Educational Outreach:

- Graduate Fellowship Program
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- Ceres Connection

Community Service and Giving:

- Fund-raising
- Donating
Community outreach and education programs are an important component of the Laboratory’s mission. From the beginning, our outreach initiatives have been inspired by employee desires to help people in need and to motivate student interest and participation in engineering and science. There are many opportunities to participate. The Laboratory’s educational outreach initiatives offer the opportunity to provide in-classroom and Science on Saturday presentations to regional K–12 schools and to participate in mentor-based internships for college and graduate students preparing for science and technology careers. There are also opportunities to be a part of the Laboratory’s volunteer base to serve as judges and advisors for local and regional science fairs and science-based activities. The Laboratory is committed to giving back to the community by sponsoring fund-raising and community service events in support of the United Way, the National Multiple Sclerosis Society, the Salvation Army, and other charitable organizations. I encourage the involvement of the entire Lincoln Laboratory community and welcome suggestions on how we might improve our outreach activities.

Eric D. Evans
Educational Outreach Programs

Graduate Fellowship Program

These fellowships are offered to science and engineering students pursuing MS or PhD degrees in universities where Lincoln Laboratory is less well known. While exposing the student to the wide array of research and development activities available at Lincoln Laboratory, the fellowship program awards funds to support a Fellow’s stipend, supplement a graduate assistantship, or subsidize other direct research opportunities in the final phases of students’ thesis research. This program, which began in 2002 with five schools, has grown to include ten schools, seven MS students, and 16 PhD students. Plans are underway to expand this program, which is essential to ensuring that the Laboratory attracts, motivates, and develops highly talented staff.

MIT Lincoln Laboratory Logo

The background in the figure above is the MIT Lincoln Laboratory logo, indicating Lincoln Laboratory support of the universities in the Graduate Fellowship Program. The logo comprises a Lissajous figure based on the superposition of two simple harmonic vibrations, paired with two L’s, rotated 180 degrees with respect to each other, that stand for Lincoln Laboratory. It is meant to connote harmony, order, and stability.
Undergraduate Diversity Awards

Lincoln Laboratory established the Undergraduate Diversity Awards to enhance opportunities for women and minorities pursuing bachelor’s degrees in engineering and science. The awards take different forms depending upon the choice of the individual school, but include tuition assistance, support for technical paper presentations, and funds for independent research projects. The schools participating are Bryn Mawr College, Howard University, Mount Holyoke College, New Mexico State University, North Carolina Agricultural and Technical University, Smith College, Spelman College, Stevens Institute of Technology, the University of Puerto Rico, and Wellesley College.

John Stueve of the Advanced Capabilities and Systems Group and student Hana Adaniya check connections on a recording test bed.
Lincoln Scholars Program

MIT Lincoln Laboratory is committed to the continued professional growth of its staff members, and the pursuit of higher degrees is always encouraged. The Lincoln Scholars Program enables Technical Staff members to attend master’s or doctoral courses at local colleges, thereby achieving academic goals while pursuing career goals. Candidates for this competitive program must propose research relevant to Laboratory programs and possess previous work performance and professional goals that mesh with the Laboratory’s mission. Scholars in the program are monitored by the Lincoln Scholar Committee to assure maximum technical development benefiting both the Laboratory and the scholar.

AFCEA International Program

Lincoln Laboratory participates in the Armed Forces Communications and Electronics Association (AFCEA) International Program. AFCEA provides educational incentives and assistance for students engaged in information management, communications, and intelligence efforts while fostering excellence in science. This association promotes opportunities for students from groups underrepresented in the fields of its interests and places students in contact with companies and laboratories that can provide career options.

