

PROPOSED COMMITTEE ON THE INTEGRATION OF STEM, HUMANITIES AND ARTS

IN UNDERGRADUATE AND GRADUATE EDUCATION

David J. Skorton (NAM), Committee Chair, is the 13th Secretary of the Smithsonian. He assumed his position July 1, 2015. As Secretary, Skorton oversees 19 museums and galleries, 20 libraries, the National Zoo and numerous research centers, including the Smithsonian Astrophysical Observatory, the Smithsonian Tropical Research Institute and the Smithsonian Environmental Research Center. He is responsible for an annual budget of \$1.3 billion, 6,500 employees and 6,300 volunteers. The Smithsonian's federal appropriation for fiscal year 2015 is \$819.5 million, which accounts for 62 percent of the Institution's funding. The Smithsonian generates additional funding from private contributions and business revenues.

Skorton, 65, a board-certified cardiologist, previously was the president of Cornell University, a position he held from July 2006. He was also a professor in the Departments of Medicine and Pediatrics at Weill Cornell Medical College in New York City and in Cornell's Department of Biomedical Engineering at the College of Engineering. His research focus is congenital heart disease and cardiac imaging and image processing. Skorton is the first physician to lead the Smithsonian.

An ardent and nationally recognized supporter of the arts and humanities, Skorton has made the advancement of the arts a priority at the Smithsonian.

Cathy N. Davidson is Distinguished Professor, Director of the Future Initiative, and Director of HASTAC@CUNY (Humanities, Arts, Science, and Technology Alliance Collaboratory of the City University of New York). Davidson is a renowned scholar of cultural history and technology. Her current work focuses on trust, data, new collaborative methods of living and learning, and the ways we can change higher education for a better future.

Davidson previously taught at Duke University for more than two decades, where she held two chaired professorships, the Ruth F. DeVarney Professor of English and the John Hope Franklin Humanities Institute Professor of Interdisciplinary Studies. From 1998 to 2006, she also served as Duke University's (and the nation's) first Vice Provost of Interdisciplinary Studies. In 2002, Davidson cofounded the Humanities, Arts, Science, and Technology Alliance and Collaboratory (hastac.org), which is now a network of more than 13,000 scholars, artists, and technologists committed to "Changing the Way We Teach and Learn." She is co-PI of the HASTAC/John D. and Catherine T. MacArthur Foundation Digital Media and Learning Competitions. She has published more than twenty books, including *Revolution and the Word: The Rise of the Novel in America* (Oxford University Press, expanded edition, 2004), *The Future of Thinking: Learning Institutions in a Digital Age*, with David Theo Goldberg (MIT Press, 2010), and *Now You See It: How the Brain Science of Attention Will Transform the Way We Live, Work, and Learn* (Viking, 2011). A frequent speaker and consultant on institutional change at universities, corporations, nonprofits, and other organizations, she writes for the *Harvard Business Review*, *Wall Street Journal*, *Fast Company*, *Chronicle of Higher Education*, *Washington Post*, and *Times Higher Ed*, among others. In 2011, President Obama appointed her to the National Council on the Humanities. In 2012, Davidson was named the first educator to serve on the board of directors of Mozilla, and she received the Educator of the Year Award (with HASTAC cofounder David Theo Goldberg) from the World Technology Network. Davidson received her M.A. and Ph.D. in English from the State University of New York, Binghamton, and did postdoctoral study in linguistics and literary theory at the University of Chicago.

Lynn Pasquerella is President of Mount Holyoke College. A philosopher and ethicist whose career has combined teaching and scholarship with local and global engagement, Lynn Pasquerella's first four years as Mount Holyoke's president have been marked by a robust strategic planning process, outreach to local and regional communities as well as the world-wide network of Mount Holyoke alumnae, and a commitment to a vibrant campus community. After graduating magna cum laude from Mount Holyoke in 1980, Pasquerella earned a Ph.D. in Philosophy from Brown University in 1985. She joined the Department of Philosophy at the University of Rhode Island, rising rapidly through the professorial and administrative ranks to the position of Vice Provost for Academic Affairs and Dean of the Graduate School. In her oversight of undergraduate programs in 9 colleges, plus 55 masters and 36 Ph.D. programs, she focused particularly on high academic standards, interdisciplinary as well as strongly discipline-based teaching and research, connections with the community, improved access to higher education, and the enduring power of liberal learning. In 2008 she was named Provost at the University of Hartford, where she provided academic, financial, and administrative leadership for seven schools and colleges serving 4700 undergraduate and 1600 graduate students. In 2010, her alma mater named her the eighteenth President of Mount Holyoke College.

