

FORUM ON ENGINEERED AI SYSTEMS

PRESENTER BIOS

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Monty Alger is a Professor of Chemical Engineering at Pennsylvania State University, where he is working on building new models that connect education, research, and business. His experience in the chemical and energy industries includes previous roles as Vice President and Chief Technology Officer at Air Products and Chemicals Inc., and Senior Vice President of Research at Myriant, LLC. He also spent 23 years at General Electric (GE), where he led technology development at the Global Research Center of GE Plastics and served as the General Manager of Technology for the Advanced Materials business. Before joining GE, he was the Director of the Massachusetts Institute of Technology (MIT) Chemical Engineering Practice School Station at GE Plastics. Dr. Alger has been on several advisory boards, including the Shenhua National Institute of Clean and Low Carbon Energy and PTT Global Chemical in Thailand. He is a fellow and past President of the American Institute of Chemical Engineers, vice-chair of the AIChE climate solutions group, and a member of the National Academy of Engineering. He holds SB and SM degrees in chemical engineering from MIT and a PhD in Chemical Engineering from the University of Illinois at Urbana-Champaign.



John L. Anderson is the president of the National Academy of Engineering since July 1, 2019. He was born in Wilmington, DE, and received his undergraduate degree from the University of Delaware in 1967 and a PhD degree from the University of Illinois at Urbana-Champaign in 1971, both in chemical engineering. He served as president of the Illinois Institute of Technology (IIT) and Distinguished Professor of Chemical Engineering from 2007 – 2015. Before that he was provost and executive vice president at Case Western Reserve University (2004–2007), following 28 years at

Carnegie Mellon University including 8 years as dean of the College of Engineering and 11 years as head of the chemical engineering department. He began his professional career as assistant professor of chemical engineering at Cornell University (1971–1976).

Dr. Anderson was elected to the NAE in 1992 for contributions to the understanding of colloidal hydrodynamics and membrane transport phenomena. He was elected an NAE Councillor in 2015 and served on the Executive Compensation Committee and Temporary Nominating Committee on Member Diversity. He has also served on the Membership Policy Committee, Nominating Committee (chair), Chemical Engineering Section (chair, vice chair, section liaison, member), Chemical Engineering Peer Committee (chair), and Committee on Membership (immediate past chair, chair, vice chair, peer committee chair). His service also includes numerous National Academies activities, such as the Committee on Determining Basic Research Needs to Interrupt the Improvised Explosive Device Delivery Chain (chair); Committee on Review of Existing and Potential Standoff Explosives Detection Techniques (chair); Organizing Committee for the National Security and Homeland Defense Workshop (co-chair); Board on Chemical Sciences and Technology (co-chair); and Ford Foundation Minority Postdoctoral Review Panel on Physical Sciences, Mathematics, and Engineering.

In addition to his NAE membership, Dr. Anderson is a fellow of the American Academy of Arts and Sciences and the American Association for the Advancement of Science. He was appointed to the National Science Board in 2014 for a six-year term. He received the Acrivos Professional Progress Award from the American Institute of Chemical Engineers (AIChE) and an award from the Pittsburgh Section of AIChE for “Outstanding Professional Accomplishments in the Field of Academics,” and he is listed on the Alumni Wall of Fame at the University of Delaware. In 2012 he received the National Engineering Award from the American Association of Engineering Societies. He has held visiting professorships at the Massachusetts Institute of Technology (fellow of the John Simon Guggenheim Foundation), University of Melbourne (Australia), and Landbouwniversiteit Wageningen (the Netherlands). He has presented guest lectures at universities throughout the United States and is the author of numerous journal articles and book chapters. He has received honorary doctorates from Case Western Reserve University, Illinois Institute of Technology, Rensselaer Polytechnic Institute, and the University of Delaware. Dr. Anderson is married to Patricia Siemen Anderson. They have two children and five grandchildren.



Behtash Babadi received the Ph.D. and M.Sc. degrees in Engineering Sciences from Harvard University in 2011 and 2008, respectively, and the B.Sc. degree in Electrical Engineering from Sharif University of Technology, Tehran, Iran in 2006. From 2011 to 2014, he was a post-doctoral fellow at the Department of Brain and Cognitive Sciences at Massachusetts Institute of Technology as well as at the Department of Anesthesia, Critical Care and Pain Medicine at Massachusetts General Hospital. He received an NSF CAREER Award in 2016 and the UMD's E. Robert Kent Outstanding

Teaching Award for Junior Faculty in 2019.



John S. Baras is a Distinguished University Professor, holding the Lockheed Martin Chair in Systems Engineering, in the Institute for Systems Research (ISR) and the ECE Department at the University of Maryland College Park (UMD). He received his Ph.D. degree in Applied Mathematics from Harvard University, in 1973, and he has been with UMD since then. From 1985 to 1991, he was the Founding Director of the ISR. Since 1992, he has been the Director of the Maryland Center for Hybrid Networks (HYNET), which he co-founded. He is a Fellow of IEEE (Life), SIAM, AAAS, NAI, IFAC,

AMS, AIAA, Member of the National Academy of Inventors (NAI) and a Foreign Member of the Royal Swedish Academy of Engineering Sciences (IVA). Major honors and awards include the 1980 George Axelby Award from the IEEE Control Systems Society, the 2006 Leonard Abraham Prize from the IEEE Communications Society, the 2017 IEEE Simon Ramo Medal, the 2017 AACC Richard E. Bellman Control Heritage Award, and the 2018 AIAA Aerospace Communications Award. In 2016 he was inducted in the University of Maryland A. J. Clark School of Engineering Innovation Hall of Fame. In June 2018 he was awarded a Doctorate Honoris Causa by his alma mater the National Technical University of Athens, Greece. He has coauthored more than 1,500 technical papers in refereed journals and conferences, and given many plenary and keynote addresses in major international conferences worldwide. He has educated 104 doctoral students, 160 MS students and has mentored 70 postdoctoral fellows, who have gone to excellent careers in industry, academia and government. His research interests include systems, control, optimization, autonomy, machine learning, artificial intelligence, communication networks, applied mathematics, signal processing and understanding, robotics, computing architectures, formal methods, network security and trust, systems biology, healthcare management, model-based systems engineering. He has been awarded twenty patents and honored with many awards as innovator and leader of economic development.



Jim Bellingham, a pioneer in the worldwide autonomous marine robotics field who has led research expeditions from the Arctic to the Antarctic, is executive director of the Johns Hopkins Institute for Assured Autonomy in Baltimore, MD.

For more than 30 years, Bellingham has been a global leader in the development of small, high-performance autonomous underwater vehicles (AUVs), resulting in a class of systems that are now widely used within the military, industry and science communities. He has been instrumental in innovations for ocean observing and has spent considerable time at sea, leading two dozen AUV expeditions in locations across the Antarctic, North Atlantic, Mediterranean, South Pacific, and Arctic.

Bellingham joins the University as Bloomberg Distinguished Professor of exploration robotics. He holds primary appointments in the Department of Mechanical Engineering of the Whiting School of Engineering and the Asymmetric Operations Sector of the Applied Physics

Laboratory, where he'll help advance government and defense innovations for national security.

