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Service to Local, National, and World Communities

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Service to Local, National, and World Communities

Founded with the mission of advancing knowledge to serve the nation and the world, MIT has been strongly committed to public service from its start. Members of the MIT community helped build the Boston Public Library in the late 19th century and dam the Charles River early in the 20th century. Research and development during World War II included radar systems; submarine and aircraft detection systems; a long-range navigation scheme based on radar principles; the SCR-584 radar for directing anti-aircraft fire; the Ground Controlled Approach System for landing aircraft in low visibility; and the Draper Gun Sight which positions a gun at the proper lead angle to fire at moving targets.

In 1985, Eric Chivian, a physician in MIT's medical department and a founder of International Physicians for the Prevention of Nuclear War, shared a

Nobel Peace Prize for the group's service to humanity. More recently, Amy Smith, an MIT alumna and mechanical engineering instructor in MIT's Edgerton Center, won a MacArthur "genius grant" for her commitment to inventing simple technologies to solve problems in the world's poorest places, such as low cost water-purification systems, or a simple and efficient technology for grinding grain.

While MIT faculty, students, and staff regularly engage in conventional projects such as raising money for hurricane victims, renovating old housing, or restoring local nature reserves, MIT's scientific and technological orientation gives its public service outreach a particular emphasis. Many of its public service programs are specifically devoted to inventing new technologies and applying new knowledge that will advance social well-being.

MIT Public Service Center

The Public Service Center (PSC) offers MIT students multiple ways to assist communities beyond MIT while expanding their own education and life experiences. The guidance, resources, and support offered by the PSC help students to identify public service options that suit their passions and abilities.

The PSC helps students gain hands-on experiences that serve communities and the students themselves in life-transforming ways. Through fellowships, internships, and grants, the IDEAS Global Challenge, programs such as Four Weeks for America and the Freshmen Urban Program, community service work-study positions, and advising resources, students have the opportunity to engage in a variety of opportunities.

Fellowships, Value-Added Internships, and Grants

In locations as near as Boston or as far as India, there are many opportunities to work on community issues, whether designing community spaces for domestic violence survivors in Boston, scrutinizing labor practices in the electronics industry in Mexico, or testing an electronic pill box in India.

IDEAS Global Challenge

Students form teams to work with a community partner to design and implement innovative projects that improve the quality of life in communities around the world. Since 2001, the IDEAS Global Challenge has awarded over \$400,000 to more than 75 teams to make their ideas a reality. As a result of implementation funds awarded to teams, communities around the world have directly benefited from these innovations.

Programs, Planning, and Volunteering

Through local outreach programs, MIT students can work with a K–12 science classroom, serve as a mentor to adolescents in math and science, or teach a child to read. In the Four Weeks for America program, students work with Teach for America teachers during the Independent Activities Period to help develop innovative ways to teach science and math and increase classroom learning. Student Leaders in Service, part of AmeriCorps, allows students to volunteer in the community in exchange for an education award. Also, PSC staff advise students about international and local volunteer opportunities, service group management, grants and proposal writing, and other areas that help MIT students and groups to participate in community service.

Key Programs

Abdul Latif Jameel Poverty Action Lab

The Abdul Latif Jameel Poverty Action Lab (J-PAL) is a network of affiliated professors around the world who are united by their use of randomized evaluations to answer questions critical to poverty alleviation. J-PAL's mission is to reduce poverty by ensuring that policy is based on scientific evidence. J-PAL works to achieve this by conducting rigorous impact evaluations, building capacity, and informing policy. J-PAL is organized both by regional offices and by research themes called Programs. J-PAL's headquarters is a center within the MIT Department of Economics, with independent regional offices in Africa, Europe, Latin America, and South Asia that are hosted by local universities. J-PAL's programs include agriculture, education, energy and environment, finance, health, labor markets, and political economy and governance.

D-Lab

D-Lab is a program that fosters the development of appropriate technologies and sustainable solutions within the framework of international development. D-Lab's mission is to improve the quality of life of low-income households through the creation and implementation of low-cost technologies. D-Lab's portfolio of technologies also serves as an educational vehicle that allows students to gain an optimistic and practical understanding of their roles in alleviating poverty. D-Lab seeks to give each student a deep and meaningful experience and is committed to making a long-lasting impact in the communities where they work. This cannot happen remotely, and thus D-Lab provides an opportunity for fieldwork to each student and maintains strong relationships with partner organizations. As a result, D-Lab offers a very unique educational opportunity for university students. D-Lab is part of the International Development Initiative at MIT (see following entry).

International Development Initiative

International development is a growing area of interest for students and faculty and a key part of MIT's goal of advancing global education. The International Development Initiative (IDI) contributes to the vibrant international development ecosystem at MIT. IDI aims to serve the MIT community through four core functions: programs, mentoring, get involved, and networking. One of the IDI programs is the annual Muhammad Yunus Innovation Challenge to Alleviate Poverty. The program highlights a pressing need of the world's poor and enables MIT students to develop solutions through a variety of mechanisms, including Public Service Fellowships, the IDEAS Global Challenge, and D-Lab.

