NITRD News Brief

We are pleased to continue NITRD's News Brief that offers insight into the activities NITRD's member agencies are conducting to achieve the Nation's priorities through the lens of the public-facing news sources. These are divided into networking and information technology topics that have been identified as of great importance for improving Americans' daily lives.

For ease of access, under NITRD's logo, the title of each section is listed as a link to that section. The titles of the articles under the section's heading are links that provide immediate access to the news article listed. We hope you find this informative and helpful in your daily activities.

Do you know someone who would like to receive NITRD's weekly news brief? They can email NITRD's IT aficionados at nco@nitrd.gov and voilà they will receive the news brief with the cool technology articles each week!

Federal Agency Funding Opportunities

NSF and philanthropic partners announce $16 million in funding to prioritize ethical and social considerations in emerging technologies

...The U.S. National Science Foundation launched a new $16 million program in collaboration with five philanthropic partners that seeks to ensure ethical, legal, community and societal considerations are embedded in the lifecycle of technology's creation and use. The Responsible Design, Development and Deployment of Technologies (ReDDDoT) program aims to help create technologies that promote the public's wellbeing and mitigate potential harms. The ReDDDoT program invites proposals from multidisciplinary, multi-sector teams that examine and demonstrate the principles, methodologies and impacts associated with responsible design, development and deployment of technologies, especially those specified in the "CHIPS and Science Act of 2022." The initial areas of focus for 2024 include artificial intelligence, biotechnology or natural and anthropogenic disaster prevention or mitigation. For more information about ReDDDoT, register for an informational webinar on Feb. 9, 2024, at 2 p.m. ET...
National Science Foundation - Jan 9, 2024

DHS S&T Announces New Solicitation for Synthetic Data Generator Solutions

...The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) announced a new solicitation seeking solutions to generate synthetic data that

models and replicates the shape and patterns of real data, while safeguarding privacy and mitigating security harms. Synthetic data is important for DHS because it allows the Department to train machine learning models using synthetic data when real-world data is not available, or when using it would pose privacy and security risks, particularly if the real-world data includes sensitive information, such as personally identifiable information (PII). The SVIP solicitation seeks privacy preserving technical capabilities that directly serve the mission needs of DHS operational Components and Offices, including the Cybersecurity & Infrastructure Security Agency (CISA) and the DHS Privacy Office (PRIV). On February 22, 2024, 1-3:30 PM ET, SVIP will host a hybrid industry day in Durham, North Carolina, to provide an overview of the topic call and answer solicitation questions. Applications responding to the solicitation are accepted until the deadline on April 10, 2024, at 3:00 PM ET...
Homeland Security - Jan 5, 2024

DOE Announces Up to $70 Million to Strengthen Energy Sector Against Physical and Cyber Hazards
...The U.S. Department of Energy (DOE) announced up to $70 million in funding to support research into technologies designed to increase resilience and reduce risks to energy delivery infrastructure from a variety of hazards, including cyber and physical threats, natural disasters, and climate-change fueled extreme weather events. There are several proposed topic areas for the projects, including: * Cyber Research and Development * Climate Mitigation Research and Development * Wildfire Mitigation Research and Development * Physical Security Research and Development * University-Based Research and Development...
Department of Energy - Jan 4, 2024

HPC

$1.1M NSF grant to fund statewide cyberinfrastructure project
...Researchers at the Penn State Institute for Computational and Data Sciences (ICDS), together with collaborators at other institutions within Pennsylvania, have been awarded approximately $1.1 million in funding under the U.S. National Science Foundation Campus Cyberinfrastructure program to develop a commonwealth-wide secure network and related cyberinfrastructure to interconnect Pennsylvania colleges and universities. Unfortunately, many under-resourced institutions simply do not have the networking infrastructure necessary for data-intensive collaborations, accessing remote instrumentation and utilizing high-performance computing resources. In computer networks, a DMZ, or demilitarized zone, is a network that separates one network from other untrusted networks such as the internet. The project aims to address challenges identified in a planning grant that proposal partner KINBER, a nonprofit organization committed to working with communities, governments, businesses and schools to advance digital equity and inclusion, was awarded in 2022. The PA Science DMZ will consist of a network backbone provided by KeystoneREN, networking equipment and performance tools at each participating campus, and specific science applications for each partner institution. The project goal is to showcase a path towards addressing the digital divide and the cyberinfrastructure needs of the participating campuses...
Pennsylvania State University - Jan 9, 2024

