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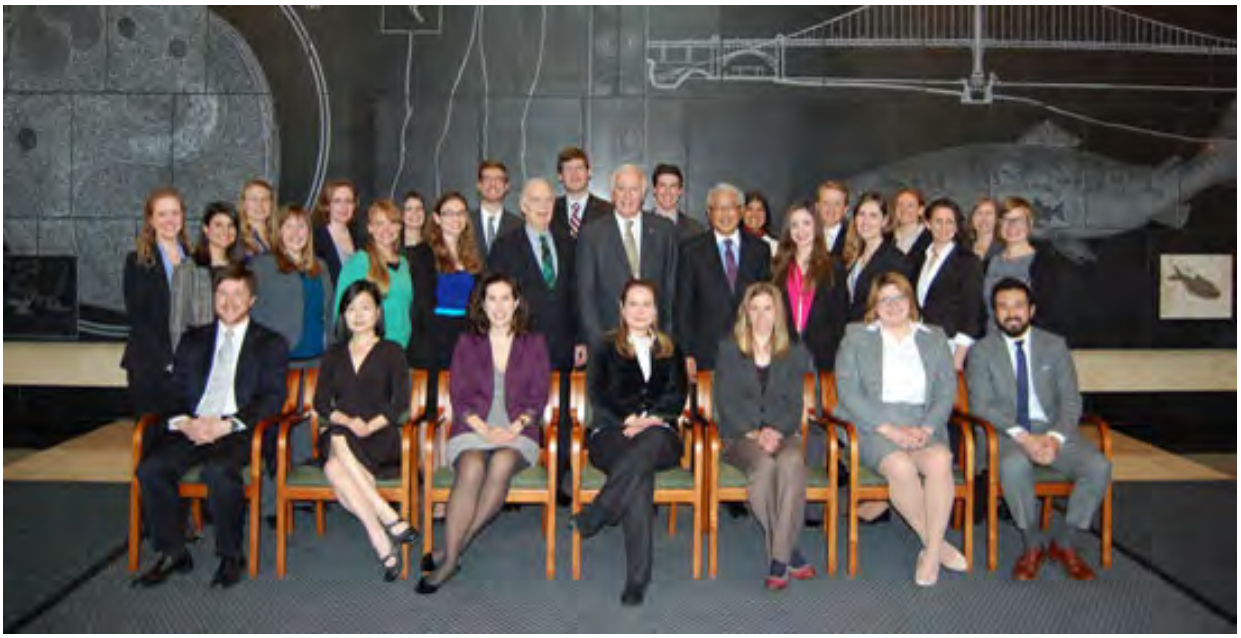
CHRISTINE MIRZAYAN SCIENCE & TECHNOLOGY POLICY GRADUATE FELLOWSHIP PROGRAM

Christine Mirzayan Science and Technology Policy Graduate Fellows 2015 Biographical Sketches



Patricia Cabezas – the Rosenblith Fellow – (2015; PGA/DSC) received her PhD in evolutionary biology from Autonomous University of Madrid, Spain. Her doctoral dissertation focused on understanding marine decapod biodiversity patterns in the South West Pacific, which took her to establish research collaborations with institutions from Japan, US, Taiwan, Europe, Australia and New Zealand. Patricia was part of the cooperative international research program the Census of Marine Life, and she is currently a postdoctoral scientist at the Smithsonian Institution National Museum of Natural History in Washington, DC. During her career, she has been involved in formal and informal science education, and now she is an active participant in the outreach programs at the Smithsonian. Patricia is interested in transitioning to a career in science policy, and a decade of international work makes her particularly interested in better understanding how scientific capacity built through cooperation promotes regional and global strength. Patricia serves in the community in her spare time, and she gets away from the city whenever possible to enjoy her passion for traveling and diving.

