

Christine Mirzayan Science and Technology Policy Graduate Fellows
2010 Winter Biographical Sketches



Albert Einstein Memorial Statue © 1978 by Robert Berks.



A native of Montana, **Chelsea E. F. Bodnar** (Winter 2010, IOM/BCYF) received her undergraduate degree in biochemistry from Montana State University before obtaining a Rhodes Scholarship to attend Oxford University, where she graduated with a master's of philosophy in social history of medicine in 2002. She returned to attend Harvard Medical School, graduated with her MD in 2006 and completed residency in pediatrics at University of Washington/Seattle Children's Hospital in 2009. She, her husband, and their two children now live in New York where she works as a clinician and project leader for pediatric quality of care at a community health center in the Hudson Valley. (Updated 2/2011)

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Ian Brosnan (Winter 2010, DELS/OSB) is the associate chief for strategic planning in the Earth Science Division at NASA Ames Research Center. He received his Ph.D. from Cornell University, and his master's degree in marine affairs from the University of Washington. Prior to entering graduate school, he served with distinction as a U.S. Coast Guard officer, holding positions as a military diver, Commanding Officer of the Coast Guard cutter Cobia, and liaison to members of Congress. His awards include the Humanitarian Service Medal, and the Coast Guard's Commendation Medal. He continues to serve as a Coast Guard Reserve Officer. In his free time, Ian enjoys kayaking, sailing, and brewing beer. (Updated 2/2016)



Leslie Chamberlain (Winter 2010, DEPS/BPA) earned her PhD in December 2009 in astrophysics at the University of North Carolina, where she also received her MS in 2005. She received her undergraduate degree in physics from the University of North Texas. In her research, Leslie studies the formation and evolution of galaxies. For her dissertation, she examined how the age and metal content vary among stellar populations in the S0 galaxy, a particular type of disk galaxy. She believes that policy decisions at the national level are a critical step in the scientific process. The broad understanding of science and policy gained during the Mirzayan Fellowship has and will continue to help her in her career. She is currently teaching physics and astronomy at St. Paul's School in Concord, New Hampshire. Her leisure interests include running, yoga, capoeira, cooking, and playing the banjo. She also enjoys being active in the community. (Updated 2/2011)



Erica Clites (Winter 2010, NAE/Media) works for the National Park Service at Glen Canyon National Recreation Area in Arizona as a paleontologist. She has a master's degree in geology from the University of California, Riverside and specializes in paleontology. Previously she evaluated fossil sites in the Washington, D.C. metro region and worked on National Fossil Day, a new education/outreach initiative of NPS and the American Geological Institute. Erica also loves to teach, and spent a year teaching English in northeastern Germany as a Fulbright Scholar. Her bachelor's degree in geology, with a minor in German studies, was from the College of Wooster. While at the Academies, she learned new ways to communicate scientific and technical information to the public, as well as how business gets done in Washington. Her career goal is to work as a science communicator for a government or non-profit agency engaged in conservation. In her free time, Erica enjoys playing cards, running, hiking, and cheering for the Michigan Wolverines. (Updated 10/2011)



Ali Douraghy (Winter 2010, PGA/OFS & DSC) is a 2011-12 AAAS Science & Technology Policy Fellow in Science Diplomacy of the American Association for the Advancement of Science (AAAS) in Washington, D.C. His professional interests revolve around revitalizing the role of science in international development and diplomacy. In his current role, Ali is responsible for developing science-based initiatives with the Islamic world, and in particular, with the governments of Egypt, Indonesia and Pakistan. Previously, Ali was a Mirzayan Fellow in the Office of the Foreign Secretaries at the U.S. National Academies where he worked on developing international science partnerships with institutions in the Middle East and North Africa. Before arriving in Washington, Ali was a Fulbright Fellow in the United Arab Emirates conducting a study on the adoption of advanced medical imaging technologies. Ali's scientific expertise is in the design and development of novel Positron Emission Tomography (PET) scanners, a tool used in nuclear medicine and cancer imaging. He is a contributing author of the recently published text, *Basic Sciences of Nuclear Medicine*, and is a past recipient of the Norman Baily Award from the American Association of Physicists in Medicine and a fellowship from the University of California