Artificial Intelligence / Machine Learning

NSF & U.S. ARL fund method that uses artificial intelligence to automate the explanation of complex neural networks
...Explaining the behavior of trained neural networks remains a compelling puzzle, especially as these models grow in size and sophistication. Researchers from MIT's Computer Science and Artificial Intelligence Laboratory (CSAIL) have developed a novel approach that uses AI models to conduct experiments on other systems and explain their behavior. Their method uses agents built from pretrained language models to produce intuitive explanations of computations inside trained networks. Central to this strategy is the “automated interpretability agent” (AIA), designed to mimic a scientist’s experimental processes. Interpretability agents plan and perform tests on other computational systems in order to produce explanations of these systems in a variety of forms: language descriptions of what a system does and where it fails, and code that reproduces the system’s behavior. Complementing the AIA method is the new “function interpretation and description” (FIND) benchmark, a test bed of functions resembling computations inside trained networks, and accompanying descriptions of their behavior. FIND contains synthetic neurons designed to mimic the behavior of real neurons inside language models, some of which are selective for individual concepts such as “ground transportation.” AIAs are given black-box access to synthetic neurons and design inputs to test a neuron’s response. As we enter a regime where the models doing the explaining are black boxes themselves, external evaluations of interpretability methods are becoming increasingly vital. The team’s new benchmark addresses this need with a suite of functions with known structure, that are modeled after behaviors observed in the wild. The work was supported, in part, by the U.S. Army Research Laboratory and the U.S. National Science Foundation...
MIT News - Jan 3, 2024

NSF/ARL-funded researchers develop AI to make the internet more accessible

...In an effort to make the internet more accessible for people with disabilities, researchers at The Ohio State University have begun developing an artificial intelligence agent that could complete complex tasks on any website using simple language commands. By taking advantage of the power of large language models, the agent works similarly to how humans behave when browsing the web. Researchers started the process by creating Mind2Web, the first dataset for generalist web agents. Though previous efforts to build web agents focused on toy simulated websites, Mind2Web fully embraces the complex and dynamic nature of real-world websites and emphasizes an agent's ability of generalizing to entirely new websites it has never seen before. With more fine-tuning, the study points out, the model could likely be used in tandem with both open-and closed-source large language models such as Flan-T5 or GPT-4. However, their work does highlight an increasingly relevant ethical problem in creating flexible artificial intelligence. The research was supported by the National Science Foundation and the U.S. Army Research Lab...
Ohio State News - Jan 9, 2024

Robotics / Autonomous Vehicles

NOAA, ONR & U.S. Navy Support Second Seafloor Survey of Dumpsite off Coast of Southern California

...As part of ongoing efforts to understand the scale of the environmental impact from industrial waste dumping off the coast of Southern California, researchers from UC San Diego's Scripps Institution of Oceanography revisited two industrial undersea dumpsites in April 2023 to identify objects discarded on the seafloor. The 2023 survey used a deep water autonomous underwater vehicle (AUV) with state-of-art synthetic aperture sonar and a remotely-operated vehicle (ROV) with an HD video camera. The expedition took place with support from the U.S. Navy's Supervisor of Salvage and the Office of Naval Research. The site is a known location for industrial dumping, including byproducts from the manufacturing of the pesticide DDT, and was initially surveyed using robotic vehicles by the same team in April 2021. The goal of the second survey was to extend maps of the seafloor using higher resolution acoustic sonar imaging techniques, to apply video imaging systems to classify objects in a previously mapped debris field, and to collect observations of deep sea ocean currents. Imagery collected in 2023 along debris lines found the majority of the objects to be multiple types of discarded military munitions and pyrotechnics. The Navy will also be reviewing the findings to determine the best path forward to ensure that the risk to human health and the environment is managed appropriately and within applicable federal and state laws and regulations. The survey was funded as part of a Congressionally-directed community project and the National Ocean and Atmospheric Administration (NOAA) awarded $5.6 million in 2022 to further characterize, monitor and research potential ecosystem impacts of the DDT dumpsite...
Explorations Now - Jan 4, 2024

NSF/DARPA/ARO/ONR support research on multiple AI models that help robots execute complex plans more transparently

