Program in Science, Technology, and Society

MIT's Program in Science, Technology, and Society (STS) helps MIT offer an education that teaches scientists and engineers to engage the social and cultural dimensions of their work at the highest levels. This type of education will set MIT apart from the numerous engineering schools worldwide turning out technical specialists. The STS program continues to distinguish itself as the leading department of its kind in the United States, as well as the leading graduate program.

In 2008–2009, the program welcomed two new faculty members, assistant professor Clapperton Mavhunga and assistant professor Hanna Shell, making a complement of five junior faculty, the most in STS recent history, and providing a strong foundation for the future. As did all departments in the School of Humanities, Arts, and Social Sciences (SHASS), STS submitted a strategic plan to dean Deborah Fitzgerald on July 1, 2008, and began implementing that plan with the review of our undergraduate curriculum described below.

Educational Activities

Undergraduate

In summer 2008, STS launched a review of our undergraduate curriculum driven by the follwoing factors: a host of new faculty and course offerings, the new double major option implemented in AY2009, and the forthcoming proposals for new General Institute Requirements in SHASS.

A committee led by professor Natasha Schüll recommended the removal of several outdated classes from the subject offerings. The committee also created five topic clusters, assigned subjects to each cluster, identified holes in the curriculum that needed to be filled, and selected eight Tier 1 subjects which will be developed to include approximately one-third of all introductory STS material. These subjects will give MIT students a solid introduction to STS and better prepare them for Tier 2 subjects in the future. Our goal is to assign up to three faculty members to each Tier 1 subject on a rotating basis. This will allow us to offer the subjects every year while giving the faculty more variety in their teaching schedules.

In 2009–2010, we will continue our curriculum reform by offering six new subjects, publicizing the curriculum updates to the undergraduate community, developing the introductory material for Tier 1 subjects, and revisiting our major and minor requirements. The SHASS Dean's Office provided financial support for the curriculum reform from its fund for undergraduate education.

STS offered 26 undergraduate subjects and 34 graduate subjects in AY2009. Six were new STS subjects and two were created by Assistant Professor Mavhunga. Undergraduate enrollment totaled 387 and graduate enrollment totaled 164.

In teaching, we continue to emphasize collaborations with other areas of MIT. We offered 26 subjects jointly with other departments (Aeronautics and Astronautics,

[Aero/Astro] Anthropology, Electrical Engineering and Computer Science, Engineering Systems Division [ESD], Health Sciences and Technology, History, Linguistics and Philosophy, Media Arts and Sciences [MAS], Physics, Political Science, Writing and Humanistic Studies, and Women's and Gender Studies).

This year, STS had 12 undergraduate minors (five of whom graduated in June 2009) and 76 concentrators (37 graduating in June 2009). We offered seven undergraduate Humanities, Arts, and Social Science Distribution (HASS-D) subjects and six Communication Intensive (CI-H) subjects. In its fourth year, STS.006J Bioethics (a HASS-D, CI-H class) drew the largest total enrollment among STS subjects, with 106 students in spring 2009. Five of our other six HASS-D subjects had enrollment numbers ranging from 42 to 60 students.

STS offered four Undergraduate Research Opportunity Program projects this year. Professor David Jones supervised projects with three students. The topics were Disease Models and the History of Cardiac Therapeutics, 1960–2000; Cost Effectiveness Analysis in Medicine; and Ethical Issues Concerning the Lack of Accessible Cardiac Health Care in Developing Countries. The fourth student worked with professor Natasha Schüll on her neuroscience and society research.

Doctoral Program

The doctoral program in History, Anthropology, and Science, Technology, and Society (HASTS) is run by STS with collaboration from the History faculty and the Anthropology Program. The program is administered by STS, which awards the degrees. Associate professor Stefan Helmreich (Anthropology) served his second and final year as director of graduate studies (DGS) in 2008–2009. He will be succeeded by professor David Kaiser. This year DGS and the HASTS Steering Committee implemented the use of a common reading list for one portion of the HASTS general examinations, added two program milestones (submission of a grant/fellowship proposal and an oral presentation of the dissertation proposal), and continued to work closely with students to encourage them to meet program deadlines in a timely manner.

The program received 92 applications for admission in January 2009 and offered admission to four applicants, all of whom accepted, giving us our first 100% yield. The incoming class includes two MIT alumni (one who was a major in Course 3 and the other in Course 17), one minority student, two international students, and three women.

