HPC	ARTIFICIAL INTELLIGENCE / MACHINE LEARNING	ROBOTICS / AUTONOMOUS VEHICLES	QUANTUM	CYBERSECURITY / PRIVACY	MICROELECTRONICS	CLIMATE CHANGE / GREEN ENERGY & IT	DIGITAL HEALTH	OTHER IT RELATED	STEM / WORKFORCE & IT	STEM / WORKFORCE RESOURCES & OPPORTUNITIES

NITRD News Brief

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

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

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

HPC

UMD Team Wins DOE Award to Advance AI Using Supercomputers

...University of Maryland researchers have won a competitive award from the U.S. Department of Energy (DOE) that will provide them access to some of the world's most powerful computational platforms. The award—from the DOE's Innovative and Novel Computational Impact on Theory and Experiment (INCITE) program—will enable UMD experts in high-performance computing and machine learning to scale distributed AI training and develop new AI vision and language models used in popular applications like DALL-E and ChatGPT. With large language models (LLMs) and vision-based diffusion models now used for journalism, understanding protein structures, writing software code, and much more, training the largest of these AI models—which can reach hundreds of billions of parameters of information—can often overwhelm the computing capabilities of many academic labs doing work in these areas. The UMD team seeks to "democratize" this process by using innovative parallel computing algorithms and other methods that enable platforms powered by NVIDIA and Advanced Micro Devices' GPUs to efficiently train extremely large models...

UMIACS - Nov 29, 2023

Algorithmic advances: S&T researcher awarded two NSF grants to improve geospatial analytics

...Missouri S&T researcher Dr. Satish Puri is working with petabytes of digital data — primarily geospatial information, such as maps — to find the best ways to run queries and get useful results as quickly as possible. But with these massive datasets comes the need to be able to effectively use them, which is why Puri was awarded a grant from the National Science Foundation's Faculty Early Career Development (CAREER) Program last year. His project, which is expected to receive over $500,000 over the course of five years, is titled: "Communication-efficient and topology-aware designs for geospatial analytics on heterogeneous platforms." Earlier this year, he was also awarded a $230,000 three-year NSF grant for a project titled "Approximate nearest neighbor similarity search for large polygonal and trajectory datasets." Both projects focus on geospatial analytics. For these projects, Puri is creating algorithms and using high-performance computing with graphics processing units and smart network interface cards that have advanced processing capabilities and allow searches to be conducted faster...
Missouri University of Science and Technology - Nov 29, 2023

Artificial Intelligence / Machine Learning

DAF leaders emphasize adapting AI for warfighting success

...Air Force Secretary Frank Kendall made it clear that the Air Force and Space Force are fully committed to develop and deploy artificial intelligence as a key element in meeting security challenges posed by China and other adversaries. Kendall said, "Our challenge is not to limit what we can do with AI but to find how to hold people accountable for what the AI does. The way we should approach is to figure out how to apply the laws of armed conflict to the applications of AI." Speed and automation of AI systems have vastly shortened decision timelines. That's why the DoD's National Defense Strategy focuses on accelerating decision making and the way information is analyzed and shared. Replacing obsolete, legacy systems by harnessing emerging information, communications, and AI technologies to provide operational targeting and decision support with the speed, adaptability and resilience needed to fight in a highly contested environment is a priority for DAF and falls under Kendall's Operation Imperatives...
Air Force Link - Dec 2, 2023

NIST funds research that shows AI image generator Stable Diffusion perpetuates racial and gendered stereotypes

...If you use the popular artificial intelligence image generator Stable Diffusion, you will frequently see images of light-skinned men. Stable Diffusion's perpetuation of this harmful stereotype is among the findings of a new University of Washington study. To study how Stable Diffusion portrays people, researchers asked the text-to-image generator to create 50 images of a "front-facing photo of a person." They then varied the prompts to six continents and 26 countries, using statements like "a front-facing photo of a person from Asia" and "a front-facing photo of a person from North America." They did the same with gender. The team took the generated images and analyzed them computationally, assigning each a score: A number closer to 0 suggests less similarity while a number closer to 1 suggests more. The researchers then confirmed the computational results manually. The team also compared images using a NSFW (Not Safe for Work) Detector, a machine-learning model that can identify sexualized images, labeling them on a scale from "sexy" to "neutral." While the team's work points to clear representational problems, the ways to fix them are less clear. This research was funded by a National Institute of Standards and Technology award...
College of Arts and Sciences - Nov 29, 2023

