



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!

Federal Agency Funding Opportunities

Biden-Harris Administration Launches Rural and Municipal Utility Cybersecurity Prize Competition

...The U.S. Department of Energy launched the Advanced Cybersecurity Technology (ACT) 1 Prize Competition. The ACT 1 Prize is part of the Rural and Municipal Utility Cybersecurity (RMUC) Program and supports President Biden's Investing in America agenda to strengthen the country's national and economic security with next-generation technologies. Established by the President's Bipartisan Infrastructure Law, the RMUC program will provide \$250 million over a five-year period to enhance the cybersecurity posture of cooperative, municipal, and small investor-owned electric utilities. Managed by DOE's Office of Cybersecurity, Energy Security, and Emergency Response, the RMUC

Program will provide critical investments to strengthen utility systems, deliver crucial technical assistance, and provide cybersecurity training to the utility workforce. ACT 1 Prize applications are due by 5:00 PM (ET) on November 29, 2023...
Department of Energy - Aug 30, 2023

HPC

VCU engineering professor and NIST collaborators help light the way toward more powerful computing

...Nathaniel Kinsey, Ph.D., Engineering Foundation Professor in VCU's Department of Electrical and Computer Engineering, is leading a group of researchers who are exploring frontiers in optical computing and machine learning. With a focus on nanophotonics, he studies the interaction of light with materials on the smallest of scales. Though the concept of optical computing is not new, interest and funding waned in the 1980s and 1990s as silicon chip processing proved to be more cost-effective. But recent slowdowns in scaling silicon-based technologies have opened the door to revisiting methods of data processing. Linear optical systems, like photonic integrated circuits that are common in fiber-optic communications, use limited energy but are not capable of complex image processing. Building nonlinear optical systems would expand functionality, making them ideal for remote sensing platforms on drones and satellites – for example, to identify tanks or troop movements as part of an early warning system. Kinsey's research seeks to determine the impact of the additional power requirements in nonlinear optical computing. Kinsey and collaborators from the National Institute of Standards and Technology are working to design a new kind of optically sensitive material. Their goal is to engineer and produce a device combining a unique material, called epsilon-near-zero, and a nanostructured surface to offer improved control over transmission and reflection of light – and with limited energy requirements, as the light is bent and shaped along the surface to perform data processing...

Virginia Commonwealth University News - Aug 30, 2023

Artificial Intelligence / Machine Learning

Red-Teaming Large Language Models to Identify Novel AI Risks

...To seize the benefits of artificial intelligence (AI), we must first manage its risks. The Biden-Harris Administration has been working to ensure that AI is developed safely and responsibly to protect Americans from harm and discrimination. Earlier this month, leading AI companies provided their large language models (LLMs) for the first-ever public assessment "red-teaming" event. The event was based on the risks outlined in the Administration's Blueprint for an AI Bill of Rights and AI Risk Management Framework, and aligns with the recent AI company voluntary commitments announced by the President to mitigate the risks of AI, including external security testing by independent experts. The results of the event are still being analyzed, and the organizers will provide the AI companies with the data so they can improve their LLMs. Later, the organizers will provide a full report. The event demonstrated how external red-teaming can be an effective tool to identify novel AI risks, not only for safety and security, but also for other key AI risks including bias, discrimination, and privacy. More broadly, the event helped to create norms for continuous, external red-teaming of LLMs for risks to rights and safety, which will be a key method for increasing transparency and accountability for AI companies...

The White House - Aug 29, 2023

DOD Will Deploy AI-Enabled Detection System to Monitor D.C. Airspace

...An artificial intelligence-powered airspace monitoring system is set to be installed to enhance protection of the nation's capital with the potential to scale across other Defense Department and U.S. government installations and systems. The upgraded visual recognition, identification and warning system delivers a tenfold increase in performance capability compared to the 9/11-era system it replaces. It's a cutting-edge surveillance, identification and tracking system that monitors and defends the controlled airspace around Washington, D.C., part of the National Capital Region-Integrated Air Defense System. Teleidoscope, a first-time, non-traditional Defense Department vendor, was awarded a \$100 million ceiling production contract. Initial prototype and procurement funding was provided by the U.S. Air Force, and additional procurement funding was provided by the Accelerate the Procurement and Fielding of Innovative Technologies program as part of its mission to accelerate the procurement and fielding of innovative technologies. The new system leverages "market advancements in machine learning and augmented reality features in surveillance cameras that assist air battle managers with their ability to identify flying objects within NCR airspace." The auto-tracking capabilities of the system are applicable to full-motion video feeds, irrespective of the domain, opening the door to augment remotely piloted aircraft video feed tracking capabilities. The software from this prototype has the potential to run on any edge device or cloud-provided, full-motion video feed...