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Institute on Global Conflict and Cooperation. He has lived and worked extensively in the Middle East, North Africa and Southeast Asia and is fluent in Arabic (Modern Standard and Egyptian colloquial) and Persian. Ali received his PhD in biomedical physics from the UCLA School of Medicine and holds an MS in biomedical engineering, a BS in bioengineering as well as degrees in Arabic and Middle Eastern Studies. (Updated 10/2011)



Sarah Edwards (Winter 2010, DEPS/BAST) currently works in the field of food safety at the U.S. Department of Agriculture, in downtown Washington, D.C. She returned to D.C. the year following her Mirzayan Fellowship to begin her first year (of two) as a AAAS Science & Technology Policy Fellow with the U.S. Department of Agriculture. Following her AAAS fellowship, she took a permanent position at the Food and Drug Administration, and has now recently returned to her fellowship roots. Sarah received her PhD in chemistry from Stanford University in 2008 and her BA in chemistry from Wellesley College in 2002. Her dissertation research focused on developing biological tools to study proteins in the model organism *Saccharomyces cerevisiae*, or budding yeast. During graduate school, Sarah conducted outreach programs at local schools, taught undergraduate and graduate classes in chemistry and biology, and explored her interest in science and technology policy. As a neurology

postdoctoral researcher at Harvard Medical School, Sarah studied the molecular mechanisms of Alzheimer's disease. During her Mirzayan Fellowship with the Board on Army Science and Technology, Sarah traveled to army bases to assist with committee work and researched the national chemical weapons disposal program. (Updated 4/2016)



Amir Farmanesh (Winter 2010, PGA/BISO) is the co-founder and president of People Analytics Inc., an independent people analytics research and consultancy company. In addition, he is a visiting professor at the University of Toronto and a member of OCAD University graduate faculty in Toronto. Prior to moving to Canada, he was an Edmond Safra network fellow with Harvard University and an assistant professor of policy studies at the Virginia Commonwealth University's Wilder School. Amir is a frequent consultant to the World Bank and the United Nations, and has served as a McNamara/Japan fellow with the World Bank Group, an Erasmus Mundus fellow with the European Commission, and a Mirzayan Fellow with the National Academy of Sciences. During his Mirzayan Fellowship, he supported the activities of the Board on International Scientific Organizations. Amir's research interest includes enabling policy environments, applied polling analytics and opinion research in

difficult environment and on sensitive topics, and the application of data mining in social sciences. He has introduced Business Bribery Index (BBI), which offers the first disaggregate currency-level estimate of bribery between businesses and governments across 140 countries. He has also contributed to an unprecedented study on Illicit Financial Flows (IFFs) for the World Bank in Kenya, Tanzania, Uganda, Rwanda, Burundi, and South Sudan. Amir holds an M.A. and M.P.A. from The Maxwell School of Syracuse University, and a Ph.D. in policy studies from the University of Maryland, College Park where he worked with the economics Nobel laureate Thomas Schelling and Carol Graham – the Leo Pasvolsky Senior Fellow at the Brookings Institution – as his doctoral advisors. (Updated 2/2016)



Amy Hein (Winter 2010, PGA/BHEW) is an APA/AAAS Fellow with the National Institute of Neurological Diseases and Stroke (NINDS) at the National Institutes of Health (NIH), where she contributes to policy issues in autism, Fragile X, and Down syndrome and is currently helping craft a report on the central nervous system risk from exposure to space radiation during human spaceflight. Before beginning her AAAS fellowship, Amy Hein was a postdoctoral researcher at the University of Rochester Medical Center, where she studied the long-term neurocognitive effects of radiation exposure on neonatal populations. She aimed to identify novel therapeutics to mitigate cognitive deficits following radiation disasters. During her time in Rochester, Amy was also active in the Postdoctoral Association, serving as editor for their newsletter and organizing career development seminars. Her interest in postdoctoral education and passion for science policy drove her to the Christine Mirzayan Science and

Technology Policy Fellowship with the National Academies. Working with the Board on Higher Education and Workforce, she contributed to a Congressionally requested study assessing the health and competitiveness of U.S.

