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 | UPCOMING CONFERENCES / WORKSHOPS / WEBINARS | FEDERAL REGISTER: REQUEST FOR INFORMATION (RFI)

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!

Artificial Intelligence / Machine Learning

Developing Trustworthy AI to Inform Decisions When Every Moment Counts
...DARPA has selected performers for the In the Moment (ITM) program to create the foundation for trusted algorithmic decision-making in challenging domains. The first phase will look at triage for small military units in austere environments, and the second phase will scale up the complexity of decision-making by looking at triage for mass casualty events. ITM will produce a framework for developing algorithms that can express key attributes that are aligned with trusted humans. If the foundational ITM technology is successful, the framework will inform future operational systems that rely on trusted decision-making algorithms...
DARPA - Jun 7, 2023

Improving X-Ray Analysis with Artificial Intelligence
...Often, researchers will shoot the same material twice with an X-ray, with the pulses just moments apart. This technique allows them to get snapshots of the exact same system at two different points in time. Knowing how these systems change can help scientists better understand current materials and develop new ones. This information can help them build better computers, communications devices, and other technologies. Researchers at the Department of Energy's SLAC National Accelerator Laboratory developed an

artificial intelligence technique to help them compare the images much simpler and faster. It expands the types of materials that scientists can study with this X-ray method. For example, they may now be able to study high-temperature superconductors, which can conduct electricity without losing any energy to heat...
Department of Energy - Jun 1, 2023

From AI to electric snowplows, NSF-funded researcher explores ways to modernize roadway maintenance
...With a $540,000 National Science Foundation CAREER award, Kakan Dey's research will delve into a variety of ways a data-driven approach can enhance roadway maintenance operations — from modernizing maintenance vehicle fleets and rethinking the placement of operational hubs to utilizing artificial intelligence that analyzes real-time information collected by sensors on consumer cars or at roadside observation stations. Like smartphones on wheels, connected vehicles capture and upload data about speed, road conditions, temperature, road friction and a host of factors that tell artificial intelligence systems which parts of a transportation network need urgent attention. That information can allow emergency and maintenance operations to prioritize roadways where real-time data indicate major problems and to minimize time and resources spent on less affected roadways...
WVU - Jun 2, 2023

U.S. Army Funds New AI Boosts Teamwork Training
...Researchers have developed a new artificial intelligence (AI) framework that is better than previous technologies at analyzing and categorizing dialogue between individuals, with the goal of improving team training technologies. The framework will enable training technologies to better understand how well individuals are coordinating with one another and working as part of a team. The new AI framework builds on a powerful deep learning model that was trained on a large, text-based language dataset. This model, called the Text-to-Text Transfer Transformer (T5), was then customized using data collected during squad-level training exercises conducted by the U.S. Army. This research was sponsored by the U.S. Army DEVCOM...
Department of Computer Science at North Carolina State University - Jun 6, 2023

Robotics / Autonomous Vehicles

NASA Research Gathers Key Radar Data for Autonomous Air Cargo Delivery
...As part of the agency's broad portfolio of work on Advanced Air Mobility, NASA researchers collected data from multiple sources for analysis including Federal Aviation Administration (FAA) primary surveillance radar data. This data may be used in detect and avoid systems that would support future autonomous flight in the advanced air mobility system. Data from at least eight sources including aircraft, radar, and weather were integrated for analysis as a foundation for future research. Under current FAA operating rules, all pilots are required to physically see and avoid other aircraft from inside the cockpit. Autonomous, or self-flying aircraft without human pilots will need onboard sensor capabilities such as radar, light, acoustic, or a combination of these sensor types to ensure flight safety. The data and analysis from this testing will help researchers understand if primary radar can be used for detect-and-avoid systems to satisfy the rule's safety intent. The analysis will complete a segment of Advanced Air Mobility research by NASA's National Campaign team which focused on addressing several problems that must be solved for industry to operate safely and effectively. These efforts included virtual tabletop exercises to plan for an automated airspace, testing real-time communications with surrogate vehicle flights in Texas, and developing potential flight paths in the simulator...
National Aeronautics and Space Administration - Jun 6, 2023

