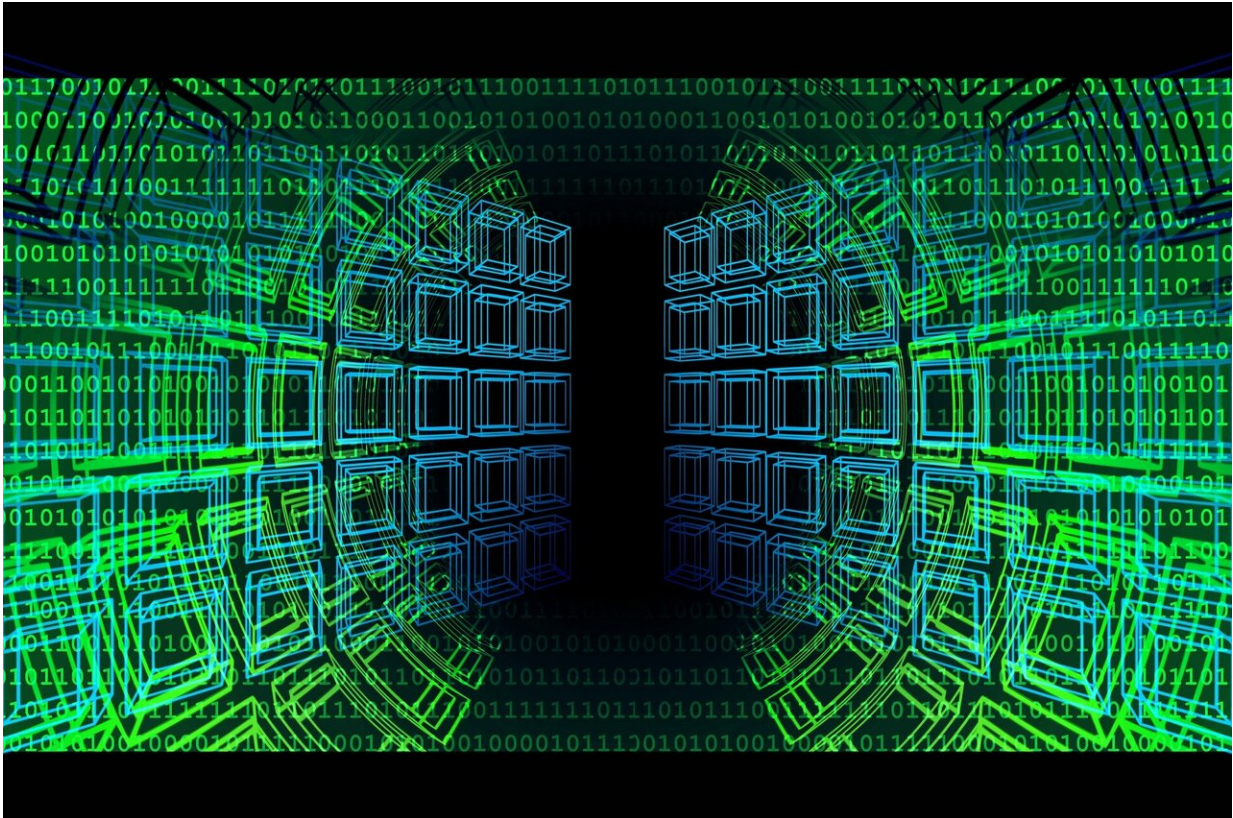


Researchers find way to harness AI creativity

October 10 2019



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Researchers have found a way to marry human creativity and artificial intelligence (AI) creativity to dramatically boost the performance of deep learning.

A team led by Alexander Wong, a Canada Research Chair in the area of

AI and a professor of systems design engineering at the University of Waterloo, developed a new type of compact family of neural networks that could run on smartphones, tablets, and other embedded and mobile devices.

AttoNet

The networks, called AttoNets, are being used for image classification and object segmentation, but can also act as the [building blocks](#) for video action recognition, video pose estimation, image generation, and other visual perception tasks.

"The problem with current neural networks is they are being built by hand and incredibly large and complex and difficult to run in any real-world situation," said Wong, who also co-founded a startup named DarwinAI to commercialize the technology. "These on-the-[edge networks](#) are small and agile and could have huge implications for the automotive, aerospace, agriculture, finance, and consumer electronics sectors."

A key part of the design of Wong's AI system is that human designers work cooperatively with AI in the design of new networks, leading to compact yet high performing networks which can run on devices like smartphones, tablets, and autonomous vehicles.

The technology, called Generative Synthesis, was recently validated by Intel, and in a recent paper with Audi Electronics Ventures shown to greatly accelerate the deep learning design for autonomous driving. Earlier this year, the company made the insideBIGDATA Impact 50 List alongside Google and Microsoft. Deep learning is considered the cutting-edge of AI. Sophisticated [artificial neural networks](#) mimic the cognitive capabilities of the human brain to learn and make decisions.

"We took a collaborative design approach that leveraged human ingenuity and experience with the meticulousness and speed of AI because a computer can crunch really fast," said Wong. "It's already having a real-world impact, especially where there is a need for these on-the-edge deep learning solutions to power infrastructure and intelligence systems or protect user privacy," Wong said.

Wong's master's student Desmond Lin recently presented the research paper at the annual Conference on Computer Vision and Pattern Recognition (CVPR) 2019 Expo in Long Beach, California.

Provided by University of Waterloo

Citation: Researchers find way to harness AI creativity (2019, October 10) retrieved 31 January 2023 from <https://techxplore.com/news/2019-10-harness-ai-creativity.html>

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