AI at ENERGY.GOV

Note: This will be the final AI newsletter for 2019. Our publishing team will be taking a hiatus for the holidays and will resume the newsletter in the New Year.

A Message From Leadership

For nearly three years, it has been my privilege to lead one of the world's greatest incubators of innovation … the Department of Energy.

DOE's unmatched research and development infrastructure, including our 17 National Laboratories, has left an indelible imprint on our world.

Our story began more than seven decades ago with the Manhattan Project and the Atomic Energy Commission's pursuit of one of the greatest national security missions of all time.

Thanks to that mission, America was first to harness the power of the atom, which changed the course of history and secured freedom's future for generations to come.

Today, our Nation faces a similar pivotal moment with innovation once again ready to tip the scales of history.

We are engaged in an epic race for artificial intelligence (AI) supremacy, with rival nations that hold rival notions about freedom.

I'm convinced that not only will the outcome of this race be as consequential, but America's ability to out-innovate its rivals will be as critical.

That is why I established the Artificial Intelligence and Technology Office. AITO will accelerate AI research, development and delivery department-wide, optimize its adoption in to our core missions and operations… positioning us to lead this charge.

By transforming DOE into a world-leading AI enterprise, we can strengthen national security and cybersecurity, spur scientific discovery, increase energy efficiency, improve energy exploration and environmental sustainability, and enhance emergency response and grid resiliency like never before.

But AI can help us do even more: With it, we can help boost crop yields, unlock medical mysteries, transform transportation and smart cities, address the terrible tragedy of veteran suicide, and fundamentally change and save people's lives.

Standing up AITO is one of my proudest achievements, and one that holds the greatest potential to ensure America continues to lead in the development of this groundbreaking technology.

That's my hope for the future of AI. That it be adopted swiftly, but wisely. That its promise be used for good.

But now that's up to you.

The cornerstone been set. The AITO office has been established. I look forward to watching as DOE answers history's call and leads the world in the delivery of AI, and as America -- once again -- secures the blessings of liberty for ourselves, our values and our posterity.

Secretary Rick Perry

Rick Perry

DOE's AI Office Will Change The World
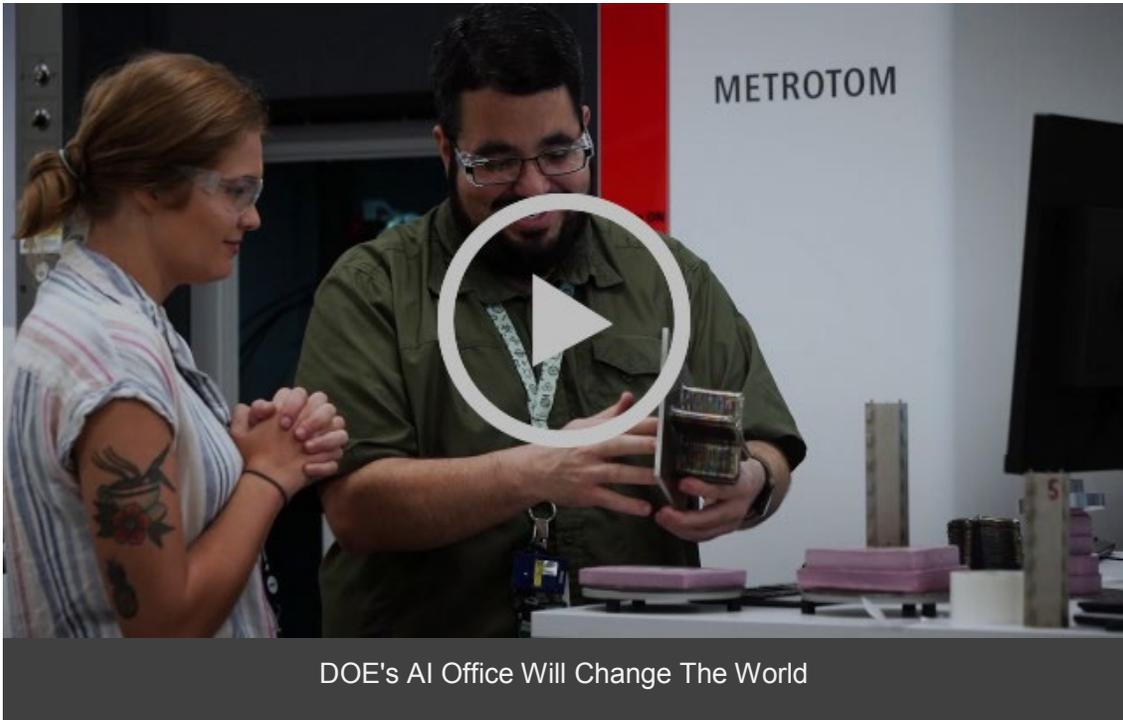
This Month's Highlights

