

# Researchers in 'Early Career' Lauded for Work To Revolutionize Engineering and Industry

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By [Debra K. Rubin](#)

The 67 engineers and scientists called to the White House in December for a prestigious award were not old hands with lots of tenure working in their fields for decades. They were young professionals exploring not only the frontiers of science and engineering research but also real-world applications that break ground and cross traditional barriers. The government is betting at least \$400,000 on each of these high-achieving but tenure-lacking GenX-ers over the next five years to transform their technology arenas and the image of engineering and science.



Photo: Arizona State University

Torrens sees benefits to urban rehabs, land use and emergency response.



Photo: Andre Marshall

Marshall (right) with middle-schoolers on campus.

The Presidential Early Career Award for Scientists and Engineers (PECASE), given annually since 1996, is considered the nation's highest honor for young science researchers based on research proposals. They must first win the five-year "career-development" cash award from a U.S. agency such as the National Science Foundation and Cabinet departments. The agency then nominates them for PECASE. Agency awards are also based on community-service achievement in outreach, education and leadership. Sources say PECASE had included an additional \$100,000 for each winner but that was cut in the Bush administration. An NSF spokeswoman declined to elaborate.

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associate professor at Arizona State University's School of Geographical Science

Four of this year’s PECASE winners offer a fascinating cross section of individuals and efforts aimed at improving construction practices and attracting recruits.

Paul Torrens, associate professor at Arizona State University’s School of Geographical Sciences, is researching 3D models to predict crowd behavior that have applications in urban revitalization, land- use modeling and emergency response. "This research is high risk but potentially high reward," he says. "It’s an area of science that’s been overlooked."



WALKER

Two winners are pioneering research to foster more interdisciplinary approaches in engineering practice and study. Joan Walker, assistant professor of civil and environmental engineering at the University of California-Berkeley, specializes in human-behavior impacts on transportation design and land use, with a focus on economics and psychology. "The award gives you time to get momentum going, instead of having to chase research money," says Walker.

Maura Borrego, assistant professor in the engineering education department at Blacksburg, Va.-based Virginia Tech University’s College of Engineering, is the first PECASE winner for engineering education research. She is developing methods to foster interdisciplinary research and teaching skills among engineering faculty and graduate students and to assess whether strategies are working.



BORREGO

Andre Marshall, associate professor in the fire-protection engineering department at the University of Maryland, College Park, is researching fire-suppression- system technologies. The school has the nation’s only such accredited undergraduate engineering program. Marshall, also director of its Fire Testing and Evaluation Center, says the award "validates that we’re moving in the right direction." His award is also for creation of a six-week "Saturday academy" focused on fire engineering for minority middle-school students. "The students were so engaged, it made me optimistic about the future."

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