He joined Johns Hopkins from the Woods Hole Oceanographic Institution (WHOI) where he was founding Director of the Consortium for Marine Robotics since 2014. There, he led a range of initiatives to advance robotics innovations working with regional, national and global partners; these included creating the DunkWorks advanced design and prototyping center, revitalizing the Pressure Test Facility, and initiating the Arctic Long-Range AUV program focused on oil-spill response.

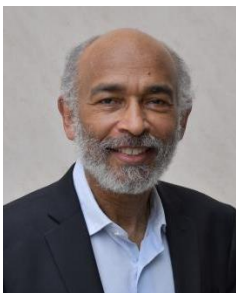
Under his direction, the Consortium organized a range of high-impact initiatives including the Ocean Worlds Catalyst Program, which teams with NASA's Jet Propulsion Laboratory to develop the science and technology for exploring oceans on other worlds, and the successful Marine Robotics Entrepreneurship Forum that fostered a range of programs including US Department of Energy-funded aquaculture activities.

Bellingham previously held leadership roles at the Monterey Bay Aquarium Research Institute that deployed fleets of AUVs to observe and predict ocean conditions, as well as at the Autonomous Underwater Vehicles Laboratory at MIT Sea Grant, and Bluefin Robotics, a maker of AUVs.

Bellingham serves on a number of institutional boards and advisory boards including Science Robotics, American Association for the Advancement of Science; the Naval Studies Board, National Academies of Sciences Engineering Medicine; OceanX, Dalio Philanthropies; the Institute of Marine Research, Norway; and MARUM Center for Marine Environmental Sciences, University of Bremen, Germany. He has served on the Naval Research Advisory Committee including as chair, and on Secretary of the Navy Advisory Panel and several National Academies studies.

His honors include election to the National Academy of Engineering (induction October 2021), the Navy Superior Public Service Award, and the Lockheed Martin Award for Ocean Science and Engineering.

Bellingham has authored dozens of scholarly papers. He received a B.S., an M.S., and a Ph.D., in physics from the Massachusetts Institute of Technology.



Emery N. Brown is the Edward Hood Professor of Medical Engineering and Computational Neuroscience at Massachusetts Institute of Technology and The Picower Institute for Learning and Memory; the Warren M. Zapol Professor of Anaesthesia at Harvard Medical School; and a practicing anesthesiologist at Massachusetts General Hospital. Dr. Brown received his B.A. (magna cum laude) in Applied Mathematics from Harvard College, his M.A. and his Ph.D. in statistics from Harvard University and his M.D. (magna cum laude) from Harvard Medical School.

Dr. Brown is an anesthesiologist–statistician whose experimental research has made important contributions towards understanding the neuroscience of how anesthetics act in the brain to create the states of general anesthesia. In his statistics research he has developed signal processing algorithms to solve important data analysis challenges in neuroscience. His research has been featured on National Public Radio, in Scientific American, Technology Review, the New York Times and in TEDMED 2014.



Daniel Castro is vice president at the Information Technology and Innovation Foundation (ITIF) and director of ITIF's Center for Data Innovation.

Castro writes and speaks on a variety of issues related to information technology and internet policy, including privacy, security, intellectual property, Internet governance, e-government, and accessibility for people with disabilities. His work has been quoted and cited in numerous media outlets, including The Washington Post, The Wall Street Journal, NPR, USA Today, Bloomberg News, and Bloomberg Businessweek. In 2013, Castro was named to FedScoop's list of the "top 25 most influential people under 40 in government and tech." In 2015, U.S. Secretary of Commerce Penny Pritzker appointed Castro to the Commerce Data Advisory Council.

Castro previously worked as an IT analyst at the Government Accountability Office (GAO) where he audited IT security and management controls at various government agencies. He contributed to GAO reports on the state of information security at a variety of federal agencies, including the Securities and Exchange Commission and the Federal Deposit Insurance Corporation. In addition, Castro was a visiting scientist at the Software Engineering Institute in Pittsburgh, PA, where he developed virtual training simulations to provide clients with hands-on training of the latest information security tools.

He has a B.S. in foreign service from Georgetown University and an M.S. in information security technology and management from Carnegie Mellon University.



Rama Chellappa, a Bloomberg Distinguished Professor in electrical and computer engineering and biomedical engineering and chief scientist at the Johns Hopkins Institute for Assured Autonomy, is a pioneer in the area of artificial intelligence. His work in computer vision, pattern recognition, and machine learning have had a profound impact on areas including biometrics, smart cars, forensics, and 2D and 3D modeling of faces, objects, and terrain. His work in motion capturing and imaging shows promise for future use in health care and medicine.

He joined Johns Hopkins after 29 years at the University of Maryland, where he served lengthy stretches as chair of the Department of Electrical and Computer Engineering and director of the Center for Automation Research. He is a member of Johns Hopkins' Mathematical Institute for Data Science and the Center for Imaging Science.

Chellappa's research has shaped the field of facial recognition technology—developing detailed face models based on shape, appearance, texture, and bone and muscle structure. Under a recent program called Janus, he and his team have developed a high-accuracy face recognition system that serves critical needs for federal and commercial sectors. The team has also worked on modeling facial expressions, with potential for a variety of medical applications.

He also is known as an expert in machine learning, a branch of artificial intelligence that instructs computer systems to perform tasks based on patterns and inferences. In one recent experiment, Chellappa and colleagues tested the skills of expert forensic facial examiners against the skills of machines; as it turned out, the best results came when both sides worked together. This research has implications for how machine learning algorithms can help doctors diagnose disease.

Chellappa has also worked on gait analysis, which can apply to an enormous range of uses—everything from diagnosing Parkinson's disease to human identification at a distance.

Chellappa was elected to National Academy of Engineering in 2023. His book, *Can We Trust AI?*, was published by the Johns Hopkins University Press in 2022. He is the 2020 recipient of the Jack S. Kilby Signal Processing Medal for his contributions to image and video processing, particularly face recognition. This is one of the top honors from the Institute of Electrical and Electronics Engineers (IEEE), where Chellappa is a life fellow and previously served as editor-in-chief of *IEEE Transactions on Pattern Analysis and Machine Intelligence*. Among many other honors, Chellappa has also won technical achievement awards from the IEEE Computer Society and the IEEE Signal Processing Society; the latter also awarded him with its highest honor, the Society Award.

He was born and raised in South India, near Chennai, and studied at the University of Madras and the Indian Institute of Science before attending Purdue University in Indiana, which was then building an international reputation for a branch of machine learning known as statistical pattern recognition.

He earned his doctorate in electrical engineering there, studying under mentors including Keinosuke Fukunaga, R.L. Kayshyap, and King Sun-Fu. (Some three decades later, Chellappa won the esteemed award named for Sun-Fu, from the International Association of Pattern Recognition.) His interest in biomedical engineering dates back to these years when he designed a cardiac pacemaker as his capstone project.

