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Title: *Efficient CNN for space data classification on EuroEXA multi-FPGA platform*

Abstract

Energy-efficient high -performance implementation of Convolutional Neural Networks (CNNs) directly in hardware can be a key enabling factor for future demanding machine learning applications. In this presentation, we exploit the implementation of a CNN on the EuroEXA Field Programmable Gate Array (FPGA)-based platform and explore different ways to minimize the impact of various hardware restrictions to improve performance. Our driving use case is a satellite-based remote sensing platform on which signal processing and classification tasks, with strict bandwidth and energy limitations, take place. We compare our results in terms of throughput, latency and energy against competing technologies such as Graphics Processing Units (GPU) and we demonstrate similar latency and throughput results while achieving an order of magnitude energy savings.