



Quick Reads From NSF.gov

August 2, 2019

01

White House honors 80 NSF-supported early-career researchers

President Donald J. Trump has announced the 314 recipients of the Presidential Early Career Award for Scientists and Engineers, PECASE, 80 of whom the National Science Foundation nominated. PECASE is the highest honor bestowed by the United States government on outstanding scientists and engineers who are beginning their independent research careers and who show exceptional promise for leadership in science and technology. Find out more in this NSF [News Release](#).



02

New NSF awards target breakthrough technologies to enhance food security

Imagine crops that required less water because a “wearable sensor” could “grow” along with a plant and provide more accurate and continuous readings of its hydration. Such a sensor would allow scientists to address fundamental questions about how water is used in a plant and could lead to the development of plants that are more water efficient. Or what about learning what makes some plants grow well even under environmental stress? Understanding how such high priority traits are inherited and genetically modified could lead to corn plants that are more environmentally resilient. Find out more in this NSF [News Release](#).



03

Statement on NSF's commitment to secure, open international research collaboration

The National Science Foundation (NSF) contributes to our nation's economic strength and national security through basic research. The Foundation is committed to sustaining the United States' position as a global innovation leader. The values that have driven NSF and its global research partners for decades are openness, transparency, and reciprocal collaboration; these are essential for advancing the frontiers of knowledge. Our science and engineering enterprise, however, is put at risk when other governments endeavor to benefit from the global research ecosystem without upholding these values. Find out more in this NSF [Press Statement](#).



04

New computational tool for data scientists, biologists and other researchers

The social network LinkedIn tells a user how he/she is connected to another user. In real life, points of connection are not always that evident. However, identifying patterns or relationships and commonalities among entities is important for businesses, biologists, doctors, patients and others. A new computational tool developed by [University of Southern California](#) electrical and computer engineer Paul Bodgan and his colleagues can quickly identify the affiliations and interrelationships among groups, items and people with greater accuracy than existing tools. Find out more in this NSF [Research News](#).



05

Using artificial intelligence to better predict severe weather

When forecasting weather, meteorologists use a number of models and data sources to track shapes and movements of clouds that could indicate severe storms. However, with increasingly expanding weather data sets and looming deadlines, it is nearly impossible for them to monitor all storm formations -- especially smaller-scale ones -- in real time. Now, there is a computer model that can help recognize severe storms more quickly and accurately, thanks to a team of researchers partially funded by the National Science Foundation. Find out more in this NSF [Research News](#).



06

Stanford study shows how to improve production at wind farms

Solitary wind turbines produce the most power when pointing directly into the wind. But when tightly packed lines of turbines face the wind on wind farms, wakes from upstream generators can interfere with those downstream. The wake from a wind turbine can reduce the efficiency of downwind generators by more than 40%. Now, a new study led by an NSF Graduate Research Fellow at [Stanford University](#) and published in the *Proceedings of the National Academy of Sciences*, found that pointing turbines slightly away from oncoming wind -- called wake-steering -- can reduce interference and improve both the quantity and quality of power from wind farms, and probably lower operating costs. Find out more in this NSF [Research News](#).



07

Ultra-fast communication allows aquatic cells to release toxins in unison

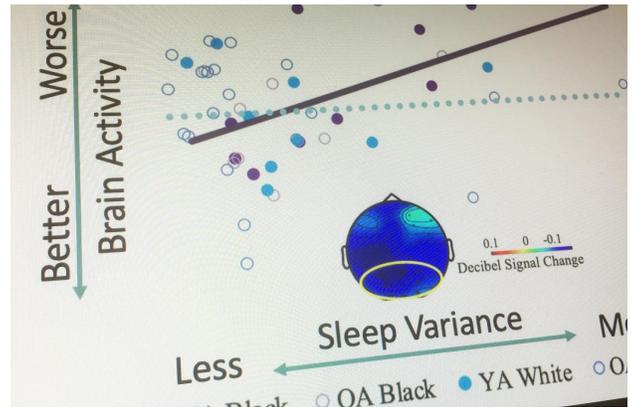
Crouching in the boot-sucking mud of the Baylands Nature Preserve in Palo Alto, bioengineer Manu Prakash of [Stanford University](#) peered through his Foldscope -- a \$1.75 origami microscope of his own invention. He watched a large single-celled organism called Spirostomum do something that immediately made it his next research subject. Find out more in this NSF [Research News](#).



08

Study ties poor sleep to reduced memory performance in older adults

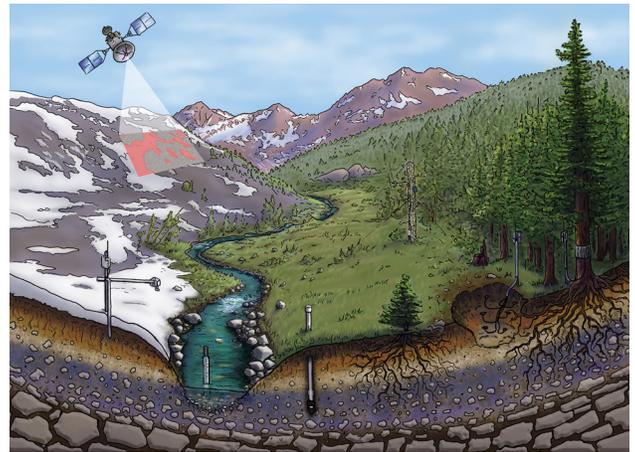
A new study has found that variability in night-to-night sleep time and reduced sleep quality adversely affect the ability of older adults to recall information about past events. Although further investigation will be needed to confirm the results of the pilot study, the findings could help open a new area of research aimed at understanding the potential connection between poor sleep and the memory declines associated with aging. The study underscores the importance of sleep in maintaining good cognitive functioning. Find out more in this NSF [Research News](#).



09

Does limited underground water storage make plants less susceptible to drought?

You might expect that plants hoping to thrive in California's boom-or-bust rain cycle would choose to set down roots in a place that can store lots of water underground to last through drought years. But some of the most successful plant communities in the state -- and probably in Mediterranean climates worldwide, with their wet winters and dry summers -- have taken a different approach. They've learned to thrive in areas with a below-ground water storage capacity barely large enough to hold the water that falls even in lean years. Find out more in this NSF [Research News](#).



10

Nepal's 2015 earthquake offers new clues about natural hazards

The Himalaya Mountains are a geological wonder, drawing adventurers and religious devotees from near and far to the world's highest peaks. The mountains were created over a fault where the large tectonic plates of India and Eurasia collide. But the same fault that holds the piercing summits of the Himalayas produces large earthquakes that can cause immense loss of life in the densely populated plains of northern India and southern Nepal. Find out more in this NSF [Research News](#).

