

# Excellence In Engineering

*At the 41st Viterbi Awards, NAE President Dan Mote Jr., alumna and Northrop Grumman VP Linnie Haynesworth, and SpaceX President Gwynne Shotwell were honored.*



**(Left to right) Dean Yannis C. Yortsos, Linnie Haynesworth, Gwynne Shotwell, USC Interim President Wanda Austin, and Dan Mote Jr.** *Photo by Steve Cohn*

**By Marc Ballon** | April 12, 2019

**AT THE 41ST VITERBI AWARDS, MORE THAN** 500 distinguished guests at the Beverly Wilshire Hotel celebrated the power of engineering to transform the world for the better.

At the April 11 affair, dubbed the “Academy Awards of engineering,” Yannis C. Yortsos, dean of the USC Viterbi School of Engineering, spoke about the importance of “Engineering+,” or the enabling combination of engineering and any other discipline.

“This powerful convergence ... makes impossible dreams a reality,” Yortsos said. “Important big problems, Grand

Challenges—such as the Grand Challenges of the National Academy of Engineering—with the very realistic expectation that their solution is within reach.

“Imagine conquering disease, providing truly sustainable solutions for the planet, enhancing security for everyone in the world, eliminating poverty, enriching life as never before, including by exploring our inner selves, or the outer space,” Yortsos added.

But in addition to the technological innovation, Yortsos noted, solving these challenges requires understanding human nature and culture.

It requires, Yortsos said, “bringing to

the table many voices, many faces, and many perspectives. It means changing the conversation about engineering in a radical way: What we do, who we are and what we look like.”

Underscoring the theme of engineering’s ability to shape the future, the Viterbi Awards honored three distinguished engineers “who have changed the field of engineering, and, in passing, contributed to the world in a much bigger capacity,” the dean said.

Honorees included Dan Mote Jr., the president of the National Academy of Engineering and Regents’ Professor on

leave from the University of Maryland, College Park, who received the Lifetime Achievement Award; Linnie Haynesworth, B.S.EE '80, Northrop Grumman's sector vice president and general manager of the Cyber and Intelligence Solutions Division, who took home the Mark A. Stevens Distinguished Alumni Award; and Gwynne Shotwell, president and chief operating officer of SpaceX, who landed the Daniel J. Epstein Management Award.

### **Lifetime Achievement Award**

NAE President Dan Mote Jr. joined a pantheon of engineering greats when he received the Lifetime Achievement Award.

In the past four decades, the award had only been given out four times: the late Simon "Si" Ramo, NAE co-founder, aerospace pioneer and chief architect of America's intercontinental ballistic missile system, received the honor in 2008; Steven B. Sample, USC's 10th president, who oversaw the university's rise among the nation's elite research institutions, in 2010; Alfred E. Mann, a pioneer in medical devices and namesake of the Alfred E. Mann Institute for Biomedical Engineering, in 2012; and, last year, alumnus A.C. "Mike" Markkula, B.S. EE '64 and M.S. EE '66, co-founder of Apple Computer.

Mote, a native Californian, earned three mechanical engineering degrees at the University of California, Berkeley. He later returned to UC Berkeley to join the faculty for the next 31 years. Fifty-eight Ph.D. students earned their degrees under his mentorship.

Mote held an endowed chair in mechanical systems at the university and chaired the Department of Mechanical Engineering from 1987 to 1991 when the National Research Council (NRC) ranked Berkeley's graduate program as the best nationally. In 1991, Mote was

appointed vice chancellor expressly to create and lead a \$1 billion capital campaign; he helped raise \$1.4 billion.

In 1998, Mote became president of the University of Maryland, College Park. He held that position until 2010, when he became Regents' Professor. During his tenure, three Nobel laureates were recognized and an accredited school of public health and a new department of bioengineering were created. The Academic Ranking of World Universities ranked the campus No. 36 in 2010 and its engineering school No.13.

Mote is also the recipient of the ASME Medal, the NAE Founders Award, and the Humboldt Prize of the Federal Republic of Germany. He was elected to membership in the NAE in 1988 and became president in 2013.

In her introductory remarks, USC Interim President Wanda Austin called Mote "the very definition of a leader with an impact."

Mote appeared elated as he accepted his honor.

"This Lifetime Achievement Award is possibly the most important recognition that I have ever received," Mote said. "The earlier lifetime achievement awardees are truly a cast of superstars. They are extraordinarily impressive for their impacts on engineering and society beyond their fields."

### **Mark A. Stevens Distinguished Alumni Award**

Linnie Haynesworth, Northrop Grumman's sector vice president and general manager of the Cyber and Intelligence Mission Solutions Division, was honored with the Mark A. Stevens Distinguished Alumni Award. This award goes to a USC Viterbi alumnus or alumna in recognition of their exemplary professional accomplishments and exceptional contributions to the field of engineering.

Haynesworth started at Northrop Grumman as an intern during her junior year at USC Viterbi. After graduating, the company hired her full-time. She entered Northrop's senior executive ranks as vice president of the supply chain organization within its space technology sector, becoming the first woman of color in the company's history to lead a space program.