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research universities. She received her PhD in neuroscience and psychology from the University of Colorado at Boulder and her undergraduate degree in neuroscience from the University of Rochester, where she also minored in American Sign Language. Amy is a native of Maryland but feels most at home hiking in the Colorado mountains. (Updated 2/2012)



Mengfei Huang (Winter 2010, DBASSE/BOSE) completed her MSc in neuroscience at Oxford University as a Fulbright Scholar in 2009. Her research background spans molecular biology, genetics, single-neuron electrophysiology, and fMRI. As an undergraduate at Stanford, she investigated a *Drosophila* model of the neurodegenerative disease Niemann-Pick Type C (NPC). At Oxford, she conducted human and non-human primate experiments to investigate sensory and cognitive systems. Her interest in science education and public literacy has grown through her work with the Exploratorium museum and the Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA), a London-based, multidisciplinary institution for social progress. Together with her experience in intellectual property and management consulting, she has become increasingly fascinated by the way science interfaces with society. As a Mirzayan Fellow, she worked with BOSE on a new

conceptual framework for science education standards, followed by a pediatric biomarkers project with BCYF. Mengfei is currently a Presidential Management Fellow at NIH. (Updated 10/2011)



Kristina Krasnov Miller (Winter 2010, DBASSE/BBCSS) is a molecular biologist with a background in genetics, neuroscience, Russian, health policy, and international relations. Following her doctorate from the Johns Hopkins University School of Medicine, Kristina worked as a technical advisor in patent law, a Mirzayan Fellow then a program officer with the National Academies, a senior science policy analyst at a cancer nonprofit, and as a contracting senior study director for the National Institute of Child Health & Human Development. Via the American Association for the Advancement of Science (AAAS) Fellowship, Kristina was a Foreign Affairs Officer at the U.S. Department of State's Office of Science & Technology Adviser to the Secretary. In 2014, Kristina joined the translational medicine team at Deloitte's federal health practice where she currently works on health policy. In her spare time, Kristina pursues writing and, since 2009, was recognized with Yelp.com's

Elite Writer status. She has also been chosen for the prestigious 35th Atlantik-Brücke German-American Young Leaders Conference, for the competitive Manfred Wörner Seminar in international security policy, and as a Next Generation Global Health Security Leader for the Global Health Security Agenda Conference. Kristina also advances women in STEM as Past-President of the Association for Women in Science's D.C. Chapter and an AWIS Mentoring Circles program group leader. (Updated 2/2016)



Hadas Kushnir (Winter 2010, DBASSE/HDGC) joined USAID's Office of Forestry and Biodiversity as a biodiversity and natural resources advisor in 2015. Prior to this, she spent four years as a AAAS Science & Technology Policy Fellow at USAID. As a fellow, she served as the climate change advisor in the Office of Economic Growth at USAID/Uganda and as the Natural Resource Management and climate adaptation advisor in the in the Africa Bureau's Office of Sustainable Development at USAID/Washington. Before becoming a AAAS Fellow, she was a Christine Mirzayan Science & Technology Policy Fellow at the National Academies of Sciences, Engineering, and Medicine, where she worked with the Committee on the Human Dimensions of Global Change. She completed her PhD in conservation biology at the University of Minnesota, where she conducted research on human-lion conflict in rural communities in Southeastern Tanzania. The main objective of this research was to determine

human and ecological causes for lion attacks on people and develop solutions to the problem. Before attending graduate school, she worked for the New York City Parks Natural Resources Group as a grants coordinator and field technician. In this capacity, she managed and conducted ecological restoration projects throughout New York City. (Updated 4/2016)

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Jan Paul Mincarelli (Winter 2010, PGA/CSTL) is a patent examiner at the United States Patent and Trademark Office in the Department of Commerce, examining patent applications in the areas of software and environmental and recycling systems. He earned a J.D. at George Washington University and a B.S. in biotechnology and molecular biology at Michigan State. After law school, he worked at King & Spalding LLP, specializing in complex or mass toxic tort litigation as well as environmental regulatory work. During law school he interned at the Environmental Protection Agency, aiding in the prosecution of civil complaints against violators of federal pesticide or toxic substances regulations. In his free time, Jan enjoys collecting and playing vinyl records, cooking, and rediscovering Lancaster, Pa., where he grew up and recently relocated to. (Updated 2/2016)