...MIT's Improbable AI Lab, a group within the Computer Science and Artificial Intelligence Laboratory (CSAIL), has offered a new multimodal framework: Compositional Foundation Models for Hierarchical Planning (HiP), which develops detailed, feasible plans with the expertise of three different foundation models. HiP uses three different foundation models each trained on different data modalities. Each foundation model captures a different part of the decision-making process and then works together when it's time to make decisions. HiP removes the need for access to paired vision, language, and action data, which is difficult to obtain. HiP also makes the reasoning process more transparent. HiP represents a different, multimodal recipe: a trio that cheaply incorporates linguistic, physical, and environmental intelligence into a robot. The CSAIL team tested HiP's acuity on three manipulation tasks, outperforming comparable frameworks. The system reasoned by developing intelligent plans that adapt to new information. ... The team's work was supported by the National Science Foundation, the U.S. Defense Advanced Research Projects Agency, the U.S. Army Research Office, and the U.S. Office of Naval Research Multidisciplinary University Research Initiatives
MIT News - Jan 8, 2024

NSF funds bio-inspired research on the fastest swimming insect that could inform robotic boat designs

...Whirligig beetles – the world's fastest-swimming insect – achieve surprising speeds by employing a strategy shared by fast-swimming marine mammals and water fowl. They also offer valuable insights for bio-inspired designers of near-surface water robots and uncrewed boats. Using two high-speed cameras synchronized at different angles, the researchers were able to film a whirligig and observe a lift-based thrust mechanism at play. The U.S. Navy has been developing uncrewed boats, as traditional ship design is constrained by the need to make boats hospitable to a crew. By eliminating a crew, boats can be much smaller and more flexible. Roh believes that the small size, ship-like shape and lift-generating propulsion mechanism of whirligigs translate well to inform robotic ship designs. The study was funded by the National Science Foundation...
Cornell University - Jan 8, 2024

Quantum

Autonomous lab discovers best-in-class quantum dot in hours

... U.S. National Science Foundation funded researchers have now developed an autonomous system that can identify in hours or days how to synthesize "best-in-class" materials for specific applications. The new system, called SmartDope, was developed to address a long-standing challenge regarding enhancing properties of materials called perovskite quantum dots by "doping," the intentional introduction of impurities into materials for the purpose of modulating their properties. These particular quantum dots are of interest because they hold promise for next-generation photovoltaic devices and other photonic and optoelectronic devices. Once it receives initial information on which chemicals to work with and a designated goal, SmartDope begins running experiments autonomously in a continuous flow reactor that uses extremely small amounts of chemicals to conduct quantum dot synthesis experiments rapidly...
National Science Foundation - Jan 9, 2024

Advanced computational tool for understanding quantum materials

...Researchers at the U.S. Department of Energy's (DOE) Argonne National Laboratory, the University of Chicago's Pritzker School of Molecular Engineering, and University of Modena and Reggio Emilia have developed a new computational tool to describe how the atoms within quantum materials behave when they absorb and emit light. The tool will be released as part of the open-source software package WEST and will help scientists better understand and engineer new materials for quantum technologies. Galli's group showed the accuracy of the tool, known as WEST-TDDFT (Without Empty States - Time-Dependent Density Functional Theory), by studying three different semiconductor-based materials but said it can be applied to a wide range of related materials. This work was supported by DOE Office of Basic Energy Sciences and used resources of the National Energy Research Scientific Computing Center...
Argonne National Laboratory - Jan 3, 2024

Cybersecurity / Privacy

NIST Identifies Types of Cyberattacks That Manipulate Behavior of AI Systems

...Adversaries can deliberately confuse or even "poison" artificial intelligence (AI) systems to make them malfunction. Computer scientists from the National Institute of Standards and Technology (NIST) and their collaborators identify these and other vulnerabilities of AI and machine learning (ML) in a new publication. Their work, titled Adversarial Machine Learning: A Taxonomy and Terminology of Attacks and Mitigations (NIST.AI.100-2), is part of NIST's broader effort to support the development of trustworthy AI. One major issue is that the data itself used for training may not be trustworthy. The report considers the four major types of attacks: evasion, poisoning, privacy and abuse attacks. It also classifies them according to multiple criteria such as the attacker's goals and objectives, capabilities, and knowledge...
National Institute of Standards and Technology - Jan 4, 2024

