



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!

Cybersecurity Awareness Month

A Proclamation on Cybersecurity Awareness Month, 2023

...This Cybersecurity Awareness Month — my Administration renews our commitment to securing cyberspace and seizing the unlimited potential of our digital future. In May 2021, I issued an Executive Order to modernize the Federal Government's cyber defenses — creating mechanisms for agencies to quickly identify and respond to cyberattacks. I instituted minimum cybersecurity standards for critical infrastructure sectors, including mandates for the protection of pipelines, rail, and aviation. This past August, the White House hosted a Cybersecurity for K-12 Schools Summit, where we announced new resources for schools to address the threat of ransomware attacks. We launched the "U.S.

Cyber Trust Mark” program with voluntarily participation from leading product manufacturers and retailers to help Americans choose safer smart devices to bring into their homes — while also establishing security standards for software purchased by the Government, helping to raise the market standard for digital technologies writ large. In July, we released a new National Cyber Workforce and Education Strategy, which will empower more Americans to pursue careers in the cyber field...
The White House - Sep 29, 2023

Kicking off NIST's Cybersecurity Awareness Month Celebration & Our Cybersecurity Awareness Month 2023 Blog Series

...To kick-off our 2023 blog series NIST's David Temoshok walked us through his insights and ideas relative to enabling multi-factor authentication, along with sharing a bit about what he's up to these days at NIST. NIST's Special Publication 800-63-3 Digital Identity Guidelines provide foundational processes and technical guidance for the management of digital identities by federal agencies. It also explains how public access to federal online services, systems, and transactions need to be managed by federal agencies in secure, usable, and privacy-protecting ways. NIST's Digital Identity Guidelines present three levels of authentication assurance for access to the government's online services: low, moderate, and high...

National Institute of Standards and Technology - Oct 2, 2023

Staying Safe Online

...S&T's goal is to be on the cutting-edge when it comes to ensuring our nation's cybersecurity. We do this in a number of ways—through collaborative efforts to support and advance the Cybersecurity and Infrastructure Security Agency's (CISA) mission, by developing tools to identify potential vulnerabilities in our nation's critical infrastructure systems and networks, and by implementing solutions to improve cybersecurity-related risk analysis processes and assessment. To kick off Cybersecurity Awareness Month, some examples of the work underway are spotlighted. S&T's Cybersecurity Threats Technology Center is supporting research to enhance the cybersecurity and resilience of our critical infrastructure. This research expands our knowledge of future threats, studies approaches to mitigating those threats, and aims to reduce risks so that our partners can plan to safely integrate and transition emerging technologies in the near future. S&T's Biometric and Identity Technology Center, in partnership with the Transportation Security Administration, the National Institute of Standards and Technology, Homeland Security Investigations Forensic Laboratory, and other federal agencies, is evaluating smartphone-based identity proofing technologies to assess how well these technologies can authenticate legitimate users and detect impostors...

Homeland Security - Oct 3, 2023

Federal Agency Funding Opportunities

Biden-Harris Administration announces \$100 million to bolster climate resilience in communities as part of Investing in America agenda

...The Department of Commerce and NOAA announced the availability of \$100 million to support climate resilience projects through U.S. Integrated Ocean Observing System (IOOS) Regional Associations. Funding will enhance national and regional coastal ocean observing systems while prioritizing climate resilience services and equitable service delivery. Projects will also advance the role of IOOS in the New Blue Economy by recapitalizing and modernizing technologies and advancing the IOOS ocean information technology network. U.S. IOOS is a NOAA-led nationwide network providing data, tools and models to improve safety, support the economy and protect the environment. The IOOS Regional Associations are non-federal partners within U.S. IOOS that provide observations for the U.S. coastal zone to the limits of the Exclusive Economic Zone, whose data management is certified by NOAA to adhere to national standards and best management practices. They operate regional observing networks throughout the nation...