Karen Mowrer (Winter 2010, NAS/Koshland) is a health science policy analyst in the National Institute of Mental Health (NIMH) Office of Autism Research Coordination (OARC) at the National Institutes of Health (NIH), where she conducts analyses assisting with the development of reports, strategic plans, policy documents, and responses to inquiries on policy issues related to autism spectrum disorder. Before joining OARC, Karen worked on biomedical research policy issues at Lewis-Burke Associates, a government relations and consulting firm representing universities and scientific organizations. She also previously gained science policy experience as a Legislative Affairs Officer at the Federation of American Societies for Experimental Biology (FASEB) and as a Christine Mirzayan Science & Technology Policy Graduate Fellow at the National Academy of Sciences. Prior to her policy career, Karen studied the molecular pathogenesis of Parkinson's disease as a Postdoctoral Intramural Research Training Award Fellow at the National Institute on Aging (NIA). She received her Ph.D. in biological chemistry & molecular pharmacology from Harvard Medical School, where her dissertation research focused on Alzheimer's Disease, and she graduated from Colorado State University with a B.S. in biochemistry. (Updated 2/2016)



Sandeep Patel (Winter 2010, PGA/CISAC) is currently a scientific consultant for Discovery Logic, a Thomson Reuters Company. There he helps government, private, and non-profit organizations all around the world to understand the global science and technology research landscape, from bench to market. He earned his PhD in physical chemistry from the Georgia Institute of Technology in 2009 after having received his bachelor's degree from Washington University in St. Louis in 2002. His research focused on the single-molecule and non-linear photophysics of fluorescent silver nanoclusters and their application to high-resolution biological imaging. Afterwards, Sandeep spent several months traveling around the world. Then he moved to Berlin to work at the Global Public Policy Institute (GPPi), where he supported the institute's effort to develop effective global energy governance strategies and policies. More specifically, he explored the role of carbon capture and storage (CCS) on global efforts to maintain energy security and reduce greenhouse gas emissions, particularly in emerging economies like China. He is passionate about exploring issues that lie at the nodes between traditional disciplines and connecting seemingly unrelated issues. Sandeep was delighted to participate in the Mirzayan Fellowship, which was paramount to better his understanding of scientific interaction to policymaking. Sandeep also pursues a variety of peripheral interests, including creative writing, cooking, urban exploration, filmmaking, and of course enjoying good conversation. (Updated 10/2011)

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David Reidmiller (Winter 2010, DELS/BASC) is currently a AAAS Science Policy Fellow in the U.S. State Department's Office of Global Change within the Bureau of Oceans and International Environmental & Scientific Affairs. In that capacity, he is a primary source of scientific and emissions information to the Special Envoy for Climate Change and other senior officials, and advises/ serves on; he U.S. delegations to the IPCC, and advises on the intergovernmental Group on Earth Observations (GEO). Prior to his role at the State Department, David served as a AAAS Congressional Science Fellow sponsored by the American Meteorological Society (AMS) and the University Corporation for Atmospheric Research (UCAR) in the office of Senator Mark Udall (D-Colo.). In that capacity, he developed the Senator's innovation agenda which continues to serve as a roadmap for the 112th Congress. Additionally, he advised the Senator on a multitude of energy-related matters ranging from fossil fuel subsidies to nuclear energy safety to clean energy R&D. Included in his legislative portfolio was primary responsibility for the wide-ranging Department of Defense Energy Security Act (S.1204), of which several provisions became law as part of the FY2012 National Defense Authorization Act. David completed his PhD in atmospheric sciences at the University of Washington in 2010. His research used observations from a mountain-top station in central Oregon, satellite data and global chemical transport models to quantify and improve the understanding of the long-range transport of air pollution, how it affects air quality in the U.S., and how it varies on different timescales. As a Mirzayan Fellow, David served on the Board on Atmospheric Sciences and Climate and the Polar Research Board. He contributed to a number of climate-related studies, including the *America's Climate Choices* suite of reports. (Updated 2/2012)



