FEDERAL AGENCY FUNDING OPPORTUNITIES	HPC	ARTIFICIAL INTELLIGENCE / MACHINE LEARNING	ROBOTICS / AUTONOMOUS VEHICLES	QUANTUM	CYBERSECURITY / PRIVACY	5G, WIRELESS SPECTRUM, NETWORKING & COMMUNICATIONS	ADVANCED MANUFACTURING	MICROELECTRONICS	CLIMATE CHANGE / GREEN ENERGY & IT	DIGITAL HEALTH	OTHER IT RELATED	STEM / WORKFORCE & IT	STEM / WORKFORCE RESOURCES & OPPORTUNITIES

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 makes $9.6 million available for Regional Ocean Partnerships through Investing in America agenda
...The Department of Commerce and NOAA announced $9.6 million in funding is available through four established Regional Ocean Partnerships and five Integrated Ocean Observing System (IOOS) Regional Associations. The funding supports cross-jurisdictional priorities and data sharing that address the most pressing ocean and coastal management issues within each region. This funding, provided by the Bipartisan Infrastructure Law, will allow NOAA to increase the ability of Regional Ocean Partnerships to address priorities specific to their regions, such as offshore wind planning, monitoring ocean conditions to coordinate management regionally and advancing shared tribal priorities. Regional Ocean Partnerships are organizations that are voluntarily convened by coastal states working in collaboration with tribal governments, federal agencies and local stakeholders to address ocean and coastal issues of common concern. Applications for established Regional Ocean Partnerships are due April 12, 2024, and applications for Regional Associations will be due this summer...
National Oceanic and Atmospheric Administration - Jan 19, 2024

DOE Announces $30 Million Funding for Next Generation Cybersecurity Tools to Protect Clean Energy Infrastructure

...The U.S. Department of Energy (DOE) announced an initiative to ensure cybersecurity is integrated into the development of clean energy solutions. These investments, made possible by the President's Bipartisan Infrastructure Law, will be provided through a $30 million funding opportunity to support the research, development, and demonstration (RD&D) of next generation tools to protect clean energy delivery infrastructure from cyber attacks. The Office of Cybersecurity, Energy Security, and Emergency Response (CESER) will fund the research and development of new tools and technologies to detect and mitigate cyber threats to clean energy delivery infrastructure, including cloud infrastructure that underpins modernization. Individual awards may vary with an anticipated amount not to exceed $3 million in federal funding...
Department of Energy - Jan 17, 2024

Research Supplements to Promote Diversity in Health-Related Research

...Program Directors/Principal Investigators (PDs and PIs) holding specific types of National Institutes of Health (NIH) research grants may be eligible for administrative supplement funding to improve the diversity of the research workforce by recruiting and supporting students, postdoctorates, and eligible investigators from diverse backgrounds. This funding opportunity is designed specifically for applicants proposing research that does not involve leading an independent clinical trial, a clinical trial feasibility study, or an ancillary clinical trial. Applicants to this funding opportunity are permitted to propose research experience in a clinical trial led by a mentor or co-mentor. This funding opportunity is designed to provide support for research experiences for individuals from diverse backgrounds throughout the continuum from high school to the faculty level...
National Institutes of Health - Jan 17, 2024

HPC

Supercomputers Shine New Light on Ocean Turbulence

...Describing more accurately how heat moves through the ocean could help scientists develop better, more precise computer models of the climate. Understanding turbulence – the irregular movement of fluids – in the ocean would help researchers solve this issue. Scientists at the University of Cambridge and the University of Massachusetts Amherst used the Summit supercomputer at the Department of Energy's Oak Ridge Leadership Computing Facility (OLCF) to run a new model of ocean turbulence. The computer simulated a generic 10-meter cube of ocean water. To analyze changes down to the centimeter, the program simulates the cube of water on a digital grid. With the model, the scientists analyzed how turbulence influences heat moving through seawater. This new model was the most detailed simulation of these processes yet. Previously, computers simply weren't powerful enough to handle the layers upon layers of complexity and capture the motion at the vast range of scales. To handle those limitations, past models collapsed all of the actions happening in different parts of the water into one average measurement. With the even-more-powerful Frontier supercomputer now available at OLCF, the scientists on this project are hoping to further expand their understanding of this complex topic...
Department of Energy - Jan 18, 2024