Susan Albertine is Vice President of the Office of Diversity, Equity, and Student Success, at the Association of American Colleges & Universities. She provides leadership for the overall program of LEAP partner state initiatives, for programs and activities related to college readiness and student success, and for the Making Excellence Inclusive initiative. She serves as liaison to project contacts in the field, including policy, campus, business, P16, and community leaders. The office is responsible for AAC&U's Network for Academic Renewal meetings and for the Institute on High-Impact Practices and Student Success. Albertine received her BA in English from Cornell University, her MA in English from SUNY Cortland, and her Ph.D. in English from the University of Chicago. She was active in AAC&U before becoming vice president, serving as co-leader of the Educated Citizen and Public Health initiative, a collaborative project co-sponsored by AAC&U, the Association for Prevention Teaching and Research, the Council of Colleges of Arts and Sciences, the Association of Schools of Public Health, and other organizations, with support from the Centers for Disease Control and Prevention. She was dean of the School of Culture and Society and professor of English at the College of New Jersey from 2002 to 2008.

Previously, she served as vice provost for undergraduate studies, Temple University, and assistant to the provost, University of Pennsylvania. She has held faculty positions at the University of North Florida, St. Olaf College, and Susquehanna University, where she was chair of the Department of English. Her scholarship in American literature of the late 19th century led to research and an array of publications on women's work in print culture and on businesswomen's careers (in fiction and history) during the growth phase of industrialization in the U.S. A former public school teacher, Albertine has been nationally active to advance pre-school through college alignment, working with the Education Trust and the American Diploma Project. Her board service has included the Camden Academy Charter High School in Camden, New Jersey; the Advisory Board for the Delaware Study of Instructional Costs and Productivity—Faculty Study, University of Delaware; the Art Sanctuary, an African-American arts and letters organization based in Philadelphia; the Council of Colleges of Arts and Sciences. Albertine is a member of the Advisory Board, National Center for the First-Year Experience and Students in Transition.

Norman Augustine (NAS/NAE) is retired chairman and CEO of Lockheed Martin Corporation. Augustine was raised in Colorado and attended Princeton University where he graduated with a BSE in Aeronautical Engineering, magna cum laude, and an MSE. He was elected to Phi Beta Kappa, Tau Beta Pi and Sigma Xi. In 1958 he joined the Douglas Aircraft Company in California where he worked as a Research Engineer, Program Manager and Chief Engineer. Beginning in 1965, he served in the Office of the Secretary of Defense as Assistant Director of Defense Research and Engineering. He joined LTV Missiles and Space Company in 1970, serving as Vice President, Advanced Programs and Marketing. In 1973 he returned to the government as Assistant Secretary of the Army and in 1975 became Under Secretary of the Army, and later Acting Secretary of the Army. Joining Martin Marietta Corporation in

1977 as Vice President of Technical Operations, he was elected as CEO in 1987 and chairman in 1988, having previously been President and COO. He served as president of Lockheed Martin Corporation upon the formation of that company in 1995, and became CEO later that year. He retired as chairman and CEO of Lockheed Martin in August 1997, at which time he became a Lecturer with the Rank of Professor on the faculty of Princeton University where he served until July 1999.

Augustine served on the President's Council of Advisors on Science and Technology under Democratic and Republican presidents and led the 1990 Advisory Committee on the Future of the U.S. Space Program and the 2005 National Academies commission that produced the landmark report, *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*.

Augustine has been presented the National Medal of Technology by the President of the United States and received the Joint Chiefs of Staff Distinguished Public Service Award. He has five times received the Department of Defense's highest civilian decoration, the Distinguished Service Medal. He is co-author of *The Defense Revolution* and *Shakespeare In Charge* and author of *Augustine's Laws* and *Augustine's Travels*. He holds 23 honorary degrees and was selected by *Who's Who in America* and the Library of Congress as one of "Fifty Great Americans" on the occasion of *Who's Who's* fiftieth anniversary. He has traveled in over 100 countries and stood on both the North and South Poles of the earth.