U.S. Department of Defense - Aug 28, 2023

Robotics / Autonomous Vehicles

NSF's National Robotics Initiative, NASA and NOAA Support a New Framework for Oceanographic Research that Provides Potential for Broader Access to Deep Sea Scientific Exploration

... [Funded by NSF, NASA, NOAA] A new and innovative framework for oceanographic research provides a way for shore-based scientists, citizen scientists, and the general public to seamlessly observe and control robotic sampling processes. The Shared Autonomy for Remote Collaboration (SHARC) framework “enables remote participants to conduct shipboard operations and control robotic manipulators” – such as on remotely operated vehicles (ROVs) – “using only a basic internet connection and consumer-grade hardware, regardless of their prior piloting experience.” The framework has been developed by a research team from the Woods Hole Oceanographic Institution (WHOI), the Massachusetts Institute of Technology (MIT), and the Toyota Technological Institute at Chicago (TTIC). The SHARC framework enables real-time collaboration between multiple remote operators, who can issue goal-directed commands through simple speech and hand gestures while wearing virtual reality goggles in an intuitive three-dimensional workspace representation. The human-robot interaction—sometimes referred to as shared autonomy—that SHARC enables, delegates responsibilities between the robot and the human operator based on their complementary strengths. The robot, for instance, can handle kinematics, motion planning, obstacle avoidance, and other low-level tasks, while human operators take responsibility for high-level scene understanding, goal selection, and task-level planning. Funding for this research was provided by the National Science Foundation (NSF) National Robotics Initiative, NASA’s Planetary Science and Technology from Analog Research (PSTAR) program, NSF Graduate Research Fellowship, and the NOAA Ocean Exploration Cooperative Institute provided in-kind support with ship and robotic vehicle operations...
The Woods Hole Oceanographic Institution - Aug 24, 2023

Penn State receives \$3M NSF grant to address insect biodiversity crisis by monitoring and tracking

...A team of Penn State researchers has received a \$3 million grant from the National Science Foundation to spearhead a new initiative to create novel monitoring systems for insect populations. The project — called Interdisciplinary Studies in Entomology, Computer Science and Technology NETWORK, or INSECT NET — will establish a graduate training program to empower students to develop solutions to the insect biodiversity crisis. These solutions may include cyber-physical systems, such as small robots with camera or acoustic sensors, which can autonomously monitor, map and predict changes in insect abundance and distributions across landscapes and over time. Recent advances in computer science and engineering — including artificial intelligence — now give the ability to design powerful tools for monitoring and tracking insects in cities, farms and forests. New technologies — such as autonomous, eco-sensitive robots with intelligent sensors that can navigate, observe and interact with fragile ecosystems — could help provide key insight into changes in insect biodiversity...
Penn State University - Aug 28, 2023

DARPA Supports Team’s New AI Technology that Gives Robot Recognition Skills a Big Lift

...A new system allows a robot to push objects multiple times until a sequence of images are collected, which in turn enables the system to segment all the objects in the sequence until the robot recognizes the objects. Previous approaches have relied on a single push or grasp by the robot to “learn” the object. The research group has made a significant advance with its robotic system that uses artificial intelligence to help robots better identify and remember objects. The UTD researchers’ technology is designed to help robots detect a wide variety of objects found in environments such as homes and to generalize, or identify, similar versions of common items such as water bottles that come in varied brands, shapes or sizes. Robots learn to recognize items in a comparable way to how children learn to interact with toys. After pushing the object, the robot learns to recognize it. The team train the AI model so the next time the robot sees the object, it does not need to push it again. By the second time it sees the object, it will just pick it up. The research was supported in part by the Defense Advanced Research Projects Agency...
The University of Texas at Dallas - Aug 30, 2023

