



# COMPUTER SCIENCE AND ENGINEERING DISTINGUISHED ALUMNI AWARD

*Established in 2004, this award recognizes an alumnus who has distinguished himself/herself as a leader in the computer science and engineering profession through professional contributions, public service, and personal accomplishments. Nominations are made by faculty, alumni, and other supporters of the department. The winner is selected by the department chairperson and advisory committee.*



**Martha L. Gray,**  
*BS '78, Computer Science/  
Systems Science*

Martha L. Gray has had a multifaceted academic career in which she has conducted research to better understand (and possibly prevent) osteoarthritis; led a preeminent academic unit in which engineers, scientists, physicians, and business professionals seek to advance human health; and served the profession through work with organizations and institutions.

She is the J.W. Kieckhefer Professor and former director of the Health Sciences and Technology (HST)

Division of Harvard and the

Massachusetts Institute of Technology (MIT). She is also a professor in MIT's Department of Electrical Engineering and Computer Science. She earned her BS ('78) in computer science/systems science from Michigan State University, an MS ('81) in electrical engineering from MIT, and a PhD ('86) in medical engineering from HST. Following postdoctoral work at Tufts University and the State University of New York Stony Brook, she joined the MIT faculty in HST and MIT's Department of Electrical Engineering and Computer Science in 1987.

Professor Gray was the first woman to lead a science or engineering department at MIT. During and since her 13-year tenure as head of the Harvard-MIT Division of Health Sciences and Technology (HST), she shepherded the vigorous growth so that now HST boasts a community of over 400 students, 65 faculty, and nearly 200 affiliated faculty who create a multi-disciplinary and multi-professional environment—in classrooms, hospital rooms, and laboratories. This community is focused on advancing human health, and students who train in this environment (MD, PhD, MS, MBA) come out unusually

well prepared to lead and innovate. Most recently, Professor Gray has directed her efforts toward advising other institutions and governments as they seek to develop similar efforts.

Professor Gray's research has centered on understanding osteoarthritis. She was among the first to demonstrate that mechanical (and other physicochemical) factors could dramatically influence the production of cartilage macromolecules that provide cartilage with its remarkable load-bearing capacity—thereby lending support to the belief that these factors play an important role in cartilage development, degeneration, and repair. More recently she and colleagues have pioneered new ways to image cartilage in vivo and in vitro. Many in industry and academia are now using the MR method developed by her group (known as dGEMRIC) to provide a window into how disease and therapeutic strategies affect cartilage tissue before it is destroyed by disease, thereby providing information that has previously been unavailable with routinely used imaging methods. The significance of her accomplishments was recently recognized by the American Academy of Orthopaedic Surgeons and the Orthopaedic Research Society's Kappa Delta Award. She is an elected fellow of the AAAS and of the American Institute of Medical and Biological Engineers (AIMBE), and has served in several elected positions for professional societies and on many advisory boards. She is associate editor of the *Annual Reviews of Biomedical Engineering*.

She currently resides in Arlington, Mass., with her husband and boat builder, Dick Pereli, and her three teenage children—Andrew, Dora, and George.

## Past Recipients

2004 Kevin J. Ohl (BS '78)

2005 Julie Louis-Benaglio (BS '79)

2006 James R. Von Ehr II (BS '72)

2007 Honda Shing (MS '88, PhD '92)

2008 Moti Kishin Jiandani (MS '81)