New Tomographic Reconstruction Algorithm Developed at Berkeley Lab Sets World Record

...Advanced synchrotron tomography is a critical research tool, allowing scientists to explore the intricate structures of objects in extremely high resolution. Because this technique enables researchers to capture dynamics in real-time, it can capture ongoing changes in living organisms. The key to this detailed view is that tomography doesn't just rely on a single X-ray image; instead, multiple images are taken from different angles. These images are then fed into a computer, where mathematical algorithms combine them to produce a three-dimensional (3D) digital representation that reveals an incredibly detailed view of the object's internal structure. Modeling these sample properties is often very computationally intensive and may require extensive computational resources that may not be readily available to researchers. A team from the Lawrence Berkeley National Laboratory recently developed a new reconstruction algorithm, TomoCAM, that leverages advanced mathematical techniques and GPU-based computing. Model-Based Iterative Reconstruction (MBIR) methods can obtain much higher-quality reconstructions from limited and noisy data. However, the adoption of MBIR has been limited due to the significant computational resources required by conventional implementations. TomoCAM overcomes these computational cost limitations by reformulating the fundamental operators in MBIR in terms of the sample's Fourier coefficients, which describe the fundamental frequencies of the sample's density...
Berkeley Lab - Jan 17, 2024

Artificial Intelligence / Machine Learning

Readout of White House Meeting on Competition Policy and Artificial Intelligence

...In a a meeting with stakeholders to discuss the Administration's support for AI policy participants discussed the risks of concentration across the AI ecosystem and ways to

support competition as AI systems continue to develop and become more widely used across the economy. Participants also covered how open-source models and more tailored AI applications may shape the competitive landscape. Participants also addressed the possible harms from lack of competition in AI including with respect to prices, quality, innovation, privacy. The Biden-Harris Administration has made clear that promoting competition and innovation is a central part of AI policy. The President's Executive Order supports small businesses commercializing AI products and directs a pilot of the National AI Research Resource (NAIRR) to provide federally-supported computing power, data, and other resources to AI researchers and smaller companies...
The White House - Jan 20, 2024

DOE Advancing Safe and Secure AI Research Infrastructure Through the National Artificial Intelligence Research Resource Pilot

...The U.S. Department of Energy (DOE) announced that it will play a key role in the National Artificial Intelligence Research Resource (NAIRR) pilot as part of President Biden's push to ensure the United States is a leader in harnessing the promise and managing the risks of artificial intelligence (AI). This pilot, led by the U.S. National Science Foundation (NSF), aims to develop a shared national research infrastructure to provide researchers and students with significantly expanded access to computational resources, high-quality data, educational tools, and user support to advance AI research and discovery. Divided into four operational areas—NAIRR Open, NAIRR Secure, NAIRR Software, and NAIRR Classroom—the NAIRR pilot is bringing private sector, non-profit and philanthropic organizations, industry partners, and nine Federal agencies together to provide access to advanced computing, datasets, models, software, training, and user support to U.S. based researchers and educators. DOE will co-lead NAIRR Secure alongside the National Institutes of Health (NIH) to enable AI research requiring privacy and security-preserving resources and will assemble exemplar privacy preserving resources...
Department of Energy - Jan 24, 2024

Enhancing road safety: Engineering professor wins $100K award from DOT for AI innovation

...A new, innovative artificial intelligence tech project by the University of Hawai'i at Mānoa College of Engineering earned a $100,000 award from the U.S. Department of Transportation (DOT). Zhang's proposed design concept, "Toward Vision Zero: Sensing, Predicting, and Preventing Intersection Collisions." Zhang's project aims to create a safety system for intersections using advanced technologies such as sensors, edge computing, machine learning and wireless communication. The system will focus on preventing crashes between vehicles and pedestrians. Artificial intelligence will be used to identify and track objects such as pedestrians and vehicles in real-time...
The Magazine of the University of Hawaii - Malamalama - Jan 18, 2024