Scott Croteau of the Fabrication Engineering Group discusses the effects of floor plan modifications with students.
University Cooperative Education Students and Summer Interns

Technical groups at Lincoln Laboratory employ over thirty co-op students from MIT, Northeastern University, and other area colleges. Science, engineering, mathematics, and computer science interns work full time with a mentor in the summer and part time while they take course work. Co-ops build prototypes, help solve problems, and test applications in the field. Many times, this relationship continues after graduation when the student is hired as Lincoln Laboratory Technical Staff. These programs enrich the Laboratory’s base of highly qualified scientists and engineers, and reveal the variety of research opportunities offered at the Laboratory while, most importantly, providing a hands-on learning environment for the student.

Dr. Pablo Hopman of the Advanced Space Systems and Concepts Group with MIT summer intern Richard Sinn develop the readout electronics for an 880 Mpixel video camera.
WPI Major Qualifying Program

Worcester Polytechnic Institute (WPI) collaborates with Lincoln Laboratory as one of many establishments for their Major Qualifying Program (MQP), which prepares students to be science and technology professionals with real-world training. The Qualifying Project demonstrates application of skills, methods, and knowledge of the discipline to the solution of a problem that would be representative of the type encountered in one’s career. MQP activities encompass research, development, and application in a particular subarea of the scientific field; involve analysis or synthesis; and can be experimental or theoretical. In many cases, especially in engineering, MQPs involve capstone design activity. MQPs are also very valuable for access to state-of-the-art resources and contacts for future professional work. Graduates of this program possess a solid background in information technology as well as strong problem-solving and communications skills. In 2007 alone, sixteen students have successfully completed their programs at Lincoln Laboratory.

Thomas Huynh and Krystal Parker, seniors at WPI, perform structural analysis for vibration testing in the Aerospace Engineering Group.
Introducing High-School Girls to Engineering

This relatively new program is offered by MIT Lincoln Laboratory through Worcester Polytechnic Institute in an effort to introduce the field of engineering to young girls. This one-day event allows high-school girls to visit the science departments of MIT, observe cutting-edge research and demonstrations in laboratories, hear from faculty women in the field, and interact with female engineering students on campus. This program enables area participants to attend the event free of charge, significantly increasing the number of participants in an attempt to expose more girls to careers in engineering.

Dr. Craig Keast explains the work of the Advanced Silicon Technology Group to three high-school students during a tour of the Microelectronics Laboratory.
LIFT² Program

MIT Lincoln Laboratory joins other companies in the area by participating in the Leadership Initiatives for Teaching and Technology (LIFT²) Program. This program, run by the Metro South/West Regional Employment Board, seeks to equip middle- and high-school teachers with a technology center externship in an effort to improve the academic preparation of students for math- and science-related jobs in the 21st century, and to encourage high-school students to pursue careers in science, technology, engineering, and math. The teachers develop appreciation for the current skill sets needed in today’s technological workplace. Upon returning to the classroom, the teacher’s students gain insight to exciting uses of science and math.

Dr. Thomas Jeys of the Laser Technology and Applications Group and Lexington High School physics teacher Mark Zagaeski (LIFT² teacher) discuss performance of their bioaerosol detector.
**Science on Saturday**

This program features science demonstrations by MIT Lincoln Laboratory technical staff on site. *Science on Saturday* events have been well attended and are growing in popularity. Over 1,400 local K–12 students, their parents, and teachers have enjoyed demonstrations on the principles of cryogenics and liquid nitrogen, electricity and magnetism, properties and applications of sound waves, the “magic” of chemistry, optics and lasers, and plasma and ions. Upcoming events feature hands-on engineering activities, robotics, archaeology, and meteorology.
Science Seminar Series

Under the Science Seminar Series, technical staff have visited local K–12 schools, giving presentations on science and engineering to over 5,000 students. Topics have included cryogenics, electronic circuits, everyday chemistry, paleontology, biotechnology, optics, astrophysics, forms of energy, egyptian hieroglyphs, and many others. As part of this outreach, the Laboratory also conducts tours for local high-school students to provide a behind-the-scenes look at a career in electrical engineering, mechanical and aerospace engineering, biology, chemistry and materials science, physics, and optics.