National Oceanic and Atmospheric Administration - Sep 29, 2023

HPC

Exascale revolution: Supercomputers unleash a new era in biophysics discovery

...The U.S. National Science Foundation-supported researchers delve into the fusion of computational modeling and experimental biophysics, providing a perspective for a future in which discoveries are made with new precision. Now biophysicists, with the aid of advanced high-performance computing, can challenge longstanding biological assumptions, illuminate intricate details and create new proteins or design novel molecular circuits. The public exascale supercomputer Frontier, deployed by the Oak Ridge National Laboratory in 2021, coupled with the rapid proliferation of artificial intelligence tools tailored for biophysics, shows the profound strides being made to seamlessly bridge simulation with observation...

National Science Foundation - Oct 3, 2023

NASA & Partners New Simulations Shed Light on Origins of Saturn's Rings and Icy Moons

...A new series of supercomputer simulations has offered an answer to the mystery of Saturn and its series of remarkable rings' origins – one that involves a massive collision, back when dinosaurs still roamed the Earth. According to new research by NASA and its partners, Saturn's rings could have evolved from the debris of two icy moons that collided and shattered a few hundred million years ago. The research team used the Advanced Computing supercomputing facility in the United Kingdom to model what different collisions between precursor moons might have looked like. These simulations were conducted at a resolution more than 100 times higher than previous such studies, using the open-source simulation code, SWIFT, and giving scientists their best insights into the Saturn system's history. By simulating almost 200 different versions of the impact, the team discovered that a wide range of collision scenarios could scatter the right amount of ice into Saturn's Roche limit, where it could settle into rings. And, while alternative explanations haven't been able to show why there would be almost no rock in Saturn's rings – they are made almost entirely of chunks of ice – this type of collision could explain that...

National Aeronautics and Space Administration - Sep 26, 2023

Artificial Intelligence / Machine Learning

AI Security Center to Open at National Security Agency

...National Security Agency Director Army Gen. Paul M. Nakasone today announced the creation of a new entity to oversee the development and integration of artificial intelligence capabilities within U.S. national security systems. The AI Security Center will become the focal point for developing best practices, evaluation methodology and risk frameworks with the aim of promoting the secure adoption of new AI capabilities across the national security enterprise and the defense industrial base. The new entity will consolidate the agency's various artificial intelligence, security-related activities. The unique talent and expertise at the NSA make the agency well suited to support the government's effort to ensure the U.S. maintains its competitive edge in AI. In January, the Defense Department updated its 2012 directive that governs the responsible development of autonomous weapon systems to the standards aligned with the advances in artificial intelligence...

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

ORNL launches Center for AI Security Research to study AI's impacts on society, security

...The Department of Energy's Oak Ridge National Laboratory announced the establishment of the Center for AI Security Research, or CAISER, to address threats already present as governments and industries around the world adopt artificial intelligence and take advantage of the benefits it promises in data processing, operational efficiencies and decision-making. In partnership with federal agencies such as the Air Force Research Laboratory's Information Directorate and the Department of Homeland Security Science and Technology Directorate, ORNL and CAISER will provide objective scientific analysis of the vulnerabilities, threats and risks — from individual privacy to international security — related to emerging and advanced artificial intelligence. CAISER expands the lab's long-standing Artificial Intelligence for Science and National Security research initiative, which integrates ORNL's unique expertise, infrastructure and data to accelerate scientific breakthroughs...

Oak Ridge National Laboratory - Sep 27, 2023

From physics to generative AI: NSF funds an AI model for advanced pattern generation

...Researchers from MIT's Computer Science and Artificial Intelligence Laboratory (CSAIL) have brought an innovative AI model to life. Their new technology integrates two seemingly unrelated physical laws that underpin the best-performing generative models to date: diffusion, which typically illustrates the random motion of elements, like heat permeating a room or a gas expanding into space, and Poisson Flow, which draws on the principles governing the activity of electric charges. Since its inception, the "Poisson Flow Generative Model ++" (PFGM++) has found potential applications in various fields, from antibody and RNA sequence generation to audio production and graph generation. "PFGM++ is an example of the kinds of AI advances that can be driven through interdisciplinary collaborations between physicists and computer scientists. ... The team was supported by National Science Foundation grants...