DARPA funds new deepfake detector designed to be less biased

...UB computer scientist and deepfake expert Siwei Lyu created a photo collage out of the hundreds of faces that his detection algorithms had incorrectly classified as fake — and the new composition clearly had a predominantly darker skin tone. Lyu and his team have now developed what they believe are the first-ever deepfake-detection algorithms specifically designed to be less biased. Their two machine learning methods — one that makes algorithms aware of demographics and one that leaves them blind to them — reduced disparities in accuracy across races and genders while, in some cases, still improving overall accuracy. The research was supported in part by the U.S. Defense Advanced Research Projects Agency (DARPA)...
University at Buffalo - Jan 18, 2024

AFRL funds development of augmented reality tech that would help maintain military aircraft

...A University of Texas at Arlington computer scientist received a $450,000 Small Business Technology Transfer grant from the Air Force Research Laboratory to fund developing a portable computer vision system that integrates augmented reality into aircraft maintenance training for the U.S. Air Force. Beksi plans to use field-programmable gate arrays (FPGAs) to make a small device that can be attached to a belt and then connected to a head-mounted display that will help the maintainer detect and identify parts in 3D. They can run deep neural networks quickly without lag. A typical use for this technology could be the assembly and disassembly of an aircraft wing, where the technology would help the maintainers determine where to start and show which objects they are looking for.
The University of Texas at Arlington - Jan 18, 2024

Robotics / Autonomous Vehicles

New air defense system advances Corps' air dominance

...The Marine Corps is one step closer to defeating unmanned aircraft systems as Program Executive Officer Land Systems successfully tested the Marine Air Defense Integrated System, or MADIS, low-rate initial production model, hitting several launched drones. The live-fire test subjected MADIS to actual battlefield scenarios, where it detected, tracked, identified, and defeated unmanned aerial threats. MADIS is a short-range, surface-to-air system that enables Low Altitude Air Defense Battalions to deter and

neutralize unmanned aircraft systems and fixed wing/rotary wing aircraft. Drones continue to be a threat, especially with the emergence of easily accessible, commercial off-the-shelf products. MADIS uses real-time communication and coordination to destroy or neutralize low-altitude aerial threats in defense of the Marine Air Ground Task Force...
Marines - Jan 17, 2024

Quantum

ONR/NSF/AFOSR/DOE fund researchers who discover an abrupt change in quantum behavior that defies current theories of superconductivity

...Princeton physicists have discovered an abrupt change in quantum behavior while experimenting with a three-atom-thin insulator that can be easily switched into a superconductor. The research promises to enhance our understanding of quantum physics in solids in general and also propel the study of quantum condensed matter physics and superconductivity in potentially new directions. The sudden cessation (or "death") of quantum mechanical fluctuations exhibits a series of unique quantum behaviors and properties that appear to lie outside the purview of established theories. Researchers are particularly interested in how quantum phase transitions occur in superconductors, materials that conduct electricity without resistance. ... This work was supported by the U.S. Office of Naval Research, the National Science Foundation, the Air Force Office of Scientific Research, and the U.S. Department of Energy...
Princeton University - Jan 19, 2024

Cybersecurity / Privacy

7th U.S.-ROK Cyber Policy Consultations

...Officials from the United States and the Republic of Korea (ROK) reaffirmed their commitment to promoting international stability in cyberspace and to deepen bilateral cooperation on cybersecurity. The Cyber Policy Consultations were chaired by U.S. Deputy Assistant Secretary for International Cyberspace Security in the U.S. Department of State's Bureau of Cyberspace and Digital Policy Liesyl Franz and Republic of Korea Ministry of Foreign Affairs Ambassador for International Security Affairs Rhee Dong-yeol. The U.S. delegation included representatives from the Office of the National Cyber Director, and the Departments of Defense, Homeland Security, Commerce, including the National Institute of Standards and Technology, and Justice, including the Criminal Division and Federal Bureau of Investigation. Both sides provided updates on their respective national cyber policies and exchanged views on bilateral cyber cooperation and developments in regional and international fora. Participants explored new ways for the United States and the Republic of Korea to promote an open, interoperable, secure, and reliable Internet and a stable cyberspace...
U.S. Department of State - Jan 24, 2024