Laurie Baefsky is Executive Director for ArtsEngine and the Alliance for the Arts in Research Universities (a2ru). She has served in this position since August 2014. Housed at The University of Michigan, a2ru is a partnership of over thirty institutions committed to ensuring the greatest possible institutional support for interdisciplinary research, curricula, programs and creative practice between the arts and other disciplines. Laurie has developed, led and taught within other interdisciplinary arts education initiatives for over 20 years. From 2007-2011 she established the USU ArtsBridge program at Utah State University, connecting university students with area schools and community organizations through arts-based interdisciplinary service-learning initiatives. During this time she also directed professional development efforts for northern Utah schools for the Beverley Taylor Sorenson Arts Learning Program. Prior to joining ArtsEngine / a2ru she served as grants manager for the Utah Division of Arts and Museums in Salt Lake City, where she oversaw the annual distribution of \$1.3 million in state and federal funding for individuals, organizations, communities and educators. A skilled grant writer herself, her efforts have resulted in over \$4.5 million in arts funding through grants from federal, state and private sources. Also an active performer and arts educator, Laurie has appeared on flute and piccolo with the Minnesota Orchestra, Utah Symphony, New World Symphony, and as a tenured member of the Virginia Symphony. As a chamber artist, her performance venues have ranged from Symphony Space and Chamber Music Society of Lincoln Center, NYC to northeastern Morocco and Umbria, Italy.

Paul Bevilaqua (NAE) is Retired Manager of Advanced Development Programs at Lockheed Martin Aeronautics Company. Paul Bevilaqua has spent much of his career developing Vertical Take Off and Landing aircraft. He joined Lockheed Martin as Chief Aeronautical Scientist and became Chief Engineer of the Skunk Works, where he played a leading role in creating the Joint Strike Fighter. He invented the dual cycle propulsion system that made it possible to build a stealthy supersonic VSTOL Strike Fighter, and suggested that conventional and Naval variants of this aircraft could be developed to create a common, affordable aircraft for all three services. He subsequently led the engineering team that demonstrated the feasibility of building this aircraft. Prior to joining Lockheed Martin, he was Manager of Advanced Programs at Rockwell International's Navy aircraft plant, where he led the design of VSTOL interceptor and transport aircraft. He began his career as an Air Force officer at Wright Patterson AFB, where he developed a lift system for an Air Force VSTOL Search and Rescue Aircraft. He received degrees in Aeronautical Engineering from the University of Notre Dame and Purdue University. He is a Fellow of the American Institute of Aeronautics and Astronautics and a member of the National Academy of Engineering. He is also the recipient of a USAF Scientific Achievement Award, AIAA and SAE Aircraft Design Awards, AIAA and AHS VSTOL Awards, and Lockheed Martin AeroStar and Nova Awards.

Kristin Boudreau is Professor and Department Head of Humanities and Arts at the Worcester Polytechnic Institute. Boudreau's research interests involve the ways literature reflects on and intervenes in cultural transformations. Professor Boudreau has written about the literature of slavery, the labor movement, capital cases, and modernization. After teaching in English departments for 17 years, she came to WPI in 2009 to chair the Department of Humanities and Arts, where she has taught HUA writing courses, Inquiry Seminars, and literature courses, has co-taught the Great Problems Seminar "Feed the World," and has advised and co-advised IQPs.

Like many faculty in the Humanities and Arts Department, Boudreau enjoys not only digging into her disciplinary research (19th-century American literature) but also stretching to join that disciplinary perspective to the topics of science and technology that are so important to WPI's students and faculty. Long interested in the literature of the nineteenth century and African American and working-class history and culture, she is now collaborating with colleagues in the Gordon Library and the Departments of Computer Science and Social Science and Policy Studies to bring these interests into conversation with the engineering challenge of restoring clean water to developing communities. Her team's goal is to design a series of classroom simulations that can approximate projects where actual projects are unfeasible. With students and colleagues she has developed an interdisciplinary role-playing simulation, "Worcester 1899: The Sanitary Engineering Challenge," and is working on another simulation based in contemporary rural Ghana. These simulations approach the engineering challenge of ensuring clean water while providing a rich cultural context that attends to historical particulars while also teaching a variety of disciplinary approaches.

