

Dean, School of Engineering

The School of Engineering encompasses a community of some of the world's brightest minds and most inventive thinkers—about 60 percent of MIT's undergraduate majors, about 45 percent of MIT graduate students, and over one-third of the Institute's faculty. Third-party ratings routinely rank the School of Engineering first in the nation, both at the undergraduate and graduate levels.

During AY2004, the School continued efforts in several major initiatives that underscore its commitment to shaping engineering education and research. This report presents selected highlights of significant achievements. It also includes information on outreach, notable awards and events, organizational updates, personnel changes, and school statistics. The reports of the School's departments, divisions, laboratories, centers, and programs provide additional information about their activities over the past year.

Continuing Initiatives

The School strives to address the societal challenges of the 21st century through leadership anchored in technical excellence and innovation. It has identified seven programmatic themes for special emphasis, toward which continuing efforts were directed this year:

- Biological engineering
- Information engineering (information, computation, and communication)
- Engineering systems
- Tiny technologies (miniaturization, microtechnologies, and nanotechnologies)
- Emerging technologies
- Innovations in education that include the use of new technologies
- Increasing diversity within the School, particularly among the faculty

The “Big Four Os”

We often refer to the first four of these initiatives colloquially as the “Big Four Os” (bio-, info-, macro-, nano-). Selecting noteworthy accomplishments in these four areas, the school highlights the following:

- *Bio-*: In December the MIT Faculty unanimously voted to create a new undergraduate degree (SB) in chemical engineering (10-B chemical-biological engineering) and in February endorsed the creation of an Institute-wide PhD program in computational and systems biology. The former will prepare students for careers that could include activities in bioprocess engineering, biochemical reaction engineering, bioreactors and resulting bioseparations, biocatalysis, and metabolic engineering. Founded by the Biological Engineering Division, the Department of Electrical Engineering and Computer Science, and

the Department of Biology, the new PhD program will integrate concepts and ideas from the biological sciences, engineering disciplines, and computer science to address problems in modern research and train students to take leading roles in this emerging field.

- *Info-*: In May MIT celebrated the opening of the Ray and Maria Stata Center for Computer, Information, and Intelligence Sciences, which combines a state-of-the-art technological infrastructure for research with experimental centers for learning, along with additional spaces geared to promote an active community life.
- *Macro-*: The School's Engineering Systems Division (ESD) hosted two significant events this year. In October, ESD provided a forum for representatives from several of the most prestigious engineering programs in Europe and the US to discuss the emerging field of engineering systems. In March, over 360 leading academics, industry and government representatives, and students gathered for an engineering systems symposium to explore and develop ways to work together.
- *Nano-*: This spring the School established a new professorship of emerging technology named for Fariborz Maseeh '90. Designated for a faculty member who is exploring new technologies considered by the School to be one of its top research priorities at the time of appointment, the first Maseeh professorship went to Professor Rafael Reif, a leader of the School's Tiny Technologies initiative and soon to become head of the Department of Electrical Engineering and Computer Science. Professor Reif's area of expertise is microelectronics, with a recent emphasis on future microelectronics interconnect technologies and on environmentally benign microelectronics fabrication.

Emerging Technologies

Started in 2002 with a \$20 million gift from Jaishree and Gururaj "Desh" Deshpande, the School's Deshpande Center for Technological Innovation supports leading-edge research on emerging technologies at MIT and helps bridge the gap between the laboratory and the marketplace. Through research grants, market mentoring, Ignition Forums, faculty entrepreneurship workshops, and its annual IdeaStream Symposium, the center cultivates interactions between the Institute and the New England emerging-tech community and helps accelerate the commercialization of innovation at MIT. This year the center added an Innovation Showcase to its suite of offerings that cultivate relationships with venture capitalists, entrepreneurs, and innovative companies that may be a good fit for new technologies being developed at MIT. In collaboration with the MIT Venture Capital and Private Equity Club, the center also launched a new program, Innovation Teams (I-Teams). A course taught jointly through the MIT Sloan School of Management and the School of Engineering, I-Teams matches graduate students with Deshpande Center grant recipients (in the process giving them contact with venture capitalists and entrepreneurs) and helps them prepare robust business plans for new ventures based on MIT technologies. See the Deshpande Center report for more information.