NIST Offers Guidance on Measuring and Improving Your Company's Cybersecurity Program

...A newly revised draft guidance from the National Institute of Standards and Technology (NIST) is a two-volume document, NIST Special Publication (SP) 800-55 Revision 2: Measurement Guide for Information Security. It offers guidance on developing an effective program, and a flexible approach for developing information security measures to meet your organization's performance goals. The publication is designed to be used together with any risk management framework, such as NIST's Cybersecurity Framework or Risk Management Framework. It is intended to help organizations move from general statements about risk level toward a more coherent picture founded on hard data. The two volumes are aimed at different audiences within an organization. The first, written mainly for information security specialists, provides guidance on how an organization can prioritize, select and evaluate specific measures to determine the adequacy of security that is already in place. The second, aimed primarily at the C-suite, outlines how an organization can develop an information security measurement program. NIST is calling for public comments on this initial public draft by March 18, 2024...
National Institute of Standards and Technology - Jan 17, 2024

DHS Advances Support for Tribal Nations, Receives Recommendations from Tribal Leaders

...Secretary of Homeland Security Alejandro N. Mayorkas convened tribal representatives to discuss key challenges facing their communities, including the accessibility of Department of Homeland Security (DHS) grants, improving cyber resilience. Subcommittees of the Tribal Homeland Security Advisory Council (THSAC) presented their recommendations to the full Council on ways the Department can address these challenges. The Subcommittee on Accessibility to DHS Grants recommended that DHS improve access to grant programs for tribes and tribal communities. The Subcommittee on Cybersecurity recommended that DHS improve accessibility to cybersecurity resources for tribes and tribal communities. The Subcommittee on Addressing the Crisis of Missing and Murdered Indigenous People (MMIP) recommended that DHS improve its role in support of Executive Order 14053, which tasked the Department with providing support to federal partner agencies...
Homeland Security - Jan 17, 2024

CISA Releases 2023 Year in Review Showcasing Efforts to Protect Critical Infrastructure

...The Cybersecurity and Infrastructure Security Agency (CISA) released its fourth annual Year in Review showcasing CISA's work to protect the nation from cyber and physical threats. The 2023 Year in Review reflects on the agency's accomplishments across its broad cybersecurity, infrastructure security and emergency communications missions as the nation and the world adapted to technological advances. In 2023, the CISA accomplishments included: * Promoting Secure by Design Principles * Reducing the Risk of Ransomware * Encouraging Cyber Hygiene * Supporting Critical Infrastructure ... In 2024, CISA will continue to develop and deliver tools, training, technical expertise and other resources to help our critical infrastructure partners increase their own resilience and defenses against evolving risks...

CISA - Jan 17, 2024

5G, Wireless Spectrum, Networking & Communications

FACT SHEET: President Biden to Announce New Funding to Connect Thousands of Households in North Carolina to High-Speed Internet, Highlight Milestones in Lowering Costs, Expanding Internet Access to Everyone in America

...The Biden-Harris Administration is investing over $3 billion in North Carolina to lower costs for families and connect everyone in the state to affordable, reliable high-speed internet through the American Rescue Plan and Bipartisan Infrastructure Law. More than 7 million households and small businesses across the country are in areas where there is no high-speed internet infrastructure, and millions more struggle with limited, unreliable, or unaffordable internet options. With $90 billion from President Biden's American Rescue Plan and Bipartisan Infrastructure Law, President Biden and Vice President Harris are closing that digital divide. By the end of December 2023, every state and territory had developed a roadmap for how they will use their share of the $42 billion Broadband Equity, Access and Deployment (BEAD) Program funding from the Bipartisan Infrastructure Law to connect every home and business in their state or territory to affordable, reliable high-speed internet access...

