



NITRD News Brief

We are pleased to continue NITRD's News Brief that offers insight into the activities NITRD's member agencies are conducting to achieve the Nation's priorities through the lens of the public-facing news sources. These are divided into networking and information technology topics that have been identified as of great importance for improving Americans' daily lives.

For ease of access, under NITRD's logo, the title of each section is listed as a link to that section. The titles of the articles under the section's heading are links that provide immediate access to the news article listed. We hope you find this informative and helpful in your daily activities.

Do you know someone who would like to receive NITRD's weekly news brief? They can email NITRD's IT aficionados at nco@nitrd.gov and voilà they will receive the news brief with the cool technology articles each week!

WOMEN'S HISTORY MONTH: Women in STEM & IT

Women's History Month: NASA Celebrates Women of Artemis Launch Team

...NASA celebrates the women responsible for helping return humanity to the Moon, including the first woman and first person of color under NASA's Artemis missions. Artemis launch director – and NASA's first woman launch director – Charlie Blackwell-Thompson leads her launch team, which is composed of about 30% women, into a new era of space exploration. When Apollo 11 lifted off from the Kennedy Space Center in Florida, NASA's JoAnn Morgan was the only woman engineer working in Firing Room 1 of Kennedy's Launch Control Center. The number of women holding positions within Artemis has grown exponentially across the agency and NASA remains dedicated to maintaining a diverse and inclusive workforce...

National Aeronautics and Space Administration - Mar 8, 2023

Artificial Intelligence / Machine Learning

Coastal Change Likelihood Assessment Combines Data from USGS & NOAA into a Machine Learning Framework

...Coastal communities, important habitats, and cultural and natural resources can be threatened by hazards associated with coastal change. Understanding where coastal change is most likely to occur and which types of hazards, event-driven (e.g., storms) and/or perpetual (e.g., sea level rise), are more likely to affect a specific location is essential to planning for future vulnerabilities to people and resources. To help provide this critical information, the U.S. Geological Survey (USGS), in partnership with the National Park Service through the Natural Resource Preservation Program, developed the Coastal Change Likelihood (CCL) assessment. The CCL is a machine-learning framework that combines over 20 existing datasets from a variety of federal, state, and private organizations, including USGS and the National Oceanic and Atmosphere Administration (NOAA), to describe the landscape and six common hazards—erosion, storm frequency, relative sea level rise, tidal flooding, storm overwash probability, and wave power—that may affect the landscape to determine the likelihood of coastal change on a decadal scale. The assessment integrates data describing coastal characteristics, landscape composition, and the level of resistance to change, with data defining the drivers of change that impact the coast, such as waves and flooding...

USGS - Mar 3, 2023

Improving Training for Scientific Machine Learning

...In the world of scientific machine learning (SciML), scientists are beginning to embrace the use of neural networks as a way to accelerate simulations. At the heart of deep learning algorithms, neural networks provide a mechanism to encode complex dependency structures, using many connected node layers to transform data into learned features to be used for a wide range of scientific tasks. Spanning disciplines from quantum mechanics to health sciences, many successful machine learning (ML) and artificial intelligence (AI) methodologies aim to use neural networks either to complement or to speed up traditional computational models by training on various combinations of experimental and synthetic data. Neural networks can be difficult to train and employ on large-scale problems. This is well-known for computer vision and natural language processing problems (more traditional ML application areas), but it is becoming increasingly clear for scientific problems as well. Lawrence Berkeley National Laboratory researchers considered physics-informed neural networks (PINNs), which incorporate domain knowledge in the form of a differential operator as a soft regularization in the training process. They found that PINN methodologies can easily fail to learn relevant phenomena in somewhat more complex situations. They found two promising solutions to address these failure modes, each based on ML methodologies. In one solution, the team proposes using curriculum regularization, where the PINNs loss term starts from a simple PDE regularization and becomes progressively more complex as the neural network gets trained. Another approach is to pose the problem as a sequence-to-sequence or step-by-step learning task, rather than learning to predict the entire space-time at once. Their extensive testing showed that these methods could reduce error by up to 1-2 orders of magnitude compared to regular PINN training...