Cybersecurity / Privacy

CISA, FBI, NSA, MS-ISAC publish updated #StopRansomware Guide
...The Cybersecurity and Infrastructure Security Agency, Federal Bureau of Investigation, National Security Agency, and Multi-State Information Sharing and Analysis Center recently published the #StopRansomware Guide — an updated version of the 2020 guide containing additional recommended actions, resources and tools. This publication was produced through the Joint Ransomware Task Force. The #StopRansomware Guide is a one-stop resource to help organizations reduce the risk of ransomware incidents through best practices to detect, prevent, respond, and recover, including step-by-step approaches to address potential attacks. The update incorporates lessons learned from the past two years, including recommendations for preventing common initial access techniques, such as compromised credentials/passwords and advanced forms of social engineering; recommendations to address cloud security backups; and threat hunting tips for detection and analysis...
Department of the Navy Chief Information Officer - Jun 1, 2023

Informing and Inspiring the Next Generation of Cyber Talent Through Competition

...U.S. Cyber Games® began competition to identify and select the Season III, U.S. Cyber Team. Over the next few months, athletes aged 18-24 will compete in a series of events that will culminate with selecting the top cyber athletes in October for the Season III team to compete at the 2024 International Cybersecurity Challenge (ICC). CISA's focus is on people, especially with helping to build a competent, resourceful and diverse cyber workforce. To solve the most complicated, technical problems facing our nation, we need diversity of thought and skill that can enable better problem-solving. This means partnering with organizations to create career pathways and provide resources and access to opportunities to pursue careers in cybersecurity. In cooperation with the National Initiative for Cybersecurity Education (NICE) program at the National Institute of Standards and Technology, the U.S. Cyber Games® is one of our key partnerships to inspire and inform the next generation about pursing cybersecurity careers...
CISA - Jun 5, 2023

5G, Wireless Spectrum, Networking & Communications

2023 5G Challenge Update: All Nine Contestant Subsystems Pass Stage Two Wrap-around Emulation Testing

...One of the main priorities at the National Telecommunications and Information Administration is to accelerate the adoption of an open 5G ecosystem through open interfaces, interoperable subsystems, secure networks, and modular multi-vendor solutions. A main component of this work is to research and test whether an open 5G ecosystem can work in real-world scenarios. The 5G Challenge is a research competition and collaboration between the U.S. Department of Defense and NTIA's Institute for Telecommunication Sciences. The 2023 5G Challenge is offering a $7 million prize pool for participants who successfully integrate their radio access network (RAN) subsystems with multiple other RAN participant subsystems and outperform their peers. Teams have progressed in testing since starting the challenge in late March. After the first nine weeks of host lab testing, the initial nine contestants have passed Stage Two wrap-around emulation testing. During the next stage of the 5G Challenge, contestant pairs will proceed to end-to-end (E2E) integration testing, where they will work to demonstrate RU and CU+DU interoperability as paired contestants...
National Telecommunications and Information Administration - Jun 5, 2023

NASA Looks Back at 50 Years of Gamma-Ray Burst Science

...Fifty years ago, on June 1, 1973, astronomers around the world were introduced to a powerful and perplexing new phenomenon called GRBs (gamma-ray bursts). Today sensors on orbiting satellites like NASA's Swift and Fermi missions detect a GRB somewhere in the sky about once a day on average. Astronomers think the bursts arise from catastrophic occurrences involving stars in distant galaxies, events thought to produce new black holes. GRBs occur so far beyond our galaxy that even the closest-known burst exploded more than 100 million light-years away. Each burst produces an initial pulse of gamma rays, the highest-energy form of light, that typically lasts from milliseconds to minutes. This emission comes from a jet of particles moving close to the speed of light launched in our direction, and the closer we are to looking straight down the barrel, the brighter it appears. The GRB story begins in October 1963, when a treaty signed by the United States, the United Kingdom, and the Soviet Union prohibiting the testing of nuclear weapons in the atmosphere, under water, or in space went into effect...
National Aeronautics and Space Administration - Jun 1, 2023

NRL launched first time-based navigation satellite in 1967

...The launch of the TIMATION satellite on May 31, 1967, proved that a system using a passive ranging technique, combined with highly accurate atomic clocks, could provide the basis for a new and revolutionary navigation system, providing longitude, latitude, and altitude around the globe. In the TIMATION system, a satellite contains a stable oscillator that controls its transmissions. Navigators receive these transmissions and compare with outputs from their own ship-based oscillator. If both oscillators are suitably synchronized, satellite range and position can be determined and the navigator can then use celestial-navigation techniques to determine the position of their ship. To authenticate proof of concept, NRL-operated experimental space-surveillance stations in south Texas were used to calibrate the satellite oscillator and preliminary looks at the orbital data revealed that the satellite's positions could be predicted well enough to provide navigation fixes accurate to within a few tenths of a mile. Using time measurements from NTS-2, Einstein's theory of relativity was able to verified...
Department of the Navy Chief Information Officer - Jun 1, 2023

