QUANTUM	FEDERAL AGENCY FUNDING OPPORTUNITIES	HPC	ARTIFICIAL INTELLIGENCE / MACHINE LEARNING	ROBOTICS / AUTONOMOUS VEHICLES	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	FEDERAL REGISTER: REQUEST FOR INFORMATION (RFI)	UPCOMING CONFERENCES / WORKSHOPS / WEBINARS

NITRD News Brief

HAPPY WORLD QUANTUM DAY!

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!

Quantum

World Quantum Day April 14, 2023
...WORLD QUANTUM DAY 2023 World Quantum Day is an international, community-driven event on April 14 to spark interest and generate enthusiasm for quantum mechanics. Whether you are new to quantum concepts, a teacher looking for educational materials, or a professional wanting to get more involved, there are resources for you!

The National Quantum Coordination Office, part of the White House Office of Science and Technology Policy, is excited to participate in World Quantum Day, along with agencies across the Federal government. Why Quantum, Why Now? Quantum mechanics is the science of atoms and particles–the building blocks of the world. the semiconductor chips in our smartphones and computers operate in part using quantum mechanics. LASERS, LED lights, and LED monitors were developed based on our understanding of quantum mechanics. The Global Position System (GPS) that helps us navigate the world relies on the quantum mechanics of ultra-precise atomic clocks. ... Be part of the quantum revolution!
National Quantum Initiative - Apr 13, 2023

National Quantum Coordination Office (NQCO)

...The quantum.gov is the home of the National Quantum Initiative and its ongoing activities to explore and promote Quantum Information Science (QIS). The National Quantum Initiative Act provides for the continued leadership of the United States in QIS and its technology applications. It calls for a coordinated Federal program to accelerate quantum research and development for the economic and national security of the United States...
National Quantum Initiative - Apr 13, 2023

The National Quantum Strategy: Getting the Science Right

...The first component of the national quantum strategy is getting the science right by understanding the applications and timelines by which QIS will benefit society, and the roadblocks we must overcome to get there. This involves establishing research infrastructure such as national QIS research centers, enhancing core programs that have funded research in QIS for decades, and other activities. The National Quantum Initiative Act calls for the NSF and DOE to establish new Centers focusing on QIS research and discovery. In alignment with this goal, NSF announced the Quantum Leap Challenge Institutes solicitation and first round of Awards. DOE announced the National QIS Research Centers funding opportunity FOA and Awards. These Centers bring together multidisciplinary teams to tackle some of the most complex and urgent problems in quantum information science and engineering...
National Quantum Initiative - Apr 13, 2023

From GPS to Laser Pointers, Quantum Science Is All Around Us

...If you've gotten around with GPS, had an MRI, or tormented your cat with a laser pointer, quantum science is a part of your life. When people talk about using quantum, it generally comes down to two things: * Quantum superposition is something that has two possible forms being in both of those forms to some extent at the same time. * Entanglement means you've got at least two things that are always connected together; they have no independent existence anymore. Something that happens to one always affects the other. It's kind of romantic! Quantum computing emerged from the "coming together" of clever ideas and advancements in labs, a mix of quantum physics and information science. We can develop quantum computers, but what else can we do? We can also use superposition and entanglement for improved sensors and communications. We can make quantum sensors that measure things more precisely than classical physics allows. We can communicate information in quantum form that is resistant to eavesdropping. The challenge with these Quantum 2.0 things is making them practical...
National Institute of Standards and Technology - Apr 12, 2023

How Argonne is pushing the boundaries of quantum technology research

...The U.S. Department of Energy's (DOE) Argonne National Laboratory is making exciting advances in quantum information science (QIS). QIS explores how tiny particles sense and relay information in new ways. The research could lead to a quantum computer that performs previously impossible calculations or an exceptionally secure network for transmitting data. In the quantum world, information can be conveyed via a single electron — the part of an atom that carries a negative electric charge — or a particle of light. Argonne scientists have assembled a material based on copper and carbon monoxide molecules to mimic graphene, a promising but difficult-to-make host for quantum data. This novel quantum test bed confirmed predictions about the behavior of electrons in graphene. Researchers also have made important strides with other materials that could be used for quantum applications. A team at Argonne and the University of Chicago created a record-breaking qubit — the quantum version of a computer bit — from the accessible and inexpensive compound silicon carbide. In another study, Argonne researchers demonstrated the use of pure diamond membranes as platforms for storing and processing quantum information. DOE's Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards are funding further research on a method to commercially produce this quantum diamond material...
Argonne National Laboratory - Apr 10, 2023

