ACCELERATING AMERICAN LEADERSHIP IN ARTIFICIAL INTELLIGENCE

AI at ENERGY.GOV

A Message From Leadership

Welcome to the latest edition of the Department of Energy's (DOE's) AI newsletter. If you've been reading previous issues – and we hope you have – you've seen the spectrum of areas in which we are already applying AI.

I'm especially excited about two of those areas, energy production and grid modernization.

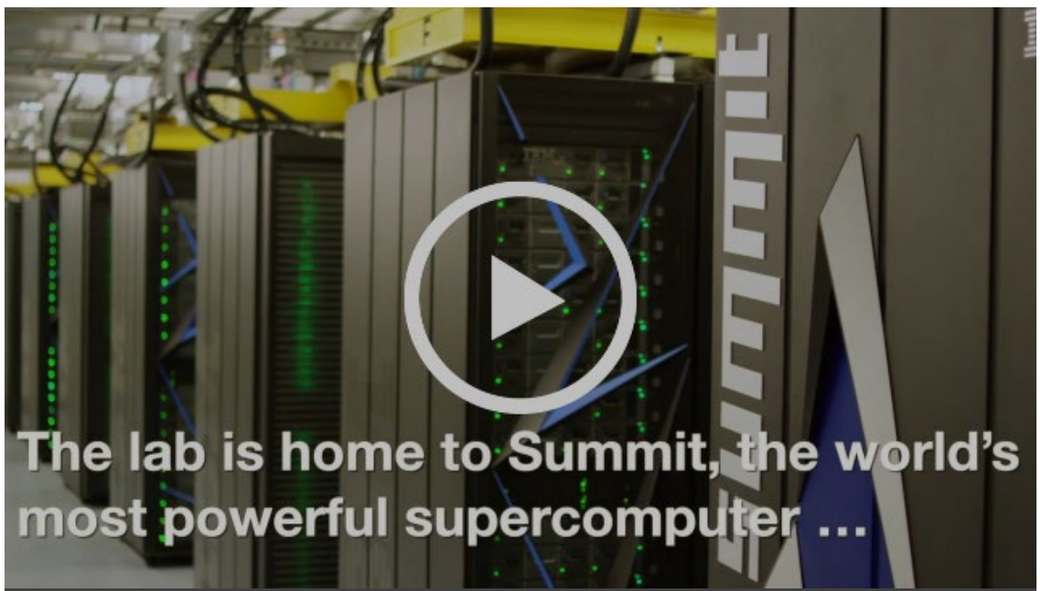
To give just a couple of examples, DOE-fueled AI is making the exploration of oil and natural gas reserves more accurate, and their development more cost effective and productive. Our National Energy Technology Laboratory is working to leverage AI technologies for more efficient, reliable and long-lasting gas turbines to meet our growing energy needs. And DOE scientists are using AI to unlock the secrets of sustained, controlled fusion, which if successful could create a future of virtually limitless clean energy.

We're also using AI to strengthen grid security, and increase grid reliability and resiliency. For instance, Pacific Northwest National Laboratory is working on a project to more quickly identify abnormal grid operating conditions and prevent cascading disruptions. Our Oak Ridge and Sandia National Laboratories have joined together on an effort to use machine learning to protect power systems. And Lawrence Berkeley and SLAC Laboratories have teamed up with industry and utility partners to develop a new software platform to help utility operators anticipate, respond to, and recover from extreme events.

These are just a few of the ways in which we are applying AI to modernizing the grid we depend on, and producing the energy our country needs.

That’s why we’re so excited about AI at DOE – it truly is the fuel for the American dream.

Mark W. Menezes



Artificial Intelligence for science at Oak Ridge National Lab

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AI@DOE News

New Direct Current Podcast!

Artificial Intelligence is all over the news, but what's all the hype really about? In this episode, Direct Current travels to Oak Ridge National Lab in Tennessee to find out how AI is going to revolutionize science and energy, and welcomes a new podcast to the Department of Energy family!

Listen Here

AI in the News

AI Monitoring Pipeline Integrity

A NETL review of corrosion sensing technology demonstrates the powerful potential of emerging applications to provide real-time monitoring of oil and natural gas infrastructure. This capability empowers industry to prevent pipeline leaks and failures, boosting infrastructure resilience and safety while mitigating unnecessary expenses that are often passed on to consumers via energy bills.

Read More Here

AI Does Double Duty!

While high-energy physics and cosmology seem worlds apart in terms of sheer scale, physicists and cosmologists at Argonne National Lab are using similar machine learning methods to address classification problems for both subatomic particles and galaxies.

Read More Here

Fueling the Future of Computer Science and Networking Research

The National Science Foundation (NSF) is funding a collaborative effort-in which DOE's Berkeley Lab is a key partner-to create a nationwide research infrastructure that will enable the computer science and networking community to develop and test novel architectures that could yield a faster, more secure internet. Dubbed "FABRIC," the four-year, $20 million project is intended to support exploratory research, at scale, in computer networking, distributed computing systems, and next-generation applications.