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Heather Coleman (2015; DELS/OSB) is a specialist in marine conservation and resource use planning, focused on bridging the gap between multi-disciplinary marine science and policy-making. She is currently a postdoctoral fellow with the Ocean Studies Board and the Board on Atmospheric Sciences and Climate at the National Academies of Sciences, Engineering, and Medicine. Heather also acted as senior science & policy advisor for PacMARA (Pacific Marine Analysis & Research Association), designing and directing innovative projects to inform decision-making, primarily around marine spatial planning and decision support tool use. Heather graduated from the University of California, Santa Barbara in 2009 after completing her Ph.D. on the ecological effects of natural oil seeps on marine populations and communities, and her M.A. on the environmental economics of estuarine restoration in Istanbul, Turkey. She has also led scuba volunteers in giant kelp restoration, educated elementary and middle school students in hands-on marine science, and organized coastal cleanups for Los Angeles County. (Updated 2/2016)

Samuel Crowell (2015; DELS/BANR) is completing a PhD at Cornell University in plant biology, focusing on genomics-assisted plant breeding, crop technologies, and international agricultural development. He holds a BS in biology from West Virginia University. During his doctoral work, Sam has used a combination of genetics and high-resolution trait measurement to quantify developmental characteristics in rice, one of the world's staple food crops. In collaboration with computer scientists, Sam developed PANorama, an image processing software that measures complex grainbearing structures. Using PANorama, he collected data while managing a large field trial at the International Rice Research Institute in the Philippines, where he grew over 300 varieties of domesticated rice. Sam's interests extend to science and food policy, and he has coauthored a book chapter describing the development and success of crop technologies in emerging economies.

Sarah De Leo (2015; IOM/HCS) is currently a AAAS Science & Technology Policy Fellow at the Department of Defense in the Office of the Under Secretary of Defense. Prior to her current position, Sarah worked with Board on Health Care Services at the Institute of Medicine. Shortly before her time as a Mirzayan Fellow, she received her PhD in biomedical engineering from Columbia University. Sarah's doctorate focused on determining optimal conditions for lymphocyte activation and designing a targeted T-cell expansion platform for use in adoptive immunotherapy. During her doctorate, Sarah worked in the Columbia Ventures Technology fellows program where she assessed the economic impact of scientific advancements and the researched the landscape of relevant markets for technology transfer. She also mentored underprivileged Harlem middle school students, exposing them to basic scientific principles through the forensics curriculum in conjunction with the New York Academy of Sciences Afterschool STEM Program. Prior to graduate school, Sarah earned a bachelor's degree in biological engineering from Louisiana State University. In transitioning to a science policy career, Sarah is interested in understanding about the many players involved in creating strong policies and offering scientific support and technical knowledge toward policy development. (Updated 2/2016)

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Lindsay Gorman (2015; PGA/CISAC) is completing an MS at Stanford University, focusing on military technology and international security. At Stanford, she served as a teaching assistant to former Secretary of Defense Dr. William Perry in a course studying the evolving role of nuclear weapons and offset technologies in US foreign policy. She is also a PONI Nuclear Scholar at the Center for Strategic and International Studies. Prior to the Mirzayan Fellowship, Lindsay worked with the President's Council of Advisors on Science and Technology at the White House, and with the Center for a New American Security's 20YY Warfare Initiative. Her research studied the Navy UCLASS program and China's anti-access area-denial threat environment, and focused on the relationship among future combat systems, the technologies that underpin them, and their effects on global strategy. She previously worked with the Department of Defense team at Palantir Technologies, built an autonomous vehicle for the DARPA Urban Challenge, and is published in Nature Physics. Originally from New York City, Lindsay holds a BA in Physics from Princeton University and loves running, classical music, Russian literature, and Argentine tango.

Shane Hanlon (2015; NAS/Koshland) completed his Ph.D. in ecology and conservation at the University of Memphis. He received a B.S. in ecology and evolution from the University of Pittsburgh. His Ph.D. thesis focused on amphibian conservation, specifically how factors such as disease and contamination interact to affect populations. He is a Sea Grant Knauss Fellowship alumnus, having worked in legislative affairs at the U.S. Fish and Wildlife Service, and was a Mirzayan Fellow with the Koshland Science Museum. He is currently works for the American Geophysical Union in their Sharing Science Program, whose goal is to provide scientists the tools and skills to effectively communicate their message to any audience. He is also the D.C. producer and co-host of the science storytelling organization Story Collider, an adjunct instructor of disease ecology at the University of Pittsburgh, and sometimes actually does non-sciencey stuff. (Updated 4/2016)