Advanced Manufacturing

Collaboration and Standardization Are Key to DOD's Battery Strategy, Meeting U.S. Energy Objectives

...By better leveraging the commercial market, DOD has the opportunity to optimize its buying power across the $515 billion in active global auto industry investments, according to the 2022 Securing Defense-Critical Supply Chains report. The supply chain report, published by the Defense Department's Office of Industrial Base Policy, was a response to Executive Order 14017, which directed assessment of potential supply chain risks and strategies to mitigate or overcome them. As part of that effort, DOD is working to align industry and military battery standards wherever practicable – from tactical vehicles and unmanned systems to military installations – in order to ensure future defense requirements can be produced affordably, while meeting warfighter needs. The report recognizes that despite a reliance on batteries in nearly all systems, the Defense Department can be a challenging industry partner. Currently, the battery acquisition process is often limited to low-volume purchases of bespoke batteries over short-term contracts with limited considerations for the security of the supporting supply chain. Technology partnerships in advanced batteries ensure the Defense Department evolves with industry in order to move beyond program-by-program procurement...
U.S. Department of Defense - Jun 5, 2023

NSF CAREER award for professor's work in 3D printing research

...To develop new materials using additive manufacturing (also known as 3D printing), University of Hawaiʻi at Mānoa Assistant Professor Tyler Ray has received a Faculty Early Career Development (CAREER) Award from the National Science Foundation. The five-year, $518,834 grant, will support his project, "Additive Manufacturing with Acoustically Assembled Multi-Scale Composite Materials." Ray's research seeks to establish the scientific foundation for using this manufacturing process to create materials with properties that are customized for a given application. These types of materials are critical for addressing the demanding requirements of transformative technologies, including high-capacity energy storage, clean energy and quantum computing...
The Magazine of the University of Hawaii - Malamalama - Jun 2, 2023

Microelectronics

U.S. Department of Commerce Announces CHIPS for America R&D Leaders

...Under Secretary of Commerce for Standards and Technology and National Institute of Standards and Technology (NIST) Director Laurie E. Locascio announced five leaders joining the CHIPS Research and Development Office within CHIPS for America. Secretary of Commerce Gina Raimondo said, "These leaders bring exactly the depth and breadth of organizational, programmatic and technical leadership experience that CHIPS needs to stand up new, transformational R&D programs." Locascio said, "To make the CHIPS R&D programs into bustling centers of innovation, we need the country's best people to execute our vision. These are the experts who will propel CHIPS for America and the nation's semiconductor sector forward." CHIPS for America comprises the CHIPS Program Office, responsible for semiconductor incentives, and the CHIPS R&D Office, responsible for four integrated programs that will generate innovations that make American semiconductor manufacturers globally competitive. The four programs are the National Semiconductor Technology Center (NSTC), the National Advanced Packaging Manufacturing Program, up to three new Manufacturing USA institutes dedicated to semiconductors, and the CHIPS R&D Metrology Program...
National Institute of Standards and Technology - Jun 6, 2023

My Science Project Collapsed, but My Science Career Was Just Getting Started

...Science Olympiad teams compete in more than 20 events focused on different technical areas. Towers, where students build tabletop balsa wood structures and test their structural strength to learn about engineering, was one of our team's best events. The goal is to optimize the ratio of the tower's weight and the weight it can hold, called efficiency, up to a maximum of 15 kilograms (33 pounds). I had a week to create the lightest design possible that could hold the maximum testing weight before breaking...
National Institute of Standards and Technology - Jun 7, 2023

Good vibrations: Engineering professor earns NSF CAREER Award for new way to harvest energy