In 2008–2009, there were 32 students in the program, five of whom received their doctoral degrees during this period: Anita Chan, Kieran Downes, Richa Kumar, Jamie Pietruska, and Anya Zilberstein. Two of these graduates secured faculty positions (at the University of Illinois at Urbana-Champaign and Concordia University in Montreal) and two obtained postdoctoral positions (at the American Academy of Arts and Science and with MIT's Anthropology Department). Our students continue to be successful at winning competitive fellowships to support their graduate studies, including Mr. Xaq Frohlich and Ms. Rebecca Woods who were awarded Fulbright scholarships for the 2009–2010 academic year.

Projects, Grants, and Initiatives

David Jones, associate professor of the history and culture of science and technology, completed the first year of his two-year grant from the Robert Wood Johnson Foundation to explore the history of cardiac revascularization techniques and to uncover the range of factors that influence therapeutic practice and change in American medicine and their immediate relevance to health policy.

Professor Mindell led his Space, Policy, and Society Research Group that consist of faculty and associated students from STS, Aero/Astro, and ESD to publish a white paper titled "The Future of Human Spaceflight" in December 2008. In addition, the Space, Policy, and Society Group received an additional gift from an MIT alumnus support to explore research in human-machine systems.

Associate professor of the history of science David Kaiser established a postdoctoral fellowship with gift support from an anonymous donor. The purpose of the fellowship is to foster research in the history of modern physical sciences by a recent PhD graduate. The physical sciences encompass disciplines such as physics, astronomy, chemistry, mathematics, and earth sciences, as well as border fields between these disciplines. The selected fellow will focus on the history of physical sciences since the beginning of the nineteenth century. The first postdoctoral fellow started July 1, 2009.

Theodore Postol, professor of science, technology, and international security, and staff member of the Science, Technology, and Global Security Working Group received additional support from the John D. and Catherine T. MacArthur Foundation to continue his research in preserving and enhancing technical security research and education.

Ongoing Program Activities

Ongoing STS activities bring a wide variety of distinguished scholars to the MIT campus on a regular basis. The longest running of these activities is the STS Colloquium Series. We started the fall series by hosting an event for the entire MIT community—a screening of the film *Secrecy* followed by a panel discussion with the directors, Peter Galison and Robb Moss of Harvard University.

Following the kickoff event, the series continued with 13 speakers participating this year. Topics included "Knowing the Cold War Enemy"; "Technological Leadership and American Hegemony"; "AIDS and its Futures: Drugs, Clinical Trials, and US Foreign Policy to Nigeria"; "Future Imperfect: Sociotechnical Imaginaries and Cultures of Public Policy"; and "Building a Science Hub in the 21st Century: Singapore 2000–2008."

Every year STS also sponsors the Arthur Miller Lecture on Science and Ethics, which is promoted to the larger MIT and Boston-area communities. This past fall, Ruth Schwartz Cowan, Janice and Julian Bers professor of the history and sociology of science at University of Pennsylvania and author of *Heredity and Hope: The Case for Genetic Screening*, delivered the Miller lecture on the topic "Climbing Up the Slippery Slope: The History of Genetic Screening."

The program was also fortunate this year to have secured sufficient funds to sponsor the Morison Lecture and Prize in Science, Technology, and Society. The Morison Lecture and Prize was established by the Morison family and the Hitchiner Manufacturing Company to recognize the technical and societal accomplishments of several generations of Morison family members and of the engineers of the Hitchiner Company, as well as the contributions of MIT faculty members and graduates to the growth and success of that company. The Morison Lecture and Prize is intended to honor individuals, selected internationally, who have demonstrated commitment to and effectiveness in carrying out the ideals of the Morison family. The Morison Prize recognizes the accomplishments of an individual who has made major contributions at the interface between science and technology on the one hand and matters of societal concern on the other.

John Ochsendorf, associate professor of building technology at MIT was the recipient of the 2009 Morison Lecture and Prize in Science, Technology, and Society. His lecture was titled "Engineering for the Ecological Age: Lessons from History." Professor Ochsendorf is a structural engineer with multidisciplinary research interests including archaeology, the history of construction, and sustainable design. Trained in structural mechanics at Cornell, Princeton, and the University of Cambridge, he conducts research on the structural safety of historic monuments and the design of more sustainable infrastructure. An expert on the mechanics and behavior of masonry structures, Ochsendorf collaborates with art historians, architects, and engineers on the study and structural assessment of historic monuments around the world.