Five Cryptologic Giants to be Inducted into NSA's Cryptologic Hall of Honor

...The National Security Agency's (NSA) Center for Cryptologic History is pleased to announce the 2023 induction of five major cryptologic figures into the Cryptologic Hall of Honor. Evelyn Akeley's impressive record of improvisation in a fast-paced, high-stress environment reflects the finest traditions of the past century of American signals intelligence. James Lovell was called "the [American] Revolution's one-man National Security Agency." His pioneering work as a codebreaker and codemaker gave cryptology a singular role in the emergence of our new Nation. Major General Mauborgne was a pioneer in numerous areas of communications technology and cryptology, including radiotelegraphy, cryptologic training, cryptanalysis, and cryptography. He is credited as the co-inventor of the One-Time Pad. Jim Radford developed Special Purpose Devices that solved intractable analytic problems, often by enhancing the performance of supercomputers by a factor of hundreds. As a practicing linguist, Harry Rashbaum pioneered the use of computers in developing online working aids to support translation and transcription, as well as using technology to teach language...
National Security Agency/Central Security Service - Jan 4, 2024

NTIA to Hold Industry Listening Session on Kids' Online Safety

...The Department of Commerce's National Telecommunications and Information Administration (NTIA) will host a public listening session January 18 to learn about current and future industry efforts to promote the health, safety and privacy of young people online. As part of the Biden-Harris Administration's Task Force on Kids Online Health & Safety, NTIA and the Substance Abuse and Mental Health Services Administration (SAMHSA), along with other agencies, are working to identify and mitigate the potential adverse health effects of online platforms on minors. The January 18 listening session will be from 1 pm to 2:30 pm ET and will focus on concrete and actionable steps that industry is taking or can consider in the future to improve the online environment for minors...
National Telecommunications and Information Administration - Jan 4, 2024

DOE and CESER fund FAMU-FSU professor to improve electric grid cybersecurity with $2.9M Department of Energy award

...A FAMU-FSU College of Engineering researcher is developing technology to protect the electric grids of the future. The project “Concurrent Learning Cyber-Physical Framework for Resilient Electric Power System,” or CyberPREPS, will allow energy transmission systems to keep functioning in the wake of cyberattacks. A $2.89 million competitively selected cooperative agreement from the U.S. Department of Energy will fund $2 million of the work. Anubi and his team will develop algorithms to detect and mitigate the effects of cyberattacks in the electric grid. With new situations, the safeguards do not work as well and attackers may mimic extreme events to force their way into a system. Anubi’s algorithms will solve this problem by combining knowledge of the electric grid’s operations with secondary information sources such as the energy market to estimate the “true states” of the system, which will be used to maintain critical operations. All this can happen while an attack is underway, essentially neutralizing the effects of the cyberattacks. The Department of Energy (DOE) is providing funding for the research through its Office of Cybersecurity, Energy Security, and Emergency Response (CESER)...
Florida State University News - Jan 4, 2024

NSF funds a $5 million grant for researchers to develop a new app to help older adults spot online scams

...Deepcover, a free new app available for download on Apple’s App Store and Google Play that aims to equip older adults with the skills they need to safely navigate the increasingly complex digital world we inhabit. The overarching goal of Deepcover is to provide older adults with a fun and engaging way to learn about, and help prevent the spread of, online scams and fraud. In 2021, more than 92,000 U.S. adults aged 60 and over reported losses of $1.7 billion due to online fraud, according to the FBI’s Internet Crime Complaint Center. To fight this problem, the National Science Foundation, through its Convergence Accelerator program, awarded the CII a two-year, $5 million grant last year to develop tools, such as Deepcover, that help older adults protect themselves from online deceptions. While there are many digital literacy tools available, most are not tailored to older adults, which limits their effectiveness. Deepcover aims to address this limitation by including a wide range of online schemes older adults encounter...
University at Buffalo - Jan 4, 2024