...Wireless sensor networks require constant energy, and although batteries provide that energy, they have a limited lifespan. But one University of New Mexico (UNM) researcher is working on a new and improved way to harvest energy: using vibrations to harness power. Nathan Jackson was awarded the National Science Foundation (NSF) $500,0000 CAREER Award for "A Universal Microsystem-based Vibration Energy Harvester." The project involves the process of piezoelectric microsystem energy harvesting — converting mechanical stress (vibration) into electric energy and funneling that energy to power microscale devices and systems that would be able to function 24/7 and could be applied to most applications. This technology could allow devices and systems to be self-sustaining without the need to replace batteries, which are particularly useful in remote or hard-to-reach locations. The project will focus on investigating solutions to three main challenges which have limited the use of microsystem energy harvesters: widening the frequency bandwidth, frequency tunability to provide consistent optimal power supply, and enhancing the power density through development of novel ternary piezoelectric thin-film material structures...
UNM Newsroom - Jun 2, 2023

$7.5M from DOD to harness atomic-scale defects for next-generation information processing

...A new $7.5 million project led by the University of Michigan will instead embrace the imperfections in next-generation electronic devices, possibly enabling faster and more efficient information processing. The Department of Defense-funded project aims to understand how dislocations could be used as nano-pipelines to channel electrons while manipulating their spins. While electronic devices that couple charge and spin, known as "spintronics," are already used for information storage, they have not yet been fully developed for classical or quantum computation. Spin is an intrinsic property of the electron that can be thought of as its rotation. Today's computers rely on electron charge for information processing, requiring a continuous supply of energy to avoid data loss during computations. Instead, spintronic devices do not have that requirement and may improve computing reliability. While spintronic devices have been proposed over the past two decades, they have been based upon semiconductors, in which the ability to maintain spin orientation is limited. In this five-year project, the team will place their initial focus on developing theoretical and computational models for a specific suite of topological materials and start fabricating them with dislocations using the state-of-the-art facilities...

University of Michigan News Service - Jun 7, 2023

Climate Change / Green Energy & IT

Ocean Solutions to a More Sustainable World

...This National Ocean Month, we reaffirm a key scientific finding—that the ocean is an essential part of a healthy and livable world. Threats to ocean health are well known. Globally, ocean temperatures and sea levels are rapidly rising as a result of climate change. Earlier this spring, the Biden-Harris Administration released the first U.S. Ocean Climate Action Plan, a groundbreaking roadmap to harness the power of the ocean to advance immediate, transformational steps to protect ocean health and address the climate crisis. The plan outlines new actions on the Administration's ocean-climate priorities, including efforts to advance ocean-based climate solutions, promote environmental justice and equity, support healthy communities, and ensure a robust and sustainable ocean economy. The Biden-Harris Administration is expanding offshore wind and renewable marine energy, decarbonizing the maritime shipping sector, and advancing marine carbon dioxide removal and storage technologies. At the same time, a new U.S. Ocean Acidification Action Plan—which is currently accepting public comments—will highlight U.S. leadership to combat acidification by lowering carbon emissions, strengthening ocean monitoring and research, and investing in adaptive measures to lessen the damages of acidification...

The White House - Jun 1, 2023

Biden-Harris Administration announces $2.6 billion framework through Investing in America agenda to protect coastal communities and restore marine resources

...The President's Investing in America Agenda will support communities and people on the frontlines of climate change, dedicating nearly $400 million specifically for Tribal priorities and benefiting coastal and Great Lakes communities nationwide with an emphasis on environmental justice. Additional investments from the IRA will improve weather and climate data and services, support the Biden-Harris Administration's America the Beautiful conservation initiative and strengthen NOAA's fleet of research airplanes and ships that are used to study and collect data about the ocean and atmosphere. The framework for the $2.6 billion also includes additional funding for high-quality project applications received through BIL competitions, non-competitive funding for the Integrated Ocean Observing System. The IRA allocated $3.3 billion to NOAA, including the initiatives described above and $200 million that will support improvements in NOAA's climate and data services, including: Funding, improving, and expanding existing NOAA programs that advance climate information, services and adaptation capacity and build equitable climate resilience such as the National Integrated Heat Health Information System, the Climate Smart Communities Initiative, Climate Adaptation Partnerships/Regional Integrated Sciences and Assessments, the National Integrated Drought Information System, and others...

