



Applied Materials Team Selected by DARPA to Develop Advanced Technology for Artificial Intelligence

July 24, 2018

- Project is part of DARPA's Electronics Resurgence Initiative to develop new computing materials, designs and architectures
- Applied is collaborating with Arm and Symetrix to develop a "neuromorphic" electronic switch that functions like the neurons and synapses of the human brain
- Goal is to accelerate artificial intelligence processing while enabling major improvements in power efficiency

SAN FRANCISCO, July 24, 2018 (GLOBE NEWSWIRE) -- Applied Materials, Inc. today announced it has been awarded a contract by the Defense Advanced Research Projects Agency (DARPA) to develop a new type of electronic switch for artificial intelligence that mimics the way the human brain works to enable dramatic improvements in performance and power efficiency. The project is being supported by DARPA's [Electronics Resurgence Initiative](#), a multi-year research effort intended to achieve far-reaching improvements in electronics performance well beyond the limits of traditional Moore's Law scaling.

Applied is working with [Arm](#) and Symetrix to develop a new neuromorphic switch based on CeRAM memory that can allow data to be stored and processed in the same material. The goal of the project is to enable a major improvement in artificial intelligence compute performance and power efficiency with the use of analog signal processing as compared to current digital approaches.

"This project is a perfect example of how new materials and architectures can be developed to enable new ways to accelerate artificial intelligence applications as classic Moore's Law scaling slows," said Steve Ghanayem, senior vice president of New Markets and Alliances at Applied Materials. "Applied has the industry's broadest portfolio in materials engineering capabilities and is excited to be part of a team enabling breakthroughs for artificial intelligence."

Today's announcement was part of DARPA's first annual [ERI Summit](#) in San Francisco. Applied Materials' president and CEO, Gary Dickerson, delivered a keynote speech at the event highlighting the need for materials innovation in the AI era and calling for a new level of industry connectivity to speed progress across materials engineering, design and manufacturing.

Announced in September 2017, the ERI Materials & Integration programs seek to answer this question: *Can we use the integration of unconventional electronics materials to enhance conventional silicon circuits and continue the progress in performance traditionally associated with scaling?*

The Applied Materials team is part of the ERI Foundations Required for Novel Compute (FRANC) program, which seeks innovations that go beyond von Neumann compute architectures. Central is the design of circuits that leverage the properties of new materials and integration schemes to process data in ways that eliminate or minimize data movement. The novel compute topologies that come out of this effort could allow processing to happen where the data is stored with structures that are radically different from conventional digital logic processors, ultimately allowing for significant gains in compute performance.

Applied Materials, Inc. (Nasdaq:AMAT) is the leader in materials engineering solutions used to produce virtually every new chip and advanced display in the world. Our expertise in modifying materials at atomic levels and on an industrial scale enables customers to transform possibilities into reality. At Applied Materials, our innovations make possible the technology shaping the future. Learn more at www.appliedmaterials.com.

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