Additional efforts in support of invention and innovation are undertaken by the Lemelson–MIT Program (LMIT). With support from the Lemelson Foundation, LMIT seeks to raise the stature of inventors and innovators and foster invention and innovation among young people. LMIT annually awards a series of prizes recognizing outstanding achievement in invention and innovation and sponsors ongoing public education and informational activities designed to raise awareness about the importance of invention to the American economy. For more on LMIT’s activities in AY2004, see its separate report.

Educational Innovation and Diversity

The School of Engineering has distinguished itself as a leader in engineering education, including efforts to increase diversity in both the student body and the faculty. The School has made steady progress in increasing the numbers of women and minority faculty members in our ranks. Nineteen women have joined our faculty in the past three years; of the 357 full-time faculty members in our eight departments and two divisions, 50 are women. In the coming fall, the School will add three minority faculty members, bringing the total to 18 who are black or Puerto Rican. To foster greater diversity in the graduate student population, the School of Engineering, together with the Graduate Student Council and the Provost’s Office, is spearheading a recruiting program called CONVERGE, an invitational graduate preview weekend for college juniors and seniors from underrepresented and underserved groups who have excellent academic records and serious interest in research. Through its diversity initiative, the School plans to continue to create a more diverse community, especially at the graduate student and faculty levels.

The following section presents highlights of a number of major efforts undertaken in educational innovation and diversity through a variety of directed activities and programs, as well as key participation in Institute-wide initiatives: Engineering Special Programs, iCampus, the Office of Educational Innovation and Assessment, the Office of Faculty Diversity Searches, and OpenCourseWare.

Engineering Special Programs

The School of Engineering offers several programs: the Minority Introduction to Engineering, Entrepreneurship and Science (MITE²S), the Saturday Engineering Enrichment and Discovery (SEED) Academy, the Science Technology Engineering and Math (STEM) Program, and the Undergraduate Practice Opportunities Program (UPOP).

Minority Introduction to Engineering, Entrepreneurship, and Science

This year the MITE²S program selected 74 high school seniors to participate in its rigorous six-week summer session. Nonunderrepresented minorities constituted approximately 11 percent (8) of the participants. The selected students came from 24 states and Puerto Rico. The program maintained the three new courses it piloted in 2003: Biology, Advanced Physics (which included topics in quantum physics), and a project course in genomics, now in the second year of a five-year National Institutes of Health

(NIH) grant with the Broad Institute Center for Genome Research. In addition, a mix of corporations, foundations, MIT alumni, and parents of former participants made major contributions in support of the 2004 session. The program endowment in pledges and gifts remains at \$4.97 million. Of the 76 high school students who attended MITE²S last year, 30 will attend MIT this year, tying a previous record.

Saturday Engineering Enrichment and Discovery Academy

Now in its third year, the SEED Academy provides academic enrichment and technical career exploration opportunities to Boston and Cambridge public high school students. The seven-semester program is designed to strengthen participants' fundamental mathematics, science, and communication skills using an original, hands-on curriculum.

In spring 2004, the program expanded to accommodate 25 9th graders who joined 15 returning 10th graders and 20 11th graders. Next spring, the program will accept a new cohort of 9th graders, bringing the program to its full capacity of 80 students. Approximately \$190,000 in grants from private and corporate foundations funded AY2004. In addition, the program received its first endowment gift of \$50,000.

Science Technology Engineering and Math Program

The School of Engineering launched the STEM Program in 2004 for 45 Boston middle school students. The program is a nonresidential, year-round academic enrichment and mentoring program for local public school students entering 6th through 9th grades. STEM consists of three components: a five-week summer academic phase at MIT that aims to develop mathematical thinking and problem-solving abilities in preparation for high school "gateway" math and science courses; an academic year mentoring program in which each STEM Program students are paired with an MIT student in a monthly series of structured and unstructured social and academic exchanges; and parent workshops designed to empower parents to advocate for and equip their children for school success. The STEM Program is a collaboration with the Washington, DC-based Center for the Advancement of Hispanics in Science and Engineering Education. STEM is funded by a grant from the Lord Foundation and a three-year grant from the Hayden Foundation.