National Oceanic and Atmospheric Administration - Jun 6, 2023

Biden-Harris Administration Releases First-Ever National Clean Hydrogen Strategy and Roadmap to Build a Clean Energy Future, Accelerate American Manufacturing Boom

...The Biden-Harris Administration today released the U.S. National Clean Hydrogen Strategy and Roadmap, a comprehensive framework for accelerating the production, processing, delivery, storage, and use of clean hydrogen—a versatile and flexible energy carrier that can be produced with low or zero carbon emissions. Achieving commercial-scale hydrogen deployment is a key component of President Biden's Investing in America agenda, and critical to building a strong clean energy economy while enabling our long-term decarbonization objectives. Clean hydrogen is set to play a vital future role in reducing emissions from some of the most energy-intensive sectors of our economy, including industrial and chemical processes and heavy-duty transportation. Clean hydrogen can also support the expansion of variable renewable power by providing a means for long-duration energy storage...

Department of Energy - Jun 5, 2023

NOAA's Global Greenhouse Gas Reference Network: Atmospheric carbon dioxide levels jump again

...Carbon dioxide levels measured at NOAA's Mauna Loa Atmospheric Baseline Observatory peaked at 424 parts per million in May, continuing a steady climb further into territory not seen for millions of years, scientists from NOAA and Scripps Institution of Oceanography at the University of California San Diego announced. The Mauna Loa data, together with measurements from sampling stations around the world, are incorporated by NOAA's Global Monitoring Laboratory into the Global Greenhouse Gas Reference Network, a foundational research dataset for international climate scientists and a benchmark for policymakers attempting to address the causes and impacts of climate change. ... To visualize how sea level rise may affect your community, visit NOAA's sea level rise viewer...

National Oceanic and Atmospheric Administration - Jun 5, 2023

Strait Connecting Pacific and Arctic Oceans Larger Than Previously Measured

...The Bering Strait separates Russia and Alaska at their closest point — a distance of around 53 miles. The Bering Strait's eastern channel is larger than previously known, according to an analysis of a newly published seafloor map of the area. Scientists created the map by combining new high-quality depth data, older depth data, and digitized shorelines, to provide the first detailed shore-to-shore depiction of the strait. Due to the strait's significance, year-round University of Washington moorings have monitored water flow since 1990. They are currently funded by the National Science Foundation's Arctic Observing Network. These moorings are a collection of scientific devices attached to a chain anchored to the seafloor. Data from these moorings show a significant increase in net northward flow since the recordings began. Oceanographers will now have a better definition of the strait and will be able to incorporate these data into their models. These maps and data are integral for scientists studying this area that is experiencing significant climate changes. The Arctic is undergoing rapid climate change and defining the area will improve our ability to understand how this strait is changing and how it may change further in the future and how these changes may affect the marine life that use the strait or live around it...

Noaa Fisheries - Jun 6, 2023

OSU receives DOD $1.4 million grant to use machine learning and climate change models to study links between changing ocean conditions, movement of fish and geopolitical tensions

...An Oregon State University researcher has been awarded a three-year, $1.4 million grant from the U.S. Department of Defense to lead a study about the movement of fish stocks due to changing climate conditions and the potential geopolitical tensions that could result from that shift. The researchers will use machine learning tools to build a database of past conflicts in the Arctic and Bering and Chukchi seas to understand the historical context of disputes in that region, which has a known history of fishing conflicts. It is also a region where sea ice is declining rapidly, opening new areas for fishing and leading to shifts in where marine animals spend time. That data will be combined with economic data on fisheries and climate change models to develop models showing how climate change may impact where fish, and subsequently fishing, may move, the potential economic impacts on communities and where those shifts could lead to conflict. This kind of research could help inform world leaders so they can prepare for expected changes and work to alleviate associated risks...

Oregon State University - Jun 6, 2023

Digital Health

FDA Announces Additional Steps to Modernize Clinical Trials

...The U.S. Food and Drug Administration is announcing the availability of a draft guidance with updated recommendations for good clinical practices (GCPs) aimed at modernizing the design and conduct of clinical trials, making them more agile without compromising data integrity or participant protections. This draft guidance, once finalized, would update the existing guidance titled, E6(R2) Good Clinical Practice: Integrated Addendum to ICH E6(R1) (March 2018). The revised draft recommendations are designed to be applicable to a broad range of clinical trials including those with innovative design elements. These elements have the potential to make trials more efficient and less burdensome...