The short-term rain forecast system is broken. NASA funds research to find out if AI can do a better job of predicting deadly floods

...The frequency and severity of extreme rain events is lending a sense of urgency to come up with new prediction models. NASA is funding Puja Das, a Ph.D. candidate at Northeastern, to explore a better way to predict devastating rainstorms with the help of physics-guided generative AI. Das' research project, called Remote-sensing data driven Artificial Intelligence for precipitation-Nowcasting (RAIN) is exploring the use of hybrid models incorporating traditional physics and hydrometeorology with information provided by radar and synthetic data generated by AI. She also plans to evaluate the role of AI and machine learning in developing weather prediction models using data from satellites...
Northeastern Global News - Dec 4, 2023

Clemson University-led team renews funding from USDA to tackle devastating citrus disease

...A team led by Clemson University is receiving a second multi-million-dollar federal grant to continue research into the devastating citrus greening disease that costs Florida alone $1 billion annually. Feng Luo received a $4.1 million grant from the U.S. Department of Agriculture's National Institute of Food and Agriculture (NIFA). Luo aims to counteract the disease and ensure that the future citrus varieties developed are both hardy and economically viable for commercial production. By employing artificial intelligence algorithms, the team will be able to sift through the genetic information of citrus plants at a speed and precision unachievable by traditional methods. This not only accelerates the identification process of HLB-resistant variants but also ensures that the selections will enable sustainable production for the citrus industries. The research builds on a previous study that began in 2017 and was funded with $4.3 million from NIFA...
Clemson University - Dec 4, 2023

Robotics / Autonomous Vehicles

Autonomous Vehicles Powered by Ocean Waves Support NOAA Fisheries Research

...Scientists from NOAA's Pacific Islands Fisheries Science Center are using autonomous surface vehicles called Wave Gliders to study ocean health in Hawaiʻi. They're collecting data on ocean conditions that will be used to help estimate the impacts of climate change on marine ecosystems and fisheries across the state. The wave-powered vehicles are continuously propelled forward while taking measurements on ocean conditions. For this study, three Wave Gliders will be traveling in tandem at 1.5, 3, and 6 kilometers from shore. They will measure temperature, salinity, phytoplankton, and more to a depth of 150 meters. This project is in collaboration with researchers from the University of Hawaiʻi at Mānoa Department of Oceanography and supported by NOAA's Uncrewed Systems Operations Center, which funded innovative partnerships in an effort to collect data for NOAA missions...

Noaa Fisheries - Dec 1, 2023

DOD/NSF/ONR support researchers developing a new optimization framework for robot motion planning

...MIT Computer Science and Artificial Intelligence Laboratory (CSAIL) researchers' "Graphs of Convex Sets (GCS) Trajectory Optimization" algorithm presents a scalable, collision-free motion planning system for robotic navigational needs. The approach marries graph search and convex optimization and can quickly find paths through maze-like environments while simultaneously optimizing the trajectory of the robot. GCS can map out collision-free trajectories in as many as 14 dimensions with the aim of improving how machines work in tandem in warehouses, libraries, and households. The CSAIL-led project consistently finds shorter paths in less time than comparable planners, showing GCS' capability to efficiently plan in complex environments. Motion planning using Graph-of-Convex-Sets (GCS) enables robots to easily adapt to different configurations within precomputed convex regions — allowing the robot to 'round the corner' as it makes its motion plans. By doing so, GCS allows the robot to rapidly compute plans within safe regions very efficiently using convex optimization. The group's work was supported by the Department of Defense's National Defense Science and Engineering Graduate Fellowship Program, the National Science Foundation, and the Office of Naval Research...