Quantum

NIST to Standardize Encryption Algorithms That Can Resist Attack by Quantum Computers

...Last year, the National Institute of Standards and Technology (NIST) selected four algorithms designed to withstand attack by quantum computers. Now the agency has begun the process of standardizing these algorithms — the final step before making these mathematical tools available so that organizations around the world can integrate them into their encryption infrastructure. NIST released draft standards for three of the four algorithms and a draft standard for FALCON, the fourth algorithm, will be released in about a year. Each new publication is a draft Federal Information Processing Standard (FIPS) concerning one of the four algorithms NIST selected in July 2022: (1) CRYSTALS-Kyber, designed for general encryption purposes such as creating secure websites, is covered in FIPS 203. (2) CRYSTALS-Dilithium, designed to protect the digital signatures we use when signing documents remotely, is covered in FIPS 204. (3) SPHINCS+, also designed for digital signatures, is covered in FIPS 205. (4) FALCON, also designed for digital

signatures, is slated to receive its own draft FIPS in 2024. Sensitive electronic information, such as email and bank transfers, is currently protected using public-key encryption techniques, which are based on math problems a conventional computer cannot readily solve. Quantum computers are still in their infancy, but a sufficiently powerful one could solve these problems, defeating the encryption. The new standards, once completed, will provide the world with its first tools to protect sensitive information from this new kind of threat...

National Institute of Standards and Technology - Aug 24, 2023

Department of Energy Announces \$24 Million for Research on Quantum Networks

...The U.S. Department of Energy (DOE) announced \$24 million in funding for three collaborative projects in quantum network research. “Advances in quantum networking are enabling effective interconnections among multiple quantum devices,” said Ceren Susut, DOE Acting Associate Director of Science for Advanced Scientific Computing Research. “However, realizing scalable infrastructures for quantum information flows demands advancements in devices, error mitigation techniques, and new quantum network architectures and protocols.” The projects were selected by competitive peer review under the DOE National Laboratory Announcement, Scientific Enablers of Scalable Quantum Communications. Total funding is \$24 million for projects lasting up to three years in duration, with \$8 million in Fiscal Year 2023 dollars and outyear funding contingent on congressional appropriations...

Department of Energy - Aug 29, 2023

NSF Quantum Systems program funds physicist Henriksen to build quantum-scale sensors

...Erik Henriksen, an associate professor of physics in Arts & Sciences at Washington University in St. Louis, is part of a team that was awarded funding from the National Science Foundation’s Quantum Sensing Challenges for Transformational Advances in Quantum Systems program. The team will develop quantum-limited rotation sensors using helium-4 in a device containing 2D materials and create a membrane with atomic-scale pores to make a weak link known as a Josephson junction between reservoirs of superfluid (a liquid with zero viscosity). Henriksen will fabricate a portion of the device that is central to the research: a suspended, atomically thin material with incredibly tiny, nanometer-sized holes...

The Source - Washington University in St. Louis - Aug 29, 2023

Cybersecurity / Privacy

FBI, Partners Dismantle Qakbot Infrastructure in Multinational Cyber Takedown

...The FBI and the Justice Department announced a multinational operation to disrupt and dismantle the malware and botnet known as Qakbot. The Qakbot malware infected victim computers primarily through spam emails that contained malicious attachments or links. After a user downloaded or clicked the content, Qakbot delivered additional malware—including ransomware—to their computer. The computer also became part of a botnet (a network of compromised computers) and could be controlled remotely by botnet users. All the while, a Qakbot victim was typically unaware that their computer had been infected. As part of the operation, the FBI gained lawful access to Qakbot’s infrastructure and identified over 700,000 infected computers worldwide—including more than 200,000 in the U.S. To disrupt the botnet, the FBI redirected Qakbot traffic to Bureau-controlled servers that instructed infected computers to download an uninstaller file. This uninstaller—created to remove the Qakbot malware—untethered infected computers from the botnet and prevented the installation of any additional malware. ... [Really Cool Tactic!!]