FDA - Jun 6, 2023

WPI Researcher Receives $599,663 NSF Award to Enable Surgical Robots Treat Disease by Focusing Energy on Tissues

...Worcester Polytechnic Institute (WPI) researcher Loris Fichera has been awarded $599,663 by the National Science Foundation for a five-year project that will enable a new class of surgical robots to treat disease through the focused delivery of energy, such as light, without cutting or touching human tissues. The project also will apply Fichera's research to experimental devices under development at WPI for vocal cord and brain surgery. Fichera will develop a technique called "virtual palpation" that will improve a surgical robot's perception by using low-intensity energy pulses to map out a site in the body and determine how much focused energy a surgeon should apply. Fichera will use that enhanced perception to build better control and automation into surgical robots, including a hand-held laser device he is developing to vaporize tumors tucked into the vocal

folds of a patient's throat. In addition, he will apply his methods to models for a minimally invasive robotic system that uses ultrasound to destroy brain tumors...
Worcester Polytechnic Institute (WPI) - Jun 7, 2023

Cummings Awarded NIH Grant to Inform Malaria Vaccine Design

...The malaria vaccine, compared to other adolescent vaccinations, has modest efficacy, preventing only about 30 percent of severe malaria cases. Michael Cummings, at the University of Maryland Institute for Advanced Computer Studies, received a $483,000 grant from the National Institutes of Health to understand the immune response to malaria to help scientists develop more effective vaccines. The bulk of the data will be collected using a new customizable lab platform called PepSeq. The platform starts with designing a "library" of peptides of interest—short strings of amino acids that are the building blocks of proteins. Each peptide is then linked to a unique DNA tag, which allows scientists to pinpoint which peptides are being targeted by which antibodies (or other proteins) in a sample. The team will use a combination of statistical and machine learning approaches to analyze hundreds of thousands of peptides, with the goal of identifying antigens that will help inform vaccine development...
UMIACS - Jun 5, 2023

Nanobiotics: AI for discovering where and how nanoparticles bind with proteins

...A computer model developed at the University of Michigan can identify whether and how a nanoparticle and protein will bind with one another, which is an important step toward being able to design antibiotics and antivirals. The new tool could help find ways to stop antibiotic-resistant infections and new viruses—and aid in the design of nanoparticles for different purposes. The new model, named NeCLAS, uses machine learning and absorbs structural models of proteins and their known interaction sites. From this information, it learns to extrapolate how proteins and nanoparticles might interact, predict binding sites and the likelihood of binding between them—as well as predicting interactions between two proteins or two nanoparticles. ... The Nature Computational Science study was funded by the Army Research Office and the National Science Foundation.
University of Michigan News Service - Jun 5, 2023

Other IT Related

FACT SHEET: White House Launches Invest.gov, Highlights Record Public and Private Investment in Communities Under President Biden's Investing in America Agenda

...The White House launched Invest.gov, a new website showing the historic public and private sector investments President Biden's Investing in America agenda is bringing to states and territories across America. Invest.gov features an interactive map showing infrastructure projects underway that are funded by President Biden's Bipartisan Infrastructure Law as well as private sector investments mobilized by President Biden's agenda, including the Inflation Reduction Act, the CHIPS and Science Act, the Bipartisan Infrastructure Law, and the American Rescue Plan. Invest.gov enables Americans in every state and territory across the country to see these investments in their communities. The website also includes summaries of the impact of President Biden's Investing in America agenda in each state and territory, including jobs created, new businesses started, spotlight infrastructure projects funded, and manufacturing investments made under the Biden presidency...
The White House - Jun 6, 2023

NOAA integrates multiple models to forecast below-average summer 'dead zone' in Gulf of Mexico

...NOAA is forecasting a summer "dead zone" in the Gulf of Mexico that will cover approximately 4,155 square miles, making it below the 5,364 square mile average over the 36-year history of dead zone measurements in the region. The dead zone, or hypoxic area, is an area of low oxygen that can kill fish and other marine life. It occurs every summer and is primarily a result of excess nutrient pollution from human activities in cities and farm areas throughout the Mississippi River watershed. This is the sixth year NOAA has produced a dead zone forecast using a suite of models jointly developed by the agency and its partners. NOAA integrates the results of these multiple models into an aggregate "ensemble" model forecast, which is released in coordination with these external groups, some of whom are also developing independent forecasts. NOAA's hypoxia forecast models and USGS monitoring of nutrients and water discharge in rivers help to predict how hypoxia in the Gulf of Mexico is linked to nutrients coming from throughout the Mississippi River Basin. To confirm the size of the hypoxic zone and refine the forecast models, a NOAA-supported monitoring survey is conducted each summer, with results released in early August. NOAA and its partners continue to develop additional hypoxia forecasting capabilities and tools to understand impacts on living marine resources under various nutrient reduction actions, including a new experimental model from scientists at NOAA Fisheries and North Carolina State University to better understand where shrimp could be found relative to the hypoxic zone...
National Oceanic and Atmospheric Administration - Jun 5, 2023