Berkeley Lab - Mar 3, 2023

ASU researcher combats food insecurity with AI in NASA's Harvest Project

...Despite having a year-round growing season and rich, productive soil, Hawaii has the highest food costs in the U.S. and a strong reliance on imported foods. Hannah Kerner, at Arizona State University, addressed the issue in a project with NASA Harvest, NASA's food security and agriculture program. Kerner is the U.S. domestic co-lead and artificial intelligence lead researcher for the program, which is housed at the University of Maryland Center for Global Agricultural Monitoring Research and operating as a consortium of international partners from more than 50 institutions around the world. Kerner's team is working with Maui United Way and other local partners to develop a food security dashboard that uses machine learning and satellite Earth observations to create new datasets for measuring and monitoring agricultural production across Maui County, which includes the Hawaiian Islands of Maui, Lanai and Molokai. Using local agriculture data and satellite Earth observations of Hawaii's crops, Kerner's machine learning models will be able to predict gaps in local food supply and access. This information will help Maui County decision-makers determine how to address food insecurity by identifying where crop growth can be more successful and assisting farmers with insights that will help them to grow more food locally. the dashboard will integrate other relevant datasets like socioeconomic and price data to guide community decisions and actions, thereby empowering growers and decision-makers to combat food insecurity by helping to set fair prices for local growers and consumers. The dashboard will focus on supporting small-scale, independent and Indigenous farmers in Maui County and fill critical gaps in the knowledge of agricultural production at multiple scales across the county...

Arizona State University - Mar 3, 2023

DOJ awards RIT scientists to develop machine-learning techniques to analyze body-worn camera footage

...A Rochester Institute of Technology professor is teaming up with the Rochester Police Department (RPD) to use statistical machine learning to analyze body-worn camera footage and help improve police training. Professor Ernest Fokoue from RIT's School of Mathematical Sciences received a \$1 million grant from the U.S. Department of Justice and RPD to conduct the study over the next three years. The project has several specific goals. The project members hope to produce publishable datasets built from a model scanning RPD body-worn camera footage; video examples for the RPD to analyze for defensive and de-escalation tactics; an algorithm to transcribe body-worn camera audio and flag specific words; an algorithm to help compare written reports with facts observed by body-worn cameras; and algorithms to detect biased behavior by RPD officers and identify effective de-escalation tactics used by RPD officers...

Rochester Institute of Technology - Mar 8, 2023

Robotics / Autonomous Vehicles

NASA's Curiosity Views First 'Sun Rays' on Mars

...NASA's Curiosity rover captured "sun rays" are also known as crepuscular rays, from the Latin word for "twilight." It was the first time sun rays have been so clearly viewed on Mars. The 2021 cloud survey included more imaging by Curiosity's black-and-white navigation cameras, providing a detailed look at a cloud's structure as it moves. But the recent survey, which began in January and will wrap up in mid-March, relies more often on the rover's color Mast Camera, or Mastcam, which helps scientists see how cloud particles grow over time. In addition to the image of sun rays, Curiosity captured a set of colorful clouds shaped like a feather...

National Aeronautics and Space Administration - Mar 6, 2023

NASA-Funded Robot Provides Unprecedented Views Below Antarctic Ice Shelf

...High in a narrow, seawater-filled crevasse in the base of Antarctica's largest ice shelf, cameras on the remotely operated Icefin underwater vehicle relayed a sudden change in scenery. Walls of smooth, cloudy meteoric ice abruptly turned green and rougher in texture, transitioning to salty marine ice. The research team recognized the shift as evidence of "ice pumping" – a process never before directly observed in an ice shelf crevasse, important to its stability. "It's a way these big ice shelves can protect and heal themselves," said Peter Washam, a polar oceanographer on the Icefin science team and the paper's second author. "A lot of the melting that happens deep near the grounding line, that water then refreezes and accretes onto the bottom of the ice as marine ice." The Icefin robot's unprecedented look inside a crevasse, and observations revealing more than a century of geological processes beneath the ice shelf. Through support from NASA's Astrobiology Program, a research team led by Britney Schmidt, associate professor of astronomy and earth and atmospheric sciences at Cornell, was able to join the expedition and deploy Icefin. NASA funded Icefin's development and the Kamb exploration to extend ocean exploration beyond Earth. Marine ice like that found in the crevasse may be an analog for conditions on Jupiter's icy moon Europa, the target of NASA's Europa Clipper orbital mission slated for launch in 2024. Later lander missions might one day search directly for microbial life in the ice. Icefin carries a full complement of oceanographic instruments on a modular frame more than 12 feet long and less than 10 inches in diameter. It was lowered on a tether through a borehole the New Zealand team drilled through the ice shelf with hot water. NASA supported the research through the Planetary Science and Technology from Analog Research program's Project RISE UP