MIT News - Nov 30, 2023

Quantum

NSF funds MIT researchers who propose: with a quantum "squeeze," clocks could keep even more precise time

...The practice of keeping time hinges on stable oscillations. In a grandfather clock, the length of a second is marked by a single swing of the pendulum. In a digital watch, the vibrations of a quartz crystal mark much smaller fractions of time. And in atomic clocks, the world's state-of-the-art timekeepers, the oscillations of a laser beam stimulate atoms to vibrate at 9.2 billion times per second. These smallest, most stable divisions of time set the timing for today's satellite communications, GPS systems, and financial markets. A new MIT study finds that even if all noise from the outside world is eliminated, the stability of clocks, laser beams, and other oscillators would still be vulnerable to quantum mechanical effects. The precision of oscillators would ultimately be limited by quantum noise. But in theory, there's a way to push past this quantum limit. In their study, the researchers also show that by manipulating, or "squeezing," the states that contribute to quantum noise, the stability of an oscillator could be improved, even past its quantum limit. The team is working on an experimental test of their theory. If they can demonstrate that they can manipulate the quantum states in an oscillating system, the researchers envision that clocks, lasers, and other oscillators could be tuned to super-quantum precision. This research is supported by the National Science Foundation...

MIT News - Nov 30, 2023

AFOSR/DOE/NSF fund researchers to invent new way to stretch diamond for better quantum bits

...A team of researchers announced a breakthrough in quantum network engineering: By "stretching" thin films of diamond, they created quantum bits that can operate with significantly reduced equipment and expense. The change also makes the bits easier to control. Quantum bits, or qubits, have unique properties, but there are significant challenges to work out before it could become a widespread, everyday technology. One of the chief issues lies within the "nodes" that would relay information along a quantum network. The qubits that make up these nodes are very sensitive to heat and vibrations. One of the most promising types of qubits is made from diamonds and can maintain quantum entanglement for relatively long periods. The scientists found that they could "stretch" out the diamond at a molecular level if they laid a thin film of diamond over hot glass. As the glass cools, it shrinks at a slower rate than the diamond, slightly stretching the diamond's atomic structure. Funding came from the Air Force Office of Scientific Research, U.S. Department of Energy Q-NEXT National Quantum Information Science Research Center, and the National Science Foundation...

UChicago News - Nov 29, 2023

Cybersecurity / Privacy

NCCoE 5G Cybersecurity: Connecting the Dots Between IT and Teleco Cybersecurity Capabilities in 5G Systems

...5G will eventually impact every single industry—from healthcare to financial to even agriculture and transportation...and its impact is only increasing over time. Despite its benefits, it comes with privacy and security risks. An increasing number of interconnected devices increases the attack surface. The goal of the NCCoE 5G Cybersecurity project is to provide cybersecurity guidance that will help consumers and operators of 5G networks to adopt, deploy and use this technology in a more securely and privacy-enhancing way. The NCCoE 5G Cybersecurity project is meeting this goal by building a 5G network comprised of the same commercial grade telecommunication components being used in 5G networks around the world. 3GPP introduces the notion of a Service Based Architecture (SBA) for 5G. The shift to cloud infrastructure enables functions that make up 5G core networks to be deployed on commodity servers instead of purpose-built telecommunication boxes. NIST is delighted to share that we have achieved our first milestone...the completion of our fully functional 5G network! ...
National Institute of Standards and Technology - Dec 4, 2023

NTIA Receives More Than 500 Comments on Protecting Kids Online

...The Department of Commerce's National Telecommunications and Information Administration (NTIA) received more than 500 written comments in response to its Kids Online Health & Safety Request for Comment. NTIA issued the request for comment in September to gather more information about social media and online platforms' impacts on minors, current industry practices, and ways in which the private sector, caregivers and the U.S. government may counter negative effects...
National Telecommunications and Information Administration - Nov 30, 2023

Microelectronics

USPTO announces Semiconductor Technology Pilot Program in support of CHIPS for America Program

...To encourage research, development, and innovation in semiconductor manufacturing, the Commerce Department's U.S. Patent and Trademark Office (USPTO) is announcing a new Semiconductor Technology Pilot Program developed to support the CHIPS for America program. The pilot program is designed to accelerate improvements in the semiconductor industry by expediting examination of patent applications for certain semiconductor manufacturing innovations. Qualifying nonprovisional utility patent applications, directed to certain processes and apparatuses for manufacturing semiconductor devices, will be advanced out of turn for examination (accorded special status) until a first action. The USPTO will begin accepting petitions to participate in the Semiconductor Technology Pilot Program on Friday, December 1, 2023. The pilot program will be available until December 2, 2024, or until the USPTO accepts 1,000 grantable petitions, whichever is reached first...
United States Patent and Trademark Office - Nov 30, 2023

NSF and DARPA fund researchers with a new approach: 2D material reshapes 3D electronics for AI hardware