The White House - Jan 18, 2024

NOAA satellites helped save 350 lives in 2023

...NOAA's satellites were behind the rescue of 350 people from harrowing, life-threatening ordeals in the U.S. and its surrounding waters in 2023. NOAA's polar-orbiting and geostationary satellites are part of the global Search and Rescue Satellite Aided Tracking system, or COSPAS-SARSAT, which uses a network of U.S. and international spacecraft to detect and locate distress signals sent from 406MHz emergency beacons onboard aircraft, boats and handheld Personal Locator Beacons (PLBs) anywhere in the world. When a NOAA satellite pinpoints the location of a distress signal in the U.S., the information is relayed to the SARSAT Mission Control Center at NOAA's Satellite Operations Facility. From there, the information is quickly sent to Rescue Coordination Centers, operated either by the U.S. Air Force for land rescues, or the U.S. Coast Guard (USGC) for maritime rescues. NOAA also supports rescues globally by relaying distress signal information to international COSPAS-SARSAT partners...

National Oceanic and Atmospheric Administration - Jan 18, 2024

First U.S. Coastal Wetland Geospatial Collection data used to assess health of coastal wetlands

...The U.S. Coastal Wetland Geospatial Collection provides the data necessary to assess the health status of coastal wetlands throughout the contiguous United States and to understand the current and future services provided by these ecosystems. The collection represents the first CONUS-wide dataset for these key tidal wetland metrics, which provide data on habitat quality, geomorphic vulnerability, and carbon stock that are necessary to understand current and future services provided by coastal wetlands. A combination of satellite, aircraft-based lidar, and tidal gauge data were used to obtain geospatially complete data across the coastal landscape...

USGS - Jan 20, 2024

Advanced Manufacturing

UMBC manufacturing research center gets boost from new partnership with U.S. Army

...The Center for Research in Emergent Manufacturing (CREM), which started as the ambitious idea of two UMBC researchers in 2019, is launching a major new project with the U.S. Army. CREM aims to help manufacturers reap the benefits, and manage the risks, of new manufacturing approaches increasingly centered around computer systems—a concept known as digital manufacturing. "The partnership with the army is an important step in our evolution as a research center. We will be working on cutting edge problems for the Army in the areas of digitization," says CREM director Nilanjan Banerjee...

UMBC Transit - Jan 17, 2024

Microelectronics

DOD Connects With Microelectronics Commons Hubs to Accelerate Prototyping of Advanced Microchips

...Representatives from the Office of the Under Secretary of Defense for Research & Engineering, Naval Surface Warfare Center (NSWC) — Crane Division, and National Security Technology Accelerator (NSTXL) will embark on a three-week tour across the nation. Site visits will connect with the Microelectronics Commons Hubs, local government leaders, and experts from industry and academia to accelerate the prototyping of advanced microchips. The Commons is a CHIPS and Science Act-funded national network of eight regional innovation Hubs that will provide $2B from FY23 to FY27 for domestic microelectronics hardware prototyping and workforce development. The goal of the Commons is to connect regional organizations through Innovation Hubs to accelerate lab to fab prototyping and to strengthen local economies through a workforce that supports those regions, complementing programs run by the Department of Commerce and the National Science Foundation...
U.S. Department of Defense - Jan 19, 2024

Cornell, partners to supercharge NYS microchip industry with $40 million award from DOD

...A consortium organized by Cornell and four other New York-based leaders in semiconductor research and development has been awarded $40 million by the U.S. Department of Defense to advance microelectronics innovation and manufacturing. The award establishes NORDTECH – the Northeast Regional Defense Technology Hub – as part of the Defense Department's Microelectronics Commons. The five founding members of the hub are Cornell; the New York Center for Research, Economic Advancement, Technology, Engineering and Science (NY CREATES); the University at Albany College of Nanotechnology, Science, and Engineering (CNSE); Rensselaer Polytechnic Institute (RPI); and IBM. NORDTECH will address a common challenge in microchip development: the so-called "lab-to-fab (fabrication) transition," during which innovators must overcome technical and financial hurdles to translate laboratory discoveries into designs that can be scaled up for mass production in foundries, or fabs...
Cornell University - Jan 18, 2024