Georgia Tech Research News - Mar 3, 2023

Cybersecurity / Privacy

FACT SHEET: Biden-Harris Administration Announces National Cybersecurity Strategy

...The Biden-Harris Administration released the National Cybersecurity Strategy to secure the full benefits of a safe and secure digital ecosystem for all Americans. The United States will reimagine cyberspace as a tool to achieve our goals in a way that reflects our values: economic security and prosperity; respect for human rights and fundamental freedoms; trust in our democracy and democratic institutions; and an equitable and diverse society. To realize this vision, we must make fundamental shifts in how the United States allocates roles, responsibilities, and resources in cyberspace: * Rebalance the responsibility to defend cyberspace; * Realign incentives to favor long-term investments. The Administration has already taken steps to secure cyberspace and our digital ecosystem, including the National Security Strategy, Executive Order 14028 (Improving the Nation's Cybersecurity), National Security Memorandum 5 (Improving Cybersecurity for Critical Infrastructure Control Systems), M-22-09 (Moving the U.S. Government Toward Zero-Trust Cybersecurity Principles), and National Security Memorandum 10 (Promoting United States Leadership in Quantum Computing While Mitigating Risks to Vulnerable Cryptographic Systems). Expanding on these efforts, the Strategy recognizes that cyberspace does not exist for its own end but as a tool to pursue our highest aspirations...

The White House - Mar 2, 2023

FACT SHEET: President Biden's Sweeping Pandemic Anti-Fraud Proposal: Going After Systemic Fraud, Taking on Identity Theft, Helping Victims

...President Biden is introducing a three-part historic Pandemic Anti-Fraud proposal: (1) Ensuring resources & time for investigations and prosecution of those engaged in major or systemic pandemic fraud (\$600 Million); (2) Investing in fraud prevention and identity theft (\$600 Million); (3) Helping victims of identity theft (\$400 Million). We must empower law enforcement to pursue, investigate, prosecute, and recover money from those who were engaged in major or sophisticated fraud—from well-off individuals who took hundreds of thousands, if not millions, of dollars from taxpayers to sophisticated criminal syndicates engaging in systemic identity theft....

The White House - Mar 2, 2023

NIST's National Cybersecurity Center of Excellence Renews Partnerships With State, County

...The Department of Commerce's National Institute of Standards and Technology (NIST), the state of Maryland and Montgomery County, Maryland, have renewed their partnership in support of the National Cybersecurity Center of Excellence (NCCoE), a collaborative hub where industry, government and academic experts work together to solve pressing cybersecurity challenges. The NCCoE, which was established in 2012, helps businesses secure their information technology systems with practical solutions based on industry standards, best practices and commercially available technology. The center also collaborates with researchers and technology vendors to provide guidance on industry-specific challenges such as securing health care data, protecting financial transactions and safeguarding critical infrastructure...
National Institute of Standards and Technology - Mar 7, 2023

Biden cybersecurity strategy a positive step, ASU expert Nadya Bliss says

...The Biden administration outlined its vision for a more secure cyberspace Wednesday with its release of a National Cybersecurity Strategy. The strategy places more responsibility on software developers and other institutions to have safeguards in place that ensure their systems cannot be hacked. ASU News talked to Nadya Bliss, executive director of Arizona State University's Global Security Initiative, about the administration's plan...
Arizona State University - Mar 3, 2023

NIH-Funded Researchers Protecting Genomic Privacy Through Phone Apps

...Over the past few years, many individuals have become interested in analyzing their data through genomics companies, such as 23andMe or Nebula Genomics. The process involves submitting a DNA sample to the company, which sequences the DNA and makes the resulting data available online through a password-protected website. Through these services, the consumers can learn about underlying health conditions or their family history. However, in all these cases, the companies control the data and the analysis tools, decreasing the user's privacy. To better protect the security and privacy of genomic technology, researchers are developing a computational system. The GSP theme is currently working on this problem through different projects. They are conducting surveys to understand whether the public is open to using these apps to learn about their genetic information. The researchers are hopeful that since most of us have used apps, people will be open to getting information through an app of their choice. The theme is also focused on developing these apps. So far, they have used artificial intelligence to develop apps that range from simple tests—like testing for sprinter's gene, which is associated with power athletes—to complex tests. The study was funded by the NIH.
News Bureau - Mar 2, 2023