Norman Bradburn is a Senior Fellow at NORC at the University of Chicago. He also serves as the Tiffany and Margaret Blake Distinguished Service Professor Emeritus in the faculties of the University of Chicago's Irving B. Harris Graduate School of Public Policy Studies, Department of Psychology, Booth School of Business and the College. He is a former provost of the University (1984-1989), chairman of the Department of Behavioral Sciences (1973-1979), and associate dean of the Division of the Social Sciences (1971-1973). From 2000-2004 he was the assistant director for social, behavioral, and economic sciences at the National Science Foundation. Associated with NORC since 1961, he has been its Director and President of its Board of Trustees. Bradburn has been at the forefront in developing theory and practice in the field of sample survey research in the cultural sector. He co-directs the American Academy of Arts and Sciences' Humanities Indicators project and Principal Investigator of the CPC's Cultural Infrastructure project. For the Humanities Indicators project he oversees the collation and analysis of data, the creation of reliable benchmarks to guide future analysis of the humanities, and the development of a consistent and sustainable means of updating the data. For the Cultural Infrastructure project he oversees the systematic measurement of recent building projects and their consequences, modeling levels of creativity and sustainability of individual arts organizations before and after building projects, and the overall cultural vibrancy and vitality of their cities or regions as a result. Bradburn is a fellow of the American Statistical Association, a fellow of the American Association for the Advancement of Science and an elected member of the International Institute of Statistics. He was elected to the American Academy of Arts and Sciences in 1994. In 1996 he was named the first Wildenmann Guest Professor at the Zentrum für Umfragen, Methoden und Analyse in Mannheim, Germany. In 2004 he was given the Statistics Canada/American Statistical Association Waksberg Award in recognition of outstanding contributions to the theory and practice of survey methodology.

Gail Burd is the Vice Provost for Academic Affairs of the University of Arizona. Burd was appointed the Vice Provost for Academic Affairs in August 2008. In this role, Dr. Burd works closely with campus leaders to coordinate programs that will advance the academic mission of the University and help colleges and departments develop and assess their academic degree programs. Dr. Burd is also a Distinguished Professor in Molecular and Cellular Biology, Cell Biology and Anatomy, and the Committee on Neuroscience with a research program focused on development and neural plasticity in the vertebrate olfactory system. In prior administrative roles at the University of Arizona, Dr. Burd served as the Associate Dean for Academic Affairs in the College of Science, the Interim Department Head of Molecular and Cellular Biology, and the Associate Department Head of Molecular and Cellular Biology. A fellow of

the American Association for the Advancement of Science, she has chaired several committees for national professional organizations, served on numerous government panels for the National Institutes of Health and the National Science Foundation, and received awards for her undergraduate teaching.

Edward Derrick became director of the AAAS Center of Science, Policy & Society Programs (CSPSP) in July 2011 after serving as deputy director then acting director of the AAAS Science and Policy Programs. The Center of Science, Policy & Society Programs bridges the science and engineering community on one side, and policymakers and the interested public on the other. The programs address an array of topics in science and society, including the interplay of science with religion, law and human rights; they also connect scientists and policymakers through programs in science and government, including the S&T Policy Fellowship program; and help improve the conduct of research through peer review and discussion of standards of responsible conduct. As chief program director, Derrick oversees the programs, which combined have a staff of about 35 and an annual budget of over \$20 million, and serves as a member of senior management at AAAS. Ed first joined AAAS in 1998 as a member of the AAAS Research Competitiveness Program (RCP). RCP provides review and guidance to the science and innovation community. He became director of the program in January 2004, with responsibility for the development of new business and oversight of all aspects of the design and execution of projects. Ed has participated directly in over 50 RCP projects, having led committees to assist state and institutional planning for research, to review research centers and institutions and to advise state and international funds on major investments. He holds the Ph.D. from the University of Texas at Austin, with a dissertation in theoretical particle physics, and the B.S. from the Massachusetts Institute of Technology, with an undergraduate thesis in biophysics. Between degrees, he worked for Ontario Hydro in the Nuclear Studies and Safety Division. Prior to joining AAAS, he spent two years as an Alexander von Humboldt Fellow in Germany.

Bonnie Thornton Dill is dean of the University of Maryland College of Arts and Humanities and professor of Women's Studies. A pioneering scholar studying the intersections of race, class and gender in the U.S. with an emphasis on African American women, work and families, Thornton Dill's scholarship has been reprinted in numerous collections and edited volumes. Her recent publications include an edited collection of essays on intersectionality with Ruth Zambrana entitled *Emerging Intersections: Race, Class, and Gender in Theory, Policy, and Practice* (Rutgers University Press, 2009), and numerous articles.

Prior to assuming the position of dean, Thornton Dill chaired the Women's Studies Department for eight years. In addition, she has worked with colleagues to found two research centers that have been national leaders in developing and disseminating the body of scholarship that has come to be known by the term "intersectionality." Today she holds the title of Founding Director for both the Center for Research on Women at the University of Memphis and the Consortium on Race, Gender and Ethnicity at the University of Maryland. She is currently President of the National Women's Studies Association (2010-2012) and prior to that was Vice President of the American Sociological Association. Thornton Dill also serves as Chair of the Advisory Board of Scholars for Ms. Magazine.

