Exploring the unknown frontier of the brain

To a large degree, your brain is what makes you...you. It controls your thinking, problem solving and voluntary behaviors. At the same time, your brain helps regulate critical aspects of your physiology.....

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Researchers improve efficiency of human walking

Humans have evolved to be incredibly efficient at walking. In fact, simulations of human locomotion show that walking on level ground and at a steady speed should theoretically require no power input at all. But anyone who works on their feet or has taken an arduous hike knows otherwise. In fact, people expend more energy during walking than any other activity in daily life, and for the elderly and those with mobility issues, that energy can be precious. For decades, ...

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Born during a drought: Bad news for baboons

The saying "what doesn't kill you makes you stronger" may not hold up to scientific scrutiny. After the plains of southern Kenya experienced a severe drought in 2009 that took a terrible toll on wildlife, researchers looked at how 50 wild baboons coped with the drought, and whether the conditions they faced in infancy played a role. The semi-arid savanna of southern Kenya usually receives an average of 14 inches of rain a year--akin to much of Nebraska or Kansas--but in 2009 ...

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The National Science Foundation (NSF) has announced this year's recipients of Graduate Research Fellowships (GRF). NSF awarded the GRF to 2,000 individuals from among 16,500 applicants in 2015. Awardees represent a diverse group of scientific disciplines and come from all states, as well as the District of Columbia, and commonwealths and territories of the United States. They are also a diverse group of individuals. Among the 2,000 awardees, 1,053 are women, 494 are from ...

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Springtime night lights: Finding the aurora

This is the seventh part in a series on NSF's geosciences risk and resilience interest area. See parts one, two, three, four, five and ...

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Advancing physics frontiers

Whether they are describing the physics of how multicellular groups form from individual living cells, assembling the building blocks for quantum computing and quantum engineering, or investigating how massive elements came into being after our universe's beginning, the National Science Foundation's (NSF) newest Physics Frontiers Center awardees represent the leading edge of physics research. Today, the agency's physics division announced awards for five Physics Frontiers Centers--four of ...

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New U.S.-Japan collaborations bring Big Data approaches to disaster response

When disaster strikes, it is critical that experts, decision makers and emergency personnel have access to real-time information in order to assess the situation and respond appropriately. It is equally critical that individuals and organizations have the capacity to analyze the wealth of data generated in the midst of the disaster and its immediate aftermath in order to produce accurate, customized warnings, particularly with the increasing ubiquity of smartphones, mobile apps and ...

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Wearable sensors to monitor triggers for asthma, and more

The wearer’s vital signs and surrounding environment would be monitored by devices that run on body heat and motion

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President Obama announces exceptional science, mathematics and engineering mentors

Today, President Obama named 14 individuals and one organization as recipients of the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM). PAESMEM recognizes outstanding efforts of mentors in encouraging the next generation of innovators and developing a science and engineering workforce that reflects the diverse talent of America. The mentors will receive their awards at a White House ceremony later this year. Mentors play a vital ...

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From programmable backbones to advanced 'apps': An end-to-end vision of the future Internet

Ultra-high-speed and programmable networks have the potential not only to make the Internet faster, more secure and more accessible, but also to enable completely new kinds of applications that can transform how we live, work, learn and communicate. Cities across the country with gigabit network connectivity, from Chattanooga, ...

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Spring plankton bloom hitches ride to sea's depths on ocean eddies

Just as crocus and daffodil blossoms signal the start of a warmer season on land, a similar "greening" event--a massive bloom of microscopic plants, or phytoplankton--unfolds each spring in the North Atlantic Ocean from Bermuda to the Arctic. Fertilized by nutrients that have built up during the winter, the cool waters of the North Atlantic come alive every spring and summer with a vivid display of color that stretches across hundreds and hundreds of miles.

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Hibernation season over, will disease-ridden bats emerge from caves and mines this spring?

The following is part 15 in a series on the NSF-NIH-USDA Ecology and Evolution of Infectious Diseases (EEID) Program. See parts: one, two, three, ...

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Beyond Today's Internet

By investing in future Internet architectures, networking protocols and applications, and communities of researchers, NSF continues to advance the capabilities afforded by the Internet.

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The 'intraterrestrials': New viruses discovered in ocean depths

The intraterrestrials, they might be called. Strange creatures live in the deep sea, but few are odder than the viruses that inhabit deep ocean methane seeps and prey on single-celled microorganisms called archaea. The least understood of life's three primary domains, archaea thrive in the most extreme environments on the planet: near hot ocean rift vents, in acid mine drainage, in the saltiest of evaporation ponds and in petroleum deposits deep ...

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Shrinking habitats have adverse effects on world ecosystems--and ultimately people

An extensive study of global habitat fragmentation--the division of habitats into smaller and more isolated patches--points to major trouble for the world's ecosystems. The study shows that 70 percent of existing forest lands are within a half-mile of forest edges, where encroaching urban, suburban and agricultural influences can cause harmful effects such as losses of plant and animal species.

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