Michelle Schwalbe (Winter 2010, DEPS/BMSA) is a senior program officer with the Board on Mathematical Sciences and Their Applications (BMSA) at the National Academies of Sciences, Engineering and Medicine. She has been with the Academies since 2010, when she participated in the Christine Mirzayan Science & Technology Policy Graduate Fellowship Program with BMSA. Following her Mirzayan Fellowship, she joined the Report Review Committee before returning to work with BMSA. During her time with BMSA, she has worked on assignments relating to verification, validation, and uncertainty quantification; the future of mathematical science libraries; the mathematical sciences in 2025; improving data science methods for the Department of Defense; and understanding the mathematical challenges of the electric grid. She also directs the standing Committee on Applied and Theoretical Statistics (CATS), which focuses on examining data science methods and training, utilizing big data in diverse applications, and increasing the use of statistics in science, government, and policy. She has also assisted with the Board on Energy and Environmental Systems (BEES) on studies relating to fuel economy and electric vehicles. Prior to joining the Academies, she held positions at Oak Ridge National Laboratory and Lawrence Livermore National Laboratory. Her interests lie broadly in mathematics, statistics, and their many applications. She received a B.S. in applied mathematics specializing in computing at the University of California, Los Angeles, an M.S. in applied mathematics from Northwestern University, and a Ph.D. in mechanical engineering from Northwestern University. (Updated 2/2016)



Justin Scott (Winter 2010, NAS/Koshland) is currently a research staff member at the Science and Technology Policy Institute (STPI), a federally funded research and development center that provides objective analysis of S&T policy issues to the White House Office of Science and Technology Policy and other federal agencies, offices, and councils. He obtained his PhD in materials science and engineering at Northwestern University, where he investigated the processing and properties of lightweight solid-oxide fuel cell interconnects with the support of a National Science Foundation Graduate Research Fellowship. Justin also holds a BS in mechanical engineering and materials science from UC Berkeley. As a Mirzayan Fellow at the Koshland Science Museum, he enjoyed the opportunity to broaden his understanding of science communication and apply his knowledge of energy technologies to the development of the climate change exhibit. (Updated 10/2011)

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Sara Selgrade (Winter 2010, IOM/VSRT) graduated from the University of Washington with a PhD in genome sciences. In her graduate research, she investigated genetic mechanisms of resistance to small peptide antibiotics in the bacterium *Pseudomonas aeruginosa*. Following her graduate studies, she decided to explore the world of policy. Sara initially came to Washington D.C. as a Genetics and Public Policy Fellow with the American Society of Human Genetics, where she worked in the policy group at the National Human Genome Research Institute and as a health policy advisor to Senator Tom Harkin. During her Mirzayan Fellowship, she enjoyed working at IOM on value in health care. Sara is now a public health analyst at the National Institutes of Health. (Updated 10/2011)



Punit Sharma (Winter 2010, PGA/GUIRR) completed his health care executive MBA at the Paul Merage School of Business at University of California, Irvine. A major focus of this program was on federal policy in health care. Not only has Punit been involved with the Center for Health Care Management and Policy at UC Irvine, but has visited Washington, D.C. to meet with key players in the current health reform legislation. Prior to this, Punit earned a BA from Johns Hopkins in cellular and molecular neuroscience, with a minor in computer science. There, he conducted research in the cortical electrical recording laboratory of the departments of neurology and neurosurgery, and in the retinal degenerations laboratory of the Wilmer Eye Institute. After leaving Baltimore for his native southern California, Punit gained more than a decade of experience in biotechnology, clinical trials management, IP landscaping, health IT, and health care. He is committed to finding

ways to implement technology in order to increase value in science and health care, and plans to pursue this interest wherever it takes him in the public and private sectors. (Updated 9/2010)