MIT's Space, Policy, and Society Research Group actively engaged in policy outreach during the 2008–2009 academic year. Starting in summer 2008, the group researched a study on "The Future of Human Spaceflight." In it, they proposed a framework for evaluating the objectives of human spaceflight, discussed the policy implications of those objectives, and made recommendations to the new Obama administration. This work reflected the input and opinions of group members and other MIT faculty closely involved with space activities, and was conducted in close collaboration with the MIT Washington office. A white paper based on this work was published in December, and Professor Mindell, Dr. Scott Uebelhart, visiting professor Asif Siddiqi, and graduate student Zakiya Tomlinson presented the work to policymakers in Washington, DC, including members of President-elect Obama's transition team for NASA. It was later learned from the MIT Washington Office that these efforts helped persuade the White House to reevaluate the country's human spaceflight policy. The group also organized a forum in Washington, DC, in early May to broaden the discussion of these issues; the forum was attended by over 60 individuals representing NASA, industry, and international space agencies. A longer occasional paper based on this study was completed in the summer of 2009 and will be published by the American Academy of Arts and Sciences. Copies of these papers have been presented to members of the Committee on US Human Space Flight Plans, currently reviewing NASA's direction. In addition to this work, the SPS group continued to bring prominent policy makers to MIT on topics ranging from the Chinese space program to the effect of policy decisions on the technical design on the new lunar lander.

Eminent sociologist Manuel Castells, the Marvin C. ('51) and Joanne Grossman distinguished visiting professor of technology and society at MIT, was brought to the

Institute for one week in March by STS, MAS, and the Department of Urban Studies and Planning (DUSP); STS serves as his academic home. Under this five-year arrangement (this being the fifth year), Professor Castells has returned annually to MIT to teach a graduate seminar and develop research projects. The topic of this year's seminar was "Networks in the Information Age: Communication Technology, Space, and Society."

MIT's History faculty and STS continue to cosponsor the MIT Seminar on Environmental and Agricultural History (formerly called the Modern Times, Rural Places Seminar Series), which brought six speakers to campus to give talks on environmental and agricultural history.

The Benjamin Siegel Prize of $2,500 is awarded to the MIT student submitting the best written work on issues in science, technology, and society. The prize is open to undergraduate and graduate students from any school or department of the Institute. This year's prize committee (professors Sherry Turkle and Clapperton Mavhunga) awarded the 2008–2009 Benjamin Siegel Prize to HASTS graduate student Nicholas Buchanan for his paper "Narrating Nature: Scientific Legality, Indigeneity, and Environmental Authority."

The HASTS program sponsored the STS graduate students conference at MIT in February 2009. The conference rotates annually between the STS programs at Cornell University, MIT, and the Rensselaer Polytechnic Institute. Graduate students were invited to present in an informal setting ideal for feedback, discussion, and getting to know fellow colleagues. Invited papers covered a broad spectrum of STS questions, methodologies, locations, and periods.

Knight Science Journalism Fellowship Program

This past year was the 26th year of the Knight Science Journalism Fellowship Program at MIT, and the first year under the leadership of Philip J. Hilts. Hilts, an accomplished science journalist who formerly worked at the *New York Times* and has published several well-received books, became the program director on July 1, 2008, replacing Boyce Rensberger. The program continues to attract science journalists from around the world seeking to learn more about the science and technology they cover.

The 26th class of fellows included Kimani Chege, editor of *TechNews Africa*; Jonathan Fildes, science and technology reporter for BBC News; Dianne Finch, health care and science reporter for New Hampshire Public Radio; Teresa Firmino, science and technology reporter for *Público,* Portugal's leading newspaper; Sascha Karberg, freelance reporter who writes about the life sciences for German newspapers and magazines; Alexander Otto, freelance and staff medical news reporter for the Tacoma *News Tribune*; Marcin Rotkiewicz, science correspondent for *Polityka*, the most influential newsweekly in Poland; Sabin Russell, medical writer for the *San Francisco Chronicle*; Sharon Weinberger, a freelance reporter specializing in military science and technology, including national security policy; Karen Weintraub, former deputy health and science editor of the *Boston Globe*; and Rachel Zimmerman, who writes about health and medicine for the *Wall Street Journal*. Several of these individuals lost their jobs during the period of their fellowships due to the financial cutbacks and reorganization many newspapers are currently facing.

