

# Fathom that: Neural network compute accelerator inside a stick

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Movidius, the company focused on low-power machine vision technology, on Thursday announced a twosome: the Fathom Neural Compute Stick, described as a deep learning acceleration module, and a Fathom deep learning software framework.

Both are tools to unleash neural networks in end-user devices. The company said this was "the world's first embedded neural network accelerator." The stick can run fully-trained neural networks at under 1 Watt of power. With standard USB connectivity, the Fathom Neural Compute Stick can be connected to various devices. It can enhance devices' neural compute capabilities "by orders of magnitude."

Agam Shah, IDG News Service, said Movidius' Fathom Neural Compute Stick is designed for vision processing—designed to analyze pixels and provide the right context for images.

Shah said Fathom makes use of a combination of algorithms and pixel association to understand images. It plugs into the USB of a drone or robot, for example, to run computer vision applications.

In the most basic terms, "It's a plug-in stick with a dedicated low-power processor inside," said Scott Stein, CNET.

Why is this an important launch? CNET headlines referred to machine vision on the go. Stein remarked that "As more advanced phones and VR/AR headsets arrive with cameras that can [analyze](#) and map out the world and what's in it, [neural networks](#) and [deep learning](#) might become a very big deal. If you're a programmer or developer who's been dreaming of making your own far-reaching smart home device, mixed-reality hardware or a self-navigating robot, the Fathom could be a place to start."

Pete Warden, lead for Google's TensorFlow mobile team, said, "Deep learning has tremendous potential—it's exciting to see this kind of intelligence working directly in the low-power mobile environment of consumer [devices](#)."

Agam Shah zeroed in on what the stick could contribute to what devices

can do:

"For example, a drone could use the Fathom to avoid obstacles and automatically navigate to specific locations. Or when riding a bike, a helmet camera could automatically start recording video after identifying a certain object like a street sign. It could also bring a higher level of situational awareness to IP-based home security systems. Connected cameras are expected to be able to differentiate between humans and animals, with the computing handled by a Fathom stick plugged in the USB port of a home security hub. Other applications for Fathom include 3D modeling and scanning, immersive gaming, augmented reality and gesture [recognition](#)."

Dr. Yann LeCun, founding director, New York University Data Science Center, called the Fathom Neural Compute Stick quite unique. "As a tinkerer and builder of various robots and flying contraptions, I've been dreaming of getting my hands on something like the Fathom Neural Compute Stick for a long time. With Fathom, every robot, big and small, can now have state-of-the-art vision capabilities."

What's next?

Movidius estimated the price of Fathom to be under \$100 (reports) per unit with availability this year. "An initial run will ship to researchers, hobbyists and companies that are developing, testing and playing with products. Fathom will become commercially available in the fourth quarter of this year," said Shah.

Cormac Brick, head of machine intelligence group, offered examples of scenarios for the Fathom Neural Compute Stick-enabled devices swinging into action. He said in the promotional video that "a drone can land itself safely; the house will know when you have gone to sleep and lock up for you. Vehicles can make faster decisions."

**More information:** [www.movidius.com/news/movidius ... m-software-framework](http://www.movidius.com/news/movidius...m-software-framework)

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