...Multifunctional computer chips have evolved to do more with integrated sensors, processors, memory and other specialized components. However, as chips have expanded, the time required to move information between functional components has also grown. To address this challenge, a team of international collaborators demonstrated monolithic 3D integration of layered 2D material into novel processing hardware for artificial intelligence (AI) computing. They envision that their new approach will not only provide a material-level solution for fully integrating many functions into a single, small electronic chip, but also pave the way for advanced AI computing. The team's monolithic 3D-integrated chip offers advantages over existing laterally integrated computer chips. The device contains six atomically thin 2D layers, each with its own function, and achieves significantly reduced processing time, power consumption, latency and footprint. This is accomplished through tightly packing the processing layers to ensure dense interlayer connectivity. As a result, the hardware offers unprecedented efficiency and performance in AI computing tasks. This discovery offers a novel solution to integrate electronics and also opens the door to a new era of multifunctional computing hardware. This work was supported by the National Science Foundation and SUPREME, one of seven centers in JUMP 2.0, a Semiconductor Research Corp. program sponsored by DARPA...
The Source - Washington University in St. Louis - Nov 29, 2023

Climate Change / Green Energy & IT

FACT SHEET: Biden-Harris Administration Leverages Historic U.S. Climate Leadership at Home and Abroad to Urge Countries to Accelerate Global Climate Action at U.N. Climate Conference (COP28)

...President Biden, Vice President Harris, and the entire Biden-Harris Administration have treated climate change as the existential threat of our time. President Biden's ambitious domestic climate action offers countries gathering at COP28 a proven model for how bold action to tackle the climate crisis and end dependence on fossil fuels can unlock a new era of clean and inclusive economic growth. President Biden's ambitious climate agenda has also unleashed a clean manufacturing boom – stimulating over $350 billion in announced private investment in clean energy manufacturing since the start of the Biden-Harris Administration...
The White House - Dec 2, 2023

In National Climate Assessment, NIST Offers New Insights on Community Resilience and Adaptation

...In its contributions to the recently released Fifth National Climate Assessment (NCA5), the National Institute of Standards and Technology (NIST) highlights ways that communities can adapt and become more resilient as the climate changes. The NCA5, a congressionally mandated report by multiple U.S. government agencies, analyzes the impacts, risks and responses of global climate change in the United States. The NCA5 takes a much more holistic approach to understanding climate impacts than its previous editions have. For the first time in the report's multi-decade history, chapters on social equity and environmental justice have been included. NIST is actively working on addressing climate change and community resilience issues, including initiatives related to integrating climate change work into planning tools for communities. The NIST Community Resilience Planning Guide for Buildings and Infrastructure Systems and companion playbook provides a practical and flexible approach to help all communities improve their resilience by setting priorities. NIST's Economic Decision Guide Software (EDGe$) online tool and accompanying ASTM standards can help these communities determine how best to allocate resources to manage risks...
National Institute of Standards and Technology - Dec 4, 2023

Biden-Harris Administration releases Greenhouse Gas Monitoring Strategy

...The Biden-Harris Administration released a conceptual framework for a national system to measure, monitor and share information related to reducing greenhouse gas emissions in order to meet U.S. commitments under the 2015 Paris Agreement. Led by the White House Office of Management and Budget, Office of Science and Technology Policy, and Climate Policy Office, the new U.S. Greenhouse Gas Measurement, Monitoring, and Information System strategy builds on a wide array of cooperative research, data products, activities and capabilities aimed at understanding emissions, removals and sinks of greenhouse gases (GHGs) from national to regional and urban scales as well as from a range of sources. NOAA will commit its long-established, state-of-the-art capabilities in observation, modeling and data analysis, including the Global Greenhouse Gas Reference Network, Carbon Tracker, HYSPLIT dispersion model and satellite remote sensors, to support this whole-of-government effort...
National Oceanic and Atmospheric Administration - Nov 29, 2023

Greener solution powers new method for lithium-ion battery recycling

...Used lithium-ion batteries from cell phones, laptops and a growing number of electric vehicles are piling up, but options for recycling them remain limited. The conventional process recovers few of the battery materials and relies on caustic, inorganic acids and hazardous chemicals that may introduce impurities. It also requires complicated separation and precipitation to recover the critical metals. Researchers at the Department of Energy's Oak Ridge National Laboratory have improved on approaches that dissolve the battery in a liquid solution in order to reduce the amount of hazardous chemicals used in the process. This simple, efficient and environmentally-friendly solution developed by ORNL researchers overcomes the main obstacles. The spent battery is soaked in a solution of organic citric acid – which occurs naturally in citrus fruits – dissolved in ethylene glycol, an antifreeze agent commonly used in consumer products like paint and makeup. This green solution produced a strikingly efficient separation and recovery process for the metals from the positively-charged electrode of the battery...
Oak Ridge National Laboratory - Nov 29, 2023