Fellows spent most of their time attending classes at MIT and Harvard, but also attended more than 60 seminars with faculty that were specially organized for them, as well as other seminars and workshops devoted to the wider impact of science and technology.

Fellows received funding in support of a research trip during their fellowship year. Their research took them to various destinations, including Africa, to research tool use and tool making in wild chimpanzee populations; Costa Rica, to study the rain forest; Hawaii, to study the application of genomics to corals at the University of Hawaii Institute of Marine Biology, to explore the artificial reef barriers of Oahu Island, to investigate the use of remotely operated undersea vehicles by local high schools, and to visit the Keck Observatory and the Kilauea Volcano Observatory; India, to research community-based treatment for schizophrenia in Chennai and Goa; California, to meet with stem cell scientists in San Francisco and conservation geneticists; and Florida, to visit NASA.

In January the Knight fellows traveled as a group to Costa Rica to meet with scientists and journalists. The group spent several days at La Selva Biological Station interacting with scientists and researchers, hiked around the Arenal Volcano with Costa Rica's leading vulcanologist, and met with Dr. Eduardo Doryan Garrón, executive president of the Costa Rican national health care system. In addition, the fellows visited health clinics and hospitals in San José and met with reporters and the editor of the country's largest newspaper, *La Nación*.

Phil Hilts organized three weeklong intensive seminars, referred to as boot camps or workshops, for current Knight fellows and other science journalists. In December, Medical Evidence Boot Camp (now in its seventh year and still as popular as ever) brought together medical researchers from MIT, Harvard Medical School, Harvard School of Public Health, the National Institute of Health, and the Federal Drug Administration to explain how clinical trials are designed and carried out, to explore the politics and ethics of how new drugs are tested, and to provide tools for journalists to understand and evaluate medical studies. In March, Food Boot Camp, offered this year for the first time, received a record number of applicants. Ninety-nine journalists and science writers applied; 15 finalists were accepted to join our 11 Knight fellows in this intensive course. Foodborne disease, obesity and malnutrition, and toxic imports were among the topics covered by researchers and leaders from universities, government and industry. The Knight program sponsored the third Kavli Science Journalism Workshop. The expenses for this annual weeklong workshop are funded by a generous grant from the Kavli Foundation. The subject of this workshop will rotate among neuroscience, nanotechnology, and the universe. "Nano: The Newest Technologies" was held June 15–18, 2009 to educate journalists on the risks associated with nanotechnology and how to cover this fast-moving new technology. The ten speakers included researchers from universities (MIT, Cornell, Harvard Medical School, University of Pennsylvania, and the Woodrow Wilson Center for Scholars), government (Environmental Defense Fund), and industry (DuPont and Lux Research, Inc.). The course focused on the underlying science as well as the political and economic factors involved in nanotechnology. Among the topics covered were nanotechnology and its medical applications; quantum dots; regulatory gaps and the need for engineered nanomaterials; nanotechnology

for the development of stem cell therapeutics, diagnostics and drug delivery systems; nanofibers and nano finishes to increase textile performance; the promises and challenges of industrial nanoscale science and engineering; nanoscience as business; and nano policy and ethical concerns.

The field of science journalism and the way news is covered and reported is rapidly changing as can be seen by the increase in online news reporting, science blogs and podcasting and the decrease in newspapers and other print media. In April, the Knight program contributed to and participated in "The Future of Science Journalism." This lecture, hosted by the MIT Museum as part of the Cambridge Science Festival, included speakers from MIT, New York University School of Journalism, and the *New York Times*. Everyone agreed that within science journalism, writers need to be trained in new media to prepare them for the changes in their field and to be able to compete in this new journalistic world. To meet that goal, the Knight program hired Ms. Dianne Finch in the role of manager for new media as of June 1, 2009. In her new role, Ms. Finch, a 2008–2009 Knight fellow with an extensive background in new media, will work to ensure that Knight fellows are trained in the latest media technologies including audio, video, and other multimedia platforms. MIT's Knight Science Journalism Fellowship Program is committed to educating and training journalists during their nine month fellowship appointment in order to competitively prepare them for the drastic changes their field is currently experiencing.