Catherine Shields (Winter 2010, DELS/DR) is currently working towards a PhD in environmental science and management at the University of California, Santa Barbara. Her graduate research is focused on ecohydrology of urban areas, with a particular interest in the impact of fine spatial scale impervious surface configurations on vegetation water use and function. Her graduate research has been supported by an NSF Graduate Research Fellowship and a Toyota Motor Sales Fellowship. Additionally, she has earned an MA in geography and a BS in environmental science, both from the University of North Carolina at Chapel Hill. Before returning to graduate school, she was involved in an atmospheric deposition mapping project at the Cary Institute of Ecosystem Studies in New York. Catherine saw her Mirzayan Fellowship as an exciting opportunity to learn more about science policy and decision making processes. When she isn't hunched over a computer

running ecohydrologic models, Catherine enjoys running on the beaches of Santa Barbara, rock climbing, and backpacking. (Updated 10/2011)

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Sara Shnider (Winter 2010, IOM/HSP) is currently an industry contracts officer at the University of California, San Francisco (UCSF), where she is responsible for negotiating agreements for research, clinical trials, and material transfers between UCSF investigators and industry partners. Prior to the Mirzayan fellowship, she earned a PhD in molecular and cellular biology from Harvard University. Her doctoral research, partially supported by an NIH National Research Service Award predoctoral fellowship, focused on identification and characterization of genetic controls over the differentiation of corticospinal motor neurons, the critical neuronal population that controls voluntary movement in humans, and whose degeneration in diseases such as amyotrophic lateral sclerosis (ALS) lead to debilitating, incurable paralysis. While in graduate school, Sara served as a scientific advisor for Prize4Life, a non-profit organization based on inducement prizes for breakthroughs in ALS research. Sara earned a BSc in biology with honors from Hebrew University in Jerusalem, and an MSc in bioinformatics from the Weizmann Institute of Science in Israel. During her fellowship, Sara worked with the Forum on Neuroscience and Nervous System Disorders planning a workshop on glutamate biomarkers, and with the Committee on Personal Protective Technologies conducting research for an ongoing consensus study. Sara's career goals include accelerating innovation and translational research to improve disease therapeutics and patient outcomes. In her free time, Sara enjoys hiking, traveling, watching foreign and indie films, and spending time with friends and her family. (Updated 10/2011)



Valerie Henderson Summet (Winter 2010, NAE/CEES) completed her PhD in computer science at the Georgia Institute of Technology in 2010. Her research examines how mobile technologies can be used for learning ("m-learning") and algorithms for adaptive instruction. She is currently on the faculty at Emory University in the Math and CS departments. Valerie graduated from Duke University and loves to watch college basketball. In her free time, she enjoys cooking, reading, sewing, and traveling. (Updated 9/2010)



Victoria Wittig (Winter 2010; IOM/BPH) recently volunteered with the Toledo Institute for Development and Environment (TIDE) in southern Belize where she developed proposals to support climate change adaptation, conservation and sustainable development initiatives. Prior to volunteering at TIDE, Victoria served as a Junior Program Officer for the Food and Agriculture Organization of the United Nations (UN) in the Maldives where she worked closely with the Ministry of Fisheries and Agriculture, local stakeholders, and the UN Country Team to develop food security and climate change adaptation programs within the context of a newly emerging democracy. As a Christine Mirzayan Science and Technology Policy Fellow at the National Academies in Washington, D.C., she was engaged in activities at the intersections of health, global climate change science and policy. Victoria received her Ph.D. from the Department of Plant Biology at the University of Illinois in 2008. Her thesis research investigated the impacts of two rising greenhouse gases, carbon dioxide and tropospheric ozone, on the growth and productivity of trees and was supported by a Graduate Research for the Environment Fellowship of the Global Change Education Program within the United States Department of Energy. (Updated 11/2012)

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Caira M. Woods (Winter 2010; IOM/HCS & NCPF) is a Presidential Management Fellow (PMF) with the National Institutes of Health (NIH). She completed her Ph.D. in Biomedical Sciences at New York University School of Medicine, where her research was funded by a National Research Service Award from the NIH and received an honorable mention from the National Science Foundation (NSF) Graduate Research Fellowship Program. Caira is a member of Phi Beta Kappa National Honor Society and a magna cum laude graduate of Spelman College in Atlanta. During and after her undergraduate years, Caira spent summers at the NIH, Duke University Medical Center, and the NSF. A native of Chicago, Caira enjoys mentoring in her spare time. (Updated 10/2011)