During his doctoral studies, he also conducted research at the University of Maryland (UMD) with Azriel Rosenfeld, one of the founding fathers of computer vision. The mentorship launched his career in this field, which trains computers to identify, classify, and understand digital images. Chellappa later joined UMD as a professor in 1991, after 10 years at the University of Southern California.



Jacqueline H. Chen is a Senior Scientist at the Combustion Research Facility at Sandia National Laboratories. She received her B.S. degree in Mechanical Engineering from Ohio State University, her M. S. degree from University of California at Berkeley and her Ph.D. degree from Stanford University. She has contributed broadly to research in turbulent combustion elucidating ‘turbulence–chemistry’ interactions in combustion through direct numerical simulations. To achieve scalable performance of DNS on heterogeneous computer architectures she leads an interdisciplinary team of computer scientists, applied mathematicians and computational scientists to develop an exascale direct numerical simulation capability for turbulent reactive flows with complex chemistry and multi–physics. She is a member of the National Academy of Engineering and a Fellow of the Combustion Institute and the American Physical Society. She is an Associate Fellow of the AIAA. She is a member of the Council Executive Committee of the American Association for the Advancement of Science and Steering Committee Member of the Engineering Section. She received the Combustion Institute’s Bernard Lewis Gold Medal Award in 2018, the Society of Women Engineers Achievement Award in 2018, and the Department of Energy Office of Science Distinguished Scientists Fellow Award in 2020. She served on the Combustion Institute Board of Directors and was past Editor of Journal of Flow, Turbulence and Combustion. She serves on the Department of Energy’s Office of Advanced Scientific Computing Research Advisory Committee and Editorial Boards of Physical Review Fluids and Progress in Energy and Combustion.



Michael (Misha) Chertkov is Professor of Mathematics and chair of the Graduate Interdisciplinary Program in Applied Mathematics at the University of Arizona since 2019. He focuses in his research on foundational problems in mathematics and statistics applied to physical systems, in particular fluid mechanics, to engineered systems such as energy grids, and to some bio–social systems. Dr. Chertkov received his Ph.D. in physics from the Weizmann Institute of Science in 1996, spent three years at Princeton University as a R.H. Dicke Fellow in the Department of Physics, and joined Los Alamos National Laboratory in 1999, initially as a J.R. Oppenheimer Fellow and then as a Technical Staff Member in Theory Division. He has published more than 250 papers, is a fellow of the AAAS, a fellow of the American Physical Society and a senior member of IEEE.



Paulette Clancy, the Edward J. Schaefer Professor in Engineering, is known for her work in computational materials processing. She is the director of research for the JHU Data Science and AI Initiative, associate director of the Johns Hopkins Center for Integrated Structure–Mechanical Modeling and Simulation (CISMMS), and a fellow of the Hopkins Extreme Materials Institute (HEMI).

Clancy leads one of the top groups in the country studying atomic- and molecular-scale modeling of semiconductor materials, ranging from traditional silicon-based compounds to all-organic materials. Her group's research comprises four main areas: advanced organic materials (covalent organic frameworks, antibacterial oligomers, organic electronics); algorithm development (force field development, machine learning, and Bayesian optimization); electronic materials (particularly III-IV semiconducting materials; and nucleation and crystal growth (hybrid organic/inorganic perovskites and quantum dot nanocrystals). Her lab focuses on studies of advanced materials processing and nucleation, including understanding the links between processing, structure, and function.

Current projects include developing new Bayesian optimization methods to encode intuition, modeling woven materials, creating close-to-perfect quantum dots, and discovering polymorphs of electronic materials for shape memory applications.

A fierce advocate for the increased representation of women in engineering and the physical sciences, she was the founding chair of Women in Science and Engineering faculty in Cornell University's College of Engineering. Among her awards for that advocacy are the American Institute of Chemical Engineers (AIChE) National Women's Initiatives Mentoring Award, the Alice Cook Award for services promoting women in science at Cornell, and the Zellman Warhaft award for the promotion of diversity in Cornell's College of Engineering. She has been a panel member of the Department of Energy Computing Leadership Program INCITE (Innovative and Novel Computational Impact on Theory and Experiment) and has held executive positions with the AIChE's Computational Materials Science and Engineering Forum.

Clancy received her bachelor's degree in chemistry from Queen Elizabeth College (London University) in 1974, and a DPhil in physical chemistry from Oxford University in England in 1977. She did postdoctoral research at Cornell University and London University and joined the faculty at Cornell in 1987. She spent more than 30 years at Cornell, including eight years as the inaugural director of the Institute for Computational Science and Engineering and as the Samuel W. and Diane M. Bodman Chair of Chemical Engineering. Clancy also served as director of the School of Chemical & Biomolecular Engineering at Cornell and as associate director of the College of Engineering's Energy Institute. She joined the Whiting School of Engineering faculty in 2018.



Dr. Lisa A. Cooper, MD, MPH, MACP, is the James F. Fries Professor of Medicine and the Bloomberg Distinguished Professor of Equity in Health and Health Care at the Johns Hopkins University Schools of medicine, nursing, and public health. She founded and directs the Johns Hopkins Center for Health Equity, and also directs the Johns Hopkins Urban Health Institute.

A physician trained in internal medicine and public health researcher, Dr. Cooper's work highlights the transformative role of doctor-patient relationships in reducing racial and ethnic health disparities. Regarded as one of the top clinicians and scientists in health equity, Dr. Cooper has designed innovative approaches to improve the physicians'

communication skills, patients' self-management skills, and the ability of healthcare organizations to address the needs of populations experiencing health disparities. She has authored more than 300 highly cited and influential, peer-reviewed publications, the book *Why Are Health Disparities Everyone's Problem*, and several book chapters—one of which was featured in the Institute of Medicine's 2003 Report, *Unequal Treatment*.

In 2021, President Biden appointed Dr. Cooper to the President's Council of Advisors on Science and Technology, where she advises policymakers on crucial scientific and technological developments. She has been honored with numerous prestigious awards, including a MacArthur Genius Fellowship in 2007, Helen Rodríguez-Trías Social Justice Award from the American Public Health Association in 2017, the 2023 Eisenberg Award for career achievement in research from the Society for General Internal Medicine, and the 2023 William B. Graham Prize for Health Services Research. As a respected member of the U.S. National Academy of Medicine, Dr. Cooper is recognized globally for her research on health disparities in racially and economically marginalized communities.