The program also began a complete rebuilding of the fellowship website, which, when finished, will host a broad array of multimedia content on science and journalism. The Fellowship program is known as a leader in science journalism, and the new material will be a destination site for science journalists from around the world. Also this year, the Knight Science Journalism Tracker—a blog that reviews and comments daily on science and health news from around the nation—reached a milestone. It achieved more than 70,000 page views in a month, including more than 50,000 unique visitors. Its following is still growing, and this year a Spanish-speaking journalist was added to review and comment on science journalism across all of Latin America.

The fellowships are supported by an endowment from the John S. and James L. Knight Foundation of Miami, FL, by MIT, and by alumni and foundation gifts. More information about the Knight Science Journalism Fellowship Program can be found at http://web.mit.edu/knight-science/.

Faculty Activities

Professor Michael Fischer continued his book series, *Experimental Futures: Technological Lives, Scientific Arts, Anthropological Voices*, published by Duke University Press (the first book in the series is by former advisee and HASTS alumnus, Christopher Kelty, *Two Bits: The Cultural Significance of Free Software was published in 2008*) with two books currently in press. Fischer served on the Cultural Anthropology, Cultural Politics and the East Asian Science, Technology and Society editorial boards. He also served on the board of governors at the University of California Humanities Research Institute and served on the ad hoc committee for the Institute for Advanced Study in Princeton, New Jersey, in April 2009. In addition to publishing three journal articles, he has published

three chapters in books and given nine presentations over the 2008–2009 academic year. Fischer taught four classes, chaired dissertation committees of three graduate students, was on the committee of two more, and was a master's thesis advisor in Comparative Media Studies. He was also a co-coordinator for the Colloquium on Global Science and Technology in Asia, Africa, and Beyond in STS.

Professor Jones continued his work as associate professor of the history and culture of science and technology. His research explores the history of cardiology and cardiac surgery in an effort to understand decision making about cardiac revascularization, especially bypass surgery and angioplasty. This work is funded by an Investigator Award in Health Policy Research from the Robert Wood Johnson Foundation. In addition to presentations at the annual meetings of the History of Science Society and the American Association for the History of Medicine, he gave the keynote address at the annual conference for the National Committee for Quality Assurance in Washington, DC. He was on leave from MIT in the fall. In the spring he taught one undergraduate subject, a HASS-D/CI-H course on bioethics (24.06J/STS.006J), and one graduate seminar on the history and anthropology of biology and medicine (STS.330). This spring he was selected as a MacVicar Faculty Fellow in honor of his contributions to teaching and learning at MIT. In addition to his work at MIT, he is a lecturer in the Department of Global Health and Social Medicine at Harvard Medical School, where he codirects two courses on social medicine required for all first year medical students—one for the students in the New Integrated Curriculum (SM.750) and one for the students in Health Sciences and Technology (HST.934J).

During the 2008–2009 academic year, Professor Kaiser worked primarily on his book manuscript, *How the Hippies Saved Physics* (W.W. Norton, forthcoming), completing the drafts of two more chapters. He also completed an edited volume, *MIT: Moments of Decision* (forthcoming, MIT Press, 2010), the publication of which in September 2010 will help kick off celebrations of MIT's 150th anniversary. In addition to these book projects, Kaiser published essays in the *London Review of Books* (on the history of quantum physics), the *Journal of Informetrics* (on modeling the structure and dynamics of scientific collaboration networks), and the Italian newspaper *l'Unità* (on the history of Einstein's relativity). Three more essays are in press for forthcoming edited volumes. He delivered eight invited colloquia, including a public lecture at the Rome Science Festival and the keynote address at a conference at the Perimeter Institute for Theoretical Physics near Toronto. A filmed interview with Kaiser about his physics research was featured during the World Science Festival in New York City and he was interviewed for an Italian documentary film about cryptography. He served on the MIT Faculty Policy Committee; on the MIT Press editorial board; on the History of Science Society Council, including chairing its nominating committee; on the advisory board for a new book series at Rutgers University Press; and on the editorial advisory boards for the journals *Isis* and *Historical Studies in the Natural Sciences*. He also continued his consulting service for the Office of Scientific and Technical Information of the US Department of Energy.

During academic year 2008–2009, professor Vincent-Antonin Lépinay developed a new course and worked on two books. In the fall term, he cotaught with David Kaiser the new graduate course STS. 472 Formalism. In February, he organized a meeting with

scholars from the School of Engineering and from the MIT Libraries to brainstorm on ways to launch a larger digital humanities initiative with European partners. Scholars from Europe came to present their current solutions to the growth of scientific collaboration for scientometrics methods. In parallel, he finished a book with colleague Bruno Latour (forthcoming at Prickly Paradigm Press in fall 2009) and has been editing his forthcoming book (MIT Press, 2010).