5G, Wireless Spectrum, Networking & Communications

Speedier Security Screening in the Palm of the Hand

...Reducing the need for pat downs at the airport may soon be easier, including for passengers with limited mobility, thanks to the Science and Technology Directorate (S&T) Screening at Speed Program. S&T, alongside the Transportation Security Agency (TSA), is working to address emerging threats while also decreasing wait times. Screening at Speed, with funding and support from the Small Business Innovation Research (SBIR) Program is developing a handheld screening wand that could improve the checkpoint experience for countless passengers. In 2020, the annual solicitation began the research and development of new handheld screening wands using millimeter wave X-ray technology and new cost-efficient 5G communications systems with three small business partners, through SBIR Phase I awards. After working with TSA to develop the improved screening wand prototypes, it became clear that the wands could also address the unique needs of passengers with limited mobility. Currently, individuals using wheelchairs or crutches receive pat downs if they can’t pass through an advanced imaging screening system that requires passengers to pause and pose as the screening system rotates around them. The millimeter wave handheld wand could allow TSOs to screen these passengers without touching or interfering with their personal space...
Homeland Security - Jan 4, 2024

This US-Indian Satellite Will Monitor Earth’s Changing Frozen Regions

...NASA-ISRO Synthetic Aperture Radar (NISAR), the soon-to-launch radar satellite from NASA and the Indian Space Research Organisation (ISRO), will measure some key Earth vital signs, from the health of wetlands to ground deformation by volcanoes to the dynamics of land and sea ice. This will help researchers decipher how small-scale processes can cause monumental changes in the ice sheets covering Antarctica and Greenland, as well as on mountain glaciers and sea ice around the world. It will provide the most comprehensive picture to date of motion and deformation of frozen surfaces in Earth’s ice- and snow-covered environments. The measurements will also enable scientists to closely study what happens where ice and ocean meet. For example, when parts of an ice sheet sit on ground that is below sea level, saltwater can seep under the ice and increase melting and instability. The satellite will also track changes in Earth’s mountain glaciers. Their melting has contributed about a third of the sea level rise seen since the 1960s, and climate-driven changes to freezing and thawing patterns can affect the water supplies of downstream populations. NISAR will also capture the movement and extent of sea ice in both hemispheres. Sea ice insulates the ocean from the air, reducing evaporation and heat loss to the atmosphere. It also reflects sunlight, keeping the planet cool through the albedo effect. NISAR will observe nearly all the planet’s land and ice surfaces twice every 12 days. The satellite’s unique insights into Earth’s cryosphere will come from the combined use of two radars: an L-band system and an S-band system...
National Aeronautics and Space Administration - Jan 10, 2024

USGS funds research that suggests New Maui forest height could impact water yields, fire risk, more

...A groundbreaking new 30-meter Maui Forest Height Map reveals that trees on the Valley Isle are taller than previously thought, challenging past assumptions about the island's forest elevation. The map developed by a University of Hawai'i at Mānoa geography professor has implications that extend beyond cartography that could impact future environmental resource management in all areas. Qi Chen, project lead, utilized remote sensing technology (airborne lidar) as reference data to train models based on satellite imagery, surpassing the accuracy of traditional mapping methods. Researchers analyzed the colors and values of each pixel in satellite and lidar imagery to infer the height of trees at various locations. Accurate information about forest height is crucial for various reasons. Taller trees may increase the risk of specific types of fires, and forests with diverse heights tend to support more biodiversity. The project received funding of $119,500 since 2019, with $23,500 allocated for the Maui Forest Height Map, from the U.S. Geological Survey (USGS) through AmericaView...
The Magazine of the University of Hawaii - Malamalama - Jan 8, 2024

Microelectronics

Statement from National Economic Advisor Lael Brainard on Today's CHIPS & Science Act Announcement
...As a result of President Biden's policies and actions in partnership with the private sector, supply chain stress has fallen from near record highs to record lows, and inflation has closely followed. The Department of Commerce announced the second preliminary memorandum of terms (PMT) for approximately $162 million dollars to be awarded to Microchip Technology. The chips and microcontroller units (MCUs) that Microchip fabricates are essential components in a wide range of consumer and defense products that are critical to American manufacturing, including electric vehicles, smart devices you wear and use in your home, computers, internet routers, and lifesaving medical devices. By making this investment, the Biden-Harris administration is addressing a vital link in our technology supply chain that impacts millions of American consumers and businesses...
The White House - Jan 4, 2024