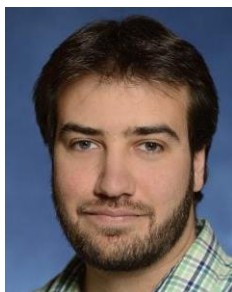


Munmun De Choudhury is an Associate Professor at the School of Interactive Computing in Georgia Institute of Technology. Trained as a computer scientist, Dr. De Choudhury is passionate about how novel forms of social interaction online might shape, and even benefit or harm our health and well-being. Dr. De Choudhury is best known for laying the foundation of a new line of research that develops human-centered computational techniques to understand and improve mental health outcomes, based in ethical analyses of social media data. Dr. De Choudhury has been recognized with the 2023 SIGCHI Societal Impact Award, the 2023 ICWSM and the 2022 Web Science Trust Test-of-Time Awards, the 2021 ACM-W Rising Star Award, the 2019 Complex Systems Society – Junior Scientific Award, as well as nearly two dozen paper awards from the ACM and AAAI. In 2024, she was inducted into the SIGCHI Academy. Dr. De Choudhury's research has resulted in practical and policy implications. These range from collaborating with the Centers for Disease Control and Prevention on suicide prevention, to supporting mental health and gun control advocacy, and to contributing to a consensus report by the National Academies of Sciences, Engineering, and Medicine on the impact of social media on the wellbeing of young people. Notably, Dr. De Choudhury was an invited contributor to the Office of U.S. Surgeon General's 2023 Advisory on The Healing Effects of Social Connection and is currently serving the Technical Advisory Group of the World Health Organization's Commission for Social Connection.



Mark Dredze is the John C Malone Professor of Computer Science at Johns Hopkins University and the Director of Research (Foundations of AI) for the JHU Data Science and AI Institute. He develops Artificial Intelligence Systems based on natural language processing and explores applications to public health and medicine.

Prof. Dredze is affiliated with the Malone Center for Engineering in Healthcare, and the Center for Language and Speech Processing, among others. He holds a joint appointment in the Biomedical Informatics & Data Science Section (BIDS), under the Department of Medicine (DOM), Division of General Internal Medicine (GIM) in the School of Medicine. He obtained his PhD from the University of Pennsylvania in 2009.



Jaafar El-Awady, professor of mechanical engineering, is recognized for furthering the fundamental understanding of the underlying deformation mechanism in materials. A winner of a 2018 Johns Hopkins University Catalyst Award, he creates cutting-edge, multi-scale computational methods and experimental techniques necessary to develop next-generation materials for aerospace, naval, automotive, and energy applications.

As founder and director of the Johns Hopkins Computational and Experimental Materials Engineering Laboratory (CEMEL) and interim director of the Hopkins Extreme Materials Institute (HEMI), El-Awady's expertise is primarily in the field of mechanics of materials for extreme environments, with particular focus on developing advanced multi-scale simulation techniques (from atoms to continuum) and high-temperature bulk- and micro-scale experiments, to predict the mechanical properties, underlying deformation mechanisms, damage evolution, and failure in materials. In 2015, he was awarded the National Science Foundation's prestigious Early CAREER Award to support his research in developing microstructurally based computational methods to fundamentally identify the effect of hydrogen on the deformation and fracture of metals used in energy generation, conversion, and storage systems.

Research in his group includes predicting the fundamental mechanisms controlling the properties of complex alloys with a specific focus on their thermo/chemo-mechanical properties for extreme environment applications and characterizing the deformation and failure of coatings for high-temperature applications. His group's research also quantifies and predicts the fatigue life of materials and predicts the plasticity and failure of epoxy polymers. Additionally, El-Awady's group develops machine learning approaches for accelerated predictions of deformation and damage in materials.

Prior to joining the Johns Hopkins faculty in 2010, El-Awady was a visiting scientist at the Materials and Manufacturing Directorate at the Air Force Research Laboratory and a research consultant for Digital Material Solutions Inc. In 2019, he was appointed chair of JHU's Engineering for Professionals' Mechanical Engineering Graduate Program. El-Awady, who holds a secondary appointment in the Department of Materials Science and Engineering, is a member of the Hopkins Extreme Materials Institute (HEMI) and is the associate director of the Center on Artificial Intelligence for Materials in Extreme Environments (CAIMEE) and the Center for Integrated Structure-Materials Modeling and Simulations (CISMMS). For four years, he participated in the STEM Achievement in Baltimore Elementary Schools (SABES), and

from 2015 to 2017, he presented a summer lecture series at Sichuan University, in Chengdu, China, on the mechanics of materials and microscale plasticity in solids.

In addition to the NSF Career Award and JHU Catalyst honor, El-Awady has been recognized with the American Society of Mechanical Engineers Materials Division Orr Early Career Award (2014) and the Department of Defense's Defense Advanced Research Projects Agency (DARPA) Young Faculty Award (2012). He received several awards for his graduate and undergraduate research, including the 2008 Outstanding PhD Award in Aerospace Engineering from the Henry Samueli School of Engineering and Applied Science, University of California, Los Angeles. He is also the chair of the 10th International Conference on Multiscale Materials Modeling in 2020, the world's largest conference dedicated to multiscale materials modeling.

El-Awady is a member of the American Society for Mechanical Engineers (ASME), Materials Research Society (MRS), The Minerals, Metals and Materials Society (TMS), and United States Association for Computational Mechanics (USACM). He has guest-edited a focus issue on intrinsic and extrinsic size effects in materials for the Journal of Materials Research in 2018 and is a member of the editorial board of Materials Theory – Springer.

He received a BS (2001) and MS (2003) in aeronautical and astronautical engineering from Cairo University, Egypt, and a PhD in aerospace engineering (2008) from the University of California, Los Angeles.



Dr. Satyandra K. Gupta holds Smith International Professorship in the Viterbi School of Engineering at the University of Southern California and serves as the Director of the Center for Advanced Manufacturing. He is also Co-Founder and Chief Scientist at GrayMatter Robotics. His research interests are physics-informed artificial intelligence, computational foundations for decision-making, and human-centered automation. He works on applications related to Robotics and

Manufacturing Automation. He has published more than four hundred fifty technical articles in journals, conference proceedings, and edited books. He also holds sixteen US patents. He is a fellow of the American Society of Mechanical Engineers (ASME), Institute of Electrical and Electronics Engineers (IEEE), Solid Modeling Association (SMA), and Society of Manufacturing Engineers (SME). He is a former editor-in-chief of the ASME Journal of Computing and Information Science in Engineering. He has received numerous honors and awards for his scholarly contributions. Representative examples include a Young Investigator Award from the Office of Naval Research in 2000, Robert W. Galvin Outstanding Young Manufacturing Engineer Award from SME in 2001, a CAREER Award from the National Science Foundation in 2001, a Presidential Early Career Award for Scientists and Engineers in 2001, Invention of the Year Award at the University of Maryland in 2007, Kos Ishii-Toshiba Award from ASME in 2011, Excellence in Research Award from ASME Computers and Information in Engineering Division in 2013, Distinguished Alumnus Award from Indian Institute of Technology, Roorkee in 2014, ASME Design Automation Award in 2021, and Distinguished Alumni Award from Indian Institute

of Technology, Delhi in 2022. He has also received ten best paper awards at international conferences. He serves as a member of the Technical Advisory Committee for Advanced Robotics for Manufacturing (ARM) Institute and a member of the National Materials and Manufacturing Board (NMMB).



Ranu Jung is Associate Vice Chancellor, Founding Executive Director and Endowed Chair of the Institute for Integrative and Innovative Research (I³R) at University of Arkansas and Distinguished Professor of Biomedical Engineering.

