

Christine Mirzayan Science and Technology Policy Graduate Fellows 2012 Winter Biographical Sketches



Adnan Aslam (Winter 2012; PGA/STEP) recently graduated as valedictorian of his class with a master's degree in finance from Baruch College, City University of New York. He has more than 12 years of experience managing projects for technology and business development within a diverse range of industries that include investment banking, oil and gas, software development, academic, and nonprofit entities. After moving to the oil-rich Middle East, he started working for the world's fourth-largest oil service company, Weatherford International. A few years later Adnan moved to Europe where he worked in consulting and soon after joined the investment banking division of the world's largest bank Royal Bank of Scotland. Adnan completed his undergraduate studies with honors from London's University of Greenwich. He was awarded the Christine Mirzayan Fellowship in the nation's capital Washington, D.C. where his experience at the National Academy of Sciences broadened his perspectives in interdisciplinary fields of finance, technology and economic policy. In his spare time, Adnan likes to read, visit various museums in New York City and volunteer for community schools. He also enjoys sailing whenever he can get away from the city. (Updated 8/2012)



Patrick Ayscue (Winter 2012; PGA/OCEE) received his DVM from Cornell University where he is currently completing his PhD in Epidemiology. Dr. Ayscue's PhD work uses mathematical models to study the transmission and propagation of zoonotic diseases, with an emphasis on indirectly transmitted pathogens. He anticipates applying his education to a career in public health and the study of infectious diseases. After receiving a degree in biology and environmental studies from Emory University, he worked with the Wildlife Conservation Society in Cambodia under the auspices of the Luce Scholars Program studying the impact of wild and domestic animal health on conservation efforts in the region and establishing surveillance networks for avian influenza virus. He has also worked as a visiting scientist at the Pasteur Institute studying a large hepatitis C epidemic in

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Egypt. Patrick found that the Mirzayan Fellowship offered him the opportunity to bolster his understanding of the process of advancing health and science policy. He has extended his time at the National Academy of Sciences with a consultant position as a Scholar in Development, Security, and Cooperation. Dr. Ayscue has also been recognized as an Emerging Leader in Biosecurity by the Center for Biosecurity of UPMC (University of Pittsburgh Medical Center). By enriching his understanding of the process of converting scientific knowledge into actionable policy he hopes to become a more effective epidemiologist and public health advocate. (Updated 8/2012)



Rupa Babu (Winter 2012; IOM/VSRT) is a physician with extensive clinical and management experience. She has worked in India, United Kingdom and the United States and has led process improvement projects on the clinical side as a project lead and analyst. Rupa's special interest lies in using technology to improve the quality of care, to prevent errors and to reduce healthcare costs. Rupa holds a MD degree from India, MBA in healthcare management from Loyola University Chicago and is currently pursuing a certificate of advanced study(CAS) in health informatics from University of Illinois at Chicago. She is trained as a black belt in lean six sigma-quality management and holds a PMP in project management. She is a regular guest speaker at Loyola's Graduate School of Business. As a Mirzayan fellow, Rupa hopes to gain expertise in leveraging technology to drive a value-

driven healthcare system and an insight into federal policy-making to improve the quality of care delivered while reducing costs using process improvement techniques. Given her clinical background and knowledge of information systems, and having bridged her extensive clinical experience and medical expertise with her management role, Rupa's long term goal is to integrate information systems and workflows and to drive policy changes in health information technology from a clinical perspective.



Phillip Bracikowski (Winter 2012; DBASSE/BOHSI) received a BA in 2008 in physics with a minor in engineering sciences and also graduated with a MS in 2010 in space physics engineering, both from Dartmouth College in Hanover, N.H. For his MS degree, Phillip developed a prototype satellite and instruments for use in auroral and space plasma sounding rocket missions. Such missions inform and enhance space weather prediction. Afterwards, Phillip spent seven months working at a government-funded research institute in the Baltic town of Rostock, Germany investigating trends in turbulence and waves in the lower atmosphere. Since returning to the States, he founded and has been principal in a small space engineering company providing consulting services to academic science missions. During his Mirzayan Fellowship, Phillip hopes to better understand science policy as it relates to appropriations and funding of basic science and research centers so that more

experimental and high quality projects can be implemented. Phillip has always been an active outdoorsman enjoying hiking, white water kayaking, and more recently rock climbing, foraging, and fishing.