Undergraduate Practice Opportunities Program

The School created UPOP to better prepare MIT's engineering sophomores for the multifaceted nature of engineering practice. The program consists of two major phases: the Independent Activities Period (IAP) Engineering Practice Workshop and the Summer Practice Experience. With assistance from engineering professionals, faculty from the School of Engineering and the Sloan School of Management delivered instruction for the IAP Engineering Practice Workshop on topics including robust engineering design, system dynamics, leadership, and communication. At the conclusion of the second year of a five-year, \$2.5 million pilot program funded by the Deshpande Center for Technological Innovation, 98% of UPOP summer employers said they would like to rehire their UPOP intern. UPOP kicked off its third year by increasing in size to involve 181 students from all eight engineering departments. Even with the

program's rapid growth, the 2004 recruiting effort resulted in 94% of UPOP students receiving one or more internship offers, and 90% will engage in internships as part of the Summer Practice Experience. Throughout the spring term, UPOP also sponsored several career development workshops that involved the participation of many MIT alumni.

iCampus

Initiated in October 1999 as a five-year research alliance between MIT and Microsoft Research, iCampus sponsors innovative projects that explore new ways to use information technology to enhance learning. One of the most exciting aspects of iCampus is its scale, which brings together faculty and student expertise from across traditional academic departments and disciplines. iCampus projects have contributed to significant changes in teaching and have had widespread impact at MIT, such as the following:

- Over 300 people, including more than 20% of MIT's engineering faculty and instructors, have worked on iCampus research projects.
- Nearly 100 courses at MIT have been involved in iCampus projects, affecting more than 75% of the graduate and undergraduate student body.
- About 400 faculty, staff, graduate, and undergraduate students—10% of all MIT faculty and over 20% of School of Engineering faculty—have worked on an iCampus project.

For more on iCampus activities in AY2004, see its separate report.

Office of Education Innovation and Assessment

To reflect the expanding activity in education innovation and assessment, the School changed the existing Office of the Director of Education Assessment to the Office of Education Innovation and Assessment (EIA). The EIA broadly supports educational activities in the school through research, pilot programs, and sharing of best practices.

With representation from across the school, the Engineering Council for Undergraduate Education (E-CUE) aims to identify, develop, implement, and disseminate key school-wide concerns and best practices in curriculum, pedagogy, and assessment in engineering education. This past year, through focus groups and a written survey of students as well as faculty interviews, E-CUE identified crucial factors for learning in engineering lectures and labs and shared best-practice teaching methods across the School. The results are now being incorporated into a teaching guide for the School of Engineering to be distributed to new engineering faculty.

The EIA and E-CUE have created a web-based interactive tool for faculty to enable development of individualized subject-specific teaching/learning questions that can be used in conjunction with the new survey form. They also created a website (<http://web.mit.edu/engineering/ecue>) to disseminate best-practice engineering teaching and assessment methods.

This year the EIA worked with faculty and the MIT dean of undergraduate education in writing a successful proposal to the National Science Foundation for engineering and service learning. We expect this effort to be expanded next year into a school-wide curriculum development project on engineering and the community.

Each year the School provides educational innovation grants for cross-cutting, multidisciplinary courses. This year the school provided over \$700,000 in funding for four projects that support these themes:

- Fundamentals of Advanced Energy Conversion, a school-wide engineering subject in an emerging technology area
- Statistics with Engineering Applications, a school-wide subject in a core engineering area (two years)
- Colossal Failures in Engineering, a school-wide subject that introduced engineering to first-year students (two years)
- Bioinstrumentation and Measurement Laboratory, a joint subject offered by three departments in biotechnology.

Office of Faculty Diversity Searches

Academic year 2004 was the second year of operation for the Office of Faculty Diversity Searches (OFDS). To help make the academic pipeline more robust and diverse, it has implemented and developed programs to recruit minority graduate students and strengthen relationships with minority engineering organizations. OFDS continues to work with faculty search committees on wide-ranging, thorough, and thoughtful search processes for underrepresented minorities and women and publishes a website (<http://web.mit.edu/engineering/diversity/faculty/>) featuring achievements of diverse faculty members and significant school diversity events. The school now has one of the most diverse engineering faculties in the country. During FY2004, our numbers grew to 18 black or Hispanic and 50 women faculty members (increases of 17% and 14%, respectively).

OpenCourseWare

The School of Engineering has actively participated in OpenCourseWare (OCW), the ambitious MIT initiative to place nearly all of MIT's course materials on the web, for the world, for free. Of about 700 courses in the current online archive of OCW courses, nearly 300 are in the School of Engineering.