A renowned researcher and innovator, Jung was selected in 2021 to lead the founding of I³R – a new model of research institute distinguished by a dual mandate to advance research excellence and impact economic development.

Under Jung’s leadership, I³R is boldly pioneering solutions to wicked problems through convergence research across academic, industry, government, and non-profit sectors ultimately making a positive societal impact by creating and deploying innovations at scale.

Convergence also plays a prominent role in Jung’s research, which is at the leading edge between engineering and neuroscience, developing devices that lead to scientific advances with clear pathways to clinical application.

A champion for innovation and entrepreneurship her team developed the first wireless, implantable, intrafascicular neural-interface system for restoring sensations to individuals with upper limb amputation and received FDA approval to conduct a first-in-human trial.

Holder of 17 U.S. patents, founder of one R&D Company, Jung is a Fellow of the American Association for the Advancement of Science, the National Academy of Inventors, the American Institute for Medical and Biological Engineering, the Biomedical Engineering Society and member of the International Women’s Forum.

A foremost thought leader and expert in her field, Jung has chaired or served on advisory and review committees for the National Advisory Council for Biomedical Imaging and Bioengineering for the US National Institutes of Health, the US National Science Foundation, European Research Commission, and international and national research foundations.



Ioannis (Yannis) Kevrekidis, Bloomberg Distinguished Professor in the departments of Chemical and Biomolecular Engineering and Applied Mathematics and Statistics and in the School of Medicine’s Department of Urology, pioneered the approach known as “equation-free computation.” He is a member of the National Academy of Engineering.

Kevrekidis’ research interests have always centered around the dynamic behavior of physical, chemical, and biological processes; the types of instabilities they exhibit; the patterns they form; and their computational study. More recently,

he has developed an interest in multiscale computations and the modeling of complex systems. Along with several students and collaborators, he developed what he calls the “equation-free” approach to complex systems modeling, explored its capabilities in several areas, and is now working on linking it with modern data mining/machine learning techniques in what could be called an “equation-free and variable-free” approach.

While Kevrekidis collaborates extensively with experimentalists, the thrust of his group is modeling and algorithm development toward the study of complex dynamics. The work is interdisciplinary, with applications ranging from protein folding to electrochemistry and from reaction engineering to network theory. It also features components of high performance computing, and—in recent years—an increased data science and machine learning component.

Kevrekidis’ work has been transforming the way scientists and engineers perform computer-assisted modeling of complex systems – both through new algorithmic techniques, and through targeted applications such as accelerated molecular dynamics, or nonlinear system identification.

Recently, the group used machine learning techniques to intelligently bias molecular dynamics simulations that accelerate folding computations for proteins, elucidating the mechanism that controls saturated vs. unsaturated lipid synthesis in yeast. In collaboration with researchers from Germany, Israel, and Yale University, the group also demonstrated the extraction of useful “quantities of interest” and dynamic equations connecting them – that is, the apparent discovery of physical laws from information-rich data – even when it was not known how the measurements correspond to physically important variables.

Kevrekidis is a member of the National Academy of Arts and Sciences and has been a Packard Fellow, an NSF Presidential Young Investigator, and a Guggenheim Fellow. He holds the Colburn, the Wilhelm, and the Computing in Chemical Engineering awards of the AIChE; the Crawford Prize and the W.T. and Idalia Reid Prize of SIAM; and a Senior Humboldt prize. He has been the Gutzwiller Fellow at the Max Planck Institute for the Physics of Complex Systems in Dresden and a Rothschild Distinguished Visitor at the Newton Institute at Cambridge University, and is currently a senior Hans Fischer Fellow at IAS-TUM in Munich and an Einstein Visiting Fellow at FU/Zuse Institut Berlin. In 2015, he was elected a corresponding member of the Academy of Athens. He also holds a career Teaching Award from the School of Engineering at Princeton.

Kevrekidis earned a bachelor’s degree in chemical engineering at the National Technical University in Athens and a PhD at the University of Minnesota’s Department of Chemical Engineering and Materials Science. He arrived at Johns Hopkins in 2017 after serving as the Pomeroy and Betty Perry Smith Professor in Engineering at Princeton University, where he was professor of Chemical and Biological Engineering, senior faculty in Applied and Computational Mathematics, and associate faculty member in Mathematics.



Daniel Khashabi is an assistant professor of computer science at Johns Hopkins University and a member of the Center for Language and Speech Processing.

Khashabi's work focuses on computational foundations of intelligent behavior within various mediums of communication, particularly natural language. This involves developing formalisms that characterize and result in natural language processing systems that are capable of understanding and reasoning with (and about) an uncertain world while being general enough to handle a broader space of contexts.

He obtained a PhD from the University of Pennsylvania in 2019 and a BSc from Amirkabir University of Technology (Tehran Polytechnic) in 2012. Before joining Johns Hopkins, he was a postdoctoral fellow at the Allen Institute for AI (2019-2022).



Luis Kun graduated from the Merchant Marine Academy in Uruguay and received a BSEE, a MSEE and a Ph.D. in BME from UCLA. He is a Distinguished Professor Emeritus of the CHDS at the National Defense University and a biomedical engineer that worked at the intersection of Healthcare, Public Health, IT and National Security in Industry, Government and Academia. 14 years for IBM, Director of Medical Systems Technology and Strategic Planning for Cedars Sinai Medical Center, Senior IT Advisor for the Agency for Health Care Policy and Research and later a

Distinguished Fellow for the CDC where he was the Senior Computer Scientist for Bioterrorism and later the Acting Chief Information Technology Officer for the National Immunization Program and an Adjunct Professor of Public Health Informatics at Emory University School of Public Health.

An IEEE Lifetime Fellow on SSIT's Board of Governors (since 2008); SSIT representative to the IEEE LSTC; Distinguished Lecturer Program Chair since 2016; Membership Chair (2014-2015); Conferences Chair (2013-14). Is a frequent invited speaker as a DLP member, for SSIT, EMBS (ADCOM & DLP), Computers (BOG & DVP) and Communications.



Michael L. Littman is currently serving as Division Director for Information and Intelligent Systems at the National Science Foundation. The division is home to the programs and program officers that support researchers in artificial intelligence, human-centered computing, data management, and assistive technologies, as well as those exploring the impact of intelligent information systems on society. Littman is also University Professor of Computer Science at Brown University, where he

studies machine learning and decision-making under uncertainty. He has earned multiple university-level awards for teaching and his research has been recognized with three best-

paper awards and three influential paper awards. Littman is a Fellow of the Association for the Advancement of Artificial Intelligence and the Association for Computing Machinery.



Dr. K. J. Ray Liu is the founder, former CEO, now Chairman and CTO of Origin AI that pioneers AI for wireless sensing and indoor tracking. The invention of wireless AI won three prestigious CES Innovation Awards, including CES Best of Innovation in 2021.

He was Distinguished University Professor, Distinguished Scholar-Teacher, and Christine Kim Eminent Professor of Information Technology of the University of Maryland, College Park, from where he retired after over three decades of career in education. His research contributions encompass broad aspects of signal processing and communications. He has trained 74 doctoral/postdoctoral students, of which 12 are now IEEE fellows. According to the Mathematics Genealogy Project, he has had over 200 doctoral descendants.