Jessica Henkel – the Gulf Research Fellow – (2015; GRP) is currently completing a PhD in ecology and evolutionary biology at Tulane University. She holds a MS in biology from the University of New Orleans. Her PhD thesis focuses on how environmental changes and habitat degradation are impacting the coastal habitats of the US Gulf of Mexico and the effects these changes are having on the bird populations that migrate through them. Living in coastal Louisiana, arguably the front line of environmental issues facing our nation, Jessica has seen first-hand both the impacts that environmental and human mediated disasters, such as Katrina and the Deepwater Horizon oil spill, can have on wildlife as well as on communities that rely on healthy ecosystems to make their living.

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Emily Hoffman (2015; NAE/Media) is currently completing a PhD in materials science and engineering at Northwestern University. She holds a BS in biomedical engineering from Case Western Reserve University. Her PhD thesis focuses on using electron microscopy to understand the nanoscale wear and corrosion of biomedical materials. Throughout her academic career, Emily has been involved in both student government and in the Society of Women Engineers, and she is particularly interested in outreach and inclusion of underrepresented minorities. Outside of the lab, Emily is an active Delta Gamma alumna, plays IM football, and loves listening to podcasts.

Cyan James (2015; IOM/BCYF) earned her PhD in public health genetics from the University of Washington. Her doctoral work focused on: 1) relational trust and ethics in biobanking and in health learning environments, 2) public perceptions of ethical questions within research on medical practices. While completing her doctoral work, Cyan also concentrated on mental health care policy as an Emerging Leader in Science and Society (ELISS) Fellow and worked on a crisis text line for youth. Prior to her PhD, Cyan earned an MFA in creative writing from the University of Michigan and a bachelor's degree in genetics and bioethics from Iowa State University. She has worked in health program development for Johnson & Johnson and continues to advocate for community mental health and policy development. As a Mirzayan Fellow with the IOM Board on Children, Youth, and Families, Cyan is excited to sharpen her skills in policy-making and scientific advising at the federal level, and is particularly interested in mental health policy that supports community wellness. Cyan hopes to build a robust career in science and health policy and in science communication. On the side she rock-climbs, writes novels, and does travel photography.

Jennifer Kielczewski (2015; DELS/ILAR) received her PhD in physiology and pharmacology in biomedical sciences from the University of Florida College of Medicine. Jennifer's doctorate focused on the role of Insulin-like growth factor binding protein 3 (IGFBP-3) in mediating retinal vascular repair and its pro-angiogenic effects on stimulating endothelial progenitor cells for growth and repair of damaged retinal vessels. Her post-doctoral work was competed at the National Institutes of Health in the National Eye Institute where she studied intraocular inflammation in the eye in mouse models of uveitis. Prior to graduate school she earned a master's degree in Biotechnology from John's Hopkins University. Jennifer is eager to gain experience in science policy. She hopes to gain valuable insight into how science policies are formed, developed, and finally implemented. She is particularly interested in how federal science policies are shaped to improve both science and society.

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Clarisse Kim (2015; DEPS/NMMB) is a postdoctoral researcher in the Center for Energy, Economic, and Environmental Systems Analysis at Argonne National Lab, where she builds computational models to inform energy and defense policy. Clarisse holds a PhD in physics from University of Chicago for synchrotron x-ray investigations of correlated electronic states and development of magnetic memory devices, and holds a BA in physics from Columbia University, where she helped design part of a neutrino experiment at Fermi National Accelerator Lab. Clarisse has always been passionate about using knowledge for societal benefit, and is particularly interested in the enormous potential of advanced materials to transform the way we produce, distribute, and consume energy as a nation. She aspires to begin a lifelong career in public service utilizing science to foster domestic innovation and international security. (Updated 4/2016)