5G, Wireless Spectrum, Networking & Communications

NASA & NOAA work together on the ozone-measuring Instrument on NOAA-21 Satellite Captures its First Images

...On February 9, 2023, an ozone-measuring instrument on the recently launched NOAA-21 satellite opened its doors and, over the course of a week, gathered data for its first global image. The Ozone Mapping and Profiler Suite (OMPS) consists of three sensors that monitor Earth's ozone layer and track its recovery. The map above, created using OMPS data, shows total ozone concentrations in the atmosphere around the globe. Higher ozone levels are concentrated in far northern latitudes, which is typical for this time of year. OMPS was originally designed to measure ozone high in the atmosphere; this ozone layer protects humans and other life on Earth from the harmful effects of ultraviolet radiation. In the decade since the first OMPS was launched on the Suomi-NPP satellite, the instrument's capabilities have expanded to include observations of aerosols, such as smoke from wildfires and sulfur dioxide and ash from volcanoes. For example, on February 17, 2023, OMPS detected volcanic aerosols still lingering from the massive Hunga Tonga volcanic eruption in the South Pacific, which spewed water vapor and sulfur dioxide into the stratosphere more than a year ago. Together, NOAA and NASA oversee the development, launch, testing, and operation of all the satellites in the Joint Polar Satellite System program. NOAA funds and manages the program, operations, and data products. NASA develops and builds the instruments, spacecraft, and ground system, and launches the satellites, which NOAA operates.
National Aeronautics and Space Administration - Mar 2, 2023

NASA Engages U.S. Farmers: Bringing Satellite Data Down to Earth

...Since the launch of the first Landsat satellite in 1972, NASA and its partners have mapped agriculture worldwide and provided key input into global supply outlooks that bolster the economy and food security. Now NASA is increasing its decades-long investment in U.S. agriculture through the launch of NASA Acres, a new consortium that will unite physical, social, and economic scientists with leaders in agriculture from public and private sectors. They will have the shared mission of bringing NASA data, science, and tools down-to-Earth for the benefit of the many people working to feed the nation. NASA Acres is commissioned under the agency's Applied Sciences Program and led by the University of Maryland. The consortium approach brings together public and private stakeholders and allows rapid actions in delivering NASA Earth observation data into the hands of U.S. farmers. Initial projects include aggregating and analyzing years of satellite data with state-of-the-art machine learning and artificial intelligence tools. Such efforts could help optimize scheduling for fertilizer application and irrigation, support early detection of pests and disease, monitor soil health, and provide information tools to support local food production. NASA Acres builds on the success of NASA Harvest, a globally focused consortium also based at the University of Maryland. "We want farmers to know

that their space agency has an agriculture program that is focused on understanding their needs and finding solutions with them," said Brad Doorn, who leads the NASA agriculture program area that oversees NASA Acres and Harvest...
National Aeronautics and Space Administration - Mar 8, 2023

NASA, Department of Energy Join Forces on Innovative Lunar Experiment

...NASA and the Department of Energy (DOE) are working together to develop a science instrument that will survive the harsh and unforgiving environment of the lunar surface at night on the far side of the Moon to attempt first-of-its-kind measurements of the Dark Ages of the Universe. The instrument, named the Lunar Surface Electromagnetics Experiment – Night (LuSEE-Night), is a collaboration between DOE’s Brookhaven National Laboratory, the DOE Office of Science, UC Berkeley’s Space Sciences Laboratory, and NASA’s Science Mission Directorate. LuSEE-Night is a pathfinder to understand the Moon’s radio environment and to potentially take a first look at a previously unobserved era in our cosmic history. This collaboration further strengthens the longstanding partnership between NASA and the DOE to enable space innovation and exploration. The Dark Ages is an important epoch in cosmological studies as it can provide new insights into the formation and evolution of our Universe. The Dark Ages occurred between approximately 380 thousand – 400 million years after the origin of the universe, known as the Big Bang, and are a time before the first luminous stars and galaxies appeared. The important radio wave signals from the Dark Ages are impossible to measure from Earth’s surface due to our planet’s opaque ionosphere and the noise from Earth’s constant “pollution” of the inner solar system with radio waves. Since radio waves present the only signal we can measure from the Dark Ages, LuSEE provides an opportunity to learn how the first non-luminous matter evolved into the stars and galaxies that we see dominating the observable Universe today...
National Aeronautics and Space Administration - Mar 7, 2023