Digital Health

FHIR Factories Help Researchers use EHR Data

...Researchers, developers, and clinicians have new tools to help them access high-quality electronic health record (EHR) data more effectively. A 2020 ONC Leading Edge Acceleration Project (LEAP) in Health IT awardee, MedStar Health Research Institute, in collaboration with the Georgetown University Medical Center and HealthLab, developed two new data tools as part of MedStar's Fast Healthcare Interoperability Resources® (FHIR) Factories: An Evolving Digital Architecture to Scale Health Research project. The project team developed FHIR Factories, which are enhanced data platforms (or data factories) that provide researchers the ability to easily access data in standardized formats and to conduct at-scale extraction and analysis. These data factories use FHIR to transform data into actionable knowledge that is accessible via application programming

interfaces (APIs) and bring that actionable knowledge to the frontlines of clinical care. The two new data tools available via ONC's GitHub repository include the Bugs & Drugs FHIR Factory and the Trend Engine FHIR Factory...
Health IT - Dec 4, 2023

$2.7M NIH grant supports wearable technology system to improve recovery from leg fractures

...Researchers at the University of Kentucky and Vanderbilt University received a five-year, $2.7 million grant from the National Institutes of Health (NIH) to study the use of wearable technology for better patient recovery from shinbone fractures and repair surgeries. Patient recovery following a fractured tibia (shinbone), and the surgical procedure to repair it, often results in an inability to fully return to work a year later in 47% of patients. The research team is using a noninvasive wearable sensor system that fits inside a shoe and novel machine learning algorithms developed at Vanderbilt to monitor tibial bone force in daily life. The goal of the study, funded by NIH's National Institute of Arthritis and Musculoskeletal and Skin Diseases, is to measure how much tibial force patients experience during daily activities and in their rehabilitation programs, and how tibial forces early in recovery affect long-term functional outcomes...
University of Kentucky - Nov 30, 2023

Other IT Related

International Partnerships in a New Era of Fusion Energy Development

...For more than 60 years, the international fusion research and development (R&D) community has enjoyed a strong collaborative tradition that has advanced the science and technology of fusion. In March 2022, the United States announced a Bold Decadal Vision for Commercial Fusion Energy that recognized fusion energy's increasing technical readiness and strong market interest and included a direction to explore new international collaborations to accelerate the development of fusion energy. The United States has identified the following five overarching goals where we invite international engagement and partnerships: (1) Identify and pursue opportunities for international cooperation or partnerships on fusion R&D, and enable access to or shared development of key infrastructure. (2) Grow the future global marketplace. (3) Coordinate on regulatory frameworks that create a secure environment for fusion energy. (4) Foster and strengthen a diverse and global workforce pipeline. (5) Improve public education and engagement in fusion energy...
The White House - Dec 2, 2023

Celebrating the 20-Year Anniversary of the Authorization of the National Nanotechnology Initiative

...In celebration of the 20-year anniversary of the 21st Century Nanotechnology Research and Development Act, the White House Office of Science and Technology Policy (OSTP) and the National Nanotechnology Coordination Office (NNCO) are announcing a series of events to drive U.S. leadership in nanotechnology. For the past two decades, the National Nanotechnology Initiative (NNI) has worked with more than 20 departments and agencies to advance a vision to understand and control matter at the nanoscale, for the benefit of society. "Over the years, the NNI has dynamically and responsibly responded to the needs of the country," said Dr. Branden Brough, Director of NNCO, which coordinates the NNI. "The initiative is a model for collaborative and thoughtful technology development, while supporting the rapid development of other emerging fields by creating the infrastructure and workforce development programs that bolster these growing industries." The NNI community will host a symposium on March 5, 2024 to recognize the impact of research and development at the nanoscale and plan the NNI's promising future. The NNCO will release a series of reports and stories that illustrate the impact of the NNI, including readouts from the Nano4EARTH roundtable discussions about applying nanotechnology solutions to address climate change...
The White House - Dec 4, 2023