Secretary Perry Addresses the National Security Commission on Artificial Intelligence

This month, Secretary Perry addressed the National Security Commission on Artificial Intelligence Conference on the future of AI and national security as well as the many innovations coming out of DOE and our National Labs.

Watch Here

AI@DOE News

Under Secretary Paul Dabbar on the Golden Age of Innovation

The Arrow of Time is a theory from physicist Arthur Eddington describing how time moves forward and what will change. And we can say with confidence that humanity and America are at a special point in time, due to where we are on the prospects for innovation across a wide set of areas.

[Read More Here](#)

AI in the News

Machine-Learning Analysis of X-ray Data Picks Out Key Catalytic Properties

Scientists from Brookhaven National Lab and Stony Brook University seeking to design new catalysts to convert carbon dioxide to methane have used a novel artificial intelligence approach to identify key catalytic properties. By using this method to track the size, structure, and chemistry of catalytic particles under real reaction conditions, the scientists can identify which properties correspond to the best catalytic performance, and then use that information to guide the design of more efficient catalysts.

[Read More Here](#)

Machine Learning Analyses Help Unlock Secrets of stable 'Supercrystal'

Beyond solids, liquids, gases, plasma, and other examples only accessible under extreme conditions, scientists are constantly searching for other states of matter. Although newly discovered states tend to be short-lived, a recent experiment transformed a mixture of two materials into a novel state of matter with a much longer lifetime—a supercrystal. Researchers from Argonne

National Laboratory led the discovery team, which also included scientists from DOE's Lawrence Berkeley and Oak Ridge National Laboratories.

Read More Here

DOE Awards Fermilab and Partners $3.2 million for Illinois Quantum Network

The Department of Energy has announced that it will grant Fermilab and partner institutions $3.2 million to develop designs for transparent optical quantum networks and demonstrate their operation in the greater Chicago area.

Read More Here

## PNNL Using Deep Learning as a Searchlight for Dark Matter

An abundant yet mysterious part of the universe, dark matter has eluded scientific searches. Though gravitational pull signals dark matter's existence, its invisible particles remain unidentified. to see whether computers can help humans sift through a sea of experimental data. Scientists at Pacific Northwest National Laboratory are now bringing artificial intelligence into the quest to see whether computers can help humans sift through a sea of experimental data.

Argonne Applies Machine Learning to Cybersecurity Threats

The U.S. Department of Energy's Argonne National Laboratory is helping lead the way in researching and developing proactive cybersecurity, including measures that leverage machine learning, to help protect data and critical infrastructure from cyberattacks.

ACCELERATING AMERICAN LEADERSHIP
IN ARTIFICIAL INTELLIGENCE

"The crosscutting applications for AI research are vast . . . Making these world class tools more accessible to America's artificial intelligence experts will change the world."