Brent Carey (Winter 2012; DEPS/NMMB) is currently a participant in the Owens Corning Science & Technology Development Program. He earned a PhD in applied physics at Rice University under the advisement of Prof. Pulickel M. Ajayan, and a BS in physics from Clarkson University. Brent's doctorate research resolved and exploited the unusual physical interactions between nanostructures and polymers to develop a nanocomposite material that can adaptively strengthen when stressed. His work was sponsored by a NASA GSRP fellowship and has been featured in The Economist. During his graduate studies, Brent participated in research internships and conducted experiments at the U.S. Army Research Laboratory, the NASA Johnson Space Center, and Brookhaven National Laboratory. His interest in science policy began at the James A. Baker III Institute for Public Policy, where he studied nanotechnology research at NASA as a microcosm of early-stage technology

development for spaceflight applications. During his fellowship term, Brent assisted with the triennial review of the National Nanotechnology Initiative, particularly with the determination of assessment metrics. He is a native of the Adirondack region in upstate New York, and in his spare time he enjoys tennis, downhill skiing, fine beers, and playing frisbee with his dog

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Kristen Coakley (Winter 2012; NAE/NAEPO) received her PhD in biomedical sciences from the University of California, San Francisco. She also holds a bachelor's degree in biological sciences from Mount Holyoke College. As a research technician and PhD candidate, her research interests focused on the development and function of the adaptive immune system, including the mechanisms underlying autoimmunity and lymphomagenesis. While pursuing her PhD, she participated in programs that provided teaching experiences in the San Francisco Unified School District (SFUSD), where she designed and implemented science lessons for grades 1-6. In her spare time, she volunteered on weekends as a docent at the California Academy of Sciences, interacting with the public while interpreting in front of the Philippine coral reef and American Swamp exhibits. Through her volunteer experiences, she discovered a love of conveying the broader implications of scientific research to the general public and an interest in how science education can be implemented most effectively. When she is not working, she loves spending time in farmers' markets and cooking up the tasty ingredients she finds there.



Genevieve Croft (Winter 2012; NAS/NASEO) is a senior associate for research policy at the Association of Public and Land-grant Universities (APLU). She is responsible for research promotion, regulatory concerns, and the APLU Council on Research. Prior to joining APLU, Genevieve worked in national and international science policy at the U.S. Agency for International Development (USAID), the White House Office of Science and Technology Policy (OSTP), and the National Academy of Sciences, Engineering, and Medicine. As a Mirzayan Fellow, Genevieve examined trends in graduate STEM education and the research workforce. She earned her Ph.D. in evolutionary biology from Washington University in St. Louis, where her research revealed genetic patterns of plant domestication in Latin America. Genevieve was awarded an NSF Doctoral Dissertation Improvement Grant and Graduate Research Fellowship to fund this research. Before graduate school, Genevieve was a Peace Corps volunteer in Panama, where she implemented projects in sustainable agriculture and small business development. Genevieve holds a B.S. in Biology from Georgetown University. (Updated 4/2016)



Maria Dahlberg (Winter 2012; PGA/COSEPUP) is currently completing a PhD in physics at The Pennsylvania State University. She holds an MS and a BA in physics from Penn State and Vassar College, respectively. Her dissertation and master's thesis focus on low temperature (< 1K) geometrically frustrated magnetism. She also has a great passion for theater and the arts; her time at Vassar College was divided between studying physics and working as a production manager for the student theater groups. With COSEPUP, she is learning daily about the world of science policy and the many facets of the Academies. Outside of the office, she enjoys science outreach at local schools and museums, cooking for friends and traveling. She hopes to bring her excitement for science, her love of the arts and her enthusiasm for meeting and learning about new people and topics to her Fellowship.