Professor Thornton Dill has won a number of prestigious awards including two awards for mentoring; the Jessie Bernard Award and the Distinguished Contributions to Teaching Award both given by the American Sociological Association; the Eastern Sociological Society's Robin Williams Jr. Distinguished Lectureship; and in 2009-2010, was appointed Stanley Kelley, Jr. Visiting Professor for Distinguished Teaching in the Department of Sociology at Princeton University.

Her current research pulls together her knowledge and experience as a teacher, mentor and institution builder around issues of race/ethnicity, class and gender in higher education to examine the experiences of historically underrepresented minority faculty in research universities, focusing specifically upon the impact of occupational stress on their physical and mental health and their career paths.

E. Thomas Ewing is History Professor and Associate Dean of Graduate Studies, Research, and Diversity at the College of Liberal Arts and Human Sciences of Virginia Tech. His education included a BA from Williams College and a PhD in history from the University of Michigan. He teaches courses in Russian, European, Middle Eastern, and world history, gender / women's history, and historical methods. His publications include, as author, *Separate Schools: Gender, Policy, and Practice in the Postwar Soviet Union* (2010) and *The Teachers of Stalinism. Policy, Practice, and Power in Soviet Schools in the 1930s* (2002); as editor, *Revolution and Pedagogy. Transnational Perspectives on the Social Foundations of Education* (2005); and as co-editor, with David Hicks, *Education and the Great Depression. Lessons from a Global History* (2006). His articles on Stalinist education have been published in *Gender & History*, *American Educational Research Journal*, *Women's History Review*, *History of Education Quarterly*, *Russian Review*, and *The Journal of Women's History*. He has received funding from the National Endowment for the Humanities, the Spencer Foundation, and the National Council for Eurasian and East European Research.

J. Benjamin Hurlbut is Assistant Professor of Biology and Society in the School of Life Sciences at Arizona State University. Dr. Hurlbut is trained in science and technology studies with a focus on the history of the modern biomedical and life sciences. His research lies at the intersection of STS, bioethics and political theory. He studies the changing relationships between science, politics and law in the governance of biomedical research and innovation in the 20th and 21st centuries. Focusing on controversy around morally and technically complex problems in areas like human embryo research, genomics, and synthetic biology, he examines the interplay of science and technology with shifting notions of democracy, of religious and moral pluralism, and of public reason. He holds an A.B. from Stanford University, and a Ph.D. in the History of Science from Harvard University. He was a postdoctoral fellow in the Program on Science, Technology and Society at the John F. Kennedy School of Government at Harvard.

Pamela Jennings is the Director of the Center for Design Innovation at the University of North Carolina in Winston-Salem. She is also the CEO and President of CONSTRUKTS, Inc. a start-up company that has been supported by the National Science Foundation Small Business Innovation Research program (SBIR) and Highway1 Hardware Start-up incubator. Prior to her appointment at the Center for Design Innovation, Pamela directed the Shapiro Center for Research and Collaboration at the School of the Art Institute of Chicago a faculty focused initiative to raise the profile of research in the arts through funding, mentoring, and partnership development. Pamela served as a Program Director at the National Science Foundation Computer & Information Science & Engineering directorate. She led the CreativeIT program and co-managed the Human Centered Computing, Cyberlearning Transforming Education and Computer Research Infrastructure programs. Pamela served on the Federal Council for the Arts and Humanities and the Networking & Information Technology Research and Development Alliance (NITRD) Social, Economic and Workforce Coordinating Group (SEW). As a champion of interdisciplinary research between the Arts and Design and STEM (Science, Technology, Engineering, and Mathematics) she funded research projects, workshops, conferences, and meetings that convened stakeholders in the field to develop strategic plans for strengthening the STEM + Art or STEAM research and pedagogy platform. Prior to her position at the NSF, Pamela was the Director of the Advanced Research Technology Lab at the Banff New Media Institute in Banff, Alberta and adjunct faculty in the Department of Computer Science, University of Calgary in Canada. From 2001 to 2008 Pamela was a Professor at Carnegie Mellon University with a joint appointment in the School of Art in the College of Fine Arts and the Human Computer Interaction Institute in the School of Computer Science. She developed new curriculum and research projects that engaged students from academic disciplines from the Fine and Applied Arts to Computer Science and Engineering.

Pamela received her PhD in Human Centered Systems Design and Digital Media, School of Computer Science, University of Plymouth, United Kingdom; MBA, Ross School of Business, University of Michigan; MFA in Computer Art, School of Visual Arts; MA in Studio Art, International Center of Photography/New York University Program; and BA in Psychology, Oberlin College.