NAU receives NASA grant to study drought resilience in Arizona’s forests using ECOSTRESS

...A team of researchers at Northern Arizona University, led by Temuulen (Teki) Sankey received a \$600,000 grant from NASA for a three-year project to study the impact of forest restoration treatments on forest resilience to drought in Arizona. Sankey, the principal investigator, is using NASA’s relatively new thermal sensor ECOSTRESS, which is aboard the International Space Station. This satellite measures land surface temperature, soil moisture and water usage of the forest canopy through evapotranspiration. Sankey also will integrate her unmanned aerial vehicle (UAV) images for more detailed data acquisition. The team will validate their findings with field measurements of canopy and moisture and a long-term dataset on forest soil moisture response to forest thinning and drought from Sankey’s lab. This unique dataset from NAU will aid in validating NASA’s new measurements of soil moisture using the images captured by ECOSTRESS. Sankey runs Northern Arizona University’s remote sensing and geoinformatics lab and her expertise is in remote sensing image analysis specializing in images of the Earth. Her UAVs have heat-sensing technologies and have been able to survey different forest areas showing that thinned forests have fared better during drought...
NAU News - Mar 6, 2023

NSF/NASA-funded project finds smoke particles from wildfires can erode the ozone layer

...A wildfire can pump smoke up into the stratosphere, where the particles drift for over a year. A new MIT study has found that while suspended there, these particles can trigger chemical reactions that erode the protective ozone layer shielding the Earth from the sun’s damaging ultraviolet radiation. focuses on the smoke from the “Black Summer” megafire in eastern Australia, which burned from December 2019 into January 2020. The fires — the country’s most devastating on record — scorched tens of millions of acres and pumped more than 1 million tons of smoke into the atmosphere. The team took a closer look at the composition of molecules in the stratosphere following the Australian wildfires. They combed through three independent sets of satellite data and observed that in the months following the fires, concentrations of hydrochloric acid dropped significantly at mid-latitudes, while chlorine monoxide spiked. The MIT team identified a new chemical reaction by which smoke particles from the Australian wildfires made ozone depletion worse. By triggering this reaction, the fires likely contributed to a 3-5 percent depletion of total ozone at mid-latitudes in the Southern Hemisphere, in regions overlying Australia, New Zealand, and parts of Africa and South America. The researchers’ model also indicates the fires had an effect in the polar regions, eating away at the edges of the ozone hole over Antarctica. This research was supported, in part, by NASA and the U.S. National Science Foundation.
MIT News - Mar 8, 2023

Advanced Manufacturing

FACT SHEET: Biden-Harris Administration Advances Cleaner Industrial Sector to Boost American Manufacturing and Cut Emissions

...The Biden-Harris Administration announced new actions to grow American competitiveness, expand manufacturing jobs, and reduce greenhouse gas emissions from the industrial sector, which includes production of steel, aluminum, chemicals, and concrete, and currently contributes nearly one-quarter of U.S. emissions. These actions will boost the already historic comeback for American factories. Today’s actions underscore the Administration’s comprehensive approach to building a clean industrial sector, from spurring investments to lower emissions in the supply of materials, to new procurement commitments that send demand signals in the marketplace for clean products...
The White House - Mar 8, 2023

ICYMI: Experts Agree: Chips Manufacturing and National Security Bolstered by Childcare

...Implementation of the CHIPS and Science Act, part of President Biden's Invest in America agenda, will help rebuild our manufacturing and supply chains here at home and strengthen our national security. The Commerce Department released the notice of funding opportunity laying out the guardrails for companies applying to make major investments in the semiconductor industry in America, including a novel requirement that recipients craft a program tailored to the location to provide child care for all of their workers. As experts broadly agreed, the Commerce announcement is a common-sense approach to the imperative of increasing our workforce, and in turn for fulfilling the national security imperative of manufacturing chips here in America...