Professor Mavhunga started his appointment as assistant professor of science, technology and society on July 1, 2008. He uses mobility as a lens into science, technology, environment, and society. His historically grounded work, which never shies away from theory, focuses on African and global trends. In the first four months of his appointment, Mavhunga revised his doctoral thesis and submitted it as a book manuscript titled "The Mobile Workshop: Mobility, Technology, and Human-Animal Interaction in Gonarezhou (National Park), 1850–Present" to the MIT Press. In addition to one positive review, the manuscript also led the MIT Press to approach Mavhunga to join a team of scholars in drafting a proposal for a new journal on "mobilities". His book manuscript, if successfully received, will also inaugurate a new book series on New Mobility History. The article "The Glass Fortress: Zimbabwe's Cyber-Guerrilla Warfare" (*Journal of International Affairs*, spring 2009) points to the trajectory his next book project is taking, this time focusing on the role of mobility in turning everyday objects and ideas into "unobvious weaponries" that critically shape today's world. Every summer, Mavhunga retreats to Makuleke, a village in rural Africa, to direct the Traditional Knowledge of African Villages project (which has now become the Village Innovations Program). He uses his free time to polish up his first book, write notes on the second, and complete journal articles to sell ideas on forthcoming book projects. Initially, the Earthwatch Institute–funded Traditional Knowledge project was intended to collect indigenous knowledge, build a village museum, and establish an institute in the village. After deploying systems thinking to map the village, its knowledge, opportunities, and constraints, Mavhunga resolved that what was needed was a program that included multiple decentralized projects, each involving its own fields of expertise, experts, and resources. This summer, after recession-induced withdrawals of funding, Mavhunga and Denise Ortiz (a teacher at the Spence School in New York City) used their personal resources to set up the library section and office of the museum, shipping top-tier books, computers, and other electronic resources for the purpose; to establish transatlantic school exchange programs to groom a new generation of global citizens with worldviews beyond their locale; and to establish a self-sustaining research staff to manage the museum library, office and data collection. They also established clear lines of connection between the project and preschools, primary and secondary schools, vocational colleges, universities, and local volunteer organizations. Mavhunga's ambition is to take US university and high school students to Makuleke over the summer to engage in innovative work with these students, fusing western and indigenous knowledge. The Makuleke experience is also feeding into his courses, such as STS.089 Wealth, Environment and Health in Africa STS .032 Energy, Environment, and Society and STS.434, which will focus on mobility, technology, and global society.

Professor Mindell's book, *Digital Apollo: Human and Machine in Spaceflight,* was published by MIT Press in May 2008. The book sold more than 10,000 copies and has been well

received by academics, NASA engineering groups working on the next lunar landing (it was even read by the NASA administrator), as well as a number of Apollo astronauts and engineers working in aviation and spaceflight. Mindell has been invited to speak on the book at academic venues as well as at commercial spaceflight startups, government agencies, and the US Air Force. A number of media outlets including the *Boston Globe*, the BBC, and NPR featured the book in their coverage of the Apollo 40th anniversary. In the spring of 2009 Mindell cotaught STS.471J Engineering Apollo: The Moon Project as a Complex System with Professor Larry Young of Aero/Astro. He also contributed to the planning of the Giant Leaps symposium put on by Aero/Astro to celebrate the 40th Anniversary of the *Apollo 11* landing. In December 2008, the Space, Policy, and Society Research Group organized by Mindell produced a white paper titled "The Future of Human Spaceflight," which made recommendations about developing human spaceflight policy after the space shuttle. Using the white paper, Mindell and his team briefed the Obama transition team and key White House and Congressional staffers in December 2008; the report was widely read and discussed, and helped influence the White House Office of Science and Technology Policy to begin a fundamental review of the US human spaceflight policy. A longer version of the white paper will be published by the American Academy of Arts and Sciences in fall 2009. Mindell is beginning a new research project called "Automation, Robotics, and Society" with initial funding from a gift by an MIT alumnus. This project will examine a host of issues that arise with automated and robotic systems in a comparative perspective across several domains, including human spaceflight, commercial aviation, general aviation, air force unmanned vehicles, undersea exploration, and surgery. The aim is to draw comparisons, develop general principles and theories, and develop new methodologies that mix engineering and social science to map human/automation issues in these and other systems. This project is already lining up partners from the air force, Lufthansa, Federal Express, Aurora Flight Sciences, and other industrial and government organizations. Mindell also chaired the MIT 150 Steering Committee, served on the Nominations Committee, and along with wife Pamela and daughter Lucia, continues to serve as housemaster of MIT Edgerton House.