Jessica Dutton (Winter 2012; DELS/OSB) received her PhD in marine biology from the University of California, Santa Barbara. As an ecological physiologist, her doctoral research focused on understanding the relationship between individual tolerances and environmental conditions in marine species, and how such patterns relate to species distributions and climate change. Prior to graduate school, Jessica received a BA in Biological Sciences with a minor in English from Mount Holyoke College. Jessica subsequently worked in Alaska as a fisheries technician studying commercial crab species with the University of Alaska and the Department of Fish and Game. She is currently a postdoctoral researcher at the University of California, Santa Barbara where she investigates the biological effects of ocean acidification. Jessica has a long-standing interest in marine policy and science communication. In 2009,

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she participated in the NOAA Knauss Marine Policy Fellowship and worked with the National Marine Fisheries Service's Office of Policy to develop the initial draft of the NOAA Catch Share fisheries management plan. Through the Mirzayan Fellowship, Jessica is enthusiastic to further her training in science policy and work toward a career at the interface of marine science and society.



Chase Estrin (Winter 2012; DEPS/ASEB) graduated from the master's program in space systems engineering and previously received his bachelor's degree in aerospace engineering, both at the University of Michigan. After completing the Christine Mirzayan Fellowship Program, Chase moved to Phoenix, Ariz. and is currently a systems engineer at OrbitalATK and works on a missile defense program. He is part of the Centurion Leadership Program and participates in their young professional group. He has also participated in an outreach group, where he taught 3rd graders about rocket science and helped them build and launch model rockets. Chase still values his experience he had in the Mirzayan Fellowship and enjoys hearing stories in the news related to The National Academies of Sciences, Engineering, and Medicine. When not at work, he can be found scaling a climbing wall, getting lost in the woods, or playing board games with friends. (Updated 4/2016)



Dennis Harris (Winter 2012; DELS/BLS) received his PhD in biochemistry from the University of Wisconsin-Madison. Dennis' thesis focused on DNA repair mechanisms of the radiation resistant bacterium *Deinococcus radiodurans* and microbial evolution. Afterward, Dennis completed a fellowship with the biotech company DEINOVE in Paris, France developing bioethanol production using bacteria from the *Deinococcus* genus. Dennis wanted to apply his expertise in radiation biology toward improving human health and as a result, he returned for a fellowship in radiation oncology at Johns Hopkins School of Medicine where he investigated deubiquitinases as targets for therapy in colorectal cancer patients. Outside the lab, Dennis worked extensively with the Johns Hopkins Postdoctoral Association. And as a Type I Diabetic, he is currently an advocacy board member for the Maryland Chapter of the Juvenile Diabetes Research Foundation. As a Mirzayan Fellow,

Dennis hopes to learn how to apply his talents and experiences to shape policies and enable our nation and developing countries to live healthy lives. Dennis' career goal is to join a nonprofit organization with a mission to prevent disease, improve medicine, and support research. In his spare time, Dennis has traveled through the US and South Korea and enjoys photography, hiking, and traveling.



Ana Lucia Hincapie (Winter 2012; IOM/HCS) is a PhD candidate in pharmaceutical sciences at the University of Arizona. Originally from Bogota, Colombia, she received a BS in pharmacy from the National University of Colombia. Ana received her MS in pharmaceutical economics, policy and outcomes from the University of Arizona in 2009, where her research focused on the impact of health information technologies in health care quality and safety. In 2011, she completed an internship in the World Health Organization's patient safety program. Ana envisions herself participating in projects that address to what extent, and in what ways, patients want and can take a role in health safety improvement. She also wishes to contribute to the development of health sciences research in Latin America. As a Mirzayan Fellow, Ana hopes to learn about the roles of public and private divisions in health care policy development. In her spare time, she enjoys cinema, non-fiction books, outdoor activities and

learning new languages.

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loves to read, perhaps a bit too much when deadlines are looming.