Dr. Todd Rider of the Biosensor and Molecular Technologies Group teaches sixth graders at a local school to identify and date different types of fossils.
FIRST Robotics Competition

The FIRST (For Inspiration and Recognition of Science and Technology) Robotics Competition is designed to help high-school students discover how interesting and rewarding the life of engineers and researchers can be. The Competition challenges teams to solve a common problem in a six-week time frame using a standard “kit of parts” to build a unique, high-tech robot, which competes against other robots in performing a specific goal. The Competition redefines winning in terms of excellence in design, team spirit, gracious professionalism and maturity, and the ability to overcome obstacles. Lincoln Laboratory enjoys its sponsorship of the Boston FIRST Regional Robotics Competition (www.bostonfirst.org) since we share the FIRST values of teamwork, professionalism, and the pursuit of excellence in technology. This annual Competition reaches over 28,000 students on 1,133 teams in 33 events in the U.S., Canada, and Israel. Last year, Boston hosted its FIRST regional event with over 40 high-school teams.

The students used joysticks to command their robots in a challenge that involved using the machines’ mechanical arms to pick up plastic inner tubes and place them on steel pins.
The Ceres Connection

MIT Lincoln Laboratory has partnered with Science Service to promote science education through The Ceres Connection program, named after Ceres, the first and largest asteroid discovered. This program names minor planets after students in fifth through twelfth grades and their teachers. Students and teachers are selected through such Science Service competitions as the Discovery Channel Young Scientist Challenge, the Intel Science Talent Search, the Intel International Science and Engineering Fair, and the Intel Excellence in Teaching Award. All minor planets named in the Ceres Connection program have been discovered by Lincoln Laboratory’s Lincoln Near Earth Asteroid Research (LINEAR) project. The LINEAR project demonstrates the application of technology originally developed for the surveillance of Earth-orbiting satellites to the problem of detecting and cataloging near-earth asteroids/objects that threaten Earth.
Community Service and Giving Programs

Fund-raising

Lincoln Laboratory is dedicated to giving back to the community in partnership with the MIT Public Service Center by sponsoring these fund-raising events:


- New book sale profits for the United Way and MIT Community Service Fund

- Separate 5K Fun Runs for the United Way and MIT Community Service Fund, Special Olympics, and an annual Fun Run to support Food for Free

- Annual payroll deduction program to facilitate employee donations to the United Way and the MIT Community Services Fund

- Hike and Bike Tour benefiting National Multiple Sclerosis Society. This event was so successful that Lincoln Laboratory won the prize for Top Rookie Corporate Fund-raising Team. Our 6-member team has grown to include 24 cyclists and hikers
Running in the 5K Fun Run to support Food for Free.

The Lincoln Laboratory Hike and Bike Tour fund-raising team.
Donating

The Lincoln Laboratory Community Outreach Committee also organizes several opportunities to donate either time or goods for a variety of charities through such events as

- Annual Toys for Tots donations for needy children
- Produce and canned-goods donations for the Food for Free organization, which collects produce from local farms, farmers’ markets, and grocery stores and delivers it to over 40 human-service agencies and 50 homes
- Clothing drives for the Salvation Army, Cambridge and Somerville Program for Alcoholism Rehabilitation (CASPAR), On the Rise, and Shelter, Inc., primarily supporting homeless men and women
- Employee donation opportunities to support disaster relief nationally and locally in times of crisis or urgent need
- Annual blood drives in coordination with the American Red Cross
- Annual and ongoing Support Our Troops drives, for which the Community Outreach Committee personally collects, packs, and sends goods for soldiers stationed overseas in Iraq and Afghanistan. The latest annual drive resulted in 81 large boxes being sent. A total of 261 boxes have been sent
- The Lincoln Laboratory Giving Tree, a holiday gift drive that provides needy local veterans, single parents, elderly, and children with gifts from MIT community members
Dr. Laura Bortolin of the Biodefense Systems Group and JoAnne Knoll of the Intelligence, Test, and Evaluation Group prepare to ship boxes packed by Lincoln Laboratory staff for the Support Our Troops drive.