Climate Change / Green Energy & IT

Riding the Wind: How Applied Geometry and Artificial Intelligence Can Help Us Win the Renewable Energy Race
...As the wind flows by the blades of the turbine, a rotating force is created that spins the giant assembly. The rotation is then converted into electricity just like conventional power generation. A turbine spinning in the wind may seem simple, but designing and measuring blades of a wind turbine, using a sequence of changing cross-sectional shapes, requires a lot of sophisticated geometry. Using the laws of physics, we can build computer models to predict how air flowing around the blades of a spinning turbine generates power. When the surface of the blade changes, the forces that rotate the turbine also change. Modeling how these forces change when the surface changes is a subject of aerodynamics. Two of the most important forces acting on aerodynamic surfaces are called lift and drag. The force defying gravity using an aircraft wing is the same that spins a turbine — we call it lift. Perpendicular to lift, the force that works to slow the aircraft or turbine's rotation is called drag. Working alongside the National Renewable Energy Laboratory (NREL), NIST is developing new methods to describe and generate these complicated airfoil shapes to create next-generation designs and augment measurements in the field. The design approach taken at NREL involves solving one of the hardest problems in math — an inverse problem. An inverse problem sets the desired outputs by saying we need "XYZ" aerodynamics. We then work backward through the modeled physics to determine a collection of airfoils that satisfy the requested aerodynamics.
The colleagues at NREL train the AI to tell the geometry model how to achieve new designs with requested aerodynamics based on the generated data. Helping design next-generation turbines is only the first step. We must also measure the hard-to-reach offshore turbines while in operation to make sure they are holding up to the test of time and can still provide power to those who need it...
National Institute of Standards and Technology - Jan 10, 2024

Digital Health

Health Equity, Work, and Motor Vehicle Safety
...Many factors can play a role in work-related MVCs, but have you considered how these factors may have different impacts on workers, depending on their social or demographic characteristics? Given NIOSH's commitment to advancing health equity, our motor vehicle safety researchers dug into this question. Many disparities in MVC risk have been attributed to social determinants of health (SDOH), including differences in the access to and quality of healthcare and education, economic stability, the social and community environment, and the neighborhood and built environment. NIOSH researchers reviewed international literature on the current state of disparities in work-related

MVCs. They applied the Social–Ecological Model (SEM) to organize potential underlying causes of disparity. The SEM is a useful framework to illustrate how individual factors (the focus of most work-related MVC research) are embedded within larger circles depicting the influence of interpersonal relationships, organizational factors, community-level factors, and public policy. This model is helpful to study equity and work-related MVCs, as it illustrates the breadth and interaction of work and societal factors outside an individual's control that can create disparities...
Centers for Disease Control and Prevention - Jan 3, 2024

FDA contracts with researchers for study on improving patient safety using principles of aerospace engineering

...Laboratory missteps prevent patients from receiving appropriate, necessary, and sometimes lifesaving care and are the third-leading cause of death in the nation. A MIT research team examined the ecosystem of diagnostic laboratory data. Their findings, including six systemic factors contributing to patient hazards in laboratory diagnostics tests, offer a rare holistic view of this complex network. By viewing the diagnostic laboratory data ecosystem as an integrated system, an approach based on systems theory, the MIT researchers have identified specific changes that can lead to safer behaviors for health care workers and healthier outcomes for patients. The team found the diagnostic laboratory data ecosystem to be vast yet fractured. No one understood how the whole system functioned or the totality of substandard treatment patients received. Systems theory may be a new concept to the medical community, but the aviation industry has used it for decades. A report of the study was submitted to the U.S. Food and Drug Administration, who contracted the study. The Leveson team will continue working with Synensys on behalf of the FDA. Their next study will investigate diagnostic screenings outside the laboratory...
MIT News - Jan 4, 2024

DOD grant to validate blood test that uses an AI algorithm for early breast cancer detection

...Weill Cornell Medicine researchers received a $2.4 million grant from the U.S. Department of Defense Breast Cancer Research Program to validate a new blood test for the early detection of breast cancer. The test uses an artificial intelligence algorithm to determine whether a patient is positive for cancer as soon as detectable by mammogram or possibly earlier, and before symptoms arise. Finding cancer early can also reduce the need for invasive treatments like double mastectomy and chemotherapy. Researchers will evaluate the performance of the Syantra DX Breast Cancer test in women ages 30 to 75 who have an elevated risk of developing breast cancer, including those with dense breast tissue, abnormal mammograms, genetic predisposition or suspicious breast symptoms. The researchers also hope the test can be used worldwide in underserved populations or where standard imaging equipment isn't readily available. A simple blood test used in a local doctor's office that does not require travel to an imaging center could also help improve regular screening...
Cornell University - Jan 5, 2024