The White House - Mar 8, 2023

Researchers unveil new AI-driven method for improving additive manufacturing

...Many industries rely on metal additive manufacturing to rapidly build parts and components. Additive manufacturing allows users to build complex parts quickly, but structural defects that form during the building process is one of the reasons that have prevented this approach from being widely adopted. Researchers from the U.S. Department of Energy's (DOE) Argonne National Laboratory have developed a new method for detecting and predicting defects in 3D printed materials, which could transform the additive manufacturing process. The scientists used various imaging and machine learning techniques to detect and predict the formation of pores in 3D printed metals in real time with near-perfect accuracy. Many additive manufacturing machines have thermal imaging sensors that monitor the build process, but these can miss the formation of pores because they only image the surface of the parts being constructed. The only way to directly detect pores inside dense, metal parts is by using intense X-ray beams. By correlating X-ray and thermal images, the scientists discovered that pores formed within a sample cause distinct thermal signatures at the surface that thermal cameras can detect. Then, the researchers trained a machine learning model to predict the formation of pores within 3D metals using only thermal images. They validated the model using data from the X-ray images, which they knew accurately reflected the generation of pores. Then, they tested the model's ability to detect thermal signals and predict pore generation in unlabeled samples...

Argonne National Laboratory - Mar 9, 2023

Climate Change / Green Energy & IT

NASA To Measure Forest Health from Above to Determine Amount of Carbon Forest Removed from the Atmosphere

...In places across the U.S., tree cover is shrinking – forests are burned by wildfires on the West Coast and drowned by rising sea levels along the East. From the ground, it's hard to assess the scale of the losses and the effects disappearing trees have on atmospheric carbon dioxide levels and climate change. NASA research scientist Jon Ranson is working to improve new technologies for studying trees from above, so future Earth-observing missions can more accurately assess forest health. When measured from aircraft and satellites, the wavelengths of light reflected by plants tell scientists about the amount of photosynthesis occurring, and therefore how much atmospheric carbon dioxide trees take up and store. The current standard for studying vegetation is called NDVI, or Normalized Differential Vegetation Index, which is the average of two broad portions of the infrared spectrum. NASA's NDVI record goes back 40 years, providing a low-resolution but accurate picture of forest health. Ranson's team fitted a Skyfish drone (UAV) from partner institution Virginia Tech with a visible and infrared (VIS/IR) hyperspectral camera and lidar equipment. They flew the imaging equipment over forests near Blacksburg, VA, in a region called Mountain Lake. Comparing their UAV observations with actual CO2 levels recorded by sensors on a nearby National Ecological Observatory Network tower, Ranson's team was able to refine calculations about how much carbon the forest removed from the atmosphere. These comparisons allowed them to further refine techniques for interpreting the hyperspectral data. For instance, Plants stressed by too much sunlight may release pigments to shield their chloroplasts, a condition his sensors can detect. If plants get too much shade, they may grow leaves with larger surface-areas, which can cause the sensor to overestimate plant productivity. Ranson wants to add short-wave infrared sensors to better distinguish reflections from leaves and other parts of plants, eliminating another possible source of error...

National Aeronautics and Space Administration - Mar 7, 2023

NSF-Funded Research Shows A Better Understanding of Gas Exchange Between the Atmosphere and Ocean Can Improve Global Climate Models

...The injection of bubbles from waves breaking in turbulent and cold high-latitude regions of the high seas is an underappreciated way in which atmospheric gases are transported into the interior ocean. An improved mechanistic understanding of gas exchange in high latitudes is important for several reasons, including to better constrain climate models that are used to predict changes in the ocean inventory of key gases like oxygen and carbon dioxide. A new WHOI-led study combines new geochemical tracers and ocean circulation models to investigate the physics by which atmospheric gases get into the deep ocean. The new findings suggest that the dissolution of bubbles in the high-latitude ocean may be the dominant pathway by which all of the noble gases, oxygen, and nitrogen get into the deep ocean. If we can improve the way models represent physical processes such as gas exchange, we can have more confidence in future simulations with models as a way of predicting how things will change in a warmer world with more CO2. Understanding how the ocean takes up and releases gases to the atmosphere is a challenging but critically important step toward predicting their response to climate

change. The results also shed light on the oceanic nitrogen cycle, which is both important for climate change issues, but also our fundamental understanding of how ocean food web is supported. Funding for this research was provided by the U.S. National Science Foundation (NSF)...
The Woods Hole Oceanographic Institution - Mar 7, 2023

Digital Health

FACT SHEET: President Biden's Budget Advances Equity

...The Biden-Harris Administration has made significant progress advancing equity across the Federal Government, including by releasing a second executive order in February 2023 that strengthens the government's ability to create opportunities for communities and populations that have been historically underserved, and continues to build an America in which all can participate, prosper, and reach their full potential. * Advances Maternal Health and Health Equity; * Expands Access to Quality, Affordable Health Care; * Supports Survivors of Domestic Violence and Other Forms of Gender-Based Violence; * Guarantees Adequate and Stable Funding for IHS; * Supports Rural Health; * Invests in the Treatment and Prevention of Infectious Diseases...