SECRETARY RICK PERRY
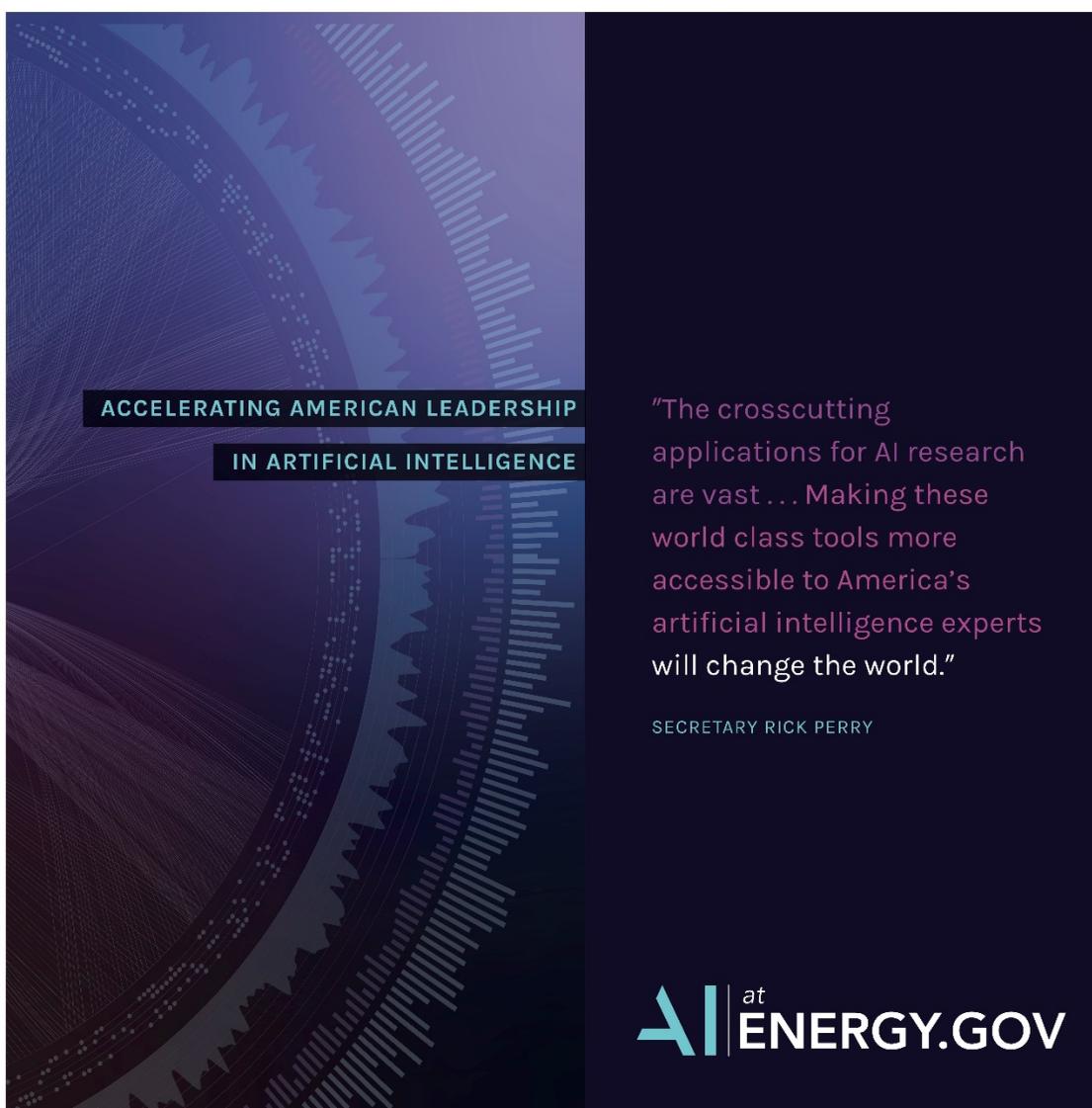
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IMAGE OF THE WEEK:
"The crosscutting applications for AI research are vast . . . Making these world class tools more accessible to America's artificial intelligence experts will change the world." - Secretary Rick Perry

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