Climate Change / Green Energy & IT

FACT SHEET: Biden-Harris Administration Announces New Actions to Cut Electric Vehicle Costs for Americans and Continue Building Out a Convenient, Reliable, Made-in-America EV Charging Network

...The Biden-Harris Administration is announcing new actions to lower the cost of electric vehicles (EVs) for Americans and build a convenient, reliable, Made-in-America EV charging network. Since the President took office, EV sales have more than quadrupled and the number of publicly available charging ports has also grown by over 70 percent. The Departments of Transportation and Energy are announcing $325 million in new investments this week across three programs to increase the reliability and resilience of publicly accessible chargers, advance EV technologies, and support workforce development for EV charging deployment and maintenance. The Department of Energy announced over $131 million in funding for research, development, and technology integration projects for zero-emission vehicles and mobility; and for an advanced battery R&D consortium. The Department of Transportation announced $623 million in Charging and Fueling Infrastructure grants to help build out an EV charging network across the U.S. ...
The White House - Jan 19, 2024

GSA announces first EVSE companies to receive FedRAMP approval, furthering Biden-Harris Administration goals for clean transportation future

...The U.S. General Services Administration (GSA) announced that GSA has finalized authorizations for the first two electric vehicle supply equipment (EVSE) vendors, Chargie and ChargePoint, to operate inside government systems. This will allow them to become FedRAMP authorized, which gives assurance to federal agency partners that electric vehicle charging stations have their security measures fully vetted and authorized through the agency's blanket purchase agreement. These actions will help accelerate the nation's clean transportation future through President Biden's Investing in America agenda...
U.S. General Services Administration - Jan 19, 2024

U.S. Department of Energy Announces $131 Million to Boost America's Battery Supply Chain and Supercharge Electric Vehicle Innovation

...The U.S. Department of Energy (DOE) today announced more than $131 million for projects to advance research and development (R&D) in electric vehicle (EV) batteries and charging systems, and funding for a consortium to address critical priorities for the next phase of widescale EV commercialization. The advanced battery consortium will work towards developing advanced technologies that will decarbonize transportation and support R&D that is responsive to the needs of EV manufacturers and battery suppliers. DOE announced 27 projects to receive $71 million to develop innovative and equitable clean mobility options, alleviating supply chain concerns for EV batteries, and increasing EV

drive range. The United States Advanced Battery Consortium LLC (USABC) will receive $60 million for pre-competitive, vehicle-related advanced battery R&D that addresses critical priorities for the next phase of widescale EV commercialization. The consortium will accelerate battery R&D that is relevant and responsive to the needs of EV manufacturers and will contribute to the domestic battery supply chain and recycling ecosystem that are essential to meeting the rapidly growing demand for EV batteries...
Department of Energy - Jan 18, 2024

USPTO, NOAA sign collaborative agreement to advance climate technology

...The U.S. Patent and Trademark Office (USPTO) and the National Oceanic and Atmospheric Administration (NOAA) signed a memorandum of understanding (MOU) to work together and advance innovation in technology areas that advance the climate, blue, and green economies that strengthen our nation's resilience against climate change, promote environmental stewardship, and encourage sustainable economic development. For the past year, the two agencies have shared an employee exchange program, with one NOAA employee on a detail to USPTO and 3 USPTO detailees working in sequence at NOAA. Experts at the USPTO are working with the NOAA Technology Partnerships Office to provide intellectual property training for NOAA's scientific workforce in order to increase the impact of NOAA's research and technology innovation. At the same time, a NOAA climate expert is providing training to USPTO patent examiners who review patent applications related to climate and environmental technologies, and advising the agency on USPTO green initiatives to help foster innovations. NOAA researchers have long been innovators in both the sky and the sea, launching satellites into orbit space and exploring the ocean. Others have worked to unlock the mysteries of weather and climate on land in order to provide daily weather forecasts, severe storm warnings, and climate monitoring, to fisheries management, coastal restoration, and the support of marine commerce. These myriad activities often involve the creation of new technologies and inventions...
United States Patent and Trademark Office - Jan 24, 2024