Benjamin Krinsky (2015; PGA/COSEPUP) is a legislative affairs officer at the Federation of American Societies for Experimental Biology (FASEB). In this capacity, he works on funding and policy issues related to the National Science Foundation, the U.S. Department of Agriculture, and the Office of Science at the Department of Energy. He completed his PhD in evolutionary biology at the University of Chicago. His dissertation research focused on the function and evolution of recently duplicated genes in the fruit fly genus, Drosophila. During graduate school, Ben participated in a number of science policy related activities, including advocacy through the Coalition for Life Sciences for increased federal funding for basic research. Prior to graduate school, Ben worked as a research technician at 454 Life Sciences Corporation in Branford, Conn., where he helped to develop new DNA sequencing technologies. He also spent a year as a research intern at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, where he explored questions about primate evolutionary genetics. He holds a B.S. in biology from Yale University. In his spare time, Ben enjoys reading, traveling, and cycling. (Updated 2/2016)

Zane Martin (2015; DELS/BLS) received her PhD in neuroscience and MS in pharmacology from the University of Texas Medical Branch. Zane also completed a three-year postdoctoral fellowship at the New York State Institute for Basic Research in developmental disabilities, where she was awarded the Jeane B. Kempner Postdoctoral Scholar Fellowship. During her graduated and postdoctoral studies, Zane has authored five peer reviewed publications in the neurodegenerative field. Zane was also a science policy intern at the American Brain Coalition, where she attended meetings with the Congressional Neuroscience Caucus on Capitol Hill. Zane was also the president of the American Society for Biochemistry and Molecular Biology Staten Island Science Advocacy Group, and coordinated meetings with her legislators to advocate for biomedical research and funding. Zane is a consulting blogger for the AAAS website and also has her own blog (inciteyourinsight.org), where she writes about science policy events.

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Carolyn Mattick (2015; PGA/DSC) received her PhD in civil, environmental, and sustainable engineering from Arizona State University where her work focused on ways to project the broad implications of emerging technologies. For her dissertation research, she developed a framework to assess the possible environmental, economic, and social impacts of cultured, or in vitro, meat: edible muscle and fat tissue grown from stem cells in a laboratory or factory. If commercialized, this technology could profoundly change agricultural landscapes, economic structures, and cultural norms all over the world. For this reason, her anticipatory analysis was designed to highlight unintended consequences and sustainability challenges that could accompany this technology. During the course of this project, she became interested in the national security and global development implications of this technology. Given the very complex influences that technology can exert on national resilience and developing economies, Carolyn is now endeavoring to further explore technology's role in global affairs.

Taplin Moore (2015; DEPS/BMSA) works as a research fellow at The United States Army Medical Research Institute of Infectious Diseases developing therapeutics and diagnostics for pathogenic bacteria. As a Mirzayan Fellow at the Board on Mathematical Sciences, he assisted studies on *The Next-Generation Electric Grid* and *Strengthening Data Science Methods for DoD Personnel and Readiness Missions*. His doctoral research on applications of RNA-guided proteins (CRISPR/Cas9) expanded controllable gene delivery modules for use in human cells. In addition to work on Cas9, he helped develop TAL effector hybrids for tunable control of chromosomal transgene expression. Taplin holds a Ph.D. in bioengineering and a M.S. in electrical engineering from The University of Texas at Dallas. Prior to graduate studies, he worked as a strategy consultant and financial analyst focused on the energy and chemicals industry. He earned his B.S. in electrical engineering from Southern Methodist University. (Updated 2/2016)

Sarah Mueller (2015; BCST/BLS) received her PhD in polymer/materials chemistry from the University of North Carolina at Chapel Hill. Her doctoral work focused on the development of a nanoparticle-based delivery platform for vaccines with applications to influenza and Dengue virus. In addition to vaccine development, Sarah is interested in global public health, additive manufacturing, and energy storage. She is involved in several science outreach activities, focusing on increasing scientific literacy and engagement among elementary-age children. During her time at the NAS, Sarah helped organize the symposium "Advances in Design and Use of Microbial Production Systems" for the 2015 Biological Weapons Convention Meeting of Experts. She also started some of the exploratory work for studies on the chemistry of the human microbiome and the microbiome of the built environment. Sarah is currently working for the Department of Defense as a AAAS Science & Technology Policy Fellow. She is working in the Office of the Secretary of Defense, Cost Assessment and Program Evaluation for the Naval Forces Division. (Updated 2/2016)