Dr. Liu is the recipient of two IEEE Technical Field Awards: the 2021 IEEE Fourier for Signal Processing and the 2016 IEEE Leon K. Kirchmayer Graduate Teaching Award. He also received IEEE Signal Processing Society 2014 Norbert Wiener Society Award and 2009 Claude Shannon-Harry Nyquist Technical Achievement Award. Recognized as a Web of Science Highly Cited Researcher, he is a member of National Academy of Engineering, and a Fellow of IEEE, the American Association for the Advancement of Science (AAAS), and the National Academy of Inventors.

Dr. Liu was 2022 IEEE President and CEO. He was the 2019 IEEE Vice President for Technical Activities. He has also served as 2012-2013 President of IEEE Signal Processing Society, where he once served as the Editor-in-Chief of IEEE Signal Processing Magazine.



Guru Madhavan is the Norman R. Augustine Senior Scholar and senior director of programs of the National Academy of Engineering, where he is also founding director of the Forum on Complex Unifiable Systems (FOCUS) program. He has served as a technical advisor to the U.S. Department of Health and Human Services and the European Union Malaria Fund. Earlier in the medical device industry, he has contributed to the research and development of surgical catheters for cardiac ablation and neuromuscular stimulators for improving blood circulation.

A systems engineer by background, he received his M.S. and Ph.D. in biomedical engineering and an M.B.A. from the State University of New York that awarded him the Edward Weisband Distinguished Alumni Award for Public Service or Contribution to Public Affairs. His recent awards include: ASME Henry Laurence Gantt Medal for business leadership, AAMI Laufman-Greatbatch Award for contributions to health technology, IEEE Norbert Wiener Award for Social and Professional Responsibility, IEEE Alfred Goldsmith Award for Outstanding Achievement in Engineering Communication, and IEEE-USA Award for Distinguished Literary Contributions

Furthering Public Understanding and the Advancement of the Engineering Profession and the George F. McClure Citation of Honor for engineering leadership.

He is an elected fellow of the Institution of Engineering and Technology (UK), the American Association for the Advancement of Science, the American Institute of Medical and Biological Engineering, and the American Society of Mechanical Engineers. He was a former vice president of IEEE-USA and a founding member of the Global Young Academy. His books include the nonfiction “Applied Minds: How Engineers Think” (W.W. Norton) that has been translated into many languages.



Dinesh Manocha is a Distinguished University Professor at the University of Maryland and Paul Chrisman Iribe Professor of Computer Science and Electrical and Computer Engineering. He is also the Phi Delta Theta/Matthew Mason Distinguished Professor Emeritus of Computer Science at Chapel Hill University of North Carolina. Manocha’s research focuses on AI, robotics, computer graphics, augmented/virtual reality, and scientific computing, and has published more than 730 papers (H-index 135). He has supervised 46 PhD dissertations, and his group has

won 21 best paper awards at leading conferences. His group has developed many widely used software systems (with 500K+ downloads) and licensed them to more than 60 commercial vendors. He is an inventor of 16 patents, several of which have been licensed to industry. A Fellow of AAAI, AAAS, ACM, IEEE and Sloan Foundation, Manocha is a ACM SIGGRAPH Academy Class member and Bézier Award recipient from Solid Modeling Association. He received the Distinguished Alumni Award from IIT Delhi and the Distinguished Career in Computer Science Award from Washington Academy of Sciences. He was also the co-founder of Impulsonic, a developer of physics-based audio simulation technologies, which Valve Inc. acquired in November 2016. He is also a co-founder of Inception Robotics, Inc.



Derek A. Paley is Director of the Maryland Robotics Center and Willis H. Young Jr. Professor of Aerospace Engineering Education in the Department of Aerospace Engineering and the Institute for Systems Research at the University of Maryland. He is the founding director of the UMD Collective Dynamics and Control Laboratory and the UMD Autonomous Micro Air Vehicle Team. Paley received the B.S. degree in Applied Physics from Yale University in 1997 and the Ph.D. degree in

Mechanical and Aerospace Engineering from Princeton University in 2007. He is the recipient of the National Science Foundation CAREER award in 2010, the Presidential Early Career Award for Scientists and Engineers in 2012, the University of Maryland E. Robert Kent Teaching Award for Junior Faculty in 2014, and the AIAA National Capital Section Engineer of the Year in 2015. Paley was a Fellow in the 2013–2014 Office of Naval Research Sabbatical Fellowship Program, a Fellow in the 2019–2020 UMD ADVANCE Leadership Fellows Program, a 2020–2021 UMD Distinguished Scholar-Teacher, and a 2023 UMD Exemplary Researcher. He has been selected as a UMD University Honors Faculty Fellow for 2023–2025. He teaches introductory dynamics,

advanced dynamics, aircraft flight dynamics and control, collective behavior, and nonlinear control. Paley's research interests are in the area of dynamics and control, including cooperative control of autonomous vehicles, adaptive sampling with mobile networks, spatial modeling of biological groups, and bioinspired robotics. Paley is Associate Fellow of the American Institute of Aeronautics and Astronautics and Senior Member of the Institute of Electrical and Electronics Engineers. He serves as Associate Editor of AIAA Journal of Guidance, Control, and Dynamics and IEEE Control Systems Magazine.



Sudip S. Parikh, Ph.D., became the 19th Chief Executive Officer of the American Association for the Advancement of Science (AAAS) and Executive Publisher of the Science family of journals in January 2020. Parikh has spent two decades at the nexus of science, policy, and business.

Immediately prior to joining AAAS, Parikh was senior vice president and managing director at DIA Global, a neutral, multidisciplinary organization for healthcare product development. At DIA, Parikh led strategy in the Americas and oversaw DIA programs that catalyzed progress globally toward novel regulatory frameworks for advanced therapies.

Prior to DIA, Parikh was a vice president at Battelle, a multibillion-dollar research and development organization, where he led two business units with over 500 scientific, technical, and computing experts performing basic and applied research, developing medicines and healthcare devices, developing agricultural products, and creating advanced analytics and artificial intelligence applications to improve human health.

From 2001 to 2009, Parikh served as science advisor to the Republican leadership of the U.S. Senate Appropriations Committee, where he was responsible for negotiating budgets for the National Institutes of Health (NIH), Centers for Disease Control and Prevention, Agency for Healthcare Research and Quality, Biomedical Advanced Research and Development Authority, and other scientific and health agencies. As a key legislative liaison to the research and development ecosystem, Parikh was on the frontlines of many science policy issues debated during that time, including embryonic stem cell research, cloning, disease surveillance, bioterrorism, cyber security, and doubling the NIH budget.

An active member of the scientific advocacy community, Parikh serves as a board member and officer for several impactful organizations, including Research!America (which he has chaired since 2023), Friends of Cancer Research, and ACT for NIH. He also serves as co-chair of the Science and Technology Action Committee, Science CEO Group, and the Coalition for Trust in Health and Science. He is also a member of the Board of Life Sciences of the U.S. National Academies of Science, Engineering, and Medicine.