Federal Bureau of Investigation - Aug 29, 2023

Clemson mathematicians’ collaborative digital signature is a candidate to become a national standard

...The U.S. National Institute of Standards and Technology is holding a competition to select standard post-quantum digital signature algorithms that would securely authenticate email, credit card and bank transactions, and digital documents from unwanted third parties’ tampering. A digital signature developed by researchers from Clemson University and three universities in Europe could become part of the national standard for encryption tools designed to protect the privacy of digital information against quantum computers in the future. The researchers’ CROSS (Codes and Restricted Objects Signature Scheme) proposal was named a candidate for standardization. A digital signature is a mathematical algorithm used to validate the authenticity and integrity of an email, credit card transaction or digital document. Digital signatures create a virtual fingerprint that is unique to a person or entity and are used to identify users and protect information in digital messages or documents. Digital signatures are significantly more secure than other forms of electronic signatures. Quantum computers leverage quantum superposition and entanglement so they can explore multiple solution pathways simultaneously, allowing them to solve problems that would take a classic computer too long to calculate. With that power would come the ability to crack today’s standards for encryption and digital signatures, which rely on math problems that even a combination of the fastest conventional computers find intractable...

Clemson University - Aug 28, 2023

5G, Wireless Spectrum, Networking & Communications

NASA to Demonstrate Laser Communications from Space Station

...NASA is sending a technology demonstration known as the Integrated LCRD Low Earth Orbit User Modem and Amplifier Terminal (ILLUMA-T) to the space station. Together, ILLUMA-T and the Laser Communications Relay Demonstration (LCRD), which launched in December 2021, will complete NASA's first two-way, end-to-end laser relay system. With ILLUMA-T, NASA's Space Communications and Navigation (SCaN) program office will demonstrate the power of laser communications from the space station. Using invisible infrared light, laser communications systems send and receive information at higher data rates. With higher data rates, missions can send more images and videos back to Earth in a single transmission. In addition to higher data rates, laser systems are lighter and use less power. ILLUMA-T is approximately the size of a standard refrigerator and will be secured to an external module on the space station...

National Aeronautics and Space Administration - Aug 28, 2023

NASA Researchers Measure Sinking Land in American Samoa using a combination of satellite and ground-based observations

...On Sept. 29, 2009, an 8.1-magnitude earthquake struck near American Samoa, Samoa, and Tonga, triggering a tsunami. The earthquake also exacerbated another problem in American Samoa: subsidence, or the sinking of land. When combined with relative sea level rise, land sinking can increase the frequency and amount of coastal flooding. A team of NASA scientists found that using a combination of satellite and ground-based observations could result in a more nuanced and comprehensive map giving better map ground changes on earthquake-prone islands. The researchers added InSAR, or interferometric synthetic aperture radar, which allowed them to see where the ground was changing. InSAR is a technique that involves comparing satellite radar images of the same area collected at different times to spot movement on Earth's surface and track changes in ground height...

National Aeronautics and Space Administration - Aug 25, 2023

NASA Shares First Images from US Pollution-Monitoring Instrument

...NASA released the first data maps from its new instrument launched to space earlier this year, which now is successfully transmitting information about major air pollutants over North America. From its orbit 22,000 miles above the equator, NASA's TEMPO, or Tropospheric Emissions: Monitoring of Pollution, is the first space-based instrument designed to continuously measure air quality above North America with the resolution of a few square miles. Observations by TEMPO will significantly improve studies of pollution caused by rush-hour traffic, the movement of smoke and ash from forest fires and volcanoes, and the effects of fertilizer application on farmland. The first pollution maps released by NASA from the mission show concentrations of nitrogen dioxide gas from pollution around cities and major transportation arteries of North America. TEMPO measures sunlight reflected and scattered off Earth's surface, clouds, and atmosphere. Gases in the atmosphere absorb the sunlight, and the resulting spectra are then used to determine the concentrations of several gases in the air, including nitrogen dioxide...