Jesse Hollister (Winter 2012; PGA/CSTL) completed his PhD in evolutionary genetics at the University of California, Irvine, in 2009, and is currently a postdoctoral fellow in the Department of Organismic and Evolutionary Biology at Harvard University. From 2004-2007 Jesse was an NIH Biomedical Informatics Trainee, during which he focused on computational and statistical analysis of genomic, epigenetic, and population genetic data. Jesse's doctoral dissertation work examined the relationship between epigenetic regulation of selfish genetic elements and the evolution of genome size and structure in flowering plants. His postdoctoral research focuses on the evolutionary consequences of genome duplication and environmental adaptation in plant populations – basic research questions that he hopes can be brought to bear on issues of global food security in a rapidly changing world. In his spare time, Jesse enjoys jogging, camping, mountaineering, and exploring new places. He also



Alexandra Jahn (Winter 2012; DELS/PRB) is an assistant professor in atmospheric and oceanic sciences at the University of Colorado Boulder. Her research interests are in Arctic sea ice and freshwater dynamics, climate modeling, ocean tracers, and paleoclimate modeling. After obtaining a master's degree in meteorology in 2004 from the Free University of Berlin, Germany, Alexandra received her Ph.D. in atmospheric and oceanic sciences from McGill University, Canada, in 2010. She then moved to Boulder, Colo., where she was an advanced study program postdoctoral fellow at the National Center for Atmospheric Research (NCAR) from 2010-2012, and a project scientist at NCAR from 2012-2014, before joining the University of Colorado as an assistant professor for climate modeling in 2015. Alexandra was a Mirzayan Fellow with the National Research Council's Polar Research Board and the Board on Atmospheric Sciences and Climate in the winter of 2012.



with a deeper understanding of how science policy is formed within the federal government. In her spare time, Mahlet enjoys spending time with friends and family, trying out new restaurants and traveling.

Mahlet Mesfin (Winter 2012; NAE/DEW & PGA/CWSEM) recently completed her PhD in bioengineering from the University of Pennsylvania, where her dissertation focused on characterizing signaling pathways triggered in neurons after traumatic brain injury. Prior to attending Penn, she obtained her BSE in chemical engineering and MSE in biomedical engineering from the University of Michigan. Through her academic training and internships, she has experience conducting biomedical research in a wide range of scientific areas including neurobiology, tissue engineering, lab-on-chip microdevices. During her graduate studies, Mahlet chaired the Black Graduate and Professional Student Assembly and helped co-found the Penn Graduate Women in Science and Engineering. Her work with these diverse student groups helped uncover a love for policy and advocacy and she is excited to begin the Mirzayan Fellowship to gain hands-on experience in merging her scientific interests



post-graduate career, Moon-Suhn joined the Republic of Korea Air Force for his military service, and also worked for Lotte Chilsung Beverage Co., Ltd., Korea, as an assistant manager of the overseas business team. Outside of his research, Moon-Suhn enjoys playing tennis and trying out new restaurants.

Moon-Suhn Ryu (Winter 2012; IOM/FNB) received his PhD in nutritional sciences from the University of Florida as a CALS Alumni fellow. He holds a BS in biotechnology from Yonsei University, Korea. While in the field of nutrition, he has been involved in research aiming the elucidation of the physiological roles of zinc in mammalian systems. Acknowledging the absence of a reliable zinc index as a factor hampering the implementation of zinc interventions, a dietary human study was conducted as part of his dissertation work to discover novel biomarkers with relevance. His interests in scientific policies, particularly those for the promotion of adequate nutrient consumption, emerged by the recognition of the preventive properties of supplemental zinc against various infectious diseases. He firmly believes the experiences from the Mirzayan Fellowship will allow him to acquire new insights related to the administrative processes of policy designing and implementation. Prior to his

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Elizabeth Santori (Winter 2012; DEPS/BEES) is currently completing a PhD in chemistry at the California Institute of Technology under Prof. Nate Lewis. Her doctoral research focuses on the fabrication and characterization of silicon microwire arrays, an emerging solar technology for photovoltaic and artificial photosynthetic devices. Elizabeth received her BS in chemistry with honors from the University of Chicago in 2007, where diverse course work first engaged her interest in public policy. To pursue this interest at Caltech, Elizabeth currently organizes and moderates a series of science policy roundtables featuring members of the Caltech community. As a Mirzayan Fellow in BEES, Elizabeth is looking forward to the opportunity to strengthen her knowledge of energy policy and hopes to apply this knowledge in a career in science policy. Outside of the laboratory, Elizabeth enjoys gardening, modern dance, and backpacking in the Sierra Mountains.