MIT News - Sep 27, 2023

NSF-funded engineering researchers study wireless communication and machine learning

...Without intelligent control happening every millisecond, accidents can occur. This control can mean applying the brake of an autonomous vehicle to save a life or creating a more user-friendly augmented reality experience. Two professors in the Department of Electrical and Computer Engineering at Texas A&M University are working to enhance and advance the future of mobile networks. They received a National Science Foundation (NSF) grant to research EdgeRIC: Real-time radio access network intelligent control for the next generation of cellular networks. An important aspect of this work involves wireless communication, offloading computers and wires from intelligent systems while maintaining connectivity...

Texas A&M University College of Engineering - Sep 29, 2023

Robotics / Autonomous Vehicles

AI helps robots manipulate objects with their whole bodies

...An artificial intelligence method called "reinforcement learning" has been used to plan contact-rich manipulations, smoothing the sudden changes in the dynamic equations caused by contact. However, this process still requires many different outcomes to be calculated. NSF-funded researchers at the Massachusetts Institute of Technology have discovered how to achieve the effects of reinforcement learning without the need to compute large numbers of full trajectories. This method could enable factories to use smaller, mobile robots that can manipulate objects with their entire arms or bodies. In addition, the technique could allow robots sent on space exploration missions to adapt to the environment quickly, using only an onboard computer. Researchers combined their model with an algorithm that can rapidly and efficiently search through all possible decisions the robot could make...

National Science Foundation - Oct 3, 2023

In-Water Tests for DARPA Manta Ray Scaled Prototype

...DARPA's Manta Ray program hit a key milestone with an in-water splash test to verify sensors, vehicle hydrodynamic performance, and key autonomy behaviors of the glider body. Manta Ray aims to develop and demonstrate a new class of long-duration, long-range autonomous underwater vehicle. The program approach includes rapid prototyping and early risk reduction prior to culminating in a more complex, full-scale final demonstration at sea. Dr. Kyle Woerner, Manta Ray program manager at DARPA said, We are a critical step closer to realizing the program's objectives for a new class of long-endurance autonomous underwater vehicle." ...

DARPA - Sep 27, 2023

NSF-funded researcher to help send swarm of marine robots on climate change quest beneath ocean ice

...Research from West Virginia University mechanical and aerospace engineer Xi Yu could help scientists reach ocean waters hidden away beneath ice shelves. The inaccessible waters under ocean ice contain information critical to understanding the impact of climate change. Yu has received National Science Foundation support for a three-year project developing technologies to control swarms of "passenger robots," intended for release by their autonomous mothership into an icy subaquatic world. An exploration mission might require anywhere from 10 to 100 passenger robots to work as a "coordinated communication network. The robot swarm could sample the ocean within ice shelf cavities, capturing data that could be key to predicting melting of ice shelves, stability of glaciers and the flow of ice into the ocean...

WVU - Sep 29, 2023

Quantum

New Spin-Squeezing Techniques Let Atoms Work Together for Better Quantum Measurements

...JILA is a joint institute of the National Institute of Standards and Technology (NIST) and the University of Colorado Boulder. JILA researchers have developed new ways of "entangling" or interlinking the properties of large numbers of particles. When atoms are entangled, what happens to one atom affects all the atoms entangled to it. Having dozens — better yet, hundreds — of entangled atoms working together reduces the noise, and the signal from the measurement becomes clearer, more certain. One means of entanglement is with a process called spin squeezing. Spin squeezing reduces all those possible superposition states in an atom to just a few possibilities. Spin-squeezing entanglement could also benefit optical atomic clocks, which are an important measurement science tool...

National Institute of Standards and Technology - Sep 25, 2023

Arrays of quantum rods could enhance TVs or virtual reality devices

...It has been difficult to create arrays of quantum rods for commercial devices. Quantum rods can control both the polarization and color of light to generate 3D images for virtual reality devices. Using scaffolds made of folded DNA, engineers at the Massachusetts Institute of Technology have developed a precise way to assemble arrays of quantum rods. NSF-funded engineers have led the design and fabrication of nanoscale structures made of DNA — also known as DNA origami. The researchers devised a way to attach quantum rods to diamond-shaped DNA origami structures, which are then attached to a surface where they fit together like puzzle pieces. The team tackled the challenge of arranging quantum rods into 2D arrays, difficult because the rods need to be aligned in the same direction. The DNA strands act like Velcro, helping the quantum rods stick to a DNA origami template, forming a thin film that coats a silicate surface. "NSF funding is playing a pivotal role in unlocking new horizons in computing research that advance our understanding of science and open doors to revolutionary technologies," said Margaret Martonosi, NSF assistant director for Computer and Information Science and

Engineering...