Parikh is an elected member of the American Academy of Arts and Sciences and the Council on Foreign Relations. He has also received multiple public service awards, including recognition from the Society for Women's Health Research, the American Association of

Immunologists, the National AIDS Alliance, the Coalition for Health Services Research, and the Juvenile Diabetes Research Foundation.

Early in his career, Parikh was a Presidential Management Intern at the NIH. He was awarded a National Science Foundation Graduate Research Fellowship while earning his Ph.D. in macromolecular structure and chemistry at the Scripps Research Institute in La Jolla, Calif. There, he used structural biology and biochemistry techniques to probe the mechanisms of DNA repair enzymes. The son of Indian immigrants who worked in the textile and furniture manufacturing plants of North Carolina, Parikh completed undergraduate studies at the University of North Carolina at Chapel Hill, first as a journalism major before switching into materials science. As a parent of three energetic children, he prioritizes volunteering as a mentor for their Science Olympiad teams.



K.T. Ramesh, the Alonzo G. Decker Jr. Professor of Science and Engineering, is the senior advisor to the president for AI and the interim co-director of the JHU Data Science and AI Institute. He is a professor of mechanical engineering, with joint appointments in the Departments of Materials Science and Engineering and Earth and Planetary Sciences.

He has established two major research centers and is the founding director of the multidisciplinary Hopkins Extreme Materials Institute (HEMI), which seeks to develop the science and technology to protect people, structures, and the planet. He led the Materials in Extreme Dynamic Environments Collaborative Research Alliance, a 10-year effort by a consortium of 15 universities and the U.S. Army Research Laboratory that developed physics-based approaches to materials design for armor applications.

Ramesh is one of the world's leading authorities on impact mechanics and materials subjected to extreme conditions. He has done seminal work in discovering and modeling the mechanisms active in materials subjected to very rapid loading, through a combination of sophisticated experimental methods and physics-based theoretical and computational modeling.

His current research focuses on AI in materials design, impact biomechanics including concussions and the mitigation of traumatic brain injury, protection materials, hypersonics, the dynamic limits of life, and studies of asteroid hazard mitigation. His scholarship has had major applications in national defense, the design of protective material systems, and modeling the disruption of asteroids that could hit the Earth, including his involvement in the NASA DART impact event. He was honored for his contributions to the field in 2023, when asteroid 32518 was officially named "Ktramesh" by the International Astronomical Union's Small Bodies Nomenclature Working Group.

His research efforts have been published in more than 275 archival journal papers, and he is author of the book *Nanomaterials: Mechanics and Mechanisms*. In addition, his methods and codes have been made available in the public domain. Ramesh's research and scholarship

have been recognized through major awards from a range of professional societies, both national and international, such as the Koiter Medal from the American Society of Mechanical Engineers, the Murray Medal, the Lazan Award, and the Hetenyi Award from the Society for Experimental Mechanics, and the John Rinehart Award of the DYMAT Association in Europe. He has been elected as a Fellow of the American Association for the Advancement of Science, the American Society of Mechanical Engineers, the Society for Experimental Mechanics, and the American Academy of Mechanics. He has also held leadership roles in national professional organizations, including as president of the Society of Engineering Science and on the boards of directors for the Society of Engineering Science, the Society for Experimental Mechanics, and the American Academy of Mechanics.

Ramesh emphasizes the development of people with a breadth and depth of interests and capabilities, and this has resulted in impact across many sectors. His former mentees have gone on to become faculty at institutions of higher education across the world, principal scientists at national and international laboratories, and leading engineers in industry. He also has a particular interest in the ways in which creativity and the arts can be integrated into the sciences and engineering, and strives to integrate poetry and the arts into his teaching, his research, and his leadership.

Ramesh received his undergraduate training in mechanical engineering, while his graduate work at Brown University was in solid mechanics and applied mathematics. He joined Johns Hopkins University as an assistant professor in 1988, becoming full professor in 1997, and department chair in 1999.



Krishan Sabnani is a networking researcher. He has made many seminal contributions to Internet infrastructure design, protocol design, and wireless networks. Krishan is currently a Homewood Professor of Computer Science at Johns Hopkins University. Krishan was Vice President of Networking Research at Bell Labs from Jan. 2000 to Sept. 2013. In that role, he managed all networking research at Bell Labs, comprising nine departments in seven countries: USA, France, Germany, Ireland, India, Belgium, and South Korea. Krishan retired from Bell Labs in Jan 2017. He received an award upon his retirement – appointment as Ambassador-at-large for Bell Labs. Krishan is the first person to receive such an award. Krishan made a breakthrough in Internet re-design. The main idea behind this work was to separate control functions and complex software from the forwarding portions on Internet routers. This contribution is a precursor to the current Software Defined Networking (SDN) revolution.

Krishan is a Member of the US National Academy of Engineering and a Fellow of the US National Academy of Inventors. He has won many awards, including the 2005 IEEE Sumner Award and the 2005 IEEE McDowell Award. He is also a fellow of IEEE and ACM and a Bell Labs Fellow.



Ed Schlesinger is the Benjamin T. Rome Dean at Johns Hopkins University's Whiting School of Engineering where he also is a professor in the Department of Electrical and Computer Engineering.

Schlesinger has launched numerous initiatives aimed at enhancing the student experience and the impact of the Whiting School of Engineering's educational and research efforts on society. He has built educational, research, and outreach partnerships and has enhanced translational opportunities for Whiting School of Engineering faculty, students, and staff.

These efforts include:

- the new Data Science and AI Institute which will be a truly translational investment whose growth is set to effectively double the size of the school;
- the Ralph O'Connor Sustainable Energy Institute, established on Earth Day 2021, to house energy-related research and educational programs across the university to develop impactful programs that address climate change;
- creating the Johns Hopkins Institute for Assured Autonomy, a partnership with the JHU Applied Physics Laboratory focused on ensuring the safe, secure, reliable, and predictable integration of autonomous systems into society;
- establishing the cross-divisional Department of Environmental Health and Engineering, a partnership between the Whiting School and JHU's Bloomberg School of Public Health;
- launching the Doctor of Engineering program;
- and developing the Malone Center for Engineering in Healthcare, a partnership with the School of Medicine, the Applied Physics Laboratory and other JHU divisions that is aimed at enhancing the efficiency, effectiveness, and consistency of health care.

Schlesinger also helped lead a 10-year multimillion-dollar partnership between the Barclay Elementary/Middle School and JHU, community organizations, and the Baltimore City Schools to create a pre-K through eighth-grade school focused on engineering education and computer skills as a means to spark student achievement.

Prior to joining Johns Hopkins in 2014, Schlesinger was the David Edward Schramm Memorial Professor and head of the Department of Electrical and Computer Engineering at Carnegie Mellon University, where he also served as the director of the Data Storage Systems Center, associate department head in ECE, founding co-director of the General Motors Collaborative Research Laboratory, and director the DARPA MISCIC Center.