Youngmoo Kim is Director of the Expressive and Creative Interaction Technologies (ExCITe) Center and Associate Professor of Electrical and Computer Engineering at Drexel University. His research group, the Music & Entertainment Technology Laboratory (MET-lab) focuses on the machine understanding of audio, particularly for music information retrieval. Other areas of active research at MET-lab include human-machine interfaces and robotics for expressive interaction, analysis-synthesis of sound, and K-12 outreach for engineering, science, and mathematics education.

Youngmoo also has extensive experience in music performance, including 8 years as a member of the Tanglewood Festival Chorus, the chorus of the Boston Symphony Orchestra. He is a former music director of the Stanford Fleet Street Singers, and has performed in productions at American Musical Theater of San Jose and SpeakEasy Stage Company (Boston). He is a member of Opera Philadelphia's newly-formed American Repertoire Council.

Youngmoo was named "Scientist of the Year" by the 2012 Philadelphia Geek Awards and was recently honored as a member of the Apple Distinguished Educator class of 2013. He is recipient of Drexel's 2012 Christian R. and Mary F. Lindback Award for Distinguished Teaching. He co-chaired the 2008 International Conference on Music Information Retrieval hosted at Drexel and was invited by the National Academy of Engineering to co-organize the "Engineering and Music" session for the 2010 Frontiers of Engineering conference. His research is supported by the National Science Foundation and the John S. and James L. Knight Foundation.

Robert Martello is Professor of the History of Science and Technology at Olin College of Engineering. Martello received his Ph.D. from MIT's Program in the History and Social Study of Science and Technology, following his completion of a Master of Science degree in civil and environmental engineering and Bachelor of Science degree in earth, atmospheric, and planetary science from MIT. Prior to joining the Olin College faculty in 2001 during Olin's "partner" year, Martello lectured in MIT's history of technology program and served as the Producer for the "Digital History" component of *Inventing America*, an American history textbook. Martello's Ph.D. dissertation and ensuing research use Paul Revere's many manufacturing and entrepreneurial endeavors to tell the story of America's transition from craft practices to industrial capitalism. He published his first book, *Midnight Ride, Industrial Dawn: Paul Revere and the Growth of American Enterprise*, in the fall of 2010, and is currently researching his next book project, a study of Benjamin Franklin's innovative printing career and identity as an artisan. Martello frequently offers public history talks on the subjects of Paul Revere's groundbreaking manufacturing career or Benjamin Franklin's adventures as a printer, and enjoys collaborating with the Paul Revere Memorial Association on different educational initiatives. At Olin, Martello frequently co-chairs the Arts, Humanities, and Social Science committee and helps students cross disciplinary lines and apply their communication and contextual analysis skills to global challenges. He is the co-principal investigator on three National Science Foundation grants studying the integration of humanities and technical pedagogies, the development and deployment of lifelong learning skills, and the importance of intrinsic motivation. Martello has also delivered numerous talks and has facilitated many workshops for fellow educators interested in student motivation, interdisciplinary education, and project-based teaching.

Gunalan Nadarajan is Dean and Professor at the Penny W. Stamps School of Art and Design at the University of Michigan. His publications include *Ambulations* (2000), *Construction Site* (edited; 2004) and *Contemporary Art in Singapore* (co-authored; 2007), *Place Studies in Art, Media, Science and Technology: Historical Investigations on the Sites and Migration of Knowledge* (co-edited; 2009), *The Handbook of Visual Culture* (co-edited; 2012) and over 100 book chapters, catalogue essays, academic articles and reviews. His writings have also been translated into 16 languages. He has curated many international exhibitions including *Ambulations* (Singapore, 1999), *180KG* (Jogjakarta, 2002), *media_city* (Seoul, 2002), *Negotiating Spaces* (Auckland, 2004), *DenseLocal* (Mexico City, 2009) and *Displacements* (Beijing, 2014). He was contributing curator for *Documenta XI* (Kassel, Germany, 2002) and the *Singapore Biennale* (2006) and served on the jury of a number of international exhibitions, including *ISEA2004* (Helsinki / Tallinn), *transmediale 05* (Berlin), *ISEA2006* (San Jose) and *FutureEverything*

Festival (Manchester, 2009). He was Artistic Co-Director of the Ogaki Biennale 2006, Japan and Artistic Director of ISEA2008 (International Symposium on Electronic Art) in Singapore.