National Science Foundation - Sep 28, 2023

What is quantum squeezing?

...Mark Kasevich, a professor of physics and applied physics at Stanford University and a member of Q-NEXT, uses quantum squeezing in his work developing quantum sensors. Two fundamental measurements of quantum systems are the most important when discussing quantum squeezing: amplitude and phase. Amplitude is the magnitude or strength of a quantum wave or particle. Amplitude describes the size or intensity of a wave. Taller waves have a larger amplitude, while shorter waves have a smaller amplitude. Phase, on the other hand, is the relative timing or alignment of a quantum wave or particle. The term refers to the point on the wave cycle where the measurement takes place — at the peak, the trough or somewhere in between. If a researcher needs to know a quantum signal's amplitude, they can use devices called “squeezers” to squeeze a quantum system — such as a beam of light — and decrease amplitude uncertainty at the cost of increased phase uncertainty. Quantum squeezing has enormous potential for future technologies, providing a method to improve the measurement sensitivity of properties at nature's tiniest scales...

Argonne National Laboratory - Sep 25, 2023

US ARO & DOD funds new qubit circuit that enables quantum operations with higher accuracy

...In the future, quantum computers may be able to solve problems that are far too complex for today's most powerful supercomputers. To realize this promise, quantum versions of error correction codes must be able to account for computational errors faster than they occur. However, today's quantum computers are not yet robust enough to realize such error correction at commercially relevant scales. MIT researchers demonstrated a novel superconducting qubit architecture that can perform operations between qubits with much greater accuracy than scientists have previously been able to achieve. They utilize a relatively new type of superconducting qubit, known as fluxonium, which can have a lifespan that is much longer than more commonly used superconducting qubits. ... This work was funded, in part, by the U.S. Army Research Office, the U.S. Undersecretary of Defense for Research and Engineering, and the U.S. National Defense Science and Engineering Graduate Fellowship Program...

MIT News - Sep 25, 2023

Cybersecurity / Privacy

NIST Unveils Newly Named Human-Centered Cybersecurity Program

...The Human-Centered Cybersecurity program (formerly Usable Cybersecurity) is part of the Visualization and Usability Group at NIST. To better reflect our new (but long-time practiced) mission statement, “championing the human in cybersecurity,” the name was updated to Human-Centered Cybersecurity. The multi-disciplinary team conducts research at the intersection of cybersecurity, human factors, cognitive science, and psychology and seeks to better understand and improve people's interactions with cybersecurity systems, products, and services. One of the goals of our program is to advance cybersecurity adoption and acceptance by getting our research into the hands of those who can take action within federal and non-federal sectors. We strive to help bridge the communication gap that can get in the way of cybersecurity and IT practitioners being informed of the relevant human-based research that could benefit their work and professional education...

National Institute of Standards and Technology - Sep 28, 2023

NSF announces 4 Mid-scale Research Infrastructure-1 awards to bolster cybersecurity, windstorms science, ocean observatory, and lasers research infrastructure

...The U.S. National Science Foundation announced four Mid-Scale Research Infrastructure-1 awards for Fiscal Year 2023-2024 that will continue the agency's support of cutting-edge science and engineering research. The Mid-scale RI-1 awards support the design and implementation of research infrastructure — including testbeds, equipment, cyberinfrastructure, large-scale data sets and personnel — whose total project costs exceed NSF's Major Research Instrumentation Program but are under \$20 million...