Nature Inspires a New Wave of Biotechnology

...Biological molecules called peptides play a key role in many biological activities, including the transport of oxygen and electrons. Peptides consist of short chains of amino acids, the building blocks of proteins. They are also the inspiration for new kinds of biotechnology. Researchers are developing a synthetic form of a peptide that self-assembles into nanoscale fibers that conduct electricity when combined with heme. The development of a synthetic analog capable of forming one-dimensional (1D) nanostructures would greatly improve scientists' understanding of the natural system and provide a platform for developing new materials. Researchers in the Center for Nanoscale Materials at Argonne National Laboratory investigated a series of peptides that self-assemble into 1D layered nanostructures. All the peptides, with the exception of PA-KL1, had nanofibers with a long aspect ratio regardless of repeat unit length and sequence. Such structures have potential utility as supramolecular bioelectronic materials useful in biomedical sensing and the development of enzymatic materials...
Department of Energy - Dec 1, 2023

A Self-Service Screening Option is Coming to the Airport

...The Science and Technology Directorate (S&T) is creating sustainable changes to systems and processes to increase screening efficiency and improve the passenger experience while keeping a stable number of Transportation Security Officers (TSOs). One solution S&T is pursuing through its Screening at Speed Program is passenger self-service screening, which allows PreCheck® passengers to complete the screening process with minimal to no assistance from TSOs. S&T's Screening at Speed team and its Transportation Security Laboratory (TSL) have partnered with the Transportation Security Administration (TSA) Innovation Task Force (ITF) to develop and test solutions to build the foundation for the next generation of airport screening...
Homeland Security - Nov 30, 2023

Research lays groundwork for geospatial digital twins

...At the Department of Energy's Oak Ridge National Laboratory, David Page thinks digital twins could revolutionize Earth observation. The problem Page wants to solve is creating an efficient "twinning rate," or the time it takes for the digital model to update and accurately reflect the physical entity it represents. Page thinks ORNL, with its unmatched high-performance computing capabilities and geospatial data processing workflows, is the right place to reduce the twinning rate and deliver useful geospatial digital twins. In his vision, geospatial digital twins are constantly updated, providing a foundational basis from which any product can be pulled as needed. Page and team have developed novel stereoscopic correlation algorithms that identify, rectify and marry multiple images of the same location — taken from different vantage points — to provide a 3D rendering of the Earth's topology. Combining observed and measured data with ORNL's HPC resources, they hope to provide near-constant updates — a digital twin of the planet's terrain...
Oak Ridge National Laboratory - Dec 4, 2023

STEM / Workforce & IT

AI education and AI in education

...Researchers in California have developed an award-winning online game to teach high school students university-level AI and computational thinking concepts. Another team of researchers in California are using AI to teach AI with activities facilitated by a virtual human AI avatar meant to engage young children and their families in learning about AI concepts. "For more than 30 years, NSF has both led and invested in AI research projects to support, reimagine, and transform learning and teaching with the use of emerging technologies," says James L. Moore III, NSF assistant director for STEM education. "Through NSF-funded research, we are learning how to harness AI to make education more equitable, inclusive, and accessible." In 2019, an NSF-funded project led to the development of national guidelines for teaching and learning about AI in K-12 school settings. Prior to this, there were few to no curriculums in the U.S. dedicated to teaching young, pre-college students about the fundamental knowledge and skills related to AI. Now educators and curriculum developers can visit the AI for K-12 initiative website to find guidelines. Ning Wan, at USC, worked on a NSF project that began with a desire to teach AI concepts to younger audiences through a gaming platform. This ended up having more profound impacts than she initially planned. The game, ARIN-561, provides players with the opportunity to explore a strange new planet as a crash-landed astronaut. AI in education can also create new ways to connect learners with their local environments, allow them to think critically about ecological problems, and aid them in coming up with realistic solutions...
National Science Foundation - Dec 4, 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

Summary Undergraduate Research Fellowship (SURF)

...The SURF 2024 application is open! It will close on January 31, 2024! NIST summer interns have improved MRI technology, studied medications, and more. Spend your summer with us for 11 weeks of hands-on lab experience with world-class mentors in one of NIST's six labs or other offices.
National Institute of Standards and Technology - Aug 2, 2023

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Innovation Through NITRD Coordination

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