

Artificial Neural Networks Enabled by Nanophotonics

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Abstract— Deep learning based on artificial neural networks has been widely used in many ways of our life. The power consumption of artificial neural networks is increasing exponentially, resulting a great challenge for sustainable future. In this paper, we report on the design and fabrication of the optical artificial neural networks enabled by nanophotonics. The potential for applying this technique for optical imaging processing and data processing will be discussed.