National Science Foundation - Sep 25, 2023

NSA Releases Guidance on Acceptance Testing for Supply Chain Risk Management

...The National Security Agency has released the Cybersecurity Information Sheet (CSI) “Procurement and Acceptance Testing Guide for Servers, Laptops, and Desktop Computers” encouraging U.S. Government departments and agencies operating National Security Systems (NSS) to implement a robust supply chain risk management strategy. The CSI details implementation of a supply chain risk mitigation process that utilizes Trusted Platform Modules (TPMs) and Platform Certificates. A TPM is a small security chip embedded in most enterprise computing systems. The TPM stores keys associated with certificates created by vendors and manufacturers. The keys are then used during acceptance testing to validate the integrity of the computing system. The CSI indicates acceptance testing should be implemented to validate the integrity of devices and ensure they are meeting procurement and security requirements. The automated acceptance test cryptographically checks and assesses the certificates delivered in the

device. NSA encourages the inclusion of Platform Certificates and an automated acceptance test in the procurement contract of enterprise computing systems...
National Security Agency/Central Security Service - Sep 28, 2023

5G, Wireless Spectrum, Networking & Communications

Satellite Research Shows Arctic Sea Ice 6th Lowest on Record; Antarctic Sees Record Low Growth

...Scientists track the seasonal and annual fluctuations because sea ice shapes Earth's polar ecosystems and plays a significant role in global climate. Researchers at NSIDC and NASA use satellites to measure sea ice as it melts and refreezes. They track sea ice extent, which is defined as the total area of the ocean in which the ice cover fraction is at least 15%. Since the start of the satellite record for ice in 1979, sea ice has not only been declining in the Arctic, but also getting younger. Nathan Kurtz, at NASA's Cryospheric Sciences Laboratory, said that as the Arctic warms about four times faster than the rest of the planet, the ice is also growing thinner. "Thickness at the end of the growth season largely determines the survivability of sea ice. New research is using satellites like NASA's ICESat-2 (Ice, Cloud and land Elevation Satellite-2) to monitor how thick the ice is year-round." ...

National Aeronautics and Space Administration - Sep 25, 2023

One Giant Leap for Mobility: Recapping the 2023 5G Challenge

...The National Telecommunications and Information Administration is working to foster the development of an open 5G wireless ecosystem to help the private sector bring new life and innovation to a marketplace held back by few vendors and little competition. Partnered with the Department of Defense for the 2023 5G Challenge, which tests whether an open 5G ecosystem can work in real world scenarios. The 2023 5G Challenge tested whether components of an Open Radio Access Network, such as antennas and radio base stations, can work together to ultimately create a multi-vendor subsystem end-to-end 5G network. The Challenge separated the RAN into two contestant parts: a radio unit subsystem—the first point of contact between user devices and the network, and a central unit and distributed unit pair subsystem—these units work together to handle specific functions from the RU subsystem. The Challenge also set a brisk pace for contestants to form 5G networks with subsystems from two, three, or four different vendors...

National Telecommunications and Information Administration - Oct 4, 2023

Advanced Manufacturing

NSF invests \$35M in future manufacturing

...Through the Future Manufacturing program, the U.S. National Science Foundation makes targeted investments in the future of manufacturing research and helps grow the manufacturing workforce. The Future Manufacturing program's purpose is to discover manufacturing solutions that overcome current scientific, technological, educational, economic, and social barriers to provide new manufacturing capabilities for U.S. companies. This is the fourth year of NSF investment in Future Manufacturing, totaling more than \$137 million. Targeted NSF investments in fundamental research and education in manufacturing will catalyze new manufacturing capabilities that do not exist today. The 21 awards for 2023 invest over \$35 million across 40 institutions in 25 states, including six Established Program to Stimulate Competitive Research jurisdictions...