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Jessica Nickrand (2015; IOM/BPH) is currently completing a PhD in history of science, technology, and medicine at the University of Minnesota. She holds a BA in social relations and policy from the James Madison College at Michigan State University, where she specialized in science policy and bioethics. Her dissertation focuses on the intersection of health policy, health status, and urban policy during periods of revitalization in Detroit. She has also worked at the Detroit Department of Health and Wellness Promotion as a research assistant, and on community health initiatives at the Amherst H. Wilder Foundation in St. Paul, Minnesota.

Michaela Oldfield (2015; DBASSE/BECS) is the Global Food Law Research Fellow at the Institute for Food Laws and Regulations and an adjunct faculty in the Michigan State University College of Law Global Food Law Program. She earned a Ph.D. in community, food and agriculture at Michigan State University and her J.D. from the University of Michigan College of Law. Michaela's research interest is in how to develop regulatory systems that effectively address diverse stakeholders' concerns within complex, dynamic, globalized systems. She draws on several disciplines, including sociology, public policy, law, and others, to understand the emergence and operation of public and private agrifood governance systems. Her dissertation research examined how stakeholders influenced the enactment and implementation of the Food Safety Modernization Act and how the United States' food safety regulatory systems is shaped by and will shape private systems of food safety standards and third party audits. As the Global Research Fellow, Michaela is helping to organize a workshop on Global Food Law Issues and is continuing her research on agrifood governance systems.

Kristina Pistone (2015; DELS/BASC) received her PhD in oceanography (climate and atmospheric science) from the Scripps Institution of Oceanography at the University of California, San Diego (UCSD). Prior to this, she earned bachelor's degrees in physics and Spanish literature also from UCSD. Her doctoral dissertation work focused on different components of the Earth's albedo (reflectivity): first using satellite observations to quantify the amount of extra heating in the Arctic due to the recent decrease in sea ice, and next analyzing the effects of aerosol pollution, particularly from biomass burning, on clouds in the northern Indian Ocean. During and since her PhD studies she has also been involved in issues of science communication, including volunteer outreach to general audiences and a National Science Foundation GK12 grant to teach in a high school physics classroom. After graduation, she received a yearlong Fulbright grant to the Universidad de Chile where she studied air pollution in the Santiago basin. She is currently a NASA postdoctoral fellow at Ames Research Center using aircraft observations to study aerosol-cloud interactions. When she has spare time, she enjoys yoga (particularly inversions), travel (particularly Latin America), and learning languages (all of them). (Updated 2/2016)

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Emily Roberts – the J. Herbert Hollomon Fellow – (2015; NAE/CEES) received her PhD in biomedical engineering from Duke University. Her doctoral research used microfluidic technology to generate hydrophilic drug-loaded polymer delivery vehicles for applications in the treatment of peanut allergy and brain cancer. She also completed a project encouraging graduate students and postdocs to seek out career-building experiences during their training as part of her participation in the Emerging Leaders Institute. Prior to graduate school, Emily received a BS in physics from Harvey Mudd College and worked as a postbaccalaureate research fellow in biophysics at the National Institutes of Health. Emily has written a personal finance blog for three years and recently launched two websites and started speaking on the subject of personal finance for graduate students. In her free time, she enjoys playing tennis and board games and rooting for the Duke Blue Devils.

Laura Rosema (2015; IOM/HCS) is the Scientific Advisor for Bill Gates' Global Good Fund, a private initiative chartered to commercialize inventions in developing countries. Laura leads the evaluation of new ideas and technologies, and assesses their technical readiness and applicability to developing world problems. Laura also advises on investment strategy and technical directions for the fund and acts as a facilitator between the business, legal, and scientific arms of Intellectual Ventures. She received her PhD in chemistry from the University of Washington while researching the application of mass spectrometry and multidimensional gas chromatography to toxicological analysis. She received her MA in inorganic chemistry and BA in chemistry from Bryn Mawr College, where her work focused on the synthesis and characterization of novel molybdenum compounds. Laura's career goals include advocating for policies and technologies that improve. In her free time, Laura is active in the community as a victim advocate and volunteers with Girls on the Run and the Crisis Clinic. She is also an avid cyclist, runner, and rock climber.