He is active in the development of media arts internationally and has previously served on the Board of Directors of the Inter Society for Electronic Art and is on the Advisory Boards of the Database of Virtual Art (Austria), Cellsbutton Festival (Indonesia) and Arts Future Book series (UK). He currently serves on the International Advisory Board of the ArtScience Museum in Singapore. In 2013, he was elected to serve on the Board of Directors of the College Art Association. He has also served as an advisor on creative aspects of digital culture to the UNESCO and the Smithsonian Institution. He continues to work on a National Science Foundation funded initiative to develop a national network for collaborative research, education and creative practice between sciences, engineering, arts and design. He is a member of several professional associations including Special Interest Group in Graphics and Interactive Techniques (SIGGRAPH), Association for Computing Machinery (ACM), College Art Association, National Council of University Research Administrators, International Association of Aesthetics, International Association of Philosophy and Literature and the American Association for the Advancement of Science. In 2004, he was elected a Fellow of the Royal Society of Art.

He has served in a variety of academic roles in teaching, academic administration and research for over two decades. Prior to joining University of Michigan, he was Vice Provost for Research and Dean of Graduate Studies at the Maryland Institute College of Arts. He also had previous appointments as Associate Dean for Research and Graduate Studies at the College of Arts and Architecture, Pennsylvania State University and Dean of Visual Arts at the Lasalle College of the Arts, Singapore.

Suzanna Rose is the Senior Associate Dean for the Sciences and Professor of Psychology & Women's Studies in the College of Arts & Sciences at FIU. She previously served as Chair of Psychology and as Director of Women's Studies at FIU. Prior to coming to FIU, she was Professor of Psychology and Director of Women's Studies at the University of Missouri-St. Louis. Dr. Rose has published extensively on issues related to women and gender, including professional networks, career development, leadership, and personal relationships. Dr. Rose has been a member of eight editorial boards for journals in psychology and women's studies and also served on APA grant panels. More than thirty universities nationally and internationally have consulted with her concerning strategies for recruiting and retaining women faculty in science and engineering.

Al Bunshaft is the Senior Vice President of Dassault Systèmes' Americas Corporation where he spearheads key strategic initiatives and corporate leadership programs. He was a key architect in Dassault Systèmes' acquisition of IBM's PLM business and led the selection, design, construction and opening of the company's North American headquarters, an award-winning campus recognized for sustainable innovation and located in Boston's technology belt. Prior to joining Dassault Systèmes, Bunshaft served as global vice president of IBM PLM where he helped major manufacturing companies transition from physical to digital design practices and played a key role in the first digitally-designed automobile. He is a leading voice in corporate citizenship and science, technology, engineering and mathematics (STEM) initiatives, such as Teachers at Dassault Systèmes and "Day of Service at Dassault Systèmes." He is a member of the STEM subcommittee of the Clinton Global Initiative, a board member of the Massachusetts High Technology Council, and an advisory board member at the University at Albany, State University of New York's Department of Information and Computer Science. He received his Bachelor of Science in Computer Science and Mathematics from the school and has a Master of Science in Computer Engineering from Rensselaer Polytechnic Institute (RPI).

Laura Vosejka Dr. Laura J. Vosejka is a Professor of Physical Science at Mid Michigan Community College in Harrison, Michigan. She is responsible for the Physics program and the Non-majors Science program and she shares responsibility for the Chemistry program. As chair of the General Education Committee, she leads work in mapping General Education program goals to both transfer agreements and the DQP. She is also leading the college's participation in the Michigan Community College Association Guided Pathways Institute aimed at improving retention and completion rates for MMCC

students. Her organic chemistry students, were recently awarded First Prize in the college wide T-Summit Student Showcase for their hands-on presentation of the history and chemistry of organic dyes.

A 25 year resident of the Mid Michigan area, Dr. Vosejka has held a number of academic and industrial positions in the immediate area. Prior to joining MMCC, she served as the Executive Communications Director for Global R&D for the Dow Chemical Company. There she was responsible for providing internal and external executive communications support for the Chief Technology Officer, William F. Banholzer, and the R&D Leadership Team. Laura led all initiatives in Innovation and Technology communication, developing strategy and creating materials for internal & external use by numerous groups, such as Media Relations and Investor Relations. She coordinated the role of R&D in VIP visits and external events including executive speeches, R&D displays and tours and led Dow's participation in national TED conferences. Laura had an earlier role at Dow as an R&D Specialist in Core R&D, working in the areas of biocatalysis, and electroactive organic polymers (pLED). She is the author of 6 internal Dow research reports and was awarded the 2002 Chemical Sciences Technical Award for her work on pLED polydispersity and lifetime relationships. A passionate advocate for liberal arts education, Vosejka was a dual major in science and the humanities, graduating with Honors from The Ohio State University with BA degrees in both chemistry and English. She earned her Ph.D. in Organic Chemistry from the University of Wisconsin – Madison in 1989, working in the research group of Professor Charles P. Casey, and then spent 18 months as a postdoctoral research associate at the University of Maryland in the synthetic organic chemistry labs of Professor Philip DeShong before beginning her position at Alma College.