The White House - Mar 9, 2023

Other IT Related

White House Office of Science and Technology Policy Event: Presidential Budget Release

...The White House Office of Science and Technology Policy (OSTP) is pleased to invite you to a virtual event on Monday, March 13, at 10:00 AM to mark the release of President Joe Biden's Fiscal Year 2024 Budget and highlight the investments it includes in science, technology, and innovation. Speakers: * Arati Prabhakar, Assistant to the President for Science and Technology and OSTP Director | * Nani Coloretti, Deputy Director of the Office of Management and Budget | * Sethuraman Panchanathan, Director of the National Science Foundation | * Laurie Locascio, Director of the National Institute of Standards and Technology and Undersecretary of Commerce for Standards and Technology | * Renee Wegrzyn, Director of the Advanced Research Projects Agency for Health (ARPA-H) | Please tune in to the event on March 13th!

YouTube - Mar 8, 2023

Remarks of OSTP Director Arati Prabhakar at the 2023 AAAS Annual Meeting

...People in every state are buying electric vehicles and heat pumps, and communities nationwide are deploying wind and solar energy, accelerated by the Inflation Reduction Act — the biggest step ever to meet the climate crisis. Railroads and electric grids, antibiotics and vaccines, transistors and satellites — it was almost always a bumpy road as these new technologies disrupted the status quo. Our innovation capacity is both organic and directed. We got here through millions of choices made by people in universities, companies, nonprofits, and government agencies. We got here with collaborations with our partners and allies globally. And all of those individual actions were shaped by successive generations of national strategies. This is our role at the Office of Science and Technology Policy...

The White House - Mar 3, 2023

NSF-funded researchers uncover secrets of how Alaska's Denali Fault formed

...When the rigid plates that make up the Earth's lithosphere brush against one another, they often form boundaries, known as faults, on the planet's surface. Strike-slip faults, such as the San Andreas Fault in California and the Denali Fault in Alaska, are among the most well-known and capable of powerful seismic activity. Studying these faults can help geoscientists not only better understand the process of plate tectonics, which helped form the planet's continents and mountains, but also better model today's earthquake hazards. Most studies of these types of faults, however, look only at the upper layer of the Earth's crust where the faults form. NSF-funded researchers analyzed how the part of the fault that's near the surface connects to the base of the tectonic plate in the mantle. The researchers used new data from a network of seismic stations to create a 3D model of seismic wave velocities throughout Alaska. With this innovative tool, the researchers discovered changes in the thickness and internal strength of the tectonic plate Alaska sits on. The model shows that changes in plate strength feed back into the mechanics of where the Denali Fault line is produced...

National Science Foundation - Mar 7, 2023

STEM / Workforce & IT

PUBLIC LISTENING SESSIONS TO INFORM THE 2023-2028 FEDERAL STEM STRATEGIC PLAN

...The White House Office of Science and Technology Policy (OSTP) will host a series of virtual listening sessions to inform the development of the 2023- 2028 Federal Science, Technology, Engineering, and Mathematics (STEM) Strategic Plan. As part of a robust public engagement plan, OSTP encourages input from all interested parties, including students, teachers, administrators, parents, researchers, employers, and others to provide information and perspectives on the challenges faced by – and within – the STEM ecosystem in the United States and solutions that might be implemented by the U.S. Government. The six upcoming listening sessions will be as follows: (1) STEM Education: Support learners and educators in and across all science and technology disciplines. Wednesday, March 15, 2023 from 3pm-5pm ET | (2) STEM Workforce Development: Prepare and recruit our Nation's future STEM workforce. Friday, March 17, 2023 from 2pm-4pm ET | (3) STEM Workforce: Foster inclusive STEM learning and working spaces to retain STEM learners and workers. Monday, March 20, 2023 from 3pm-5pm ET | (4) STEM Engagement: Foster meaningful community and public engagement in science and technology. Wednesday, March 22, 2023 from 4pm-6pm ET | (5) STEM Research and Innovation Capacity: Build and drive capacity and cutting-edge STEM (and STEM education) research and development. Friday, March 24, 2023 from 2pm-4pm ET | (6) The National STEM Ecosystem Monday, March 27, 2023 from 6pm-8pm ET..
The White House - Mar 2, 2023