NASA Selects Small Business, Research Teams for Tech Development

...NASA will award funding to more than 200 small business teams to develop new technologies designed to protect the health of astronauts, lower risk of collision damage to spacecraft, and more. The new awards from NASA's Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) program invests in a diverse portfolio of American small businesses and research institutions to support NASA's future missions. NASA selected 300 proposals from 249 small businesses and 39 research institutions – including eight Minority Serving Institutions (MSIs) – for first-round funding. Each proposal team will receive $150,000 to establish the merit and feasibility of their innovations. About 30% of the companies selected are first-time NASA SBIR/STTR recipients, including nou Systems, Inc., a women-owned small business based in Huntsville, Alabama. The first-time NASA SBIR recipient was selected to further develop their technology that will help in microbial monitoring of spacecraft environments. nou Systems has proposed a novel approach to automate the DNA monitoring of microbes, helping quickly identify those which might pose a threat to astronauts..
National Aeronautics and Space Administration - Jun 5, 2023

NSF-funded researchers receive grant to build a virtual reality learning environment focused on the construction industry
...A four-year National Science Foundation-funded project will develop an interactive learning environment for advancing data sensing and computational thinking skills to engage students and provide an immersive learning experience. Researchers at Rochester Institute of Technology are developing a virtual reality-based learning environment to improve middle school students' interest in STEM fields, specifically the evolving construction industry. More companies are integrating technology into construction, such as operating drones and laser scanners to view landscapes and map out existing site conditions before actual construction. Utilizing technology as a teaching tool for today's students and identifying relevant applications in construction can be a way to increase interest in the field. The project is showing the students that construction is not just bricks and mortar, it is exciting and interesting with recent advances in the use of computational tools and digital technologies...
Rochester Institute of Technology - Jun 5, 2023

STEM / Workforce & IT

NSF 101: The postdoctoral mentoring plan
...The postdoctoral mentoring plan has been an NSF requirement since 2007, recognizing the important role that mentorship plays in the postdoctoral experience and their future career paths. According to the NSF Proposal and Award Policies and Procedures Guide: "Examples of mentoring activities include, but are not limited to, career counseling; training in preparation of grant proposals, publications and presentations; guidance on ways to improve teaching and mentoring skills; guidance on how to effectively collaborate with researchers from diverse backgrounds and disciplinary areas; and training in responsible professional practices." ...
National Science Foundation - Jun 2, 2023

Savannah River Site Contractor's Total Grant Awards to Teachers Approach $1 Million
...An EM contractor at the Savannah River Site (SRS) awarded 114 local educators grants ranging from $500 to $1,000 during a recent celebration. To date, Savannah River Nuclear Solutions (SRNS) has given $900,000 to support regional educators as part of its Innovative Teaching Mini Grants Program. The grants support projects that enhance elementary, middle and high school classroom wish lists with an emphasis on science, mathematics and technology academic programs. The grants are typically used to purchase project materials, hands-on kits and computer programs such as Using Maps and Robots to Explore Animal Shelters; Marvelous Math Stations; Creations and Coding Using 3D Printing; Innovative Smart Cars; Journey into the Human Body; and Designing Virtual Worlds! ...
Department of Energy - Jun 6, 2023

DOE Grant will help Clemson, Winston-Salem State grow a diverse workforce in quantum information science
...Clemson University is partnering with Winston-Salem State University (WSSU) to help grow a diverse workforce for the emerging field of quantum information science and engineering. A $2.26 million grant from the U.S. Department of Energy will establish the Winston-Salem Quantum Education Collaboratory (WS-QEC). The grant will be used in part to help develop instructional infrastructure at WSSU along with funding instructors...
Clemson University - Jun 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 Adminis tration. To help facilitate th is, 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 - May 17, 2023