A champion of diversity and inclusion in the workplace, Haynesworth co-sponsors Northrop's women in leadership enterprise working group and the African-American task group, among others. She also actively supports the company's internship programs, new talent development programs, and innovative STEM and cyber education programs, like the Air Force Association's CyberPatriot competition.

The Tuskegee Airmen Scholarship Foundation honored her as its 2018 Woman of the Year, for tenacity, courage and leadership in the aerospace, aviation, and science and technology industries.

"The USC School of Engineering shaped me, guided me, challenged me to have a disciplined engineering approach to problem solving," Haynesworth said. "And that led to a foundation that has helped me throughout my career."

### **Daniel J. Epstein Engineering Management Award**

SpaceX president and COO, Gwynne Shotwell, received the Daniel J. Epstein Engineering Management Award. The honor recognizes the professional achievements and contributions to the field of engineering.

Shotwell is responsible for the company's day-to-day operations and managing all customer and strategic relations to support company growth. She joined SpaceX in 2002 as vice president of business development and built the Falcon vehicle family manifest to more

than 100 launches, representing more than \$10 billion in business.

Prior to joining SpaceX, Shotwell spent more than 10 years at the Aerospace Corporation, holding positions in space systems engineering, technology and project management.

*Fortune Magazine* placed Shotwell on its list of the World's 50 Greatest Leaders in 2018 and *Forbes* named her No. 70 on its list of Power Women in 2017. In 2014, Shotwell was appointed to the United States Export Import Bank's Advisory Committee and the Federal Aviation Administration's Management Advisory Council.

Through leadership in both corporate and external science, technology, engineering and math (STEM) programs, Shotwell has helped raise over \$1.4 million for STEM programs reaching thousands of students nationwide.

At the Viterbi Awards, an enthusiastic Shotwell said she had had "an amazing day." Not only was she thrilled that USC Viterbi had honored her, but Shotwell also exulted in the success of Thursday's launch of SpaceX's Falcon Heavy rocket, "the world's most powerful vehicle flying today."

"This award is really fantastic," Shotwell said.

### **Maseeh Entrepreneurship Prize Competition**

The Maseeh Entrepreneurship Prize Competition, founded in 2010 with a \$1 million endowment from entrepreneur Fariborz Maseeh, has become one of the premier business model contests for USC Viterbi students, faculty and would-be business builders.

MEPC is co-sponsored by the National Science Foundation Innovation Corps or "I-Corps" program, supporting students in transitioning technologies from interesting experiments to meaningful solutions. During the competition, students conduct

customer discovery while refining the technology's potential value to the marketplace.

At stake is a \$50,000 grand prize, along with \$50,000 in free legal services to winning teams.

The competition has launched some exciting companies, said Andrea Belz, USC Viterbi vice dean for technology, innovation and entrepreneurship.

"We were proud to see MEPC's first exit when the competition's first winner, Abtum, was acquired last fall," she said. "Several other top MEPC teams, such as Second Spectrum and InBrace, have been very successful in the marketplace."

Add the 2019 winner AIRBOND to that esteemed list.

AIRBOND has devised a more efficient and cheaper way to produce carbon fiber composite materials for the aviation and other industries. By selectively coating resin on dry carbon fibers instead of laminating it over the entire surface, manufacturers can produce carbon fiber composites without having to pressurize the materials. That means no need for expensive autoclaves.

### **Min Family Engineering Social Entrepreneurship Challenge**

Four years ago, Bryan and Julie Min created a program that gives students that ability to make transformative contributions through innovation.

The Mins endowed and launched the Min Family Engineering Social Entrepreneurship Challenge, which has allowed students to build businesses with the goal of literally making the world a better place.

Last year, MFC took USC Viterbi and other students to Texas to meet with Hurricane Harvey survivors. Participants focused on developing sustainable ventures to enhance relief and recovery efforts for victims of that and other natural disasters.

This academic year, MFC focused on the world's growing refugee crisis. As part of a special class, CE 499: Engineering Innovation for Global Challenges, students went to Lesbos, Greece, to meet with refugees and devise innovative solutions to meet the needs of people in crisis.

Thirty-four MFC students from seven USC schools came up with five innovations. They include Team Firefly, which wants to manufacture ultra low-cost clothing, and Team WeWash, which has created a low-cost portable shower.

### **Year In Review**

For more than 100 years, USC Engineering has changed the conversation about engineering — "what we do, who we are and what we look like," Dean Yortsos said.

From the school's first courses in civil and electrical engineering in 1905 to its renaming, in 2004, as the USC Viterbi School of Engineering after the transformative gift by Andrew and Erna Viterbi, USC faculty and students have repeatedly leveraged engineering for social good.

The academic year 2018-2019 is no exception. During that period, USC Viterbi, according to Yortsos, welcomed its best ever first-year class. Additionally, Niki Bayat, M.S. CE' 14 and Ph.D. CE '18, was named by the *MIT Technology Review* to the prestigious 2018 TR-35 list of the world's leading innovators under 35, becoming the first USC doctoral student to have earned that distinction.

Software developed by Professor Milind Tambe to thwart poachers and protect endangered animals could soon be rolled out globally in 600 wildlife parks in concert with nine leading animal conservation groups.

"We carry a strong and enduring legacy that spans more than a century of engineering in Southern California," the dean said.