Insect populations flourish in the restored habitats of solar energy facilities

...Global insect biodiversity has been in decline due to habitat loss, pesticides and climate change. Restoration of insect habitat paired with smart land use changes toward renewable energy developments could help reverse the course. According to the DOE's Solar Futures Study, approximately 10 million acres of land in the U.S. will be needed for large-scale solar development by 2050 in order to meet grid decarbonization and climate change goals. But some lands are better suited for PV solar development than others. Disturbed lands such as former agricultural fields are ideal locations to hold rows of solar panels compared to lands that have been previously undisturbed. Researchers at the U.S. Department of Energy's (DOE) Argonne National Laboratory and National Renewable Energy Laboratory wanted to understand the ecological value of PV solar energy sites planted with native grasses and wildflowers. They examined how vegetation would establish and how insect communities would respond to the newly established habitat. The research findings suggest habitat-friendly solar sites can play an important role in conserving biodiversity. Large amounts of ground-mounted solar is expected to be developed in the future...
Argonne National Laboratory - Jan 17, 2024

NASA and USGS Algorithms Enhance UM Grad's Model that Reveals Impacts of Climate Change on Irrigation in the West

...In a groundbreaking study that could reshape our understanding and management of water resources in the Western United States, David Ketchum, a 2023 graduate of the University of Montana systems ecology Ph.D. program, has unveiled a 35-year analysis quantifying the interconnected impacts of climate change and irrigation on surface water flows. It describes the relative impact that climate change and irrigation intensification is having on hundreds of watersheds in the Western United States. The study reveals that irrigation practices play a crucial role and often surpass climate-induced changes in altering water flows. Leveraging a machine learning model, researchers supplied tens of thousands of data points derived from irrigated fields. The model, enhanced with advanced algorithms from NASA and the U.S. Geological Survey, analyzed high-resolution satellite data spanning 1986 to 2021, revealing an evolving landscape of irrigation expansion in the Western U.S. This innovative approach allowed the team to distinguish between the impacts of climate change and human activities on streamflow. Key findings from the study include altered flows beyond climate change, increased irrigation water use, seasonal flow impacts and basin-specific sustainability classifications...
The University of Montana - Jan 18, 2024

Digital Health

The Evolution of Patient-Centered Care: Patient Access to Their Health Data

...The U.S. Department of Health and Human Services (HHS) is working diligently to strengthen policies that can bring patients more comprehensive access to their health information. In October 2023, the Office of the National Coordinator for Health Information Technology (ONC) and Centers for Medicare & Medicaid Services (CMS) held an event to share initiatives that help patients access their health data. The event, Enabling Patient Access to Health Data for Actionable Results, brought together patients, providers, payers, and health IT developers to discuss how HHS policies are working in practice and how to maximize the impact of these policies. The event highlighted educational tools and resources, such as patient-facing apps that enable the availability of patient information and make that health information easier to understand. Some of

the top takeaways from the event: * The use of application programming interfaces (APIs) will make the next generation of applications more useful by helping reduce the effort it takes to access, exchange, and use health information...
Health IT - Jan 23, 2024

DARPA/NSF-funded research offers new hope for early pancreatic cancer intervention via AI-based risk prediction