National Science Foundation - Sep 28, 2023

Biden-Harris Administration Announces \$22 Million to Support Smart Manufacturing at Small- and Medium-sized Facilities Across the Nation

...The U.S. Department of Energy announced \$22 million to 12 state-run programs to accelerate smart manufacturing at small- and medium-sized facilities. Funded by the President's Bipartisan Infrastructure Law, the State Manufacturing Leadership Program aims to make smart manufacturing technologies and high-performance computing more accessible for use across the domestic manufacturing sector. This funding will help states remove existing barriers that inhibit the ability of small- and medium-sized manufacturers (SMMs) to utilize innovative, data-driven tools and technologies—improving production efficiency to reduce costs, support new domestic manufacturing opportunities, and cut harmful emissions. Advancing sustainable, next-generation tools and resources in the manufacturing sector is key to achieving the Biden-Harris Administration's ambitious goal of a net-zero economy by 2050 and will help revitalize and strengthen America's global leadership in manufacturing...

Department of Energy - Sep 27, 2023

Microelectronics

DOD Sparks Innovation and Resilience Across the Defense Microelectronics Industrial Base

...The Department of Defense's Office of Industrial Base Policy, through its Manufacturing Capability Expansion and Investment Prioritization (MCEIP) office, has awarded a combined \$17.5 million in contracts to support two initiatives that will strengthen the resilience of the defense microelectronics industrial base. The Enterprise Parts Management System (EPMS) is a cloud-based enterprise-wide microelectronics parts management tool intended to enable parts management at program office levels across DoD throughout the entire parts lifecycle. EPMS will give DoD the ability to aggregate information on parts used in DoD systems and manage those parts at the enterprise level. The \$6 million investment will support the iterative design and development of the cloud-based platform. This tool will support Military Service and defense agency weapon system program offices; prime system developers and maintainers; and acquisition, sustainment, research, development, testing, and evaluation offices across the Department...

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

UNM professors part of one of the regional CHIPS Act microelectronics 'innovation hubs'

...Two University of New Mexico School of Engineering professors are part of one of the eight Microelectronics Commons innovation hubs recently announced by the Department of Defense as part of President Biden's CHIPS and Science Act. "Creating Helpful Incentives to Produce Semiconductors (CHIPS) and Science Act" was announced this month by Deputy Secretary of Defense Kathleen Hicks. The \$238 million in funding for the establishment of eight Microelectronics Commons regional innovation hubs is the largest award to date under the CHIPS and Science Act. UNM is one of 27 hub members receiving part of the \$39.9 million in funding for the 2023 fiscal year. Through 2027, \$2 billion in funding will go to the Microelectronics Commons program, with the goal of accelerating domestic hardware prototyping and "lab-to-fab" transition of semiconductor technologies. RF and high-power microwaves are included in the six technology areas deemed critical to the Department of Defense mission that were selected as focus areas for the Commons...

UNM Newsroom - Sep 27, 2023

Climate Change / Green Energy & IT

A Proclamation on National Clean Energy Action Month, 2023

...During National Clean Energy Action Month, we celebrate that historic progress and commit to continue working to build a more sustainable and energy secure Nation for future generations. The Administration is focused on fueling America's clean energy future so we lead the world in industries like solar, wind, geothermal, and advanced nuclear energy. The United States is deploying more solar and wind power than ever. Electric vehicle sales and clean energy manufacturing are booming. But we have much more to do. The climate crisis will not wait, nor will clean energy competitors in other nations. Americans must come together to win the clean energy future — the future of our economy, our national security, and our children and grandchildren all depend on it...

The White House - Sep 29, 2023

DOE Announces \$264 Million for Basic Research in Support of Energy Earthshots™

...The U.S. Department of Energy (DOE) announced \$264 million in funding for 29 projects to develop solutions for the scientific challenges underlying DOE's Energy Earthshots™ Initiative to advance clean energy technologies within the decade. The funding will support 11 new Energy Earthshot Research Centers led by DOE National Laboratories and 18 university research teams addressing one or more of the Energy Earthshots™ that are focused on six different areas, including industrial decarbonization, carbon storage, and offshore wind. The Energy Earthshots™ connect DOE's basic science and energy technology offices to accelerate innovations toward more abundant, affordable, and reliable clean energy solutions...