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AI Advancing Fusion Research

The new Princeton University supercomputer, Traverse, enhances research at the U.S. Department of Energy's Princeton Plasma Physics Laboratory (PPPL) to develop the science to bring the fusion that powers the sun and stars to Earth.

Read More Here

Careers in AI

Alex's Story

Dr. Alexandre Bayen grew up in Paris, France in a very STEM oriented environment with a mathematician as his father, a physicist as his grandfather, a chemist as his great grandfather, and a neurophysicist as his grandmother. Today, Dr. Bayen is the Liao-Cho Professor in the Electrical Engineering and Computer Sciences Department at UC Berkeley. He also leads the Transportation Initiative at Lawrence Berkeley National Laboratory (LBNL), as

Faculty Scientist. His work moves transportation analysis through the tools of Artificial Intelligence to improve people's daily commutes.

Read Alex's Story Here

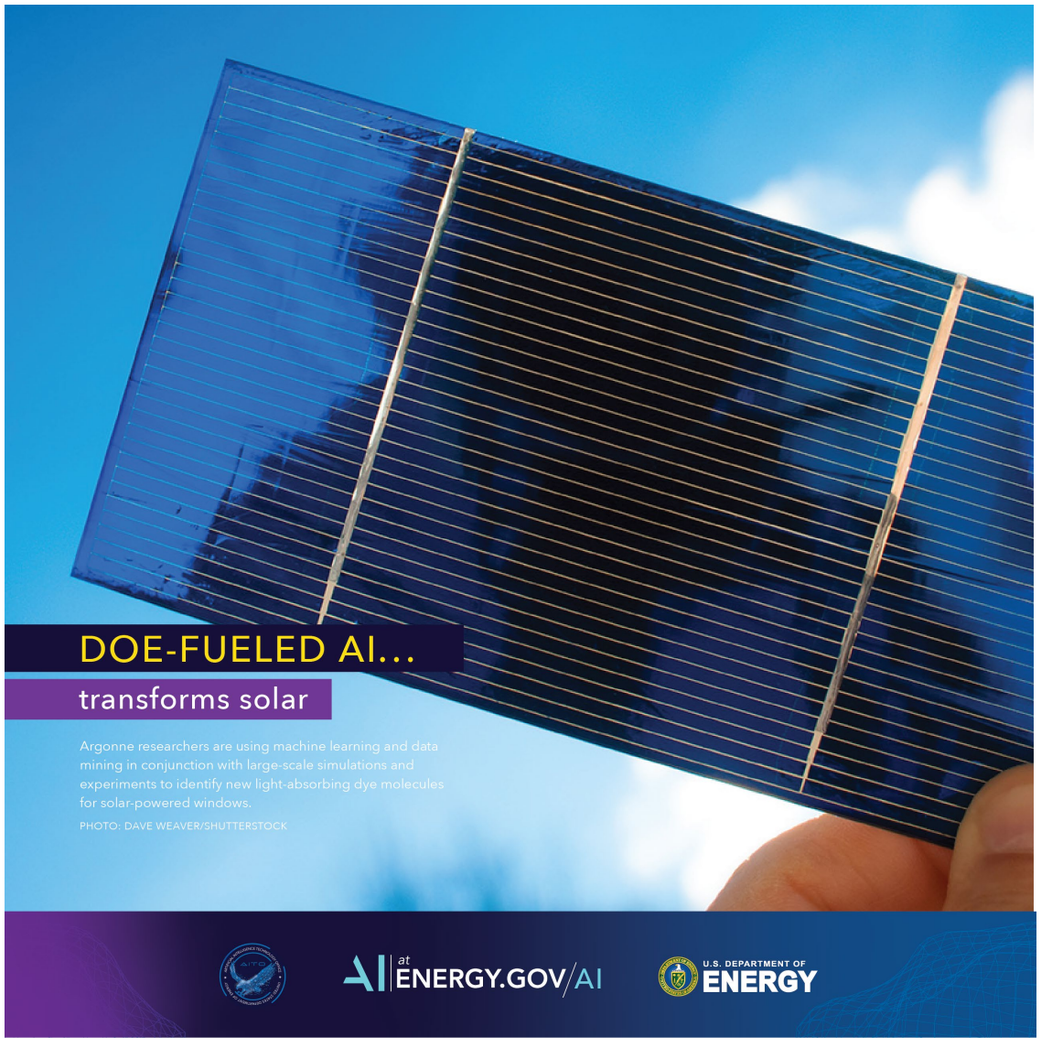

IMAGE OF THE WEEK:

Argonne researchers are using machine learning and data mining in conjunction with large-scale simulations and experiments to identify new light-absorbing dye molecules for solar-powered windows.