Upcoming Conferences / Workshops / Webinars

U.S. Leadership in Software Engineering & AI Engineering: Critical Needs & Priorities 2023
...Carnegie Mellon University (CMU) Software Engineering Institute (SEI) and the Networking and Information Technology Research and Development (NITRD) Software Productivity, Sustainability, and Quality (SPSQ) Interagency Working Group are partnering on this workshop, to inform a community strategy for building and maintaining U.S. leadership in software engineering and AI engineering, and positively impact progress in multiple application domains. Using Architecting the Future of Software Engineering: A National Agenda for Software Engineering Research and Development as a starting point, we will identify and explore important research areas for the future of software engineering that are critical for multidisciplinary research. June 20-21, 2023...
resources.sei.cmu.edu - May 24, 2023

DOD Hosts 2023 Climate Resilience Workshop
...The Office of the Assistant Secretary of Defense for Energy, Installations, and Environment are hosting the 2023 DOD Climate Resilience Workshop from July 10-13. This workshop provides a forum for DOD stakeholders and partners to explore the many facets of climate change, a national security threat that has tangible impacts to military readiness. During this workshop, attendees will learn about several lines of effort in DOD's Climate Adaptation Plan, including supporting climate-informed decision-making, creating resilient built and natural infrastructure, and enhancing adaptation and resilience through collaboration...
U.S. Department of Defense - Jun 1, 2023

Federal Register: Request for Information (RFI)

Request for Information: National Priorities for Artificial Intelligence
...The Biden-Harris Administration is developing a National Artificial Intelligence (AI) Strategy that will chart a path for the United States to harness the benefits and mitigate the risks of AI. This strategy will build on the actions that the Federal Government has already taken to responsibly advance the development and use of AI. To inform this strategy, OSTP requests public comments to help update U.S. national priorities and future actions on AI. Comments must be submitted via the Federal eRulemaking Portal at regulations.gov. Interested individuals and organizations are invited to submit comments by 5:00 p.m. ET on July 7, 2023...
The White House - May 24, 2023

Notice of Workshop on U.S. Leadership in Software Engineering & Artificial Intelligence Engineering: Critical Needs & Priorities
...The workshop on U.S. Leadership in Software Engineering & AI Engineering: Critical Needs & Priorities will take place on June 20 and 21, from 9:30 a.m. to 5:00 p.m. (ET), at the National Science Foundation, in Alexandria, VA. Workshop goals are to: (1) Identify research questions that excite the computing community and spark new collaborations. (2) Identify addendums or updates to the National Agenda for Software Engineering roadmap. (3) Produce a report summarizing challenges and strategic priorities for building and maintaining U.S. leadership in software engineering & AI engineering for the advanced computing and software community. Due to space limitations, in-person attendance is by invitation only; remote participation will be available via Zoom...
Federal Register - May 24, 2023

NIST's Research Data Framework
...The National Institute of Standards and Technology (NIST) seeks comments on NIST's Research Data Framework (RDaF or Framework). The RDaF is a tool that aims to help shape the future of open data access and research data management. A broader range of stakeholder views is needed for refining the next version of the RDaF. Comments must be received by 5 p.m. Eastern time on July 6, 2023...
Federal Register - Jun 6, 2023

National Artificial Intelligence Advisory Committee

...The National Institute of Standards and Technology (NIST) announces that the National Artificial Intelligence Advisory Committee will hold a series of virtual briefing sessions. These sessions will be held on Tuesday, June 20, 2023; Thursday, June 22, 2023; and Tuesday, June 27, 2023. The purpose of these sessions is for invited experts to brief the Committee on topics of interest related to the Committee's year two efforts. Registration is required to view each of the virtual sessions and members of the public should register...
Federal Register - Jun 7, 2023

Challenge Competition: Announcement of AHRQ Challenge on the Impact of AHRQ's Patient Safety Tools

...The Agency for Healthcare Research and Quality (AHRQ) is announcing a challenge competition to better understand how using an AHRQ patient safety tool has resulted in safer care, as evidenced by associated process and/or outcome measures. AHRQ would like to use this information as an example of the type of return on investment an organization might expect when using the tool. This challenge competition will be completed in one phase, with a cash prize awarded to up to 10 winners. The submission deadline is October 5, 2023...
Federal Register - Jun 3, 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.