative search and rescue tool that was included in the Popular Science's list of 100 innovations of the year.

Prior to joining DHS in 2005, Mr. Mapar was a VP/Division Manager in the RDT&E Sector at SAIC in McLean, VA where he directed innovative R&D programs in sensors, & electronics, complex system modeling, decision sciences, risk analysis, high performance computing for space, marine applications, and advanced modeling and simulation technologies. Before that, Mr. Mapar conducted R&D in dynamics and control system algorithm development for NASA Space Station early designs and published an innovative Momentum Management System in the AIAA Journal of Guidance, Navigation, and Control. He has over 30 publications in refereed journals and conference proceedings.

He currently serves as a Sr. Advisor to South Carolina Quantum and University of South Carolina's Molinaroli School of Engineering and Computing, Board Advisor at Global Quantum Intelligence LLC, Corporate Advisor at Alpha Events' Quantum Tech Conference, member of Toffler Associates' Experts-in-Residence, and Corporate Advisor at Cosmic Shielding Corp. In 2024 city election he won a 3-year term for a seat on the Reston

Association (RA) Board of Directors (Reston, VA) and was the RA Board President for the 2024-2025 Session.

Mr. Mapar earned a B.S. and M.S. in Aerospace Engineering (GN&C) from University of Texas at Austin, an Executive Certificate in Management and Leadership from MIT Sloan, and a certificate in Government Performance and Leadership Strategies from Harvard Kennedy School. He is the recipient of numerous awards including the DHS Secretary's Outstanding Service Medal in 2023. In April 2026, Mapar was inducted into the Academy of Distinguished Alumni at The University of Texas at Austin, Department of Aerospace Engineering and Engineering Mechanics, Cockrell School of Engineering.

He is also an avid soccer player and winner of several national tournaments domestically and internationally with his Northern Virginia team.

## **Speaker 2: Nasser Barghouty**



Dr. Barghouty served as NASA's Space Communications and Navigation (SCaN) chief scientist from 2019 until his retirement in October 2024. At NASA SCaN he was in charge of building up SCaN's quantum communications and networking strategic capabilities. Before joining SCaN he served as the technology lead for the Astrophysics Division of the Science Mission Directorate at NASA Headquarters. Dr. Barghouty joined NASA in 2004 from academia to start a space radiation and shielding program at NASA's Marshall Space Flight Center, where he also served as chief of the Astrophysics Branch from 2012 to 2017.

In addition to his federal government service, his academic career includes appointments at Caltech, the University of Arizona, Tennessee Technological University, and Roanoke College in Salem, VA, where he was named Brian H. Thornhill Professor of Physics in 1998. His awards and recognitions include NASA Marshall's Software-of-the-Year award in 2016, and a Fulbright Fellowship in 1998.

Dr. Barghouty holds a doctorate in theoretical nuclear physics and a masters in physics from Kent State University in Kent, OH, and a bachelor's in electrical engineering from San Jose State University, in San Jose, CA.

### **Speaker 3: Frances S. Chance**



Frances S. Chance is a Distinguished Member of the Technical Staff in the Center for Computing Research at Sandia National Laboratories. Her research focuses on developing novel neural- inspired algorithms and brain-based neuromorphic architectures. Prior to joining the Department of Cognitive and Emerging Computing at Sandia National Laboratories in 2013, Dr. Chance combined computational and experimental neuroscience approaches to understand sensory processing by cortical circuitry as a Sloan postdoctoral fellow at New York University, an assistant professor at University of California Irvine, and a research scientist at Janelia Research Campus. She holds a Ph.D. and a M.S. in computational neuroscience from Brandeis University and a B.S. in Biology from the California Institute of Technology.

### **Speaker 4: Prasanna Date**



Dr. Prasanna Date is a Research Scientist in the Computer Science and Mathematics Division at Oak Ridge National Laboratory (ORNL), where his research focuses on neuromorphic computing and quantum machine learning. He was named to the 2022 Forbes 30 Under 30 Asia list (Healthcare and Science), and his team won R&D 100 Awards in 2023 and 2024 for the open-source libraries SuperNeuro and MAQ.

Date has shown that neuromorphic computing—an energy-efficient paradigm that mimics the human brain—is Turing-complete, paving the way for low-carbon computing. He developed the SuperNeuro simulator and also designs quantum machine learning techniques that are significantly faster than the current state of the art, enabling efficient data analysis across scientific, consumer, and business applications.

He has published more than 50 papers in top venues, including Nature Computational Science, Nature Scientific Reports, and IJCNN. He serves as an Associate Editor for IEEE TNNLS and on the editorial boards of Nature Scientific Reports and Frontiers in Systems Neuroscience, and reviews for journals and conferences including Nature Communications Physics and ICML. Date has led projects as PI, Co-PI, and Task Lead, organized conferences, chaired workshops, and mentored postdocs and students.

He earned his Ph.D. and M.S. in Computer Science and M.Eng. in Industrial Engineering from Rensselaer Polytechnic Institute (2019), and his B.E. (Honors) in Manufacturing Engineering from BITS Pilani, India (2014). He is a member of IEEE, ACM, APS, and INFORMS, where he volunteers extensively.

### **Speaker 5: Kazutomo Yoshii**



Kazutomo Yoshii is a Principal Experimental Systems Specialist at Argonne National Laboratory. He earned his M.S. in Computer Science from Toyohashi University of Technology, Japan, in 1994. His career began at Hitachi's research facility in Japan, where he developed medical imaging analysis software for functional MRI data. In 1998, he joined Turbolinux, contributing to the Linux operating system in both Japan and Santa Fe, New Mexico. In 2002, he transitioned to Mountain View Data, focusing on dynamic provisioning systems for cluster environments. Since December 2004, he has been with Argonne, where he has been actively involved in co-design initiatives for supercomputers and experimental scientific systems. His recent work emphasizes custom accelerator designs and streaming, near-sensor processing architectures. His research interests include high-performance computing, energy-efficient computing, scientific edge computing, domain specific accelerators (e.g., data compression), and hardware specialization.

### **Speaker 6: Ashish Gautam**



Dr. Ashish Gautam is a Research Scientist in the Computer Science and Mathematics Division at Oak Ridge National Laboratory. He received his Ph.D. in Electrical Engineering and Information Systems from the University of Tokyo, Japan, in October 2021. His work spans the full spectrum of neuromorphic computing, with over 10 years of combined industry and academic experience in spiking neural networks, biologically plausible learning algorithms, mixed-signal circuit design, FPGA-based emulation, and high-performance computing. His research focuses on understanding learning mechanisms in the brain and translating them into efficient neuromorphic algorithms and hardware platforms. He has contributed to the development of ultra-low-power mixed-signal neuromorphic chips, FPGA-based SNN emulators, large-scale SNN simulation frameworks, and compact neuromorphic circuits based on CMOS and emerging non-volatile memory devices.