FSU announces bold investments in quantum science and engineering

...Florida State University will dedicate more than $20 million to quantum science and engineering over the next three years, funding that will support hiring at least eight new faculty members, equipment and dedicated space in the university's Interdisciplinary Research and Commercialization Building, and seed money for a new program focused on this emerging field. The federal government has made expanding knowledge of quantum information science and developing new technologies a strategic priority. Agencies such as the National Science Foundation, Department of Defense, Department of Commerce, Department of Energy and others are part of the $2.6 billion National Quantum Initiative. FSU researchers are already part of the endeavor to explore quantum science and engineering. For example, Professor of Chemistry and Biochemistry Eugene

DePrince is leading a $4.4 million Department of Energy (DOE) project to help create software that can take advantage of supercomputer capabilities and advance quantum information science. Professor Wei Guo worked with DOE researchers to develop a new quantum bit platform. Professor of Physics Stephen Hill and Professor of Chemistry and Biochemistry Michael Shatruk are participants in a $10 million multi-institutional Energy Frontier Research Center, also sponsored by DOE...
Florida State University News - Apr 12, 2023

Federal Agency Funding Opportunities

DARPA: The Key to Securing Legacy Computing Systems
...DARPA wants to overhaul legacy software to stop cyber-attackers in their tracks when they penetrate a system. For a cyber-attack to be successful, one must conduct a sequence of exploits to move from the initial system access, through privilege escalation and lateral motion steps, until reaching the ultimate target. Early sailing ships were vulnerable because they were built without watertight compartments and a single leak had the potential to compromise the entire vessel. Eventually, watertight compartment technology became the norm in ship building, preventing a single leak from spreading throughout the ship. Similiarily, DARPA is pursuing an approach to cyber resilience that would subdivide software systems into smaller, secure compartments that prevent an initial attempt at penetration from becoming a successful attack. The challenge, however, is in the billions of lines of existing software, all of which would be impossibly time-consuming to rewrite in safer programming languages. Through its new Compartmentalization and Privilege Management (CPM) program, the agency is seeking proposals to develop tools that can automatically restructure a software system into many small "compartments," each with a specific function and operating with the least privilege necessary to achieve its goals. A Broad Agency Announcement solicitation with all program details and instructions for submitting proposals is available...
DARPA - Apr 10, 2023

Biden-Harris Administration announces historic funding to expand access to trees and green spaces in disadvantaged urban communities
...The Biden-Harris Administration is announcing the availability of $1 billion in grants to increase equitable access to trees and green spaces in urban and community forests where more than 84% of Americans live, work and play. The announcement is part of President Biden's Investing in America agenda and the Administration's work to build a clean energy economy. The funding announced is part of a $1.5 billion investment in the U.S. Department of Agriculture's Forest Service Urban and Community Forestry Program from President Biden's Inflation Reduction Act. The grant funding is available to community-based organizations, tribes, municipal and state governments, nonprofit partners, universities, and other eligible entities as they work to increase tree cover in urban spaces and boost equitable access to nature while bolstering resilience to extreme heat, storm-induced flooding, and other climate impacts. The Forest Service is holding a series of webinars to assist potential applicants in applying for grant funding...
USDA APHIS - Apr 12, 2023

DOE: Building Training and Assessment Centers
...The Building Training and Assessment Centers (BTAC) Program will provide grants to institutions of higher education to establish building training and assessment centers. These BTACs will educate and train students and building performance professionals to deploy modern building technologies to small businesses and K-12 schools. BTACs will fund institutions of higher education, like community colleges and universities, to prepare a diverse and equitable workforce that will lower our nation's carbon footprint.
Department of Energy - Apr 12, 2023

HPC

NSF-funded scientists use supercomputer to find that U.S. birds in East and West show opposite behavior patterns
...Hundreds of species migrate south for the winter and north for summer breeding thus, birds' ecosystem function patterns change over space and time — creating an analytical challenge. U.S. National Science Foundation-supported scientists at The Ohio State University have established what could be considered a baseline map of annual avian functional and species diversity patterns in the U.S., logging 11,000 code-running hours at the Ohio Supercomputer Center to produce their findings. What they found was a stunner: Functional diversity patterns in the West, where species and functional richness are both highest during the breeding season, are the polar opposite of what is seen in the East, where functional diversity is lowest when species richness is high...
National Science Foundation - Apr 12, 2023

DARPA/NSF-sponsored research finds an easier way to get bugs out of programming languages

