

Mechanical + Aerospace Engineering

CORNELL ENGINEERING

Degree Programs

The Sibley School of Mechanical and Aerospace Engineering (MAE) offers the Bachelor of Science in Mechanical Engineering, the Master of Engineering, Master of Science and Doctorate degree in either Mechanical Engineering or Aerospace Engineering. Additionally we offer an undergraduate minor in Aerospace Engineering.

Research Areas in MAE

Aerospace Engineering; Biomechanical Engineering; Dynamics, Systems and Controls; Fluid Dynamics; Mechanics of Materials; Thermal Systems Engineering.

Recent Trends

The boundaries of MAE have expanded dramatically over the past 10 years. While research and education in traditional MAE topics such as engines, aeronautics and space continue, we have seen explosive growth in new areas such as micro- and nano-fluidics, biomechanics and tissue engineering, and advanced controls systems. At the undergraduate level, project teams have grown into a major component of the curriculum. Students are attracted to the opportunity to run "little companies." Mechanical Engineering is now the most popular major in the college, due in part to the excitement around project teams.

MAE Achievements

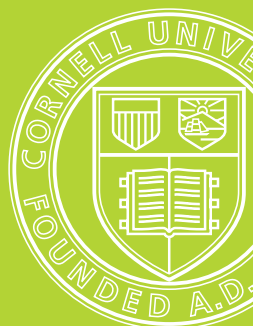
The Sibley School continues to be ranked Top 10; Stephen Pope elected Fellow of the Royal Society and American Academy of Arts and Sciences; Al George awarded Stephen H. Weiss Presidential Fellow; Frances Moon awarded Lyapunov Prize by ASME; Charles Williamson chosen New York State Professor of the Year; Hod Lipson wins CAREER and DARPA Young Investigator Award; David Erickson wins DARPA Young Investigator Award; Brian Kirby wins PECASE; Thomas Avedisian wins ASME Heat Transfer Memorial Award; FSAE (advised by Al George) has 9 championships in 21 years; CUSat (advised by Mason Peck) selected for a free launch.

Department Priorities over Next 5 Years

Over the next 5 years, nearly one quarter of the faculty will retire; additionally, we are slated to grow by 10%. Hiring outstanding, diverse faculty is our top priority. The past two directors have hired 11 faculty (of 28), and there will likely be another 10 hired over the next five years. New faculty will continue to broaden our research into new and exciting directions. We anticipate growth in our graduate program, and continued interest/growth in experiential learning through project teams and consequently rising undergraduate enrollments.



Multi-legged robot synthesizes an internal predictive model which in turn enables the robot to develop new behaviors such as movement (including quadruped walking and snake-like slithering).

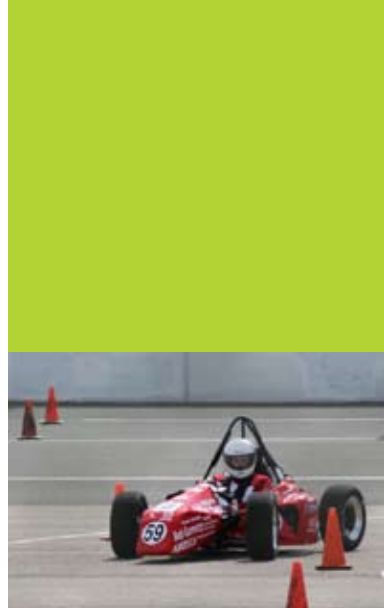


Challenges for MAE

We must hire outstanding faculty while improving the diversity of the faculty, under stiff competition from universities across the country. Faculty hiring is stressing department financial and space resources. We desperately need additional laboratory (particularly “wet” laboratories) and office space. We need to grow our graduate program to accommodate the new faculty. To facilitate this growth, we need to expand our graduate student fellowships; our goal is to support all first-year PhD students on a fellowship.

Opportunities for MAE

The turnover in faculty provides an opportunity to change the department culture. A younger, more diverse faculty will seize new opportunities for interdisciplinary research in strategic areas like energy, biomedicine, advanced materials; nanotechnology, and advanced systems design. The new MAE building will provide the facilities required for this expansion to be successful. We have the opportunity be leaders in these emerging areas and therefore to improve our national ranking.



FSAE 2008 car. Nine world championships in 20 years makes this the most successful team of them all.



MicroCT of cortical bone