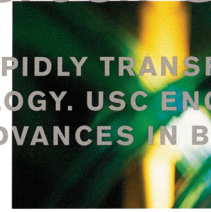
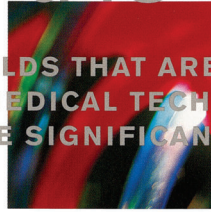
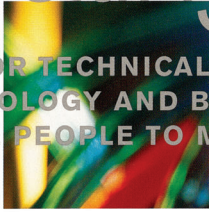
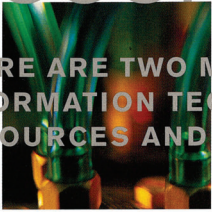


accelerating the future

THERE ARE TWO MAJOR TECHNICAL FIELDS THAT ARE RAPIDLY TRANSFORMING OUR LIVES-
INFORMATION TECHNOLOGY AND BIOMEDICAL TECHNOLOGY. USC ENGINEERING HAS THE
RESOURCES AND THE PEOPLE TO MAKE SIGNIFICANT ADVANCES IN BOTH.



RESEARCH AND GRADUATE EDUCATION

university of southern california
school of engineering

a message from dean max nikias



| The University of Southern California School of Engineering has embarked on a new era of excellence. As its new Dean, I am committed to making an already good School of Engineering an even better School, one that will be widely recognized as being in the elite ranks of such institutions.

There are two major technical fields that are rapidly transforming our lives — information technology and biomedical technology. USC Engineering has the resources and the people to make significant advances in both.

In information technology, two prominent research institutes unique to USC buttress our strong departments of Electrical Engineering and Computer Science. The Information Sciences Institute (ISI), a pioneer in information technology and artificial intelligence, as well as the emergence of the Internet, continues to be a leader in these areas. ISI is a national-level research resource. The Integrated Media Systems Center (IMSC), the only National Science Foundation Engineering Research Center for multimedia and Internet technology, is developing new immersive real-time media that will revolutionize the ways we communicate and live.

In biotechnology, the new Alfred E. Mann Institute for Biomedical Engineering (AMI-USC), founded through a \$112.5 million gift from biotechnology entrepreneur Alfred E. Mann, is busy developing next-generation medical devices, including neural prostheses. The collaboration of AMI-USC with our Biomedical Engineering department significantly strengthens our existing neural engineering programs.

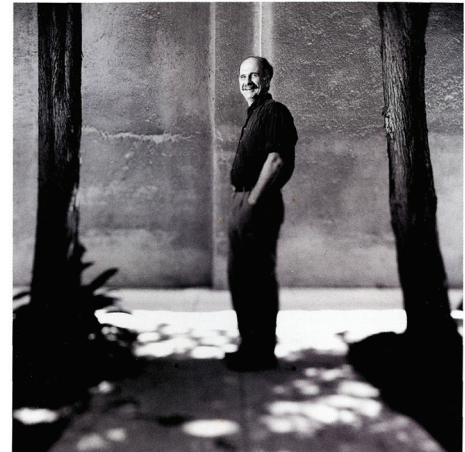
These resources, and the huge promise emanating from the explosion of new knowledge in biomedicine, have led me to form a major cross-disciplinary initiative in biotechnology. It will provide more focus and structure to related excellent work being done in several academic departments, such as biochemical engineering, biomaterials, nanotechnology, bioinformatics, biophotonics and bio-microelectro-mechanical systems.

The initiative will also serve as a model for other coming ventures in cross-disciplinary work — which I see as the future of engineering — in areas where we can make distinctive contributions. These include astronautics, advanced transportation systems, photonics/optical communications, reactive flow systems, robotics, software engineering, structural health monitoring, and “green chemistry” — minimizing pollution in the urban environment.

We have a superb faculty, students of high and rapidly increasing quality, innovative programs, a location that provides us with strong corporate partnerships in the areas of our greatest strengths, and a plan to use these assets to place USC Engineering among the elite engineering schools.

senior faculty profile

MIKE GRUNTMAN
DEPARTMENT OF AEROSPACE & MECHANICAL ENGINEERING



Mike Gruntman first joined USC in 1990 as a research scientist at USC's Space Sciences Center Institute. In 1993 he joined the School's Aerospace & Mechanical Engineering department as an associate professor, and was appointed a full professor in 1998.

Gruntman's broad interests in astronautics include spacecraft and space mission design and space physics, particularly the neutral component of space plasmas and imaging of the heliosphere and planetary magnetospheres. He excelled in the development of the enabling technologies for ultrasensitive particle and photon detectors and analyzers for space instruments.

Gruntman's contributions to space instrumentation, along with his 1997 review article, "Energetic Neutral Atom Imaging of Space Plasmas," in the *Review of Scientific Instruments* — the world's top journal in its field — led to his appointment to its editorial board. Another article on a new way of exploring the heliopause at the solar system frontier made the *American Institute of Physics*' list of top 100 achievements in physics for 1998.

Gruntman's studies for NASA of the heliosphere and the solar system distant frontier, where the solar wind meets the surrounding galactic matter, and particularly his development of the concept and instrumentation for detection of energetic neutral atoms in space plasmas, have been important contributions to space physics. His research also generated an invitation from NASA to join the team of leading scientists plotting a road map for the next decade of projects in space physics involving the sun-earth connection. The results earned the his research team a NASA Group Achievement Award in 2000.

Gruntman is director of the USC's Astronautics and Space Technology Center (ASTC) that focuses on advanced research projects in aerospace technology and space science.

All that covers about half of Mike Gruntman's work.

In the educational arena, his knowledge, vision, energy, exuberance, and effort have built innovative and successful degree programs in Astronautics, turning around the aerospace program at USC, which had undergone economy-related retrenchment in the early 90s.

It was clear for him, however, that Los Angeles was the center of space technology and the space industry would soon recover. Now, he notes, commercial space programs are booming, with a major fraction — perhaps 25% — of the total activity located in Southern California, and "with over half the launches now commercial in purpose." In addition, government space programs have stabilized and are poised for growth in the national security area. Gruntman's faith in the space industry and his redirection of the program toward the new market has turned USC's space program around and made the School a leader in space education.

Gruntman earned his M.Sc. in 1977 at the Department of Aerophysics and Space Research of the Moscow Physical-Technical Institute, and was awarded his Ph.D. in Experimental Physics from the Space Research Institute (IKI) of the USSR Academy of Sciences in 1984.

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