Department of Energy - Sep 29, 2023

Digital Health

A Proclamation on National Breast Cancer Awareness Month, 2023

...This National Breast Cancer Awareness Month, let us all recommit to the work of ending cancer as we know it. May we honor those we have lost, offer strength to those who continue to live with breast cancer, and work to protect the health of future generations. Nearly 300,000 women will be diagnosed with breast cancer this year, and one in eight women in America will be diagnosed with the disease in their lifetimes. We have made enormous progress in our decades-long fight against cancer — discovering new prevention and early-detection measures and exploring medicines and therapies to extend and save lives. The First Lady and I reignited the Cancer Moonshot and set ambitious

goals to cut the overall cancer death rate by at least half in the next 25 years, transform more cancers from death sentences into treatable diseases, and improve the treatment experience for patients and their families. As a first step toward realizing these goals, I established the Advanced Research Projects Agency for Health (ARPA-H) and secured \$2.5 billion in bipartisan funding to drive scientific breakthroughs in prevention, detection, and treatment for cancer and other diseases...
The White House - Sep 29, 2023

NIH launches community-led research program to advance health equity

...The National Institutes of Health is funding a first-of-its-kind community-led research program to study ways to address the underlying structural factors within communities that affect health, such as access to safe spaces, healthy food, employment opportunities, transportation, and quality health care. Through the NIH Common Fund Community Partnerships to Advance Science for Society (ComPASS) program, NIH made 26 awards to community organizations and a coordinating center. ComPASS projects study social determinants of health — the social, physical, and economic conditions where people are born, grow, live, work, age, and play — that contribute to health inequities. The projects will examine underlying conditions and environments that influence health outcomes by enabling the development, implementation, and assessment of structural interventions. Structural interventions are meant to alter social determinants of health by changing factors that create differences in opportunities to achieve optimal health. The ComPASS program is funded by the NIH Common Fund and managed collaboratively by NIH staff from the Common Fund...
National Institutes of Health - Sep 27, 2023

NIH-Funded UM Researchers Develop 3D-Printed Film That Supports Cervical Cancer Research

...Scientists at the University of Mississippi are developing a vaginal, 3D-printed film that could improve drug delivery options for cervical cancer patients. Researchers combined hot-melt extrusion and 3D printing to design patient-specific doses. Hot-melt extrusion, or HME, involves melting a material and reshaping it as it cools. The scientists used HME to produce drug-loaded filaments, or threads of material, which were then used to 3D print the desired dose. The film makes it possible to deliver medications directly to the target site. ... This project was partially supported by the National Institute of General Medical Sciences, which is a component of the National Institutes of Health ...
University of Mississippi - Sep 27, 2023

ARPA-H-Funded Researcher to Lead \$104 Million Federal Project Tackling Antibiotic Resistance

...Harvard Medical School researcher Johan Paulsson will lead a multi-institutional \$104 million effort to study bacteria and antibiotic resistance, the U.S. Department of Health and Human Services announced. The work is funded by the newly established Advanced Research Projects Agency for Health (ARPA-H) in an effort to address an unfolding crisis of antibiotic resistance. The newly funded ARPA-H project will build on tools from all of the groups involved, and has four main components: * Microscopy * Microfluidics * single-cell assays * machine learning tools and mathematics...
Harvard Medical School - Sep 27, 2023

A \$3M NSF grant to advance biomanufacturing could help establish an innovative method to deliver medicines to cells

...A team of Vanderbilt engineers, biologists and education specialists have received a \$3 million grant from the National Science Foundation to advance large-scale biomanufacturing of cell-derived nanoparticles that can deliver precisely targeted drugs to the site of a disease. The grant is part of the NSF's Future Manufacturing program that is designed to support fundamental research, as well as education and workforce training, to spur novel manufacturing technologies and processes...
Vanderbilt University - Sep 28, 2023

A NIH \$2.18M award will use AI to diagnose autism, ADHD, mental health conditions

...Diagnosing mental health conditions and developmental delays such as autism and ADHD in individuals through video may one day be possible using artificial intelligence (AI) and is the focus of a new University of Hawai'i at Mānoa project. This public impact research by Assistant Professor Peter Washington from the Information and Computer Sciences Department is funded by a \$2.18-million New Innovator Award from the National Institutes of Health (NIH). The New Innovator Award is part of NIH's High-Risk, High-Reward Research program. Using the data collected, the project aims to create efficient, remote and accessible psychiatric evaluations from the comfort of a home computer. The project will focus on diagnosing adolescent developmental delays, such as autism and ADHD as a starting point towards building a method that can work for a broader range of psychiatric conditions. Providing diagnoses remotely through a computer in a mostly automated way can help families receive quicker care...
The Magazine of the University of Hawaii - Malamalama - Oct 3, 2023