Justine Schluntz (2015; DEPS/BEES) recently completed a DPhil in engineering science at the University of Oxford. Her doctoral research focused on wind and tidal turbine modelling and included a computational analysis of tidal turbine array layouts. During her time in Oxford, Justine held a stipendiary lectureship in engineering and was an active volunteer at the Museum of the History of Science and the University of Oxford Botanic Garden. In addition, she acted as the head coach of the men's and women's swim teams for three years. Prior to her time in Oxford, Justine received a BS in mechanical engineering at the University of Arizona and completed an internship relating to renewable energy technologies at Sandia National Laboratories.

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Ryan Stowe (2015; DBASSE/BOSE) is currently a doctoral candidate in chemistry at the Scripps Research Institute. His PhD research is focused on the development of new cancer therapeutics derived from both natural and synthetic lead molecules. Studies in this vein are enabled by new reactions that simplify molecular assembly and in silico ligand screens that aid in analog conception. Ryan received his bachelor's degree in chemistry with a minor in cell and molecular biology from Albion College. Throughout his graduate career, he has participated in many education-related activities aimed at facilitating student and teacher engagement in genuine, relevant science. Prominent among these projects is the conception of pedagogical frameworks for illuminating fundamental chemical principles using cutting edge, interactive simulations and discussion-promoting demonstrations.

David Visi (2015; PGA/STEP) is currently the American Society for Microbiology Congressional Science Fellow working in the office of Representative Louise Slaughter. He covers health and agriculture for Congresswoman Slaughter. His legislative portfolio includes antibiotic resistance, the Genetic Information Nondiscrimination Act, Personalized Medicine Initiative, and pharmaceutical disposal. While at the National Academies as a Mirzayan Fellow, he worked in the Policy and Global Affairs division for the Board on Science, Technology, and Economic Policy. David was formerly an intellectual property and patent technical consultant at the law firm Baker and McKenzie. His Ph.D. is from the University of North Texas and his dissertation project consisted of an interdisciplinary project funded by the NSF aimed at the creation of a renewable biocomposite by means of microbial degradation.(Updated 2/2016)

Sapana Vora (2015; IOM/HCS) is a cancer biologist specializing in inherited risk genetics for acute leukemia. She joined the State Department's Biosecurity Engagement Program (BEP) within the Office of Cooperative Threat Reduction (CTR) as a AAAS Science and Technology Policy Fellow in 2015. Her primary BEP responsibilities include serving as the project lead for several countries in BEP's Middle East and North Africa portfolio, attending White House-led interagency meetings on biological select agents and toxins, shepherding the grants process, and assisting with CTR's legal agreements. Prior to joining BEP, she was a Christine Mirzayan Science and Technology Policy fellow and research associate at the National Academies of Science, Engineering, and Medicine where she worked on the Board of Health Care Services at the National Academy of Medicine. She holds a Ph.D. in cancer biology from the University of Chicago and a B.S. in biology and English from the University of North Carolina at Chapel Hill. (Updated 4/2016)

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Stacy Woods (2015; DELS/BEST) is a PhD candidate in environmental health engineering and a Brown Scholar in Community Health at the Johns Hopkins Bloomberg School of Public Health. She received a Master of Public Health and a Risk Sciences and Public Policy certificate from Johns Hopkins, and a Bachelor of Science in entomology from the University of Florida. Stacy's research focuses on the application of spatial statistics and geographic information systems (GIS) to risk science in environmental health. Her past projects have ranged from Lyme disease cluster identification in Howard County, Maryland, to analyzing the risks of sexually transmitted infections associated with drug market social networks in Baltimore City. Her current research investigates ambient benzene pollution and the effect of national policies that reduce benzene content in gasoline, with a focus on spatial modeling of air pollution and human health risks. In addition to her academic research, Stacy volunteers with shelter dogs at the Maryland SPCA in Baltimore.