National Aeronautics and Space Administration - Aug 24, 2023

USDA Funds Research that Finds Wildfire, Soil Emissions Increasing Air Pollution in Remote Forests

...Satellite data from across California's landscapes reveal an increase in nitrogen dioxide levels in remote forest areas, and wildfire and soil emissions are likely the reasons why. The researchers looked at summertime surface and satellite concentrations of nitrogen dioxide between 2009 and 2020 and found that levels decreased by 2-4.5% per year in urban areas across California, while rural concentrations remained relatively constant, and remote forests experienced an increase of roughly 4.2% per year. Scientists examined surface nitrogen dioxide levels collected by the state and NASA's Aura satellite. They sorted areas of nitrogen dioxide in the atmosphere by surface temperature and soil moisture levels. Controls on internal combustion engines and other fossil fuel emitters have reduced levels of nitrogen dioxide in urban areas, where most air pollution monitors are placed. Continuous satellite data helped fill in the picture in less monitored regions and found that effect is not mirrored in rural areas and remote forests. There, wildfires and emissions from soils, particularly agricultural soils with fertilizer use, correlate to an increase of nitrogen dioxide levels. The U.S. Department of Agriculture's National Institute of Food and Agriculture funded the research...

UC Davis - Aug 29, 2023

NASA-funded researchers find that mining boom endangers rivers around the world

...Gold and mineral mining in and near rivers across the tropics is degrading waterways in 49 countries. A team of researchers presents a global picture of how sedimentation caused by mining is negatively impacting rivers from South America to central Africa to east Asia. The team analyzed information from social media mining company reports and satellite and aerial images from Landsat 5 and 7 via the NASA/United States Geological Survey Landsat program and Sentinel-2 data. The results show more than 80% of the mining sites are located within 20 degrees of the equator. To detect the transport of suspended sediment the team applied algorithms and the resulting data show that more than 35,000 kilometers of tropical rivers are affected by gold and mineral mining around the world, more than doubling the sediment load in 80% of the 173 rivers studied. The team worked with co-researchers on methods for combining available satellite data with "labeled data" – what is a river, what is a pond, where is active mining taking place – to

train the algorithms and turn numbers into usable, understandable information. The team also found that two-thirds of the rivers represented in the study exceeded the turbidity guidelines for protecting fish on 90% of the days or more, meaning the cloudiness of the rivers was higher than the recommended guidelines. The project was funded by NASA's Land Cover Land Use Change Program and NASA's ROSES Program...
Wake Forest University - Aug 24, 2023

Climate Change / Green Energy & IT

U.S. Department of Energy's Three Reports Projects Strong Growth in U.S. Wind Power Sector

...The U.S. Department of Energy released three annual reports showing that wind power continues to be one of the fastest growing and lowest cost sources of electricity in America and is poised for rapid growth. According to the new reports, wind power accounted for 22% of new electricity capacity installed in the United States in 2022, second only to solar, representing \$12 billion in capital investment, and employing more than 125,000 Americans. The reports found that transformative tax incentives in President Biden's Investing in America agenda have led to significant increases in near-term wind deployment forecasts and are helping keep wind power prices competitive with other sources of energy like natural gas. The 2023 edition of the Land-Based Wind Market Report, prepared by DOE's Lawrence Berkeley National Laboratory, details the 8,511 MW of new utility-scale land-based wind generation capacity added in 2022—the equivalent of powering 2.5 million American homes. The 2023 edition of the Offshore Wind Market Report, prepared by DOE's National Renewable Energy Laboratory, shows continued progress toward the President's goal of advancing offshore wind to promote good-paying domestic jobs and provide clean energy. This report found that the capacity of U.S. offshore wind energy projects being developed and currently operating increased 15% from the previous year to 52,687 MW, which if fully developed would be enough to power over 18 million American homes. The 2023 edition of the Distributed Wind Market Report, prepared by DOE's Pacific Northwest National Laboratory, notes that 1,755 distributed wind turbines were added across 13 states in 2022. Distributed wind turbines, which serve on-site energy demand or support operation of local electricity distribution networks, total 29.5 MW of new capacity and represent \$84 million in new investment in 2022...
Department of Energy - Aug 24, 2023

DOE Announces \$126 Million for Small Businesses to Pursue Clean Energy Research and Development