...MIT PhD student Ajay Brahmakshatriya wanted to make it possible for people who had expertise in a particular domain — such as climate modeling, bioinformatics, or architecture — to write their own programming languages, so-called domain-specific languages (or DSLs), even if they had little or no experience in creating programming languages. Brahmakshatriya wanted these languages to come with all the auxiliary functions people would need to comfortably utilize them, including tools for debugging. The researchers introduced D2X, a tool that makes it easy to add debugging to any DSL and has been shown to work particularly well with BuildIt, a software package that greatly simplifies the task of creating DSLs. The main reason for producing a language in a specialized domain, Brahmakshatriya explains, "is to promote ease of use." Once a program is "code complete" — deemed ready for testing by its developers — software engineers may then have to devote more than half their time to the arduous chore of debugging. D2X is not a program, per se, but is instead classified as a library — a piece of computer code that can be reused by other programs. It is designed to work with existing debuggers serving as a bridge between those tools and a given DSL. ... This work was supported by the U.S. Defense Advanced Projects Agency (DARPA), a Joint University Microelectronics Program Center co-sponsored by the Semiconductor Research Corporation and DARPA; the National Science Foundation (NSF); and an Intel/NSF award.
MIT News - Apr 7, 2023

Artificial Intelligence / Machine Learning

NSF-funded scientists complete first map of an insect brain that may inspire machine learning architecture
...U.S. National Science Foundation-supported researchers have completed the most advanced brain map to date, that of an insect, a landmark achievement in neuroscience that brings scientists closer to true understanding of the mechanism of thought. The research team produced a detailed diagram, or connectome, tracing every neural connection in the brain of a larval fruit fly, an archetypal scientific model with brains comparable to humans. The researchers chose the fruit fly larva because, for an insect, the species shares much of its fundamental biology with humans, including a comparable genetic foundation. It also has rich learning and decision-making behaviors, making it a useful model organism in neuroscience. And for practical purposes, its relatively compact brain can be imaged and its circuits reconstructed in a reasonable timeframe. The work will likely underpin future brain research and inspire new machine learning architecture...
National Science Foundation - Apr 10, 2023

Robotics / Autonomous Vehicles

NASA's Exobiology Extant Life Surveyor (EELS)
...The EELS system is a mobile instrument platform conceived to explore internal terrain structures, assess habitability and ultimately search for evidence of life. It is designed to be adaptable to traverse ocean-world-inspired terrain, fluidized media, enclosed labyrinthian environments and liquids. The EELS architecture is a snake-like, self-propelled robot and made of multiple, identical, segments containing both the actuation and propulsion mechanisms as well as the power and communication electronics to drive them. EELS uses first-of-a-kind rotating propulsion units that act as tracks, gripping mechanisms and propeller units underwater, enabling the robot to access a plume vent exit and follow it to its ocean source. This system can further Ocean World exploration by its diverse adaptability to various types of terrains. EELS allows for deeper exploration into areas that were once unattainable...
robotics.jpl.nasa.gov - Apr 13, 2023

RACER's Off-Road Autonomous Vehicles Teams Navigate Third Test
...DARPA's Robotic Autonomy in Complex Environments with Resiliency (RACER) program recently conducted its third experiment to assess the performance of off-road unmanned vehicles. These test runs included the first with completely uninhabited RACER Fleet Vehicles (RFVs), with a safety operator overseeing in a supporting chase vehicle. The goal of the RACER program is to demonstrate autonomous movement of combat-scale vehicles in complex, mission-relevant off-road environments that are significantly more unpredictable than on-road conditions. During the most recent experiment, teams completed more than 55 driverless runs of between roughly four and 11 miles each, reaching speeds of about 25 miles per hour. The performers completed 246 miles over 24.6 total hours on course with a robotic fleet of 12 RFVs. The teams tested their autonomous software stacks developed for the RACER program using DARPA-provided robot systems in a variety of environments, after development runs on their own in various locations across the U.S. Phase 2 will focus on maturing software stacks and testing autonomy over longer off-road courses with fewer interventions...
DARPA - Apr 11, 2023

Tactical Resupply Unmanned Aircraft System Demonstration

...Marine Corps Combat Development and Integration recently demonstrated an innovative method to transport combat supplies with the Tactical Resupply Unmanned Aircraft System. TRUAS, a large, drone-like aircraft, can carry a payload over a short distance, drop it at a specified location, and return to the starting point. TRUAS is designed to provide rapid and assured, highly automated aerial distribution to small units operating in contested environments; thereby enabling flexible and rapid emergency resupply, routine distribution, and a constant push and pull of material in order to ensure a constant state of supply availability. Unlike some other drones, the TRUAS is highly automated and not manually flown. Instead, it uses waypoint navigation for mission planning, which uses programmed coordinates to direct the aircraft's flight pattern. The simplicity of operating the TRUAS is such that a Marine with no experience with unmanned aircraft systems can be trained to operate and conduct field level maintenance on it in just five training days...
Marines - Apr 11, 2023