Professor Postol continues his work on policy issues connected with missile defense systems in collaboration with the Science, Technology and Global Security Working Group, supported by the MacArthur Foundation and the Ploughshares Fund.

At the start of her second year at MIT, professor Natasha Schüll was named the Leo Marx career development assistant professor of the history and culture of science and technology. Over the year she put the final touches on her book manuscript, *Machine Zone: Technology Design and Gambling Addiction in Las Vegas,* now in production at Princeton University Press to be published in spring 2010. A chapter based on the book appeared in *The Inner History of Devices: Technology and Self*, edited by Sherry Turkle, Abby Rockefeller Mauzé professor of the social studies of science and technology. Schüll's research continued to receive attention in the national press, including the *Boston Globe, Philadelphia City Paper, Chicago Tribune, Chicago Daily Herald,* and WNYC's *Studio 360.* Schüll was invited to present her new research on neuroeconomics (supported by a grant from the National Science Foundation) at the Gordon Research Conference on Science and Technology Policy, "Governing Emerging Technologies,"

and at the Neuroscience and Policy Program at the Holtz Center for Science and Technology Studies at the University of Wisconsin. An article based on her new project is under review at the journal *Economy and Society,* which will publish her special issue proposal (with Dr. Kelty), "Making calculations: Contemporary assemblages of choice, deliberation and derivation." Schüll served as Undergraduate Officer for STS during the academic year, as well as Transfer-Credit Examiner, IAP coordinator, and Chair of STS Curricular Reform (a four-member committee). Schüll's teaching at MIT included STS.390 Graduate Writing Seminar, STS.091 Undergraduate Capstone Seminar, and a new HASS-D/CI-H undergraduate course, STS.010 Neuroscience and Society, for which she was awarded funding from the SHASS Dean's Course Development Initiative over the summer.

In 2008–2009, professor Hanna Rose Shell completed *Hide and Seek: Camouflage, Photography and the Media of Reconnaissance*, a book on the history and theory of visual concealment in science, art and war, to be published by Zone Books in 2010. A chapter based on the book appeared as an article, titled "The Crucial Moment of Photographic Deception," in the journal *Cabinet* in the spring 2009 issue. Shell also completed a book chapter titled "Ceramic Nature" to appear in *Between Market and Laboratory* (University of Chicago Press, 2010), edited by Ursula Klein and Emma Spary. Shell also reviewed publications on science and media for the journal *Isis*. During 2008–2009, Shell was on leave from MIT. She was affiliated as junior fellow at the Harvard Society of Fellows. In this position, Shell was awarded a $35,000 grant from the William F. Milton Fund to support her work on the history of strategic concealment and textile technologies, culminating in her book *Hide and Seek* and a media project *Blind*. Shell's film *Secondhand (Pepe)*, a documentary study of the history and culture of textile recycling technology, screened at educational institutions, museums and theaters throughout the United States, Europe and the Caribbean in 2008–2009. Distributed by Third World Newsreel, *Secondhand (Pepe)* was featured at the Museum of Modern Art (MOMA) as part of the program *Outstanding Shorts from International Festivals*, as well as during the *Documentary Fortnight* special series, also at MOMA. Shell lectured and conducting workshops coinciding with screenings of her film throughout Haiti: in Jacmel, Carrefour Feuilles, and Port-au-Prince (Open Society of Haiti, Fondation Connaissance et Liberté). Interviews with Shell aired on the National Public Radio shows *Here and Now* and *Word of Mouth*. *The Chronicle of Higher Education*, *Reason Magazine*, *InHabitat* and *Current TV* all featured her work; an extended interview and review appeared as "The Afterlife of American Clothes." Shell was the keynote speaker at the University of Chicago in the Department of Cinema and Media Studies (for a conference on filmic ecology) and an invited lecturer on environmental studies at Sarah Lawrence College in March 2009. Shell moderated the Office of the Arts "Disturbance Ecologies" Graduate Student Forum in February 2009, and in March collaborated with CAVS and the MIT Theater Department for *Antiretrovirals and Water Refugees: A Living Newspaper in Haiti*. In late Spring 2009, Shell received research and pedagogy grants to support her research initiative on the history of science filmmaking at MIT, drawing on the resources of the MIT Museum and several laboratories on campus. This research is aimed towards the development of her class STS.056 Science and the Cinema: Experiments on Film, a new undergraduate lecture class to be taught for the first time in spring 2010.