New Initiative: Electronic Outreach to Alumni

In January the School launched a new initiative, an electronic newsletter entitled Engineering Our World, that reaches over 40,000 alumni of the school. Planned for bimonthly distribution via electronic mail and on the web (see <http://mit.edu/engineering/enews/>), this free newsletter describes some of the School's work at the leading edge of technological change and provides news and articles on the School's

major initiatives. The first three issues focused on biological engineering, engineering systems, and educational innovation.

Notable Events

\$50K Entrepreneurship Competition

In its 15th year, the MIT \$50K Entrepreneurship Competition chose as its winner this year a team called Active Joint Brace that was supported by the Deshpande Center for Technological Innovation and its Innovation Teams program. The company developed a business plan for an affordable, wearable, noninvasive electromechanical orthotic device that augments physical capability in people with spinal cord injuries and other disabilities by working in tandem with existing muscles.

Institute for Soldier Nanotechnologies Design Competition

In February MIT's Institute for Soldier Nanotechnologies held its first annual Soldier Design Competition, awarding \$10,000 in prizes to three winning teams for their designs of new devices, clothing, or other technologies to aid the US soldier. This year's first-place winner featured a rocket-launched aerial photography system.

Organizational Reviews and Changes

Ocean Engineering

The School continued the process begun in FY2003 of reviewing the possibility of merging the Department of Ocean Engineering with another department as a means to preserve the Institute's long-standing position of leadership in teaching and research in ocean engineering. The process involved extensive deliberations with members of the MIT Ocean Engineering and Mechanical Engineering communities, the visiting committees of both departments, and other selected external communities, committees, and individuals.

Personnel

On July 1, 2003, Professor Peter Dedon became the associate director of the Biological Engineering Division.

Professor Jeffrey Freidberg, who headed the Department of Nuclear Engineering for six years, left that position as of July 1 to return to full-time teaching and research.

Professor Linda Griffith, a faculty member with dual appointments in the Department of Mechanical Engineering and the Biological Engineering Division, was named director of the Biotechnology Process Engineering Center (BPEC) as of September 1, 2003.

On July 1, 2003, Professor Ian Hutchinson became the head of the Department of Nuclear Engineering.

The holder of dual appointments in the Department of Chemical Engineering and in the Biological Engineering Division, Professor Douglas Lauffenburger, the Uncas and Helen Whitaker professor in health sciences, technology and management, assumed the sole directorship of the Biological Engineering Division in July 2003. He had served as founding codirector of the division and as director of BPEC for the previous five years.

Professor Dava J. Newman, who holds dual appointments in the Department of Aeronautics and Astronautics and in the ESD and is a MacVicar Faculty Fellow, was named director of the ESD's Technology and Policy Program as of July 1.

Effective June 30, Professor Daniel Roos, the Japan Steel Industry professor and a holder of dual appointments in the Department of Civil and Environmental Engineering and in the ESD, stepped down as both codirector of the division and as the school's associate dean for engineering systems. He is the founding director of ESD and served in its leadership as director and codirector for over five years.

Last September, Professor Alexander Slocum, professor of mechanical engineering and a MacVicar Faculty Fellow, became director of the Experimental Study Group (ESG) in the School of Science.

Awards

Each year faculty members in the School of Engineering receive numerous honors in recognition of their research and service, many offered by professional societies and the faculty's professional communities. This year was no exception. The reports of the school's departments, divisions, laboratories, centers, and programs make note of many of these awards. Several especially notable awards and School of Engineering-based awards deserve additional mention here.

The National Academy of Engineering (NAE) elected to membership two School of Engineering faculty, both leaders of the Computer Science and Artificial Intelligence Laboratory (CSAIL): Rodney A. Brooks, CSAIL director and Fujitsu professor of computer science and engineering, and Victor W. Zue, CSAIL codirector and the Delta Electronics professor in the Department of Electrical Engineering and Computer Science (EECS).

Butler W. Lampson, adjunct professor of EECS, is among the four winners of the NAE's 2004 Charles Stark Draper Prize. Recognized as one of the world's preeminent awards for engineering achievement, the Charles Stark Draper Prize honors an engineer whose accomplishment has significantly impacted society by improving the quality of life, providing the ability to live freely and comfortably, and/or permitting the access to information. Professor Lampson and fellow prizewinners Alan C. Kay, Robert W. Taylor, and Charles P. Thacker are recognized as inventors of the networked personal computer.