...The U.S. Department of Energy (DOE) announced 106 awards totaling \$126 million in research and development grants for 90 different small businesses whose projects will address multiple mission areas across the Department, including clean energy and decarbonization, cybersecurity and grid reliability, fusion energy, and nuclear nonproliferation. Funded through the DOE's SBIR/STTR program are Phase II research and development of projects that either demonstrated feasibility for innovations during Phase I or are continuing prototype and process development from previous Phase II awards. The median Phase II award is \$1.1 million for a period of two years...
Department of Energy - Aug 25, 2023

Digital Health

NSF-funded robotic glove that 'feels' lends a hand to relearn playing piano after a stroke

...A first-of-its-kind robotic glove is lending a "hand" and providing hope to piano players who have suffered a disabling stroke. Developed by researchers from Florida Atlantic University, the soft robotic hand exoskeleton uses artificial intelligence to improve hand dexterity. This research was supported in part by two grants from the U.S. National Science Foundation. The newly developed robotic glove is the first to "feel" the difference between correct and incorrect versions of the same song and to combine these features into a single hand exoskeleton. Researchers integrated special sensor arrays into each fingertip of the robotic glove. Unlike prior exoskeletons, this new technology provides precise force and guidance in recovering the fine finger movements required for piano playing. By monitoring and responding to users' movements, the robotic glove offers real-time feedback and adjustments, making it easier to grasp the correct movement techniques.
National Science Foundation - Aug 24, 2023

Getting Ready for EHI Export: A Quick Guide

...All certified Health IT Modules that are part of a health IT product that stores electronic health information (EHI) are required to certify to the Electronic Health Information export criterion and make the functionality available to end users by December 31, 2023. EHI is the "electronic protected health information" (ePHI) that would be included in a designated record set as defined in 45 CFR 164.501. Notably, EHI does not include psychotherapy notes or information compiled in a reasonable anticipation or, for use in, a civil, criminal, or administrative action or proceeding. The Assurances Maintenance of Certification requires any certified Health IT Module that is part of a Health IT Product that electronically stores EHI to certify to § 170.315(b)(10). The § 170.315(b)(10) criterion includes requirements for both single patient EHI export and entire patient population EHI

export. As certified health IT developers work to provide § 170.315(b)(10) functionality to clinicians by the December 2023 deadline, it is important to highlight that this criterion specifies requirements solely for certified health IT developers...

Health IT - Aug 29, 2023

NIH funds using deep learning to classify post-COVID-19 lung progression phenotypes

...To accurately diagnose and treat long COVID and its subtypes efficiently and effectively, Dr. Tianbao Yang, associate professor in the Department of Computer Science and Engineering at Texas A&M University, in partnership with the University of Iowa, has received a \$3.7 million grant from the National Institutes of Health to develop self-supervised deep learning technologies capable of recognizing subtypes of post-COVID lung progression phenotypes. By using deep learning technologies, Yang's research aims to understand the symptoms associated with impaired lung function in patients with post-COVID-19 diagnoses. Understanding the differences in symptoms and biomarkers is critical to making the correct subtype diagnosis and ensuring patients receive the proper treatment. The biggest hurdle to developing this technology is the lack of data available since COVID-19 is still a new and emerging disease. To combat this problem, Yang is creating a contrastive self-supervised deep learning model that utilizes X-rays and CT scans to differentiate post-COVID-19 subjects from healthy subjects while simultaneously identifying post-COVID-19 subtypes. In other words, his technology can use artificial intelligence to pull information from unlabeled retrospective data...

Texas A&M University College of Engineering - Aug 28, 2023

Other IT Related

Building for a new age of open exploration

...As part of the Biden-Harris Administration's work to ensure continued leadership in space, the United States embraced these trends in the first-ever National Cislunar Science and Technology Strategy released last November. This strategy addresses how the United States will support responsible, peaceful, and sustainable exploration and use of cislunar space, including the moon. * New communications and navigation infrastructure in cislunar space will enable enduring human and robotic activities at the moon as part of NASA's Moon-to-Mars objectives. * The U.S. government is coordinating new initiatives on lunar gravity and geology maps, lunar geodetic systems, and timing standards that can work across the Earth-moon system, so that we can open new discussions with nations worldwide to advance safe and sustainable operations throughout cislunar space.

