



COMMITTEE ON
SCIENCE, SPACE, & TECHNOLOGY
Lamar Smith, Chairman

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Statement by Chairwoman Barbara Comstock (R-Va.)
Big Data Challenges and Advanced Computing Solutions

Chairwoman Comstock: A couple of weeks ago, our two subcommittees joined together on a hearing to examine the state of artificial intelligence (AI) and the types of research being conducted to advance this technology. The committee learned about the nuances of the term artificial intelligence—such as the difference between narrow and general AI—and implications for a world in which AI is ubiquitous. Today, we delve deeper into disciplines originating from the AI movement of the 1950s that include machine learning, deep learning and neural networks.

Until recently, machine learning and especially deep learning techniques were only theoretical, because deep learning models require massive amounts of data and computing power. But advances in high performance graphics processing units, cloud computing and data storage have made these techniques possible.

Machine learning is pervasive in our day to day lives—from tagging photos on Facebook, to protecting emails with spam filters, to using a virtual assistant like Siri or Alexa for information—machine learning-based algorithms have powerful applications that ultimately help make our lives more fun, safe and informative.

In the federal government, the Department of Energy (DOE) stands out for its work in high performance computing and approaches to big data science challenges. DOE researchers are using machine learning approaches to study protein behavior, to understand the trajectories of patient health outcomes and to predict biological drug responses. At Argonne National Laboratory for example, researchers are using intensive machine learning-based algorithms to attempt to map the human brain!

A program of particular interest to me involves a DOE and Department of Veterans Affairs (VA) venture known as the MVP-CHAMPION program.

This joint collaboration will leverage DOE's high performance computing and machine learning capabilities to analyze health records of more than 20 million veterans maintained by the VA. The goal of this partnership is to arm the VA with data it can use to potentially improve health care offered to veterans by developing new treatments and preventive strategies.

The potential for AI to help humans and further scientific discoveries is immense. I look forward to what our witnesses have to say about their work today—which may give us a glimpse into the revolutionary technologies of tomorrow.

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