He has published more than 250 articles and conference proceedings and holds 13 patents. He is a Fellow of the IEEE and the SPIE, was President of the ECE Department Heads' Association and served on its board of directors, was a member of the International Advisory Panel for the

A*STAR Graduate Academy in Singapore, was on the Advisory Board for the ECE Department at Georgia Tech and the Technology Commercialization Advisory Board for Innovation Works. He currently is a member of the Fellowship Evaluation Panel of the National Research Foundation of Singapore.

Schlesinger earned a BSc in physics at the University of Toronto and earned his MS and PhD in applied physics at the California Institute of Technology.



Abhinav Shrivastava is an assistant professor in the Department of Computer Science with an appointment in UMIACS and a member of the University of Maryland Center for Machine Learning.

Shrivastava’s research focuses on artificial intelligence—particularly as it relates to computer vision, machine learning, and robotics.

He is also involved in related fields such as graphics, natural language processing, human-computer interaction, systems, data-mining, and cognitive and computational neuroscience. His longterm goal is to equip machines with visual perception abilities, which enables them to understand and respond to their surroundings.

Shrivastava previously served as a visiting research scientist at Google Research. He also received a doctoral fellowship from Microsoft Research in 2014.

He received his doctorate in robotics from the Robotics Institute (School of Computer Science) at Carnegie Mellon University in 2017.



Thomas M. Strat is a recognized leader in computer vision and autonomous vehicle research and development. He currently is the CEO of DZYNE Technologies, a 300-person company that develops unmanned aircraft and advanced analytic systems.

Previously, Dr. Strat was Executive Vice President and Director of SET Corporation’s Image and Video Understanding Division until it was acquired by SAIC in 2010. He led the division in the development of advanced image and video understanding technologies to meet defense and intelligence needs. He performed analysis of airborne and satellite imagery, and developed products for exploiting reconnaissance imagery from uncrewed aircraft.

Dr. Strat served eight years as Program Manager and Assistant Office Director of DARPA’s Information Systems Office, where he was responsible for DARPA’s Sensor Exploitation programs including the Image Understanding program, which developed many of the algorithms that are ubiquitous in cell phone cameras and image search applications today. He also served as Deputy Director of DARPA’s Grand Challenge for Autonomous Ground Vehicles, which catalyzed the creation of the self-driving car industry.

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Dr. Strat was co-Founder and Chief Technology Officer of ObjectVideo, Inc., a leading supplier of intelligent video surveillance systems. He also worked at the SRI Artificial Intelligence Center

for 15 years as a research scientist and project leader, where he designed and implemented computer vision, robotic and evidential reasoning systems. He has published more than 120 scientific conference and journal articles, holds 8 patents, and authored or edited several books on computer vision.

Dr. Strat served as an officer in the US Army for 14 years on active duty and reserves. He received BS and MS degrees in Electrical Engineering and Computer Science from MIT, and a PhD in Artificial Intelligence from Stanford University.



Russell H. Taylor received his Ph.D. in Computer Science from Stanford in 1976. He joined IBM Research in 1976, where he developed the AML robot language and managed the Automation Technology Department and (later) the Computer-Assisted Surgery Group before moving in 1995 to Johns Hopkins, where he is the John C. Malone Professor of Computer Science with joint appointments in Mechanical Engineering, Radiology, Surgery, and Otolaryngology-Head and Neck Surgery and is also Director of the Laboratory for Computational Sensing and Robotics

(LCSR). He is a Member of the National Academy of Engineering, a Fellow of the IEEE, of the AIMBE, of the MICCAI Society, of the National Academy of Inventors, and of the Engineering School of the University of Tokyo. He is also a recipient of numerous awards, including the Maurice Müller Award for Excellence in Computer-Assisted Orthopaedic Surgery the IEEE Robotics Pioneer Award, the MICCAI Society Enduring Impact Award, the IEEE EMBS Technical Field Award, and the Honda Prize. Prof. Taylor is the author of over 600 peer-reviewed journal and conference publications and holds 94 patents. His research interests include medical robotics and computer-integrated interventional medicine.



Dr. Matt Turek assumed the role of deputy office director for DARPA's Information Innovation Office (I2O) in May 2022. In this position, he provides technical leadership and works with program managers to envision, create, and transition capabilities that ensure enduring information advantage for the United States and its allies.

Turek joined DARPA in July 2018 as an I2O program manager, and served as acting deputy director of I2O from June 2021 to October 2021. He previously managed the Media Forensics (MediFor), Semantic Forensics (SemaFor), Machine Common Sense (MCS), and Explainable AI (XAI) programs as well as the Reverse Engineering of Deception (RED) AI Exploration program (AIE). His research interests include computer vision, machine learning, artificial intelligence, and their application to problems with significant societal impact.

Prior to his position at DARPA, Turek was at Kitware, Inc., where he led a team developing computer vision technologies. His research focused on multiple areas, including large scale behavior recognition and modeling; object detection and tracking; activity recognition; normalcy modeling and anomaly detection; and image indexing and retrieval. Turek has

made significant contributions to multiple DARPA and Air Force Research Lab (AFRL) efforts and has transitioned large scale systems for operational use. Before joining Kitware, Turek worked for GE Global Research, conducting research in medical imaging and industrial inspection.

Turek holds a doctorate of philosophy in computer science from Rensselaer Polytechnic Institute, a Master of Science in electrical engineering from Marquette University, and a Bachelor of Science in electrical engineering from Clarkson University. His doctoral work focused on combinatorial optimization techniques for computer vision problems. Turek is a co-inventor on several patents and co-author of multiple publications, primarily in computer vision.



René Vidal, a global pioneer of data science, is the Rachleff University Professor, with joint appointments in the Department of Radiology in the Perelman School of Medicine and the Department of Electrical and Systems Engineering in the School of Engineering and Applied Science. Dr. Vidal has been named a Penn Integrates Knowledge University Professor at the University of Pennsylvania.

René Vidal received his B.S. degree in Electrical Engineering (highest honors) from the Pontificia Universidad Catolica de Chile in 1997 and his M.S. and Ph.D. degrees in Electrical Engineering and Computer Sciences from the University of California at Berkeley in 2000 and 2003, respectively. He was a research fellow at the National ICT Australia in 2003 and joined The Johns Hopkins University in 2004 as a faculty member in the Department of Biomedical Engineering and the Center for Imaging Science.



Alan Yuille is a Bloomberg Distinguished Professor of computer science and cognitive science at the Whiting School of Engineering and the Krieger School of Arts and Sciences. His research interests include computational models of vision, mathematical models of cognition, medical image analysis, and artificial intelligence and neural networks.

He directs the research group on Computational Cognition, Vision, and Learning (CCVL), and is affiliated with the Center for Brains, Minds and Machines, and the NSF Expedition in Computing, Visual Cortex on Silicon.

Yuille received his BA (1976) in mathematics from the University of Cambridge. His Ph.D. on theoretical physics, supervised by S.W. Hawking, was approved in 1981. He joined the Johns Hopkins University faculty in 2016.

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