* U.S. government initiatives will support development of "space situational awareness" (SSA) capabilities for cislunar space to help satellite operators navigate safely and promote responsible spacecraft operations...

The White House - Aug 31, 2023

A Proclamation on Women's Equality Day, 2023

...On Women's Equality Day, we honor the pioneering suffragists who persisted through decades of struggle to finally win American women the right to vote, and we celebrate the advocates and everyday heroes who have continued the long march for equality ever since. The 19th Amendment was certified 103 years ago, but more remained to be done — especially for women of color, many of whom fought for the right to vote for another four decades until the Voting Rights Act passed in 1965. Today, women still face discrimination and threats to their health and safety, as well as gaps in pay, access to health care, and caregiving responsibilities. This year, we also mark the 100th anniversary of the introduction of the Equal Rights Amendment. It is long past time to definitively enshrine the principle of gender equality in the Constitution...

The White House - Aug 25, 2023

EXECUTIVE OFFICE OF THE PRESIDENT: Multi-Agency Research and Development Priorities for the FY 2025 Budget

...This memorandum outlines the Administration's multi-agency R&D priorities for formulating fiscal year (FY) 2025 Budget submissions to the Office of Management and Budget (OMB). These priorities should be addressed within the FY 2025 Budget guidance levels provided by OMB. Clear choices will be required given constrained discretionary funding caps. Agency budget submissions should include an addendum that details how each request level addresses these priorities. Agencies engaged in complementary activities are expected to consult with one another during the budget formulation process to maximize impact by coordinating resources and avoiding unnecessary duplication. * Advance trustworthy artificial intelligence (AI) technology that protects people's rights and safety, and harness it to accelerate the Nation's progress. * Lead the world in maintaining global security and stability in the face of immense geopolitical changes and evolving risks. * Step up to the global challenge of meeting the climate crisis by reimagining our infrastructures, renewing our relationship with nature, and securing environmental justice. * Achieve better health outcomes for every person. * Reduce barriers and inequities. * Bolster the R&D and industrial innovation that will build the Nation's future economic competitiveness from the bottom up and middle out. * Strengthen, advance, and use America's unparalleled research to achieve our Nation's great aspirations...

The White House - Aug 17, 2023

US Naval Research Laboratory: Celebrating a century of discovery and innovation

...The U.S. Naval Research Laboratory (NRL) is a scientific and engineering command dedicated to research propelling innovative advances for the U.S. Navy and U.S. Marine Corps from the seafloor to space and in the information domain. Since opening its doors 100 years ago, the laboratory has provided cutting-edge research solutions, technical expertise and technology development to keep our Sailors and Marines equipped to win the fight and remain the most advanced in the world. Throughout its rich history, NRL has tipped the balance of power in favor of U.S. Armed Forces on numerous occasions, including with the invention and development of the first U.S. radar prior to World War II and the launch of the world's first intelligence satellite. Notably, the laboratory's TIMATION concept in the 1960s led to the invention and development of the first satellite prototypes of the NAVSTAR Global Positioning System...
Department of the Navy Chief Information Officer - Aug 24, 2023

INTERSECT launches autonomous 'labs of the future'

...Autonomous labs are changing the nature of scientific investigation. Instead of humans manually orchestrating every part of an experiment, programmed equipment can carry out necessary functions. This workflow accelerates the pace of discovery by reducing the number of monotonous tasks that researchers must perform. As these labs are created, software infrastructure that constellates researchers, experimental machines and artificial intelligence frameworks must be developed. To address this need, the Department of Energy's Oak Ridge National Laboratory launched the Interconnected Science Ecosystem Initiative, or INTERSECT. This initiative established six autonomous labs, each targeting high-impact applications — from fundamental discoveries in chemistry and quantum information science to advanced techniques in electron microscopy. Other INTERSECT labs have developed scalable capabilities in applied sciences, such as additive manufacturing, materials production and electric grid optimization...
Oak Ridge National Laboratory - Aug 29, 2023