Professor Merritt Roe Smith continued his appointments as distinguished lecturer for the Organization of American Historians (by presidential appointment), honorary guest professor at the Kanazawa Institute of Technology, and coprincipal investigator of the NSF/IGERT–funded Program on Emerging Technologies at MIT. In addition to serving on several MIT committees (chair, Housemaster Search Committee for Next House, the Dean of Undergraduate Education Faculty Advisory Committee, and the Ad Hoc Advisory Committee of the Alumni Association Travel Program), Smith is housemaster of MIT's Burton-Conner undergraduate residence. He also continues to edit the Johns Hopkins Studies in the History of Technology series at the Johns Hopkins University Press as well as to serve on several outside advisory committees such as at the American Precision Museum, the American Museum of Textile History, WGBH's *American Experience*, and the Lincoln Prize at Gettysburg College. In addition to delivering keynote lectures at three National Endowment for the Humanities Landmarks of American History Teacher Workshops at the Tsongas Industrial History Center/UMass-Lowell (summer 2008), he also spoke at Long Island University (C.W. Post campus), Westfield State University, and the Rectory School (Pomfret, CT). Smith continues to work on his book about technology during the Civil War era and is about to embark on the 3rd edition of his jointly authored college textbook, *Inventing America: A History of the United States*. A coedited volume titled *Reconceptualizing the Industrial Revolution*, to which he is also a contributor, was recently submitted to the MIT Press.

Professor Turkle continues her work as director of the MIT Initiative on Technology and Self. The initiative's publishing program has been her priority over the past year. The third volume of her three edited collections on things and thinking, *The Inner History of Devices*, was published by the MIT Press in October 2008. It joins the first volume, *Evocative Objects: Things We Think With* (June 2007) and *Falling For Science: Objects in Mind* (June 2008). The initiative's National Science Foundation-funded project on Computation, Visualization, and Professions led to the publication in May 2009 of Turkle's *Simulation and Its Discontents,* also by MIT Press. Turkle's presentations in 2008–2009 included keynotes at conferences on new media at the Harvard Kennedy School and the Harvard Business School. She also gave the keynote address at the American Academy of Pediatric Psychology, the annual meeting of the Association of Museum Directors, and at the MIT Museum. In addition to other media coverage, Turkle's current research on teens, identity, and new media was featured in several *New York Times* articles this year. In May 2009, she was featured on National Public Radio's *On Point* and *Here and Now*. Professor Turkle is currently engaged in research on teens and connectivity technology as well as the psychological effects of robotic creatures specially designed as companions for children and the elderly. She is currently working on a book on the sensibilities associated with contemporary digital culture.

Professor Rosalind Williams served as interim department head of the STS Program during the fall 2008 term. She also was on the search committee for the executive director of Student Financial Services position at MIT and served on the MIT Museum Advisory Board and Collections Committee. Professor Williams was awarded an honorary doctorate at KTH Royal Institute of Technology, Stockholm, Sweden in November 2008. She was invited to give a lecture and workshop in the Visual Studies Program at the University of Southern California in March 2009. Outside of the MIT community,

Professor Williams is beginning a five-year term on the editorial board for Engineering Studies, beginning a three-year term on the Scientific Committee for the Interdisciplinary Internet Institute, Open University of Catalonia. She also is the chair of the da Vinci Prize Committee for the Society for the History of Technology and has been an invited member of a reflection group on financial crisis at the Calouste Gulbenkian Foundation, Libson. Williams worked on the publication, "Second Empire, Second Nature, Secondary Worlds: Verne and Baudelaire in the Capital of the Nineteenth Century," in *Urban Assemblages: How Actor Network Analysis Changes Urban Studies*, edited by Thomas Bender and Ignacio Farias, Routledge, which is currently in press.

David A. Mindell
Director
Frances and David Dibner Professor of the History of Engineering and Manufacturing
Professor of Engineering Systems

More information about the Program in Science, Technology, and Society can be found at http://web.mit.edu/sts/.