Two of the four MIT professors elected to the National Academy of Sciences (NAS) are in the School of Engineering, both in EECS: Shafira Goldwasser, the RSA professor of computer science and engineering, and Ronald L. Rivest, the Andrew and Erna Viterbi

professor of computer science and engineering. Along with 72 other new members, Professors Goldwasser and Rivest were cited for their distinguished and continuing achievements in original research.

Yoel Fink in the Department of Materials Science and Engineering and the Thomas B. King professor of metallurgy received the NAS Award for Initiatives in Research. The prize is awarded annually to recognize innovative young scientists and encourage research likely to lead toward new capabilities for human benefit.

Mary C. Boyce, the distinguished alumnae professor of mechanical engineering and a MacVicar Faculty Fellow, and Subra Suresh, Ford professor of engineering and head of the Department of Materials Science and Engineering, were 2 of the 11 MIT faculty to be awarded the distinction of fellow by the American Academy of Arts and Sciences this year.

Wesley H. Harris, the Charles Stark Draper professor of aeronautics and astronautics and the head of that department, was named to the Air Force Science and Technology Board of the National Academies.

Leona Samson, the Ellison American Cancer Society research professor in the Biological Engineering Division, was one of two MIT faculty elected to the Institute of Medicine. Members are selected for their major contributions to health and medicine or related fields.

Two of the three MIT professors named fellows of the American Association for the Advancement of Science (AAAS) hold appointments in the School of Engineering: Edwin L. Thomas, the Morris Cohen professor of materials science and engineering and director of the Institute for Soldier Nanotechnologies; and MacVicar Faculty Fellow and ocean engineering professor J. Kim Vandiver. AAAS fellows are recognized for helping to advance science applications that are deemed scientifically or socially distinguished.

Institute Professor Sheila Widnall of the Department of Aeronautics and Astronautics was inducted into the National Women's Hall of Fame. She joins fellow MIT alumnae Shirley Ann Jackson, Katherine Dexter McCormick, and Ellen Swallow Richards among the hall's current 195 honorees.

Assistant professor of EECS Erik Demaine received a \$500,000 MacArthur Fellowship, commonly known as the "genius grant." Professor Demaine was recognized for his work in abstract geometry problems related to folding and bending that have practical applications in fields as diverse as manufacturing and biology.

School of Engineering faculty members received two of the Institute of Electrical and Electronics Engineers' (IEEE) most prestigious awards. Barbara Liskov of EECS, Ford professor of engineering, received the IEEE John von Neumann Medal, which may be presented annually for outstanding achievements in computer-related science and technology. Institute Professor Mildred S. Dresselhaus of EECS received the IEEE Founders Medal for outstanding contributions in the leadership, planning and

administration of affairs of great value to the electrical and electronics engineering profession.

Robert Langer, Germeshausen professor of chemical and biomedical engineering, received two notable awards this year for his achievements in biomedical engineering: the Heinz Award for Technology, the Economy, and Employment, and the Technion's (Israel Institute of Technology) Harvey Prize. The former honors "individuals who have created and implemented innovative programs to advance regional or national economic growth through job creation, technology advancement, competitiveness, and fair trade—all in a sustainable and environmentally safe manner." The latter recognizes breakthroughs in science, technology, and human health.

Tim Berners-Lee, a senior research scientist at CSAIL who is credited with inventing the World Wide Web and holds the 3COM founders chair, was awarded the first Millennium Technology Prize. The \$1.2 million award was established in 2002 and is backed by the Finnish government. The prize is given for an innovation that directly promotes people's quality of life, is based on humane values and encourages sustainable economic development.

The Pappalardo professor of mechanical engineering, Woodie C. Flowers, received the 2003 Ruth and Joel Spira Outstanding Design Educator Award from the American Society of Mechanical Engineers. The award was established to recognize a person who exemplifies the best in furthering engineering design education through vision, interactions with students and industry, scholarship and impact on the next generation of engineers, and a person whose action serves as a role model for other educators to emulate.

Institute and School Awards

One of the Everett Moore Baker Awards for Excellence in Undergraduate Teaching went this year to Professor Donald R. Sadoway of the Department of Materials Science and Engineering, a MacVicar Faculty Fellow.

The Amar Bose Award for Excellence in Teaching went to Hatsopoulos professor Ian Hunter of Mechanical Engineering. The award, established in 1989 by the school to recognize outstanding contributions to undergraduate education, is given annually to an Engineering faculty member whose teaching contributions over an extended period are characterized by dedication, care, creativity, and inspiration to students and colleagues.