Lisa M. Wong is a musician, pediatrician, and past president of the Longwood Symphony Orchestra. She grew up in Honolulu, Hawaii where she attended Punahou School, an independent school centered on education, the arts and community service. She began the piano at age 4, violin at age 8, guitar at age 10 and viola at age 40. Wong is married to violinist Lynn Chang. They have two grown children, Jennifer and Christopher Chang. Wong graduated from Harvard University in East Asian Studies in 1979, and her M.D. from NYU School of Medicine in 1983. After completing her pediatric residency at Massachusetts General Hospital in 1986, she joined Milton Pediatrics Associates and is an Assistant Clinical Professor of Pediatrics at Harvard Medical School.

Wong is inspired by the work of Nobel Peace Prize laureate Dr. Albert Schweitzer, a humanitarian, theologian, musician and physician. During her twenty year tenure as president of the Longwood Symphony Orchestra, was honored to work with remarkable leaders in healthcare and humanitarianism including Dr. Lachlan Forrow, Jackie Jenkins-Scott, Dr. Jim O'Connell and Dr. Paul Farmer. Although she retired as President of the LSO in 2012, Wong continues her involvement with the orchestra as a violinist in the section. A passionate arts education advocate, Wong has worked closely with the New England Conservatory of Music's Preparatory School and traveled with NEC's Youth Philharmonic Orchestra to Brazil, Cuba, Guatemala, Panama, and Venezuela as a pediatric chaperone. Wong continues to be actively involved in El Sistema USA and has had the privilege of observing El Sistema in Venezuela several times over the past ten years. Wong served as Board member of Young Audiences of Massachusetts for over 15 years and helped start Bring Back the Music (now renamed Making Music Matters), a program that revitalized in-class instrumental music instruction in the four Boston public elementary schools. In 2009, Wong was appointed to the Board of the Massachusetts Cultural Council by Governor Deval Patrick. In April 2010, Wong received the Community Pinnacle Award from Mattapan Community Health Center for LSO's pivotal role in their capital campaign to build a new neighborhood healthcare facility. Her first book *Scales to Scalpels: Doctors Who Practice the Healing Arts of Music and Medicine*, co-written with Robert Viagas, was published in April 2012 by Pegasus Books. It was released as a paperback in May 2013, and recently translated into Chinese. The AudioBook version will be released in early 2014.

Tom Nelson Laird is Director of the Center for Postsecondary Research (CPR) as well as principal investigator for the Faculty Survey of Student Engagement (FSSE), a companion project to the National Survey of Student Engagement (NSSE). Tom is also an associate professor in the Higher Education and Student Affairs program at IU and an associate editor for The Journal of Higher Education. As a member of the CPR staff, he is responsible for the center's overall management and for FSSE operations. Tom received a PhD in higher education from the University of Michigan (2003), an MS in mathematics from Michigan State University (1997), and a BA in mathematics from Gustavus Adolphus College (1995). His work focuses on improving teaching and learning at colleges and universities, with emphasis on the design, delivery, and effects of curricular experiences with diversity. Through dozens of journal articles, book chapters, scholarly papers, and reports, his work has appeared in key scholarly and practitioner publications. Tom also consults with higher education institutions and related organizations on topics ranging from effective assessment practices to the inclusion of diversity in the curriculum.

James (“Jim”) C. Spohrer is the Director of IBM Global University Programs and leads IBM’s Cognitive Systems Institute. The Cognitive Systems Institute works to align cognitive systems researchers in academics, government, and industry globally to improve productivity and creativity of problem-solving professionals, transforming learning, discovery, and sustainable development. IBM University Programs works to align IBM and universities globally for innovation amplification and T-shaped skills. Jim co-founded IBM’s first Service Research group, ISSIP Service Science community, and was founding CTO of IBM’s Venture Capital Relations Group in Silicon Valley. He was awarded Apple Computers’ Distinguished Engineer Scientist and Technology title for his work on next generation learning platforms. Jim has a Yale PhD in Computer Science/Artificial Intelligence and MIT BS in Physics. His research priorities include service science, cognitive systems for smart holistic service systems, especially universities and cities. With over ninety publications and nine patents, he is also a PICMET Fellow and a winner of the S-D Logic award.