International Development Grants

These grants support international development projects that involve MIT students. Faculty, students, and other MIT community members can use them to cover materials, travel, and other expenses in projects that serve communities in developing regions.

Legatum Center for Development and Entrepreneurship

The Legatum Center for Development and Entrepreneurship at MIT was founded on the belief that economic progress and good governance in low-income countries emerge from entrepreneurship and innovations that empower ordinary citizens. The center administers a highly competitive fellowship program for graduate students who intend to launch enterprises in developing countries. The center also convenes an annual conference, offers educational programs, and awards seed grants to support student teams working on innovative projects in emerging economies.

Selected Recent Projects

Cell Phone Applications in Developing Countries

With more than 4 billion users worldwide, cell phones have become one of the world's most readily available technologies. MIT students are using these common devices to bring life-changing technology to developing countries. Students from MIT Media Lab's NextLab program have created an open-source medical diagnosis application called Mobile Care, or Moca. The application gives residents of underdeveloped rural areas easy access to diagnostic medical care. Zaca, also a NextLab project, aims to economically empower farmers in the Mexican state of Zacatecas. The application connects farmers to a peer-to-peer network to help them obtain fair pricing for their crops. Yet another NextLab project, Celedu, short for cellular education, is teaching children in rural Indian villages to read using cell phone-based games and quizzes. Adnan Shahid, a fellow at the Legatum Center for Development and Entrepreneurship, is developing a cell phone recycling program in Pakistan. Another Legatum fellow, Ravi Inukonda, is developing a program to bring mobile services, such as updates on water and power shutdowns and current market rates for produce, to rural phone users in India.

Gasoline Storage Tank Leak Detection

Developed by Andrew Heafitz, a graduate student in Mechanical Engineering, and Carl Dietrich, a graduate student in Aeronautics and Astronautics, this new low-cost technology enables owners of gasoline tanks in developing countries to continually test the water in the tanks' monitor wells, thus reducing the risks of environmental and health damage caused when the tanks leak. If the system detects gasoline in the well, a window in the well cover changes from green to red; and because they no longer have to unbolt the cover, tank owners can check wells for contamination much more frequently. The new system replaces the need for both unaffordable electronic detection equipment and the tedious process of testing water manually. A simple practical, and inherently safe mechanical system, the technology is particularly useful for a very cost-sensitive industry.

Inexpensive Glasses: Sight for the Poor

As many as 1.4 billion people around the world need corrective lenses but can't afford them. Not only is their quality of life significantly reduced, but their productivity also slows, they are more prone to accidents, and, in some cases, they can't function. As an alternative to far more expensive glass molding machines currently in use, MIT Media Lab graduate student Saul Griffith invented a portable machine with a programmable mold that forms a low-cost acrylic lens in the exact shape required in about 10 minutes.

Monitoring Drug-Resistant Tuberculosis with Personal Digital Assistants

Treatment of drug-resistant tuberculosis is a two-year process that involves close monitoring of treatment schedules. In areas without electronic records, this process generates huge amounts of paperwork. Joaquin Blaya, a Harvard-MIT Health Sciences and Technology Ph.D. student, worked with MIT faculty and experts at Brigham and Women's hospital to create a personal digital assistant application to track these treatment schedules. The program's goal was to improve doctors' access to timely and accurate test results. When it was launched in Lima, Peru, the application reduced the average time it took test results to reach doctors from 23 days to 8 days. The program has since been implemented in all five of Lima's districts.

Selected Recent Projects

(continued)

Passive Incubator for Premature Infants

Every year, 4 million infants die within the first 28 days of life. Of this number, 3.9 million live in the developing world. Complications of prematurity—most frequently heat loss and dehydration—cause 24 percent of these deaths. Electric incubators can minimize this problem, but in the developing world the lack of electricity in most rural regions and the frequent loss of power in urban areas render this technology worthless. Using phase-change material that once heated, for example by wood or coal fire, maintains its temperature for 24 hours, and devising ways to use indigenous raw materials for an outer shell, a team of MIT students are designing a low-cost incubator that will operate without electricity. The students now are reviewing their design with Médecins Sans Frontières in Sri Lanka, and once they have built a working model, they will meet with Sri Lankans to implement field tests.

Portable Pedal-Powered Corn Processor

In Tanzania and other parts of Africa, processing the corn harvest is a labor-intensive process that can last as long as two weeks. A bicycle-powered machine, adapted by MIT undergraduate Jodie Wu, can make this process up to 30 times faster. Wu designed the bicycle add-on as a D-Lab: Design class project, creating a machine that was both affordable and portable. Previous models had required complete conversion of a bicycle, making the bike unrideable. Wu refined the corn sheller so it could be attached to the chain of a regular bicycle and then later removed. Wu then spent a summer visiting villages in Tanzania introducing the device.