Kids Judge Alexa Smarter than Roomba, But Say Both Deserve Kindness

...A new NSF-funded study from Duke developmental psychologists asked kids if it is wrong to attack a semi-intelligent robot, as well as how smart and sensitive they thought the smart speaker Alexa was compared to its floor-dwelling cousin Roomba, an autonomous vacuum. Four- to eleven-year-olds judged Alexa to have more human-like thoughts and emotions than Roomba. But despite the perceived difference in intelligence, kids felt neither the Roomba nor the Alexa deserve to be yelled at or harmed. That feeling dwindled as kids advanced towards adolescence. In Westworld and the movie Ex Machina, we see how adults might interact with robots in these very cruel and horrible ways, but how would kids interact with them? The kids gave Alexa, but not the Roomba, high marks for mental and emotional capabilities, like being able to think or getting upset after someone is mean to it. Regardless of the different perceived abilities of the two technologies, children across all ages agreed it was wrong to hit or yell at the machines. The study's findings offer insights into the evolving relationship between children and technology and raise important questions about the ethical treatment of AI and machines in general. This research was supported by the U.S. National Science Foundation...
Duke University - Apr 10, 2023

Cybersecurity / Privacy

Computer scientist confronts worldwide challenge of online security and privacy

...A University of Texas at Arlington computer security researcher, Shirin Nilizadeh, has received a prestigious National Science Foundation grant to determine what technologies and methods work best to attain and retain online security and privacy. She will study social media discussions and better understand what concerns are about online security and privacy, what technologies and tools they suggest to each other to use and whether they are effective. Nilizadeh's research could further the security of social network tools. Nilizadeh previously did work on how job applicants can "hack" hiring systems and improve their standing by using certain words on their applications. She also has studied whether security and privacy applications like content moderation tools are fair toward users from various demographics and backgrounds...
The University of Texas at Arlington - Apr 6, 2023

5G, Wireless Spectrum, Networking & Communications

Celebrating Telecommunicators Series: Evolving Technology in Emergency Communications Centers

...As CISA continues to celebrate National Public Safety Telecommunicators Week (NPSTW) and Emergency Communications Month, this is an opportunity to recognize public safety telecommunicators and their dedication, hard work, and commitment to excellence. SAFECOM and the National Council of Statewide Interoperability Coordinators (NCSWIC) recently published the Preparing for Technological Transformation in ECCs document to help Emergency Communication Centers (ECCs) prepare for new technologies. The document highlights how ECCs can use emerging tools and technologies, such as artificial intelligence (AI), remote dispatching, and integrated cloud technologies to supplement staffing, enhance data sharing, and improve delivery of critical emergency services. The document also provide links to available resources that ECCs can use to enhance their center's operations...
CISA - Apr 12, 2023

NASA's High-Resolution Air Quality Control Instrument Launches

...NASA's Tropospheric Emissions: Monitoring of Pollution (TEMPO) instrument will improve life on Earth by revolutionizing the way scientists observe air quality from space. The TEMPO mission is about more than just studying pollution – it's about improving life on Earth for all. By monitoring the effects of everything from rush-hour traffic to pollution from forest fires and volcanoes, NASA data will help improve air quality across North America and protect our planet. From a fixed geostationary orbit above the equator, TEMPO will be the first space-based instrument to measure air quality over North America hourly during the daytime and at spatial regions of several square

miles. TEMPO's observations will dramatically improve the scientific data record on air pollution – including ozone, nitrogen oxide, sulfur dioxide and formaldehyde – not only over the continental United States, but also Canada, Mexico, Cuba, the Bahamas, and part of the island of Hispaniola. From its geostationary orbit – a high Earth orbit that allows satellites to match Earth's rotation – TEMPO also will form part of an air quality satellite virtual constellation that will track pollution around the Northern Hemisphere...
National Aeronautics and Space Administration - Apr 7, 2023

Advanced Manufacturing

NIST Manufacturing Innovation Blog: The Importance of Supply Chain Connectivity to Grow Your Business

...The ability for manufacturers and suppliers to connect has never been more important. The domestic supply chain is quickly evolving due to advanced manufacturing breakthroughs and growing demand for electric vehicles, solar batteries and other high-tech innovations. Connectivity will also be essential for small and medium-sized manufacturers to capture some of the huge business development opportunities throughout the supply chain coming with major government projects. Increased awareness of opportunities and capabilities within supply chains gives manufacturers a competitive advantage...
National Institute of Standards and Technology - Apr 6, 2023

Microelectronics

Department of Defense Celebrates Advancements in Microelectronics Packaging Capabilities