NSF/NIH funded robotic exosuit gives Parkinson's patient smoother stride

...Freezing is one of the most common and debilitating symptoms of Parkinson's disease, a neurodegenerative disorder that affects more than 9 million people worldwide. When individuals with Parkinson's disease freeze, they suddenly lose the ability to move their feet. Researchers from the Harvard and Boston University used a soft, wearable robot to help a person living with Parkinson's walk without freezing. The robotic garment, worn around the hips and thighs, gives a gentle push to the hips as the leg swings, helping the patient achieve a longer stride. The research demonstrates the potential of soft robotics to treat this frustrating and potentially dangerous symptom of Parkinson's disease and could allow people living with the disease to regain not only their mobility but their independence. The research was supported by the National Science Foundation and the National Institutes of Health...
Harvard Gazette - Jan 5, 2024

Other IT Related

NTIA 2023: A Year in Review

...In 2023 NTIA made considerable progress in closing the digital divide, building a better Internet at home and abroad, and supporting U.S. wireless innovation and leadership. NTIA is in the midst of a historic mission: to connect everyone in America to affordable, reliable high-speed Internet service. In addition to the new funding, NTIA is starting to see results from recent awards made through the Broadband Infrastructure Program (BIP) and the Connecting Minority Communities Pilot Program (CMC). Responsible AI innovation can – and will – bring enormous benefits to people. But we will only realize the promise of AI if we also address the serious risks it raises today. NTIA has been on the forefront of federal AI policy work to maximize those benefits while mitigating the risks. At the direction of the ambitious new AI Executive Order, NTIA will dig into AI openness – in particular, the benefits and risks posed by widely available model weights. NTIA made huge strides in spurring U.S. wireless innovation and leadership with the White House release of our National Spectrum Strategy in November. NTIA is also catalyzing development of new open and interoperable wireless networks through our Wireless Innovation Fund. This $1.5 billion program aims to help accelerate the shift from closed, proprietary network equipment to open and interoperable equipment, boosting competition and supply chain resiliency, and lowering costs...

National Telecommunications and Information Administration - Jan 4, 2024

STEM / Workforce Resources & Opportunities

R&D WORKFORCE TRAINING: FEDERAL AGENCIES' STEM INTERNSHIPS, SCHOLARSHIPS, AND TRAINING OPPORTUNITIES

...Increasing the availability of STEM opportunities is a priority in the Biden Harris Administration. To help facilitate this, the team at NITRD developed a STEM Portal that allows anyone to search for internships and other training opportunities at Federal agencies. The NITRD STEM PORTAL is a searchable database that includes a description, link, and contact information for each program listing. Government sponsored internships and training programs are competitive, but there are many Federal opportunities and the NITRD STEM Portal is here to help.
The Networking and Information Technology Research and Development (NITRD) Program - Jan 1, 2024

FEDERAL HIGH END COMPUTING INFORMATION PORTAL

...Networking and Information Technology Research and Development (NITRD) has a portal that provides information about U.S. Federal government high performance computing activities, including available computing resources; relevant publications; fellowship and training opportunities; and technology transfer, licensing, and industry engagement opportunities. The High End Computing (HEC) Interagency Working Group (IWG) agencies provide the information contained in this portal. HEC IWG agencies are involved in various Federal activities in the HEC area including R&D and providing infrastructure and application. Take a look at it!
Networking and Information Technology Research and Development - Dec 19, 2023

Upcoming Conferences / Workshops / Webinars

NIST Secure Software Development Framework for Generative AI and for Dual Use Foundation Models Virtual Workshop

...The October 2023, Executive Order 14110, Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence, tasked NIST with “developing a companion resource to the SSDF to incorporate secure development practices for generative AI and for dual-use foundation models.” To provide software producers and acquirers with more information on secure development for AI models, NIST is considering the development of one or more SSDF companion resources on generative AI models and dual-use foundation models. These companion resources would be similar in concept and content to the Profiles for the NIST Cybersecurity Framework, Privacy Framework, and AI Risk Management Framework. NIST is hosting a workshop on Wednesday, January 17, 2024, from 9:00 AM - 1:00 PM EST to bring together industry, academia, and government to discuss secure software development practices for AI models. Attendees will gain insight into major cybersecurity challenges specific to developing and using AI models...
National Institute of Standards and Technology - Jan 8, 2024

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