The Junior Bose Award went to David Perreault of EECS, the Emanuel E. Landsman career development associate professor of electrical engineering. The award, established in AY1996, recognizes teaching excellence by junior School of Engineering faculty.

Professor Muriel Medard of EECS shared the 2004 Harold E. Edgerton Faculty Achievement Award with Professor Catherine Drennan of Chemistry. The award recognizes exceptional distinction in teaching and research or scholarship among junior members of the MIT faculty. Professor Medard is the Esther and Harold E. Edgerton assistant professor electrical engineering.

Two of the Graduate Student Council Graduate Teaching Awards for excellence in teaching a graduate-level course, given each year to one professor and/or teaching assistant from each school, went this year to Professor Asuman Ozdaglar and graduate student Shan-Yuan Ho, both of EECS.

In recognition of their devotion to undergraduate education at the Institute, MIT named Professor David L. Darmofal of Aeronautics and Astronautics and Professor Steven B. Leeb of EECS as two of five AY2004 MacVicar Faculty Fellows. The awards, given in memory of former dean of undergraduate education and professor of physics Margaret L. A. MacVicar, recognize faculty excellence in teaching and innovation in education.

The Frank E. Perkins Award for excellent advising of graduate students went to Professor Peter So of Mechanical Engineering.

The Irwin Sizer Award for the Most Significant Improvement in MIT Education was awarded to Professor Caroline A. Ross of Materials Science and Engineering.

Professors Kim Molvig of Nuclear Engineering, Erik Demaine of EECS, and Rockwell International career development professor Martin Culpepper of Mechanical Engineering were awarded the Ruth and Joel Spira Award for Distinguished Teaching. These awards are made possible by a gift from Ruth and Joel S. Spira to acknowledge the tradition of high-quality engineering education at MIT. Awards are made each year to one faculty member in each of the three departments.

Awards Received by Engineering Students

Chemical Engineering graduate student LaRuth C. McAfee was among the winners of the 2004 Dr. Martin Luther King Leadership Awards, given for academic, research, religious, and/or secular service to the community.

Three juniors and six sophomores from the School of Engineering were selected as Burchard Scholars in the School of Humanities, Arts, and Social Sciences (SHASS). The awards, named after the first SHASS dean, John Ely Burchard, are given to students who demonstrate unusual abilities and academic excellence in SHASS areas. The three juniors are Kathy Li (Materials Science and Engineering), Mary Presley (Nuclear Engineering), and Tai-Weng Sio (Chemical Engineering). The six sophomores are Jesse Collins and Marta Luczynska (EECS), Tristan Hayeck (Mechanical Engineering), and Juliana Olmstead and Thomas Schilling (Materials Science and Engineering).

Michelle Seitz of Materials Science and Engineering received the Henry Ford II Scholar Award, given to a senior in the School of Engineering who has attained the highest academic record at the end of the third year and who exhibits exceptional potential for leadership in the profession of engineering and in society.

Two engineering students received Karl Taylor Compton Prizes for achievements in citizenship and devotion to the welfare of MIT: R. Erich Caulfield, a graduate student in EECS, and Emily Cofer, a senior in Mechanical Engineering.

The Frederick Gardiner Fassett Jr. Award is given to InterFraternity Council members who have demonstrated the qualities of spirit, dedication, and service in furthering the ideals of MIT fraternity brotherhood and sisterhood. This year, Victoria Davis, a senior in Aeronautics and Astronautics, received one of the three awards.

Engineering students received two of four Barry Goldwater Scholarships given to MIT students this year. The award honors students who exhibit outstanding potential and intend to pursue careers in mathematics, the natural sciences, or those engineering disciplines that contribute significantly to the technological advances of the US. Peter G. Miller, a junior in Chemical Engineering, and Kathy C. Lin, a junior in Civil and Environmental Engineering, received the Goldwater Scholarships.

Brian C. Dean, a graduate student in EECS, was awarded a Goodwin Medal, a prize given to a graduate student whose teaching is conspicuously effective over and above ordinary excellence.

The Albert G. Hill Prize is awarded to minority juniors or seniors who have maintained high academic standards and made continued contributions to the improvement of the quality of life for minorities at MIT. Pius A. Uzamere and Terrence Strader, both seniors in EECS, received awards. A former vice president for research, Dr. Hill was an early champion of equal opportunity at MIT.