...The U.S. Department of Defense (DoD) today celebrated a milestone achievement for the State-of-the-Art (SOTA) Heterogeneous Integrated Packaging (SHIP) Program with the delivery of the first SHIP prototype devices. The SHIP Program develops pathways for sustained DoD access to SOTA microelectronics packaging capabilities by leveraging commercial industry production flow to meet the DoD's unique requirements. Utilizing the Strategic & Spectrum Missions Advanced Resilient Trusted Systems (S²MARTS) Other Transaction Agreement (OTA), the SHIP Program has partnered with Intel and Qorvo to develop prototype devices for DoD systems that will demonstrate enhanced capabilities along with size, weight, and power (SWaP) savings beneficial to the warfighter. Under SHIP Digital, Intel's MCP-1 is in prototype production and MCP-2 will begin the prototype production process in the near term...
U.S. Department of Defense - Apr 6, 2023

Climate Change / Green Energy & IT

DOD Releases 2023 REPI Resilience Project Funding Guide

...The Department of Defense's Readiness and Environmental Protection Integration Program released the 2023 REPI Resilience Project Funding Guide. The REPI Program works to preserve military missions by supporting cost-sharing agreements between the Military Services, other federal agencies, state and local governments, and private conservation organizations to avoid land use conflicts near military installations, address environmental restrictions that limit military activities, and increase resilience to climate change. Installations and partners can leverage the guide to review funding opportunities for developing nature-based solutions near installations and ranges that preserve military missions, enhance habitats, increase climate resilience, and ensure military readiness. The guide also allows readers to quickly sort through programs based on multiple climate change threats, including wildfire, drought, coastal hazard, riverine flooding and land degradation...
U.S. Department of Defense - Apr 11, 2023

Biden-Harris Administration Announces $72 Million to Expand Pathways to Clean Energy Jobs

...The U.S. Department of Energy (DOE) announced five competitively selected higher education institutions to serve as Centers of Excellence for DOE's Industrial Assessment Centers (IAC) Program and will receive a combined $18.7 million in funding from the Bipartisan Infrastructure Law. Over more than four decades, the IAC Program has provided more than 20,000 assessments at small- and medium-sized manufacturers (SMMs), which comprise more than 90% of the nation's manufacturing base.The new Regional Centers of Excellence will enhance and expand the IAC Program by serving as regional hubs for the program that collaborate and coordinate with government, nonprofit, labor, and industry actors to train clean energy workers and support small- and medium-sized manufacturers in each respective regions. Two of the five selectees, and seven of the partnering institutions, are Minority-Serving Institutions (MSI)...

Sandia cloud-resolving climate model meets world's fastest supercomputer

...A computational team led by Sandia National Laboratories recently achieved a major milestone with a cloud-resolving model they ran on Frontier, the world's first exascale supercomputer. "We have created the first global cloud-resolving model to simulate a world's year of climate in a day," said Sandia researcher Mark Taylor, chief computational scientist of the Energy Exascale Earth System Model, or E3SM, an eight-lab project supported by the Department of Energy's Office of Science for the development of advanced climate models. Clouds play a critical role in Earth's climate system, impacting weather patterns and precipitation. The E3SM group developed an improved cloud-resolving atmosphere model named SCREAM, for Simple Cloud Resolving E3SM Atmosphere Model, which has the potential to substantially reduce major systematic errors in precipitation found in current models. Through the DOE's Exascale Computing Project, the E3SM developers had a 10-day window to test the performance of the new SCREAMv1 model running at a global 3.25-kilometer resolution. They obtained record-setting performance, with the atmosphere component running at greater than a simulated year per day. SCREAM's GPU performance, coupled with the exascale machine, for the first time will enable multi-year climate simulations with a more accurate treatment of clouds, leading to more accurate predictions of future weather and climate...

Sandia National Laboratories - Apr 7, 2023

Digital Health

FACT SHEET: Biden-Harris Administration Proposes New Standards to Protect Public Health that Will Save Consumers Money, and Increase Energy Security

...The Biden-Harris Administration is announcing new proposed vehicle pollution standards to make all vehicles, including gas-powered cars and heavy-duty trucks, cleaner and more efficient. The proposed standards would protect public health by cutting nearly 10 billion tons of CO2 emissions. Since President Biden took office, the private sector – including the American auto industry – has invested more than $120 billion in the American-made electric vehicle and battery supply chain...