Trisha Vickrey (Winter 2012; NAS/Koshland) is a postdoctoral research associate in science education at the University of Nebraska-Lincoln, where she studies the instructional practices of STEM faculty and facilitates professional development workshops on evidence-based instructional practices. Prior to her postdoc, Trisha received a M.Ed. in education policy and management from the Harvard Graduate School of Education, where she studied middle school students' perceptions of a technology-enriched learning environment; and, a Ph.D. in chemistry from the University of Virginia, where she developed two novel methods to detect dopamine neurotransmission in *Drosophila*. She received her B.S. in chemistry from the University of Mississippi. After teaching a summer science camp as an undergraduate student, she became interested in science education, and subsequently, taught high school chemistry and physical science in Arkansas. As a graduate student, she founded a K-5 science outreach organization that visited local schools and facilitated inquiry-based science experiments. During the winter of 2012, Trisha was a Mirzayan Fellow in the Koshland Science Museum, where she developed curricular materials for and studied how visitors were engaging with The *Brain & Learning* exhibit. Her experience at Koshland codified her interest in education and was a catalyst for her to transition into science education research. In her free time, she enjoys hiking, cooking, doing crafts, and spending time with her friends.



Rui Wang (Winter 2012; TRB/SASP) is a PhD candidate in the transportation engineering group of civil and environmental engineering at the University of California, Berkeley. She received her master of science in civil engineering in 2010 also from Berkeley, and earned her bachelor in civil and structural engineering in 2009 from the Hong Kong University of Science and Technology. Her dissertation focuses on finding the travel time threshold value that results in discontinuity in traveler's perception and passenger demand. After graduation, Rui wants to get involved in the interface between transportation research and policy, and is particularly interested in intercity passenger transport. Through her participation in the Mirzayan Fellowship program, Rui hopes to get a better understanding of how research and policy intersect, and obtain some first-hand experience in political decision making. During her spare time, Rui enjoys photography, traveling and reading.

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at Seton Hall University with a MA in international relations & diplomacy.

Ana West (Winter 2012; DBASSE/CPOP) is a DrPH candidate in the health policy & management program at New York Medical College. Previously she served as a Fellow/Foreign Affairs Officer with the State Department's Office of International Health & Biodefense (OES/IHB); where she worked on matters related to maternal and children's health issues and bioterrorism/biodefense; evaluating the relationship of reproductive health, maternal health, infectious disease, health systems, and sustainable development questions to assist foreign policy and international efforts. Prior to her work with OES/IHB, Ana served as Strategic Information Officer with the Office of the U.S. Global AIDS Coordinator providing support to field staff related to the effectiveness of current operations of the President's Emergency Plan for AIDS Relief (PEPFAR). Ana is a graduate of Valdosta State University with a BA in political science, and a graduate of the John C. Whitehead School of Diplomacy



As a Mirzayan Fellow she is eager to gain an understanding of the intersection of science, policy, and diplomacy, particularly in the area of nuclear nonproliferation. Outside the lab Sarah enjoys dance lessons and circus arts. As a newlywed, she looks forward to traveling with her husband and making a home with their two pet chinchillas.

Sarah Nelson Wilk (Winter 2012; DEPS/BPA) recently completed her postdoc at Lawrence Livermore National Laboratory where she conducted research in the areas of gas- and solid-phase sample collection for National Ignition Facility diagnostics, measurements for advanced neutron multiplicity detector designs, and analysis of various nuclear systems for domestic counterterrorism applications. Also while at LLNL she helped establish the Lawrence Livermore Postdoc Association, a by-postdocs-for-postdocs body that interfaces with the laboratory's managerial staff. Sarah received her PhD in nuclear chemistry from the University of California, Berkeley in 2008. At Berkeley and Lawrence Berkeley National Laboratory she conducted dissertation research with Prof. H. Nitsche's group, studying odd-Z transactinide compound nucleus reactions including the discovery of the new isotope ^{260}Bh . Through her work in the area of superheavy element research she co-discovered 14