STEM / Workforce Resources & Opportunities

R&D WORKFORCE TRAINING: FEDERAL AGENCIES' STEM INTERNSHIPS, SCHOLARSHIPS, AND TRAINING OPPORTUNITIES

...Increasing the availability of STEM opportunities is a priority in the Biden-Harris Administration. To help facilitate this, the team at NITRD developed a STEM Portal that allows anyone to search for internships and other training opportunities at Federal agencies. The NITRD STEM PORTAL is a searchable database that includes a description, link, and contact information for each program listing. Government-sponsored internships and training programs are competitive, but there are many Federal opportunities and the NITRD STEM Portal is here to help...

The Networking and Information Technology Research and Development (NITRD) Program - Mar 9, 2023

National Summer Teacher Institute

...The National Summer Teacher Institute (NSTI) is a multi-day professional development training opportunity designed to support elementary, middle, and high school teachers as they increase their knowledge of concepts of making, inventing, and intellectual property (IP) creation and protection. NSTI is designed to help teachers inspire the next generation of innovators and entrepreneurs. The program is open to eligible K-12 teachers nationwide. It combines experiential training tools, practices, and project-based learning models. Apply by March 31, 2023.

U.S. Patent and Trademark Office - Mar 9, 2023

Federal Register: Request for Information (RFI)

Request for Information on the 2023 Federal Cybersecurity Research and Development Strategic Plan: DEADLINE Mar 14

...The NITRD NCO seeks public input for the 2023 update of the Federal cybersecurity R&D strategic plan. The updated plan will be used to guide and coordinate federally funded research in cybersecurity, including cybersecurity education and workforce development, and the development of consensus-based standards and best practices in cybersecurity. The deadline is extended from March 3, 2023 to 11:59 p.m. (ET) on March 14, 2023.

Federal Register - Feb 28, 2023

Preparing a Future Workforce in Quantum Information Science

...The rapidly emerging field of Quantum Information Science (QIS) has the potential to produce innovations in quantum computing, simulation, communication, sensing and other technologies which are critical to our nation's future economic and national security. As a new and strongly technology-oriented field, QIS requires a well-trained workforce to fill positions ranging from research and development to design and manufacturing. The Office of Science in the U.S. Department of Energy (DOE) invites input from higher education institutions on approaches needed to prepare students for careers related to QIS, including identification of opportunities where DOE's network of national laboratories could assist in training the future scientific and technological QIS workforce. Responses to the RFI must be received by April 20, 2023.

Federal Register - Mar 4, 2023

Upcoming Conferences / Workshops / Webinars

Digital Identity Guidelines Webinar (3): The Future of Authentication: Mar 16

...This final webinar in the Digital Identity Guidelines Webinar Series will focus on the evolving nature of authentication technology and how organizations and NIST are addressing new innovations in the space. Panelists will discuss phishing-resistant authentication, trends in MFA such as FIDO and Passkeys, and the challenges of moving on from SMS authentication. March 16, 2023 1:30 - 3:00pm EDT
National Institute of Standards and Technology - Feb 13, 2023

Webinar: DARPA Seeks Input to Advance Hybrid Quantum/Classical Computers: Apr 11

...Although fault-tolerant quantum computers are projected to be years to decades away, processors made from tens to hundreds of quantum bits have made significant progress in recent years, especially when working in tandem with a classical computer. These hybrid quantum/classical systems could enable technical disruption soon by superseding the best classical-only supercomputers in solving difficult optimization challenges and related problems of interest to defense, security, and industry. DARPA is sponsoring a live webinar on Tuesday, April 11, 2023, to highlight an Advanced Research Concept (ARC) topic called Imagining Practical Applications for a Quantum Tomorrow (IMPAQT)...
DARPA - Mar 7, 2023

Note: Any mention in the text of commercial, non-profit, academic partners, or their products, or references is for information only; it does not imply endorsement or recommendation by any U.S. Government agency.

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