The White House - Apr 12, 2023

JILA's Frequency Comb Breathalyzer Detects COVID-19 with Excellent Accuracy

...JILA researchers have upgraded a breathalyzer based on Nobel Prize-winning frequency-comb technology and combined it with machine learning to detect SARS-CoV-2 infection in 170 volunteer subjects with excellent accuracy. Their achievement represents the first real-world test of the technology's capability to diagnose disease in exhaled human breath. Frequency comb technology has the potential to non-invasively diagnose more health conditions than other breath analysis techniques while also being faster and potentially more accurate than some other medical tests. Frequency combs act as rulers for precisely measuring different colors of light, including the infrared light absorbed by molecules. The added benefit to this study was the use of machine learning, which processes and analyzes a massive, complex mélange of data from all the breath samples as measured by 14,836 comb "teeth," each representing a different color or frequency to create a predictive model to diagnose disease. ... JILA is jointly operated by the National Institute of Standards and Technology (NIST) and the University of Colorado Boulder (CU Boulder).

National Institute of Standards and Technology - Apr 6, 2023

ONC's New Proposed Rule: The Next Step to Advancing the Care Continuum Through Technology and Interoperability

...ONC released a notice of proposed rulemaking (NPRM) titled, "Health Data, Technology, and Interoperability: Certification Program Updates, Algorithm Transparency, and Information Sharing" (HTI-1). The proposals span the health information technology (health IT) horizon, including proposals on the movement of health information electronically, on new data standards that help ensure that information can be understood when it enters and leaves a system, on electronic case reporting that supports public health and emergency response across the country, and on algorithm transparency so that health IT users have more information about the algorithms enabled by or interfacing with the certified technology they use for care. A few more of the provisions you will find in the proposed rule are...

Health IT - Apr 11, 2023

Physicians have Widespread Access to State PDMP Data, but Data Sharing Varies Across States

...A recent ONC blog post showed physicians have widespread access to data from their state's prescription drug monitoring program (PDMP). More than three-quarters of physician prescribers reported checking the PDMP prior to prescribing controlled substances to a patient for the first time. Despite physicians' increased access to PDMP data from their state's PDMP, their participation in interstate data sharing remains limited. While nearly all PDMPs electronically share data with other states, as of 2021, less than one-third of physicians nationally reported requesting to view data from other states prior to prescribing controlled substances and 1 in 5 were unsure whether this request was

typically made. These findings suggest physicians that aren't fully leveraging existing state data sharing capabilities may not be viewing complete controlled substance prescription histories for patients who received care or dispensed prescribed medications in other states...
Health IT - Apr 6, 2023

NSF/NIH-funded researchers find optimizing sepsis treatment timing with a machine learning model
...A new machine learning model that estimates optimal treatment timing for sepsis could pave the way for support tools that help physicians personalize treatment decisions at the patient bedside. Scientists from The Ohio State University describe the new model, which uses artificial intelligence to take on the complex question of when to administer antibiotics to patients with a suspected case of sepsis. Time is of the essence because sepsis, the body's overwhelming response to an infection, can rapidly lead to organ failure. And yet, its symptoms – fever, low blood pressure, increasing heart rate and breathing problems – can look like a lot of other conditions. The model was trained and validated on a dataset obtained from a publicly available database, called MIMIC-III. The model was tested on different portions of MIMIC-III and a new external dataset from AmsterdamUMCdb. Key measures from almost 14,000 individuals with sepsis included changes to patient vital signs and lab test results as time passed – serving as indicators of illness severity and type of infection – and an innovative method devised to compare outcomes for patients who did and did not receive antibiotics at a specific time. ... This work was supported by the National Science Foundation and the National Institutes of Health.
Ohio State News - Apr 6, 2023

Other IT Related

NSF-funded model of atmospheric chemistry simulated conditions of wildfires finding smoke particles from wildfires can erode the ozone layer
...The U.S. National Science Foundation-supported 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% depletion of total ozone at mid-latitudes in the Southern Hemisphere. 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. By late 2020, smoke particles from the Australian wildfires widened the Antarctic ozone hole by 2.5 million square kilometers. The researchers found that chlorine-containing compounds, originally emitted by factories in the form of chlorofluorocarbons, could react with the surface of fire aerosols. The interaction, they found, set off a chemical cascade that produced chlorine monoxide — the ultimate ozone-depleting molecule. Their results showed that the Australian wildfires likely depleted ozone through this newly identified chemical reaction. When the team incorporated this new chemical reaction into a model of atmospheric chemistry and simulated the conditions of the Australian wildfires, they observed a 5% depletion of ozone throughout the stratosphere at mid-latitudes, and a 10% widening of the ozone hole over Antarctica...
National Science Foundation - Apr 11, 2023