...MIT Computer Science and Artificial Intelligence Laboratory (CSAIL) scientists and colleagues set out to develop two machine-learning models for early detection of pancreatic ductal adenocarcinoma (PDAC), the most common form of the cancer. The two models — the "PRISM" neural network, and the logistic regression model outperformed current methods. The team's comparison showed that while standard screening criteria identify about 10 percent of PDAC cases using a five-times higher relative risk threshold, Prism can detect 35 percent of PDAC cases at this same threshold. Both PrismNN and PrismLR models analyze electronic health records (EHRs) data to assess PDAC risk. PrismNN uses artificial neural networks to detect intricate patterns in data features yielding a risk score for PDAC likelihood. PrismLR uses logistic regression for a simpler analysis, generating a probability score of PDAC. Together, the models offer a thorough evaluation of different approaches in predicting PDAC risk from the same EHR data. Research was supported by by the Defense Advanced Research Projects Agency and the National Science Foundation...
MIT News - Jan 18, 2024

Other IT Related

NIST and NSF Award Nearly $7.1 Million to 15 Universities to Support Disaster Resilience

...The U.S. Department of Commerce's National Institute of Standards and Technology (NIST) and the National Science Foundation (NSF) have awarded nearly $7.1 million in grants to fund research that will improve the ability of buildings, infrastructure and communities to withstand severe natural hazards. Applicants were asked to consider natural hazards such as hurricanes and tornadoes; sustained rain, coastal and inland flooding, and tsunamis; wildland-urban interface fires; and earthquakes and how communities could reduce their vulnerabilities to them and increase their resilience. Of the research projects, Eight were funded by NIST and ten by NSF...
National Institute of Standards and Technology - Jan 18, 2024

Cross-center team testing seafloor structure-from-motion technology in Tampa Bay

...To produce accurate models of underwater habitats, the USGS created the SQUID-5 or Structure-from-motion (SfM) Quantitative Underwater Imaging Device with 5 cameras. SQUID-5 is towed behind a boat to capture overlapping high-resolution images of the seafloor with accurate GPS locations which are converted into high-resolution, 3-dimensional models of seafloor structures. The team uses the models to predict which areas of the coastline are at risk from the combined hazards of seafloor erosion and sea-level rise. These data are also translated to stakeholder tools and shared with partners such as the National Oceanic and Atmospheric Administration (NOAA) to inform decisions...
USGS - Jan 19, 2024

STEM / Workforce & IT

NSF and NSA-Sponsored Programs Offer Unique Cybersecurity Education Programs for High School Students and Educators

...The GenCyber Teacher and Student Academies this summer are NSF- and NSA-sponsored programs that endeavor to promote cybersecurity awareness and education. Laura Brown is a a mathematics and computer science teacher whose interest in learning more about cybersecurity inspired her to attend the University's inaugural GenCyber Teacher Academy in 2022 so she could enhance her students' classroom experience. Brown, who hopes to start a cyber club at her school, has excitedly been telling her students about the GenCyber Student Academy, which is open to 40 students. Designed to promote cybersecurity and online safety, the program trains students who are interested in exploring and applying cybersecurity concepts. GenCyber Teacher Academy offers educators with STEM backgrounds the tools and training to apply cybersecurity concepts in their classrooms. The programs offer a robust curriculum, covering the latest in cybersecurity education. They cover a variety of topics, such as Python, cybersecurity awareness, networking, cryptography, and social engineering...
University of New Haven - Jan 19, 2024

NSF funds university collaboration with $6 million in funding for new cyberinfrastructure workforce project

...The National Science Foundation has awarded nearly $6 million to Purdue, Indiana, and Mississippi State Universities to fund a collaborative program aimed at fortifying the

cyberinfrastructure (CI) workforce within research communities. The new project, known as CyberInfrastructure Professionals InnoVating and brOadening the adoption of advanced Technologies (CI PIVOT), will advance the Cyberinfrastructure Professional (CIP) workforce throughout the nation. CI PIVOT aims to provide resources to focus on CIP development in underserved research areas or areas that need advanced capabilities beyond campus-based computing. The CI PIVOT project's team envisions building a scalable workforce development for each research field, with the facilitators first learning CI skills and then teaching these skills to others in their domain....
Mississippi State University - Jan 18, 2024

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 - Jan 1, 2024

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; relevant publications; fellowship and training opportunities; and technology transfer, licensing, and industry engagement opportunities. The High End Computing (HEC) Interagency Working Group (IWG) 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!
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