STEM / Workforce & IT

Good Jobs and Unions Will Help Build Our Workforce

...The Biden-Harris Administration released a playbook on evidence-based workforce development strategies that state and local governments can use to support workers, families, and communities. The President is growing the economy from the middle out and bottom up by investing in America. External estimates predict that over the next decade, the Administration's Investing in America agenda will create more than a million jobs in industries like manufacturing and construction. As the Council of Economic Advisers laid out in a brief last year, by improving job quality, employers can more easily attract and retain workers—benefitting their bottom line. At the same time, improved job quality enables workers to bring home the pay and benefits that provide an opportunity to reach the middle class, which in turn supports economic growth...
The White House - Sep 29, 2023

NSF invests \$18.8M in inaugural cohort of projects enabling experiential learning in key technologies

...The U.S. National Science Foundation announced the first Experiential Learning for Emerging and Novel Technologies (ExLENT) investment of \$18.8 million to 27 teams at U.S. institutions of higher education, including teams led by minority-serving institutions and historically Black colleges and universities. ExLENT offers pathways for people with varying STEM experience levels. ExLENT uses a cohort model and emphasizes the importance of mentorship in achieving the program's goals. In the future, ExLENT will make awards to teams in an additional Explorations track. This track will provide participants with no prior STEM experience an experiential learning opportunity that builds interest, motivation and knowledge in a key technology area and inspires them to further explore different pathways to potential careers in these areas...
National Science Foundation - Sep 27, 2023

Powering the Economy One Chip at a Time

...Economists predict that 90,000 workers need to join the semiconductor workforce by 2025 to address the deficit of chip production in the United States. This potential shortage is happening at a time when the semiconductor-related workforce is aging. According to the U.S. Census Bureau's American Community Survey (ACS), in 2022 there were 16.1 million manufacturing workers age 16 and older in the United States, about 10.0% of the civilian workforce. To help recruit and support workers with children, particularly working women, semiconductor manufacturers seeking government incentives as part of the CHIPS Act are required to include a strategy for workers to access affordable, high-quality child care...
U.S. Census - Sep 29, 2023

RIT helps veterans and first responders transition into cybersecurity careers

...A new coalition, led by Rochester Institute of Technology, is paving the way for military service members and first responders to transition into high-demand civilian cybersecurity careers. RIT will lead eight universities in developing certificate programs to build and validate focused skills in governance, risk, and compliance. The pilot program is backed by \$2.5 million in funding from the National Security Agency (NSA). The certificates will prepare participants for careers in auditing and compliance. An IT auditor role yields an average annual salary of more than \$100,000 and represents approximately 8,600 open positions across the country. Participants could also take on jobs as a cybersecurity consultant or penetration and vulnerability tester. In addition to providing a pathway to great careers, the workforce development program will directly benefit the Department of Defense in its Cybersecurity Maturity Model Certification compliance mandate...
Rochester Institute of Technology - Sep 28, 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 - Sep 20, 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; 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!

The Networking and Information Technology Research and Development (NITRD) Program - Sep 13, 2023

Upcoming Conferences / Workshops / Webinars

CDAO Announces its AI Symposium

...The Chief Digital and Artificial Intelligence Office (CDAO) will host a symposium on February 20-22, 2024. Advantage DoD 2024 will highlight work from Task Force Lima, the team charged with determining the responsible and secure implementation of large language models (LLMs) in DoD. Other sessions will focus on topics, such as AI scaffolding, data mesh services, recent strategy and policy issuances, the DoD digital workforce, and work with Allies and partners. More information about the symposium can be found on the CDAO's website at <https://www.ai.mil>. Registration opens on October 15th...

U.S. Department of Defense - Sep 29, 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
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