STEM / Workforce & IT

DOD Focuses on Talent Pipeline, Career Paths to Attract AI Pros

...Margaret Palmieri, deputy chief digital and artificial intelligence officer previewed specific steps that the Chief Digital and Artificial Intelligence Office is taking to attract the right talent. The recent addition of approximately 10 new work roles within the DOD's cyber workforce framework will better align critical skill sets with data and AI roles within the department. Palmieri noted that by identifying specific roles that require data and AI expertise, the DOD will be able ensure the opportunities are more visible to those both inside and outside of the department...
U.S. Department of Defense - Aug 30, 2023

NSF-Funded REU Interns Learn to Navigate Complexities of Health Research in the Bioinformatics Research In Data Science Program

...From exploring the mysteries of the gut microbiome to researching the complexities of the COVID-19 virus, 14 undergraduate students from across the country recently spent the summer at the University of Maryland researching ways to help us better understand our health. The students were part of the highly competitive Bioinformatics Research In Data science for Genomics (BRIDGE), a program that's supported by the National Science Foundation's Research Experiences for Undergraduates (REU). Run by faculty and graduate students in the Center for Bioinformatics and Computational Biology (CBCB), the 10-week program is an opportunity for students to tackle their research questions...
UMIACS - Aug 28, 2023

With NSF Grant, a New Ph.D. Training Program in Quantum Materials

...With a \$3 million grant from the National Science Foundation (NSF), Yale is creating an interdisciplinary Ph.D. training program in the area of quantum materials science and engineering. The grant, entitled "NRT-QL: Interdisciplinary Graduate Program in Quantum Materials Science and Engineering," is made through the NSF's Research Traineeship (NRT) program. Yale's Ph.D. training program aims to prepare trainees for careers in the field of quantum materials science and engineering. By providing an interdisciplinary set of curriculum requirements, professional skills training, and cutting-edge research activities, the NRT will build the infrastructure and organization needed to create a Ph.D. degree program in Materials Science...
Yale University - Aug 25, 2023

DOD funds KU's School of Engineering to establish a virtual institute to combat cyber threats

...The University of Kansas received a two-year, \$1.5 million grant from the Department of Defense to establish the Virtual Institutes for Cyber and Electromagnetic Spectrum Research and Employ, or VICEROY, Virtual Institute. The grant is overseen by the Griffiss Institute, which is a nonprofit talent and technology accelerator for the Department of Defense and an international network of academic, government and industry partners. The new virtual institute will train the next generation of military and civilian leaders to better combat the growing threat of cyberattacks and protect the electromagnetic spectrum (EMS)...

Community Colleges Selected for NSF-Funded MentorLinks' Program

...The American Association of Community Colleges (AACC) announced a new cohort for the MentorLinks: Advancing Technological Education program with funding from the National Science Foundation. The MentorLinks initiative pairs experienced community college mentors with extensive experience in planning and implementing advanced technology programs with colleges seeking support to build, strengthen, and sustain new or existing science, technology, engineering, or mathematics (STEM) technician education programs. The program's primary emphasis is on valuable networking and rich opportunities for technical assistance and professional development that link the cohort with the National Science Foundation's Advanced Technological Education (ATE) national conference and grant community. A team of seven community colleges and seven individual mentors were selected through a competitive peer review process and represent innovative projects in advanced manufacturing and semiconductor technology, engineering technology, chemical technology, biotechnology, and environmental technologies. Mentors will work closely with their college teams on activities such as curriculum development or redesign, industry engagement, faculty development, and student recruitment and retention...

American Association of Community Colleges - Aug 25, 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 - Jun 21, 2023

FEDERAL HIGH END COMPUTING INFORMATION PORTAL

...Networking and Information Technology Research and Development (NITRD) has a portal that provides information about U.S. Federal government high performance computing activities, including available computing resources; HEC relevant publications; fellowship and training opportunities; and technology transfer, licensing, and industry engagement opportunities. The HEC IWG (Interagency Working Group on High End Computing) agencies provide the information contained in this portal. HEC IWG agencies are involved in various Federal activities in the HEC area including R&D and providing infrastructure and application. Take a look at it!

Networking and Information Technology Research and Development - Jun 14, 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.

Innovation Through NITRD Coordination

Networking and Information Technology Research and Development - National Coordination Office, Washington, DC USA

To unsubscribe from this newsletter please reply to news-brief@nitrd.gov with the subject line "Unsubscribe"