The Howard W. Johnson Award for the male senior athlete of the year went to Nicholas R. Nestle of EECS.

The John S. W. Kellett '47 Award for a commitment to creating a more welcoming environment at MIT, including but not limited to improving the experience of lesbian, bisexual, gay, transgendered, and questioning individuals, went to Benjamin R. Wagner, a junior in EECS.

One of the Malcolm G. Kispert Awards for the male and female senior scholar-athletes of the year went to Rory E. Foster, a senior in Aeronautics and Astronautics.

Three of the four student athletes named to the Academic All-America teams were Engineering students: soccer players Rory Foster, a senior in Mechanical Engineering, and Nicholas Nestle, a senior in EECS; and football player Thomas Kilpatrick, a junior in Civil and Environmental Engineering.

The Ronald E. McNair Scholarship Award recognizes black undergraduates who have demonstrated strong academic performance and who have made considerable contributions to the minority community. The award was created by the black alumni of MIT in honor of Dr. Ronald McNair '77), who died in the explosion of the space shuttle *Challenger*. Four out of five awards this year went to Engineering students, all seniors: Kasetta V. Coleman of Materials Science and Engineering; Nnennia L. Ejebe of Chemical Engineering, Christine P. Fleming of EECS, and Adrian E. Townsend of Aeronautics and Astronautics.

Ryan Adams, a senior in EECS, is one of two Gates Scholars from MIT who will begin graduate studies at Cambridge University in fall 2004. The scholarship program, established in 2001 by the Bill and Melinda Gates Foundation, enables outstanding graduate students from outside the United Kingdom to study at Cambridge University.

This year, five graduate students in EECS were named Siebel Scholars: Cristian Cadar, Jennie E Cochran, Vikash Gilja, Daniel Roy, and Nattavude Thirathon. The Siebel Scholars program provides scholarships in recognition of students who have demonstrated academic and leadership excellence in the first year of their graduate studies at the world's leading graduate schools of business and computer science.

Two Engineering graduate students received William L. Stewart Jr. Awards, which recognize contributions by an individual student or student organization to extracurricular activities and events during the preceding year: David A. Berry of the Biological Engineering Division and William S. Del Hagen of EECS. The awards are given in memory of William L. Stewart Jr., an alumnus and member of the Corporation who showed deep interest in student life at MIT.

Awards to Engineering Staff

Karl W. Reid, executive director of special programs in the School of Engineering, received one of the 10th annual MIT President's Community Service Awards. These awards recognize the achievements of citizens, organizations, and institutions at MIT and in the Cambridge community that have made community service a priority.

This year the School continued the Rewards and Recognition Program it launched in 2001 to recognize the achievements of the School's dedicated staff. In April the School presented 15 Infinite Mile Awards at its fourth annual school-wide celebration of excellence. Wanda Cook of EECS; James Dezieck of Human Resources, School of Engineering; Frederick J. Donovan of Aeronautics and Astronautics; Barbara Hughey of Mechanical Engineering; Susan Kaufman of EEC; Krishnanchali Panchalingam of the Biological Engineering Division; Cynthia Skier of EECS; and Peter W. Young of Aeronautics and Astronautics received awards for excellence. Su Chung of the Center for Technology, Policy, and Industrial Development, Mary Gibson of the Center for Transportation and Logistics, Kenneth E. Greene Jr. of Materials Science and Engineering, Jean-François Hamel of Chemical Engineering, Erminia Piccinonno of Chemical Engineering and Materials Science and Engineering, Lourenço Pires of EECS, and Sharon Trohon of Mechanical Engineering received awards for sustained excellence.

Statistics for AY2004

The following statistics provide summary information about students, degrees awarded, and faculty.

- Undergraduate enrollment: 1,725 students, 34% women, 22% underrepresented minorities

- Graduate enrollment: 2,789 students, 684 women, 114 underrepresented minorities
- Degrees awarded: 645 bachelor's degrees; 876 master's and MEng degrees; 217 PhD, ScD, and professional engineering degrees
- Faculty: 235 professors, 63 associate professors, 59 assistant professors

Thomas L. Magnanti
Dean, School of Engineering
Institute Professor
Professor of Management Science and Electrical Engineering

More information about the School of Engineering can be found on the web at <http://mit.edu/engineering/>.