STEM / Workforce & IT

New Presidential Innovation Fellows will design lasting, impactful solutions for government services
...The U.S. General Services Administration (GSA) announced the Presidential Innovation Fellows (PIF) cohort for 2023. Now in its 11th year, the PIF program continues to attract a wide range of unique talent that benefits the people the federal government serves. The fellows - known as PIFs - have joined GSA from industries including information technology, public services, digital strategy, and financial technology. This year's cohort comes from fields including technology, healthcare organizations, financial services, and more. PIFs serve as strategic senior advisors with direct access to decision-making agency leaders. Their subject-matter expertise is paired with the institutional knowledge of agency civil servants with the goal of co-creating lasting, human-centered design solutions that have large-scale impact in helping people seeking government services...
U.S. General Services Administration - Apr 10, 2023

NAVWAR mentors tomorrow's talent at FIRST® Robotics Competition
...Ten high school teams, mentored by Naval Information Warfare Systems Command (NAVWAR) and Naval Information Warfare Center (NIWC) Pacific employees, competed at the For Inspiration and Recognition of Science and Technology (FIRST®) Robotics Competition (FRC) San Diego Regionals Tournament. These high school students had six to eight weeks to design and build their robots to the challenge's specifications. This year's theme, CHARGED UP, inspires teams to see the potential of energy storage in a new light as they compete to charge up their communities. In the challenge, three robots work as an alliance to collect resources to power up their communities. The two alliances are competing to collect and deliver the most cones and cubes, representing energy, to their energy grid on the other side of the field. The energy grid is comprised of a series of platforms or poles upon which the cones or cubes are placed, with varying levels awarding more points. At the end of the two-and-a-half-minute match, teams can score a bonus by safely parking their robot on the charge station platform. Most NAVWAR and NIWC Pacific-mentored teams are sponsored by Department of Defense Science, Technology,

Engineering and Math (DODSTEM) grants, which help pay for competition fees, materials, outreach efforts, etc. The Navy and DoD are dedicated to fostering the next generation of STEM talent. With opportunities like the DoD Science, Mathematics, and Research for Transformation (SMART) Scholarship-for-Service Program and the Science and Engineering Apprenticeship Program (SEAP), high school students can continue their careers with the Navy and have their degrees funded...
Department of the Navy Chief Information Officer - Apr 6, 2023

NNSA expands Minority Serving Institution Partnership Program to strengthen its workforce

...The Minority Serving Institution Partnership Program (MSIPP) of the U.S. Department of Energy's National Nuclear Security Administration awarded nine new grants totaling $40.8 million to Minority-Serving Institutions (MSIs) to leverage untapped potential in students and expand the DOE-NNSA talent pathway. The program now has a total of 33 active consortia partnerships that encompass 56 schools and 14 DOE-NNSA laboratories, sites, and plants. MSIPP's efforts are designed to support the development of a diverse, highly skilled, and enduring stream of talented students in STEM fields who are working to advance America's nuclear security agenda. Through its support of MSIs, MSIPP provides competitive, consortia-based grant awards with a three-to-five-year period of performance...
Department of Energy - Apr 11, 2023

National Laboratories Partner With Minority-Serving Institutions to Prepare Students for the New Energy Workforce

...The U.S. Department of Energy's (DOE) Argonne National Laboratory, DOE's Brookhaven National Laboratory and University of Puerto Rico-Río Piedras (UPRRP) are partnering to build capacity in the university's Environmental Sciences Program. The three institutions will also engage minority students that are largely underrepresented in the atmospheric and Earth system sciences workforce. More than 95% of UPRRP's student body is Hispanic. The four-year project is one of the four awards selected by the Biological and Environmental Research program in DOE's Office of Science as part of DOE's first Reaching a New Energy Sciences Workforce (RENEW) Initiative, which officially got underway in January 2023. The RENEW initiative aims to support historically underrepresented groups in science, technology, engineering and mathematics (STEM) and diversify American leadership in energy and climate. It supports internships, training programs and mentor opportunities at historically black colleges and universities and other minority-serving institutions...
Brookhaven Lab - Apr 6, 2023

Students Use Machine Learning in Lesson Designed to Reveal Issues, Promise of A.I.

...North Carolina State University researchers had 28 high school students create their own machine-learning artificial intelligence (AI) models for analyzing data. The goals of the project were to help students explore the challenges, limitations and promise of AI, and to ensure a future workforce is prepared to make use of AI tools. Researchers developed a computer program called StoryQ that allows students to build their own machine-learning models. Then, researchers hosted a teacher workshop about the machine learning curriculum and technology in one-and-a-half hour sessions each week for a month. For teachers who signed up to participate further, researchers did another recap of the curriculum for participating teachers, and worked out logistics. ... From their discussions, researchers found that students had mixed reactions to AI technologies. Students were deeply concerned, for example, about the potential to use AI to automate processes for selecting students or candidates for opportunities like scholarships or programs. The work was supported by the National Science Foundation.
College of Education | NC State University - Apr 7, 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 - Apr 13, 2023

Federal Register: Request for Information (RFI)

RFI: DHS S&T Seeks to Test Innovative Technologies to Counter "Dark" Small, Unmanned Aircraft Systems Swarms

...The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) released a Request for Information (RFI) seeking new and emerging counter-unmanned aircraft systems (C-UAS) technology and solutions capable of detecting, tracking, identifying, reporting, and countering low-observable, low-emission and non-emitting (dark) small UAS (sUAS). These technologies and solutions will test under the direction of the C-UAS program, which assesses C-UAS technologies both in laboratory and real-world operational environments to deliver critical C-UAS capabilities to DHS components. This RFI is for participation in the live demonstration event only. Industry, academic institutions, Federally Funded Research and Development Centers, and other government organizations interested in participating must submit their response to this RFI by 10:00 AM ET on May 5, 2023.
Homeland Security - Apr 11, 2023

Upcoming Conferences / Workshops / Webinars

NASA Celebrates Earth Day with Earth Science in Action: Apr 20 & 21
...NASA uses the vantage point of space to increase our understanding of our home planet, improve lives, and safeguard our future. This Earth Day, you can join us in person and online to see how our fleet of satellites, our airborne campaigns, and our ground-based observations help us monitor the planet's vital signs and share them with scientists and citizens around the world. On April 20 and 21, from 10 a.m. to 4 p.m. Eastern Time, NASA will host an in-person Earth Day celebration at Union Station in Washington, D.C. The event will include 20 hands-on activities and an opportunity to learn about the many ways NASA conducts Earth science. Also on April 20, from 1 to 3 p.m. ET, NASA will hold two live webinars: Discover Your World and Beyond & Earth Day Celebration. Register at go.nasa.gov/NASAScienceNow to attend...
National Aeronautics and Space Administration - Apr 13, 2023

Industrial Assessment Center Program Expansion & Building Training and Assessment Centers Funding Opportunity Announcement Informational Webinar
...This presentation summarizes the contents of the Industrial Assessment Center Program (IAC) Expansion & Building Training Assessment Center (BTAC) Program Funding. April 18, 2023 02:00PM to 03:00PM EDT
Energy.gov - Apr 12, 2023

Joint Engineering Team (JET): Upcoming Hybrid Meeting May 9
...The Joint Engineering Team (JET) was established in 1997 and provides an opportunity for information sharing among Federal agencies and non-Federal participants who have an interest in high-performance research and engineering or research and education networking (REN) and networking to support science applications. The NITRD Program's JET meetings are open to the public. Joint Engineering Team (JET) will be having an upcoming hybrid meeting on May 9, 2023, from 11:45AM-1:00PM EDT at the Westin Peachtree Plaza, 210 Peachtree St NW, Atlanta, GA.
The Networking and Information Technology Research and Development (NITRD) Program - Apr 13, 2023

Medical Imaging De-Identification Workshop
...The Center for Biomedical Informatics and Information Technology of the National Cancer Institute (NCI) invites you to attend this virtual Medical Imaging De-Identification (MIDI) workshop focused on public sharing of imaging data. The primary emphasis of the workshop is on medical images with accompanying data elements, especially those in formats in which the data elements are embedded, particularly DICOM. The goals of the two-day workshop are to: * Share best practices and recommendations for medical imaging de-identification, as identified by the MIDI Task Group convened by the NCI. * Learn about approaches to conventional image de-identification in the United States, the European Union, and Canada. * Discuss approaches to image de-identification by industry. * Explore the roles of statistical risk analysis, de-facing, and AI in de-identification.
May 22-23 2023 10am - 2pm EDT
events.cancer.gov - Apr 12, 2023

Standards and Performance Metrics for On-Road Automated Vehicles Workshop
...The National Institute of Standards and Technology (NIST) held the Standards and Performance Metrics for On-Road Autonomous Vehicles Workshop in March 2022 to solicit stakeholder feedback with respect to challenges and opportunities in developing standards and performance metrics for on-road automated vehicles (AVs). Over the past year, NIST has started to perform research and explore performance metrics and standards in a number of areas, including artificial intelligence (AI), communications, cybersecurity, perception, and systems interaction. The purpose of this workshop is to bring together the AV community to update them on NIST's recent work in the area, provide a forum to provide feedback. September 5 - 8, 2023 Virtual Only EDT ...
National Institute of Standards and Technology - Apr 12, 2023

Innovation Through NITRD Coordination

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